Disaggregated determinants of aid: Development aid projects in the Philippines

Elisabeth Lio Rosvold

Peace Research Institute Oslo (PRIO) and Department of Sociology and Political Science, NTNU

Correspondence
Elisabeth Lio Rosvold, Peace Research Institute Oslo (PRIO) and Department of Sociology and Political Science, NTNU. Email: eliros@prio.org

Abstract

**Motivation:** Across the world, rapid-onset disasters caused by natural hazards such as storms and floods return with seemingly greater force every year. Many disaster hot spots are particularly vulnerable because of already fragile humanitarian and political situations, some having been affected by armed conflict for decades. These phenomena augment the need for long-term aid, but do they influence the distribution of aid projects?

**Purpose:** This article revisits the long-standing debate over whether donor interests or recipient needs best predict the distribution of development aid. It disaggregates the analysis down to province level in the Philippines, and includes local hazards when assessing an area’s need for aid.

**Approach and methods:** Making use of geocoded data on aid projects, rapid-onset disasters caused by natural hazards and armed conflict in Philippine provinces between 1996 and 2012, this article provides an exhaustive assessment of the within-country determinants of World Bank development aid projects.

**Findings:** The article finds that need to some extent influences the distribution of aid projects across Philippine provinces but that, in general, domestic political alliances bias projects in favour of the politically dominant group. Previous exposure to conflict is associated with increased likelihood of new projects, but only in dominant group-majority provinces. While previous disaster exposure is a weak predictor of aid in all provinces, low Human Development Index (HDI) levels significantly predict aid inflow in excluded group-majority provinces.

**Policy implications:** In sum, the article challenges the idea that (international) donors’ priorities override the interests of the recipient/local government in the distribution of aid projects. It also shows that even if the donor’s explicit policy is disaster mitigation and relief, there is still some way to go before these considerations are effectively incorporated into development aid efforts.

**KEYWORDS**
armed conflict, Asia, development aid, natural hazard-induced disasters, Philippines
The general literature on aid allocation maintains that two considerations determine its distribution: recipient need and donor interest. In most cases, both elements come into play, as “donors are neither entirely selfish, nor entirely altruistic” (Neumayer, 2003, p. 20). The altruistic component has been argued to be of greater importance at the multilateral level than it is for individual donors, but this is seldom a zero-sum game. Existing research is predominantly concerned with looking at development aid across countries, or evaluating the allocation of emergency aid following specific disasters. At the sub-national level, the distribution of development aid projects remains largely unstudied, but the release of geocoded data on development aid projects from the World Bank has made it possible to begin filling this gap. Using disaggregated data, this article investigates the determinants of development aid\(^1\) across the Philippines, evaluating the impact of development, natural hazard-induced disasters\(^2\), armed conflict and political alliances on a province’s likelihood of receiving new aid projects.

In this article, I argue that the inclusion of current (extreme) events allows a more dynamic evaluation of recipient need within a country. Extreme events, such as disasters caused by natural hazards or civil conflict, increase an area’s need for outside aid other than emergency relief. Such extreme events necessitate development aid—in addition to more immediate crisis relief efforts—in order to help mitigate over time the myriad negative consequences that evolve. In addition, such events are particularly targeted by the policies of the international aid agencies, and taking them into account should therefore be paramount in any endeavour to measure recipient need. Nevertheless, even at the sub-national level, donor interests—now in the form of local government preferences—will affect aid distribution. This means that, despite good intentions on the part of the (multilateral) donor, political alliances in the recipient country will influence aid distribution. Because of information asymmetries and increased discretion regarding incoming resources, the interest and alliances of the recipient government distort the distribution of aid funds away from objective need considerations as new projects are used instead to reward political supporters.

These theoretical propositions are tested on the case of the Philippines, which is among the world’s 10 most disaster-prone countries, and has also had two protracted intra-state conflicts since the 1940s. These phenomena put a significant strain on the economy of the country, making it increasingly reliant on outside assistance. This combination makes the Philippines a highly suitable case for empirical testing of the theoretical arguments of this article. In line with the World Bank’s stated policy for aid distribution, we should expect aid projects to go to areas in the Philippines that have been hit hard in the past by rapid-onset disasters and armed conflict because they elevate the need for outside help. However, to the extent that the domestic political situation—characterized by the ongoing conflicts—is likely to influence the distribution of aid, this implies that the Philippine government can be expected to bias the distribution according to its own interest. Its adversaries (and their locations)

---

\(^1\)Generally speaking, aid is either development or humanitarian assistance (emergency aid). This article is concerned with the former, and specifically looks at so-called official development assistance (ODA). It is the Organisation for Economic Co-operation and Development Aid Committee (OECD) Development Aid Committee (DAC) which decides which countries are eligible recipients of ODA, whose objective is to eliminate poverty and its causes. ODA is concessional, and is defined as “government aid designed to promote the economic development and welfare of developing countries...[It] includes grants, ‘soft’ loans (where the grant element is at least 25% of the total) and the provision of technical assistance” (OECD, 2020). ODA includes aid flows from individual countries and international financial institutions, the latter being the focus of this article. As the article is about development aid, I use the terms aid and development aid interchangeably.

\(^2\)The phrases natural hazard-induced disaster and disaster are used interchangeably throughout the article.
The analysis shows that need, measured by the Human Development Index (HDI), to some extent determines the distribution of World Bank aid projects across Philippine provinces. However, it also reveals that the interests of the recipient government significantly influence aid delivery. The larger the share of a province that is inhabited by the politically dominant group, the Christian lowlanders, the more likely it is that the province will receive new aid projects. Previous exposure to disasters does not substantially affect the likelihood of a province receiving aid, while exposure to conflict does, but only for Christian-majority provinces. These findings challenge the stated policy of the donors (in this case, the World Bank), who claim to be increasingly driven by current events, such as natural hazard-induced disasters and excluded groups in the south affected by armed conflict.

2 | AID ALLOCATION: EXISTING LITERATURE

The literature on determinants of aid is sizeable, and it is well established that it is not necessarily need that determines who receives aid. In an exhaustive investigation of foreign aid, Alesina and Dollar (2000, p. 55) find that “factors such as colonial past and voting powers in the United Nations explain more of the distribution of aid [among countries] than the political institutions or economic policy of recipients.” Along with democratization, foreign policy and alliances seem to be decisive factors for donors in their evaluation of potential recipients. Others go as far as to say that humanitarian motivations appear only secondary for most donors (de Mesquita & Smith, 2009). In a comprehensive study of aid allocation by 22 Development Assistance Committee (DAC) donors to 168 recipient countries between 1980 and 2004, Hoeffler and Outram (2011) find support for donor interest as more important than recipient need. However, they also find recipient characteristics (for instance institutions), which are unaccounted for in their models, to have large effects on aid allocation, illustrating that there is still limited understanding of important drivers of aid.

The consensus that donor interest is a better predictor for the distribution of aid than recipient need—conventionally understood as the level of economic development of the recipient—comes from a literature that has predominantly looked at the distribution of aid between countries. In addition to donor interest, a more recent explanation is recipient merit. According to this model, donors use aid to reward recipients with good institutions, and in so doing attempt to nudge forward those that still have a way to go (Neumayer, 2003). In a study on the distribution of climate change adaptation (CCA) aid, Weiler et al. (2018) find that the countries with the lowest adaptational capacities are not the ones receiving most support, but rather the aid projects go to those more able to use it. The authors find no evidence that not giving aid to the poorest countries is due to donor interest, but instead ascribe it to recipient merit. This is a contested explanation, however, and Hoeffler and Outram (2011) found that less than 1% of the variation in aid allocation could be accounted for by merit.

Studies that look at the distribution of aid within recipient countries have traditionally been limited to assessing the distribution of emergency assistance, often after disasters. With the release of geocoded aid data (a result of AidData’s efforts in particular), however, analyses of within-country distribution of aid have been expanded to include development aid. Representing an early example of this, Zhang (2004) looks at World Bank loans to Chinese provinces and concludes that the Chinese government has substantial control over the distribution of funds, and that the poorest provinces are at the bottom of the recipient list. Similarly, Briggs (2014) finds aid from bilateral donors and the African Development Bank (AfDB) to be skewed in favour of the Kenyan president’s political base. Looking at India, Nunnenkamp et al. (2017) find no evidence that World Bank projects are needs-based in
their distribution, but rather that districts where foreign investors can benefit from infrastructural programmes are favoured. Two studies expand their analyses beyond a single country; Öhler and Nunnenkamp (2014) and Briggs (2018) look at the sub-national distribution of World Bank and AfDB projects across (a sample of) African countries, both concluding that the richer regions get more aid than the poorest.

Although aid is increasingly designed with respect to distributional considerations, distortions frequently occur (Winters, 2010). Multilateral aid is often considered to be “fairer” in its distribution than bilateral aid, whereas emergency relief and particularly food aid is often considered to be even more effective. On the other hand, Neumayer (2005) and Findley et al. (2017) argue that the scientific basis for such claims is weak. For instance, several international financial institutions (IFIs) have been found to advance the political interests of the major players in the system in their distribution of aid (see Dreher et al., 2009; Tierney et al., 2011). Studies on the provision of humanitarian aid after rapid-onset disasters find that—in addition to media coverage and casualties—political considerations, wealth and government support are often better predictors of aid beneficiaries than need is (Drury et al., 2005; Olsen et al., 2003; Fuchs & Klann, 2012; Strömberg, 2007; Fink & Redaelli, 2011; Aldrich, 2010; Francken et al. (2012); Gunawardena & Baland, 2016). In an extensive survey of food aid in Ethiopia, Jayne et al. (2001) find that the distribution of food aid failed to reach those who needed it the most, as well as failing to reflect changes in need over time.

An important reason for distortions is that, despite good intentions, donors often have limited information, leaving recipient governments considerable discretion in the distribution of aid (Jablonski, 2014; Neumayer, 2003). This has led to a shift away from programmatic aid (structural adjustment programmes) to project aid (Winters, 2010), the latter being perceived as less fungible and more directed at developmental causes. This shift is particularly evident in cases where recipient governments have a bad track record. Nevertheless, it is well documented that beneficiary governments and/or leaders use foreign aid to enhance their own power and reap electoral benefits (Neumayer, 2005; Plümper & Neumayer, 2009; Jablonski, 2014; Briggs, 2014). Even where the recipient government has no control over the distribution, political leaders have been found to benefit from development projects (Cruz & Schneider, 2016). Böhnke and Zürcher (2013) find that although more aid flowing into Afghanistan between 2007 and 2009 did not make people more sympathetic towards international actors or increase their security, there was a positive relationship between the amount of aid and perceived state legitimacy.

Another potential influence on aid allocation is the prevalence of armed conflict. There is a broad literature on aid and armed conflict, finding that in some cases the inflow of aid is found to fuel ongoing hostilities (see, for instance, Nunn & Qian, 2014; Crost et al., 2014), while other times the opposite is the case (van Weezel, 2017). Sometimes it is both, depending on the type of aid (Strandow et al. (2016), but also on the specific group one is looking at (Arcand et al., 2011). However, conflict also

---

3Disaster relief and development aid are, however, becoming increasingly integrated, see Paul (2006) for a review of the provision of disaster relief and development efforts.

4Cruz and Schneider (2016) looked at a World Bank development programme in the Philippines that was specifically designed to prevent (local) politicians from politically exploiting it. They found that local politicians often took credit for the projects by visiting projects, etc., and that consequently re-election of mayors in receiving municipalities was more likely.

5Arcand et al. (2011) find that one specific aid project in the Philippines (the same project that was evaluated by Cruz and Schneider (2016), the World Bank’s KALAHICIDSS programme) led to an increase in events perpetuated by the New People’s Army (NPA), but a decrease in events initiated by the Moro Islamic Liberation Front (MILF). This is consistent with the idea that the latter group operates in areas with grievances against the government, and such grievances might be offset by inflow of aid.
affects aid. The circularity of this is still uncharted territory, but in a recent study looking at development aid commitments in sub-Saharan Africa between 1990 and 2007, Bezerra and Braithwaite (2016) find that donors react to local needs in violent periods, and also that financing continues after violence ends. However, when the violence becomes severe, donors appear put off and new commitments halt. Relatedly, Hoelscher et al. (2017) find that the presence of conflict increases the likelihood of attacks on aid workers. Addressing existing disparities, Bezerra and Braithwaite (2016) conclude that “violence both attracts and deters new foreign aid.”

The brief survey above shows that the literature on the determinants of aid between countries is ample, and also that studies on within-country distribution of aid is on the rise. The main conclusion in the existing literature is that recipient need often gives way to donor interest, and that need is not the main driver behind the distribution of funds within countries. However, as Hoeffler and Outram (2011) note, unobserved recipient effects appear to be sizeable, and researchers have yet to unpack central mechanisms concerning recipients and donors alike. There are several potential reasons for existing disparities, one being the operationalization of need. The standard measurements of recipient need are on slow-moving variables like gross domestic product (GDP) per capita and the HDI (UNDP, 2019). Although they reflect divergence in need, they do not incorporate current (extreme) events that significantly escalate need, and which also constitute a policy priority for international aid agencies. The literature on emergency aid is an exception and contains several elements that could be incorporated in assessments of recipient need as both disasters caused by natural hazards and armed conflict exacerbate an area’s need for outside assistance. Some of the studies on sub-national aid distribution include conflict aspects, but not in a very systematic way. That most of these studies (see Briggs, 2018; Zhang, 2004; Dreher et al., 2016; Jablonski, 2014) do not mention conflict at all is worrying given the regions under investigation.

3 | CONCEPTUAL FRAMEWORK: NEED VERSUS INTERESTS

In any consideration of the determinants of aid, recipient need is a crucial factor. From a normative perspective, it should also be the most important predictor; aid should go to those who need it the most. However, determining what constitutes people’s need is difficult, and looking at existing literature, the most common approach is to measure need in terms of poverty and/or economic growth. Going beyond the country level, I argue that this expectation should also hold sub-nationally. The first hypothesis of the article thus follows convention in expecting that the less developed provinces within a country are the most likely recipients of new aid projects.

\[ H1: \text{Less developed provinces are more likely to receive new aid projects compared to provinces that are more developed, all else being equal.} \]

---

6Both civil conflict and terrorist attacks are included.
7For instance Nunnenkamp et al. (2017) use riots and civil unrest as a predictor for recipient merit, while Öhler and Nunnenkamp (2014) use conflict as a predictor of bad regional governance conditions. Similarly, Briggs (2017) controls for conflict as a security concern for the donors, but the issue does not receive much attention beyond being included as a control in the models.
8The traditional measures are GDP per capita, purchasing power parity (PPP) and recently also the HDI.
In the appraisal of aid determinants, taking account of the priorities set by the donors to reach the goal of poverty alleviation, provides a useful benchmark in evaluating success. Looking specifically at one central multilateral donor, the World Bank, its most important development priorities are climate change, education, health, conflict/violence and sustainable development (World Bank, 2014b). Although development is more encompassing than poverty per se, traditional development measures also fail to take into account factors that might influence an area’s need in a more abrupt manner. All the priorities mentioned above will be influenced by extreme events, some more directly than others. Incorporating the extreme events pertaining specifically to the circumstances one is studying allows for a more comprehensive conceptualization of need, and improves the possibilities for comparing recipient need across space.

Current (extreme) events, such as disasters and armed conflict, increase the need for aid across most, if not all, priorities stated by both the World Bank and other donors (countries as well as organizations). Even though their origins differ, both types of events have seriously detrimental consequences, augmenting the affected areas’ need. Nevertheless, the magnitude of disasters is often not fully anticipated, and might create an impression of those affected as more deserving of help than people who are “just” poor. As disasters and complex humanitarian emergencies increasingly strain the economic stability of many countries, the World Bank is taking on a more pronounced role in mitigation and reconstruction (Coppola, 2006). In the wake of rapid-onset disasters in particular, affected countries often request additional emergency loans from IFIs, perhaps knowing that disaster-related funding is easier to get than other types of aid. Taking into account that most natural hazard-induced disasters happen in disaster-prone areas, the second hypothesis concerns an expanded needs operationalization, where areas that suffer from extreme events are more likely to be the recipients of new aid projects.

**H2:** Provinces with high previous exposure to natural hazard-induced disasters are more likely to receive new aid projects than provinces with lower disaster exposure, all else being equal.

The prevalence of armed conflict also increases the humanitarian—and probably also material—needs of affected areas. Often more protracted than disasters, armed conflicts have been found to induce an annual loss of GDP per capita of 17.5% per year (in conflict) (Costalli et al., 2017). Armed conflict is undoubtedly development in reverse (Gates et al., 2012; World Bank, 2012), and the conceptualization of expanded needs is also reflected in the third hypothesis, proposing that areas that have recently experienced conflict are also more likely aid recipients.

**H3:** Provinces with recent conflict activity are more likely to receive new aid projects than provinces without conflict, all else being equal.

A potential objection is the fact that ongoing conflict might also restrict access. Access is about security and physical entry for aid workers and project teams, but also about the institutions and legitimacy of the government and other external actors in conflict zones. In many cases, access is intrinsically linked to need, and could mean that access considerations restrict provision of aid to the most disadvantaged.

The first three hypotheses reflect an expanded conceptualization of recipient need, and propose that current events which both increase need and are stated priorities on the part of the donor will increase the likelihood that affected areas receive aid. However, donor interests are not necessarily a mirror of recipients’ needs, even if the stated intentions are. Looking at the distribution of aid at a disaggregated level throws the interests of the recipient government into the mix. This is particularly the case for multilateral aid because donors often have limited information about the situation “on
the ground” (Jablonski, 2014). The 2005 Paris Declaration on Aid Effectiveness is intended to ensure that it is the developing countries themselves that set their strategies for fighting poverty. Only when governments have a proven inability to do so do donors take control of the process (OECD, 2005). Even if the strategies and project plans in some sense have to be approved by the donor (by granting the project loans), it is the recipient governments that are the “partners” through which all projects go, unless the donor has taken full control of the process.

This is a classical principal-agent problem (Arrow, 1985; Radelet, 2006), where the recipient government (the agent) has considerable discretion in the distribution of aid projects. In many respects it is possible to view the recipient government in the same manner as a bilateral donor, “rewarding” its own supporters, at the cost of perhaps more needy adversaries. The interests of the local government may of course vary substantially, but favouritism—regional or ethnic—should cut across most of these. Regional favouritism holds that the provinces with ties to the government—be these communal groups, partisan coalitions, social classes or other interests—are favoured in the distribution of funds from the government (Kramon & Posner, 2013). This is likely to be reinforced when the recipient government is itself involved in armed conflict, as incentives to improve the situation for disaster- and conflict-affected populations in areas where their opponents have strong footholds are weak.

That this is the case for a conflict-affected region is evident, but even if natural hazards are apolitical, the consequences of a disaster are often highly politicized—the classic example being that famines are not necessarily a result of drought but rather of politics (Sen, 1991). Several examples can also be found of governments not engaging in mitigation, or governments or insurgents denying relief aid after disasters (see, for instance, de Waal, 1991; Le Billon & Waizenegger, 2007). From this, then, the final expectation is that areas that support the recipient government should see more aid projects than areas that are inhabited by excluded or minority groups. Importantly, this is expected to be a more salient predictor of aid distribution than the needs-based indicators.

\[ H4: \text{Provinces inhabited by the politically dominant group are more likely to receive new aid projects than provinces inhabited by other groups, all else being equal.}\]

To sum up, I have proposed three hypotheses concerning the role of recipient need as a predictor of aid distribution, incorporating extreme events into the needs matrix. I have also proposed a fourth and final hypothesis, however, that goes counter to these and holds that domestic political alliances are more important than need, as the government is likely to reward its own supporters in the distribution of aid projects. All hypotheses are tested empirically by looking at Philippine provinces, where recurring disasters and armed conflict are extreme events which interchangeably influence the different provinces’ need for aid.

4 | THE CASE OF THE PHILIPPINES

Being in the Pacific Ring of Fire and situated along the Pacific Typhoon Belt, natural hazard-induced disasters—both extremely severe and smaller ones—are frequent in the Philippines (Asian Disaster Reduction Centre, n.d.). In December 2012, Mindanao Island was hit by the most severe typhoon the country had seen in decades. Typhoon Pablo killed almost 2,000 people, and some 6 million were directly affected by the tropical storm. A year, and a 7.2 magnitude earthquake, later, the central islands were struck by typhoon Yolanda, “probably the strongest tropical cyclone to hit land anywhere in the world in recorded history” (Mullen, 2013). Yolanda took the lives of more than 7,000 people, and over 16 million people were affected by the storm. Of course, disasters are endogenous in the sense that
two similar weather phenomena will materialize differently depending on the situation where they hit. However, in the Philippines the majority of the disasters are severe, with the median number of people affected by each disaster between 1990 and 2012 standing at 33,094 (Guha-Sapir et al., 2015), testifying to the extreme force of the phenomena even before they hit land.

In addition, the Philippines is a relevant case because it has been in civil conflict(s) more or less continuously since the country became independent in 1946. The Communist Party of the Philippines (CPP) has been fighting for government power since 1946, while a territorial conflict between the government and the Muslim Moro minority over the western parts of Mindanao island has been going on in an organized manner since the 1970s. Since 1989, more than 17,000 people have been killed in these conflicts (Croicu & Sundberg, 2017). Next to disasters, armed conflict is the country’s most important obstacle on the road to achieving the Sustainable Development Goals (SDGs) (World Bank, 2014a, 2014b). The dual burden of disasters and conflict is clearly echoed in the World Bank’s partnership strategy with the Philippines:

With the Philippines among the fastest growing countries in the world, this strategy offers a unique opportunity for the World Bank Group to support the government’s efforts to improve the lives of the poor and vulnerable by creating more jobs and better opportunities. We will leverage our public and private resources to help Filipinos build resilience to economic shocks from natural disasters and climate change and to build shared prosperity including for people in Mindanao seeking the rewards of peace. (World Bank, 2014b).

The long-lasting conflicts naturally affect the political climate in the country. Three different politically relevant groups can be distinguished: the Indigenous Cultural Communities (ICC), the Moro and the Christian lowlanders (Girardin et al., 2015). The Christians more or less control national politics, while the two other groups remain largely excluded. The Muslim Moros have, after a protracted civil conflict, obtained access to political power at the sub-national level, and in 1989 the Autonomous Region in Muslim Mindanao (now encompassing five provinces on Mindanao island) was created. Nevertheless, efforts towards increased autonomy and agreement are still obstructed by insurgent and terrorist attacks by groups such as Abu Sayyaf and the MILF. In a different effort, the indigenous populations have struggled for local control and creation of indigenous areas, but have been less “successful” in terms of winning regional power than the Moros. Consequently, the Communist Party has a strong base in many indigenous communities, even if their grievances are not identical.

Despite being a fast-growing economy, ongoing conflict and the increasing number of rapid-onset disasters across the country have rendered the Philippine economy contingent on development aid. Figure 1 shows a marked increase in the number of aid project locations in the country over the relevant time period. It is evident that the occurrence of both disasters and protracted conflict inflates any given area’s need for assistance, but it is also likely that the political situation in the Philippines influences the distribution of aid. Despite the focus of the World Bank (the donor) on disaster mitigation and conflict-affected populations in Mindanao, the aid projects, or loans as they in fact are, all go through the Philippine government in their dispersion. As the government has a fair amount of discretion in the aid decisions, and is involved in two conflicts, it is reasonable to assume that it would want to reward its own supporters rather than its adversaries whenever possible.

A geographical overview of the prevalence of aid, disasters, conflict activity, level of development and political groups across the Philippine provinces is presented in Figure 2. The maps illustrate that there is considerable variation both temporally and spatially in the different phenomena across the Philippines, substantiating the relevance of the case. In addition, the substantial overlap between
conflict activity and the areas in which the opposition lives is crucial for the proposed mechanisms to be applicable.

5 | DATA AND EXPERIMENTAL ANALYSIS

5.1 | Dependent variable: Dispersion of development aid projects

The unit of analysis is province years, and the analysis covers 80 provinces in the Philippines between 1996 and 2012. The dependent variable records whether a new aid project was started (meaning money started flowing in) in any given province-month, and takes the value 1 if a project began and 0 if not. I use this measure rather than a count of the total number of ongoing aid projects to be able to capture (eventual) responses to situations where need is exacerbated—for instance, those induced by a disaster. The aid data consist of World Bank development aid projects in the International Bank for Reconstruction and Development (IBRD) and the International Development Agency (IDA) lending lines between 1995 and 2014. Being in the lending group for lower-middle-income countries (LMICs), the Philippines is only eligible for loans from the IBRD. The projects recorded are both structural adjustment programmes and loans aimed at specific projects. The data have been geocoded and made available by AidData (AidData, 2017).

The probability of receiving an aid project might not be the same in provinces that recently received a project as in provinces where it has been a while since a new project started. To deal with temporal dependence, a lagged incidence variable is included in the models, which records whether the province had any ongoing projects in the given year, coded as 1 if that was the case, and 0 if not.

9Today there are 81 provinces in the Philippines, but Davao Occidental was split from Davao del Sur in 2013, falling outside the timeframe of the analysis. The time-span is restricted by the aid data that begins in 1995 (1996 is the start-year in order to include the lagged incidence variable), and by the disaster data that is only recorded until 2012.

10Looking at the amount of money flowing in would be desirable, but the data only provides disbursement figures for the project as a whole, not for each location.
FIGURE 2  Maps of central indicators [Colour figure can be viewed at wileyonlinelibrary.com]
5.2 Independent variables: Recipient need

In line with existing literature on recipient need, the first independent variable is a traditional measure of need, namely provincial HDI score. The index consists of measures of health, education and standard of living, and ranges from 0 to 1, with 1 being the highest level of development. The HDI data comes from the Philippine Statistics Authority, and as it is collected in three-year intervals between 1997 and 2012, the data has been inter- and extrapolated to cover each year between 1996 and 2012. To allow different levels of development to have different effects on aid distribution, I also include a square term of HDI.

In expanding the concept of need to incorporate current events, I include a measure of previous disaster exposure. This variable records the moving average (ma) of the number of disasters in the province over the previous two years (t-2 to t-1). These include the rapid-onset disaster types: floods, storms, earthquakes and landslides. Data on their prevalence comes from the Emergency Events Database (EM-DAT) (CRED) provided by the Centre for Research on the Epidemiology of Disasters. The EM-DAT database covers every country in the world, but I use a geocoded version of all disasters in the Philippines from 1980 to 2012 that has been geocoded and made available by AidData (AidData, 2016).

To be included in the EM-DAT database, the criteria are that either (1) 10 or more people must be reported killed; (2) 100 or more people are reported affected; (3) a state of emergency is declared; or (4) a call for international assistance is made (Guha-Sapir et al., 2016). This means that the disaster indicators are consequence-based, as only disasters of a certain magnitude/severity are included in the sample. However, for the Philippines, which is among the world’s 10 most disaster-prone countries, this is not a particularly high threshold. It is reasonable to assume that most disasters (that hit shore in the case of typhoons) will be coded in the dataset, alleviating potential endogeneity concerns. The total number of disasters between 1994 and 2012 (the two-year moving average means the disasters included go back to 1994) is 1,297, most of which occurred in more than one province.

The third and final predictor of need is armed conflict, and I include conflict events (state-based violence only) from the UCDP Georeferenced Event Dataset (GED) (Sundberg & Melander, 2013; Croicu & Sundberg, 2017). The conflict exposure variable records the moving average of the number of conflict events over the previous two years (t-2 to t-1). Similar to the disaster-exposure measure, this threshold is chosen to allow the World Bank to react, while also taking into account sustained levels of violence. For the conflict events to enter the UCDP GED data, there must be a minimum of 25 battle-related deaths in a calendar year. After entry, all events related to that conflict with at least one fatality are geocoded in the GED dataset (Sundberg & Melander, 2013).

The overall severity of the conflicts in the Philippines is relatively low, with a median of three battle-related deaths per conflict event between 1994 and 2012 (again the two-year moving average means that conflict events back to 1994 are included in the analysis). Over this period there were 1,974 conflict events in the Philippines, with the deadliest 10% having between 10 and 180 fatalities (Croicu & Sundberg, 2017). Because of this, I prefer the conflict-event measure over conflict severity.

11 The two-year threshold is chosen to capture recent events, while also keeping in mind that development aid projects take a longer time to implement than emergency relief efforts. Even though disaster impacts are abrupt, its consequences can be protracted, and consequently need levels are likely to be elevated also long after the events.

12 Taking into account the severity of the disasters would, of course, be desirable. Due to lack of reliable data however, I do not make use of the severity variables in the EM-DAT, but rely on the fact that all disasters included are above a certain severity threshold. The severity of disasters is notoriously difficult to measure, and a recent discussion of this can be found in Guha-Sapir and Checchi (2018).

13 For robustness I run all analyses using the battle-deaths specification as well. The results of these are reported in the Appendix.
|                | (1)       | (2)       | (3)       | (4)       | (5)       | (6)       | (7)       | (8)       |
|----------------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|
| Provincial HDI| 0.158     | −1.534    | 0.295     | −1.340    | −0.005    | −1.228    | −1.667    | −2.547*   |
|               | (0.949)   | (1.268)   | (0.870)   | (1.254)   | (0.827)   | (1.198)   | (1.317)   | (1.157)   |
| Disaster exposure, 2 year ma | 0.152 | −0.051    | 0.128     | −0.060    | −0.165    | −0.171    |          |          |
|               | (0.123)   | (0.133)   | (0.127)   | (0.135)   | (0.386)   | (0.353)   |          |          |
| Conflict exposure, 2 year ma | 0.045 | 0.027     | 0.062*    | 0.040     | 0.010     | −0.005    |          |          |
|               | (0.028)   | (0.026)   | (0.027)   | (0.026)   | (0.020)   | (0.017)   |          |          |
| Share of Christian area |          |          | 0.007**   | 0.005* (0.002) |          |          |
| Christian majority |          |          | −1.209    | −1.072    |          |          |
| province |        |          | (0.807)   | (0.876)   |          |          |
| HDI X Christian |          |          | 2.650     | 2.440     |          |          |
|               | (1.612)   | (1.824)   |          |          |          |          |
| Disaster exposure X Christian |          |          | 0.328     | 0.116     |          |          |
|               | (0.403)   | (0.373)   |          |          |          |          |
| Conflict exposure X Christian |          |          | 0.130***  | 0.118***  |          |          |
|               | (0.034)   | (0.035)   |          |          |          |          |
| No. aid projects year before | −0.006   | −0.006    | −0.017    | −0.026    |          |          |
|               | (0.066)   | (0.067)   | (0.066)   | (0.071)   |          |          |
| Distance to capital, km (ln) | −0.023   | −0.036    | 0.010     | 0.050     |          |          |
|               | (0.092)   | (0.092)   | (0.092)   | (0.113)   |          |          |
| Population (ln) | 0.620***  | 0.612***  | 0.602***  | 0.604***  |          |          |
|               | (0.117)   | (0.117)   | (0.112)   | (0.106)   |          |          |
| N | 1 360   | 1 360     | 1 360     | 1 360     | 1 360     | 1 360     | 1 360     | 1 360     |
| Aic | 1243.622 | 1205.416  | 1244.311  | 1208.400  | 1241.646  | 1207.465  | 1242.656  | 1208.894  |
| Bic | 1347.927 | 1325.366  | 1359.046  | 1338.781  | 1361.597  | 1343.061  | 1378.253  | 1360.136  |
| Li | −601.811 | −579.708  | −600.156  | −579.200  | −597.823  | −577.733  | −595.328  | −575.447  |

Note: Standard errors in parentheses.

***p < 0.001, **p < 0.01, *p < 0.05.
5.3 | Conditioning variable: Political alliances

To capture political favouritism by the Philippine government, I look at the geographic prevalence of politically relevant ethnic groups across provinces. These groups are defined as those that either have representatives making political claims on behalf of their group or those that are singled out by the state through discrimination. The groups are presented in the previous section, data is from the GeoEPR-ETH dataset (Vogt et al., 2015). The first group variable records the share of a province area that is inhabited by the politically dominant group, the Christian lowlanders, and ranges from 0 to 99.28. Secondly, I also include a dummy variable recording whether or not the Christians are a majority in any given province. If this variable takes the value 1 it means that the Christian lowlanders have a larger settlement area, in terms of square kilometres, than the two remaining groups within a province. In order to find the conditional effect of the domestic political alliances, the Christian-majority dummy is interacted with the need indicators.

5.4 | Statistical model and potential confounders

As the dependent variable—commencement of an aid project—is dichotomous, logit models are used. To ensure that the results are not driven by a temporal trend, year fixed effects are included in all models. Because I am interested in variation in the distribution of aid projects over space, random effects are preferred for the provinces.

In order to rule out results being driven by other confounding factors, a series of controls is also included. As mentioned, a lagged incidence of ongoing aid projects is included in all models to account for temporal dependence. However, it is not unlikely that the number of ongoing aid projects would matter, and consequently I also include a measure of the number of provinces receiving ongoing aid. Furthermore, aid is likely to go to populated areas, and the models consequently control for the number of people living in each province. To account for accessibility, both in geographical and political terms, the distance (in kilometres) to the capital, Manila, is included. Both this and the population measure are transformed using the natural logarithm in the analyses. Variables that are time-invariant, or calculated as moving averages ending in time t-1, are lagged one year to make sure the sequence of events is correct.\(^\text{14}\) Table A.1 in the Appendix shows the summary statistics for all variables included.

6 | RESULTS

Table 1 shows the logit models, beginning with the first two models which include only the traditional measure of HDI and the controls. The models are then expanded (with and without controls) to include the two exposure variables (models 3–4), the conditioning variable (models 5–6) and finally the interactions (models 7–8). Looking at the development indicator, model 2 shows that the higher the HDI of a province, the less likely it is to receive a new aid project. Although this is not a statistically significant finding, the direction is in line with the first hypothesis that need predicates the inflow of new aid projects. The next set of models reflect the expansion of need to include current events, and from model 4 it appears that previous disaster exposure reduces the likelihood of receiving a new aid

\(^{14}\)This applies to the previous projects, HDI and population variables.
project, while the opposite is the case for conflict activity. These effects are both small and not statistically significant, and while the conflict exposure coefficient is in line with the third hypothesis, the opposite is the case for the disaster coefficient which goes counter to the second hypothesis.

Including the measure for political alliances, model 6 shows that this is a more important predictor of new aid projects than the previous three predictors. The larger the share of a province that is inhabited by the politically dominant group, the Christian majority, the more likely it is that the province will receive new aid projects. This effect is statistically significant, and provides support for the fourth hypothesis. Nevertheless, the findings so far are rather weak. Looking at the control variables, the probability of receiving a new aid project appears to decrease with the number of active aid projects the year before. The coefficient for distance to the capital is positive, indicating that less central provinces are more likely to receive new projects. However, this is likely to result from the fact that the least developed areas lie the furthest away from the capital (which is clear from the map in Panel A of Figure 2). Finally, in line with the expectation, the number of people living in a province significantly increases its likelihood of receiving new aid projects. Looking at the model fits, the models that include control variables perform the best, having lower scores on all identification criteria.

To evaluate the influence of political alliances on the measures of need, models 7–8 include interactions between a dummy for being a majority Christian province and the three independent variables. Again, the models include a stepwise adding of controls, which stay the same after including the interactions. Model 8 shows that for excluded group-majority provinces, there is a statistically significant negative effect of the level of HDI on the province’s likelihood of receiving new aid projects. This means that the less developed provinces are more likely recipients of new aid projects, in line with expectations. For the same provinces, but not statistically significant, previous disaster exposure is associated with a lower likelihood of receiving new aid projects, while previous conflict exposure has the opposite effect. Distinguishing the pattern for the Christian-majority provinces, as well as the differences between groups, is difficult from the regression coefficients, and are best distinguished by looking at the marginal effect plots.

Figure 3 shows the marginal effect plots for the interactions between the Christian-majority provinces and the three needs indicators, all based on model 8. Looking at province level HDI, Figure 3a confirms the negative association between HDI levels and the likelihood of an aid project being disbursed. For Christian-majority provinces, the likelihood of getting a new aid project appears unrelated to a province’s HDI score, which generally lies at a higher level than for excluded groups. However, overlapping confidence intervals reveal that the patterns between the groups are not significantly different from each other. This means that the first hypothesis can only be confirmed if we look at excluded group-majority provinces in isolation. The map in Figure 2a also reveals that the level of development is generally lower in the southern provinces, which are predominantly inhabited by Muslim Moros. Consequently, this could reflect the policy of the World Bank of targeting the Moro (i.e. excluded group) areas.

Looking at the disaster exposure as a moving average over the two previous years, the marginal effects plot in Figure 3b shows that there is a weak negative relation between having been hit by disasters and the probability of a new aid project being initiated in the province. For this measure, there is no observable difference related to the political status of a province, and the weak effect means that the second hypothesis cannot be confirmed. Although the direction of this relationship appears surprising, it could be an indication that for some extreme events, political alliances matter less. This suspicion is strengthened by looking at the last margins plot, Figure 3c. For previous conflict exposure, its effect on the likelihood of receiving aid projects is clearly different between provinces that are majority Christian and provinces where an excluded group (Moros or indigenous) is the largest. Christian-majority provinces are much more likely to get aid than equally conflict-exposed minority
FIGURE 3 Marginal effect plots of different needs indicators on the likelihood of receiving a new aid project in different majority group provinces

Electronic copy available at: https://ssrn.com/abstract=3721360
provinces, and the difference is increasing for higher levels of conflict. This means that the third hypothesis can only be confirmed for provinces inhabited by the politically dominant group.

All three interaction plots also imply that apart from areas with the lowest levels of HDI, Christian-majority provinces have a higher probability of receiving aid than other provinces across the different predictors. This is also shown in model 6 in Table 1, and the fourth hypothesis can thus be confirmed. In other words, it appears that the Philippine government’s preferences influence the distribution of World Bank aid projects, and that it uses aid projects to reward its own supporters more than distributing it according to need.

7 CONCLUDING REMARKS

This article adds to recent efforts to evaluate the determinants of development aid distribution in a disaggregated setting, and is novel in arguing that current extreme events—in this case disasters and armed conflict—should be taken into considerations of need because these events to a large extent shape an area’s need for aid. Ultimately, however, aid is political, and favouritism on the part of the recipient government is expected to bias its distribution, even if the donor is a multilateral aid agency.

The theoretical arguments of the article are tested by looking at the distribution of development aid projects from the World Bank to the Philippines between 1996 and 2012. The Philippines provides an excellent case because of its spatial and temporal distributions of rapid-onset disasters, armed conflict and aid. The article finds that, although need can be a predictor of who receives aid within the Philippines, overall, the government’s political alliances considerably influence the distribution of development aid, sometimes away from those who need it most. This political bias is not present when looking at the role of disaster exposure for the likelihood of receiving a new aid project. In fact, the observed effect is surprisingly negative (although weakly so) for both groups, meaning that higher levels of disaster exposure are associated with a lower likelihood of receiving an aid project. If anything, it appears that the policy of the World Bank to target disaster-affected areas has not (yet) materialized. A possible reason might be that the negative effects of experiencing a rapid-onset disaster could be more pronounced for the most well-off provinces than for the less developed ones. Another explanation could be that there is still a certain backlog to this policy, and that looking beyond the timeframe of this analysis (ending in 2012) would yield different results. Until updated data are released, however, this cannot be confirmed.

On the other hand, previous conflict exposure anticipates increased dispersal of new aid projects in political majority provinces, but not for those where excluded groups make up the largest share. This could illustrate that the type of extreme event matters, and that some types of need are more politically and materially costly to react to depending on their cause. For instance, providing aid to the violent provinces in Mindanao – even though these are the donor’s explicit target – might be undesirable for the government as it could contribute to strengthening its opponents. In line with Hoelscher et al. (2017), it is also likely that the security of aid workers would be more compromised in minority provinces.

Although the arguments of this article have been evaluated using the empirical case of the Philippines, its theoretical contributions—especially concerning the expansion of need—are applicable beyond this specific case. This is particularly so for other countries that are ravaged by natural hazard-induced disasters and/or armed conflict, of which there are many across Asia and Africa and elsewhere. The finding that domestic political alliances determine the distribution of aid projects to a greater extent than the donor’s priorities is in line with existing research, but the analysis does not allow any conclusions on this beyond the specific context studied here. In the future, this should also be investigated for donors other than the World Bank, and across a variety of countries and contexts.
REFERENCES

AidData. (2016). EM-DAT Philippines Geocoded Dataset, 1980–2012, Version 1.0. https://www.aiddata.org/data/em-dat-phil

AidData. (2017). WorldBank_GeocodedResearchRelease_Lev1_v1.4.2 geocoded dataset. http://aiddata.org/research-datasets

Aldrich, D. P. (2010). Separate and unequal: Post-tsunami aid distribution in southern India. Social Science Quarterly, 91(5), 1369–1389. https://doi.org/10.1111/j.1540-6237.2010.00736.x

Alesina, A., & Dollar, D. (2000). Who gives foreign aid to whom and why? Journal of Economic Growth, 5(1), 33–63. https://doi.org/10.1023/A:1009874203400

Arcand, J.-L., Bah, A., & Labonne, J. (2011). Conflict, ideology and foreign aid. https://halshs.archives-ouvertes.fr/halshs-00553121/

Arrow, K. J. (1985). The economics of agency. In R. J. Zeckhauser & J. W. Pratt (Eds.), Principals and agents: The structure of business (pp. 37–51). Harvard Business School Press.

Asian Disaster Reduction Center. (n.d.). Information on disaster risk reduction of the member countries: Philippines [Web page]. https://www.adrc.asia/nationalinformation.php?NationCode=608&Lang=en&NationNum=14

Bezerra, P., & Braithwaite, A. (2016). Locating foreign aid commitments in response to political violence. Public Voice, 169(3), 333–355. https://doi.org/10.1007/s11227-016-0377-9

Böhne, J. R., & Zürcher, C. (2013). Aid, minds and hearts: the impact of aid in conflict zones. Conflict Management and Peace Science, 30(5), 411–432. https://doi.org/10.1177/0738894213499486

Briggs, R. C. (2014). Aiding and abetting: Project aid and ethnic politics in Kenya. World Development, 64, 194–205. https://doi.org/10.1016/j.worlddev.2014.05.027

Briggs, R. C. (2017). Does foreign aid target the poorest? International Organization, 71(1), 187–206. https://doi.org/10.1017/S0020818316000345

Briggs, R. C. (2018). Poor targeting: A gridded spatial analysis of the degree to which aid reaches the poor in Africa. World Development, 103, 133–148. https://doi.org/10.1016/j.worlddev.2017.10.020

Coppola, D. P. (2006). Introduction to international disaster management. Butterworth-Heineman.

Costalli, S., Moretti, L., & Pischedda, C. (2017). The economic costs of civil war: Synthetic counterfactual evidence and the effects of ethnic fractionalization. Journal of Peace Research, 54(1), 80–98. https://doi.org/10.1177/0022343316675200

Croicu, M., & Sundberg, R. (2017). UCDP GED Codebook version 17.2. Department of Peace and Conflict Research, Uppsala University.

Crost, B., Felter, J., & Johnston, P. (2014). Aid under fire: Development projects and civil conflict. The American Economic Review, 104(6), 1833–1856. https://doi.org/10.1257/aer.104.6.1833

Cruz, C., & Schneider, C. J. (2016). Foreign aid and undeserved credit claiming. American Journal of Political Science, 1–13, https://doi.org/10.1111/ajps.12285

de Mesquita, B. B., & Smith, A. (2009). A political economy of aid. International Organization, 63(2), 309–340. https://doi.org/10.1017/S0020818309090109

de Waal, A. (1991). Evil days. 30 years of war and famine in Ethiopia (Africa Watch Report). https://www.hrw.org/sites/default/files/reports/Ethiopia919.pdf

Dreher, A., Fuchs, A., Hodler, R., Parks, B. C., Raschky, P. A., & Tierney, M. J. (2016). Aid on demand: African leaders and the geography of China’s foreign assistance (Centro Studi Luca D’Agliano Development Studies Working Papers No. 400). https://www.dagliano.unimi.it/media/WP2016_4001.pdf

Dreher, A., Sturm, J.-E., & Vreeland, J. R. (2009). Development aid and international politics: Does membership on the UN Security Council influence World Bank decisions? Journal of Development Economics, 88(1), 1–18. https://doi.org/10.1016/j.jdeveco.2008.02.003

Drury, A. C., Olson, R. S., & Van Belle, D. A. (2005). The politics of humanitarian aid: U.S. foreign disaster assistance, 1964–1995. Journal of Politics, 67(2), 454–473. https://doi.org/10.1111/j.1468-2508.2005.00324.x

Findley, M. G., Milner, H. V., & Nielson, D. L. (2017). The choice among aid donors: The effects of multilateral vs. bilateral aid on recipient behavioral support. The Review of International Organizations, 12(2), 307–334. https://doi.org/10.1007/s11558-017-9275-2

Fink, G., & Redaelli, S. (2011). Determinants of international emergency aid—humanitarian need only? World Development, 39(5), 741–757. https://doi.org/10.1016/j.worlddev.2010.09.004
Francken, N., Minten, B., & Swinnen, J. F. M. (2012). The political economy of relief aid allocation: Evidence from Madagascar. *World Development, 40*(3), 486–500. https://doi.org/10.1016/j.worlddev.2011.07.007

Fuchs, A., & Klann, N.-H. (2012, September). Emergency aid 2.0. Paper presented at Beiträge zur Jahrestagung des Vereins für Sozialpolitik 2013: Wettbewerbspolitik und Regulierung in einer globalen Wirtschaftsordnung – Session: International Trade and Finance, No. D08-V3. https://doi.org/10.2139/ssrn.2519635

Gates, S., Hegre, H., Mokleiv Nygard, H., & Strand, H. (2012). Development consequences of armed conflict. *World Development, 40*(9), 1713–1722. https://doi.org/10.1016/j.worlddev.2012.04.031

Girardin, L., Hunziker, P., Cederman, L.-E., Bormann, N.-C., & Vogt, M. (2015). GROWup – Geographical Research On War, Unified Platform [Data platform]. https://growup.ethz.ch/

Guha-Sapir, D., & Checchi, F. (2018). Science and politics of disaster death tolls. *BMJ, 362*(k4005). https://doi.org/10.1136/bmj.k4005

Guha-Sapir, D., Hoyois, P., & Below, R. (2015). *Annual disaster statistical review 2014: The numbers and trends*. http://www.cred.be/sites/default/files/ADSR_2014.pdf

Gunawardena, A., & Baland, J.-M. (2016). Targeting disaster aid in post-tsunami Sri Lanka. *Development Policy Review, 34*(2), 179–195. https://doi.org/10.1111/dpr.12148

Hoeffler, A., & Outram, V. (2011). Need, merit, or self-interest: what determines the allocation of aid? *Review of Development Economics, 15*(2), 237–250. https://doi.org/10.1111/j.1467-9361.2011.00605.x

Hoelscher, K., Miklian, J., & Mokleiv Nygard, H. (2017). Conflict, peacekeeping, and humanitarian security: understanding violent attacks against aid workers. *International Peacekeeping, 24*(4), 538–565. https://doi.org/10.1080/1353312.2017.1321958

Jablonski, R. S. (2014). How aid targets votes: The impact of electoral incentives on foreign aid distribution. *World Politics, 66*(2), 293–330. https://doi.org/10.1017/s0043887114000045

Jayne, T. S., Strauss, J., Yamano, T., & Molla, D. (2001). Giving to the poor? Targeting of food aid in rural Ethiopia. *World Development, 29*(5), 887–910. https://doi.org/10.1016/s0305-750x(01)00011-0

Kramon, E., & Posner, D. N. (2013). Who benefits from distributive politics? How the outcome one studies affects the answer one gets. *Perspectives on Politics, 11*(2), 461–474. https://doi.org/10.1017/s1537592713001035

Le Billon, P., & Waizenegger, A. (2007). Peace in the wake of disaster? Secessionist conflicts and the 2004 Indian Ocean tsunami. *Transactions of the Institute of British Geographers, 32*(3), 411–427. https://doi.org/10.1111/j.1475-5661.2007.00257.x

Mullen, J. (2013, November 8). Super typhoon Haiyan, one of strongest storms ever, hits central Philippines. CNN. http://edition.cnn.com/2013/11/07/world/asia/philippines-typhoon-haiyan/index.html

Neumayer, E. (2003). *The pattern of aid giving: The impact of good governance on development assistance*. Taylor & Francis.

Neumayer, E. (2005). Is the allocation of food aid free from donor interest bias? *Journal of Development Studies, 41*(3), 394–411. https://doi.org/10.1080/0022038042000313309

Nunn, N., & Qian, N. (2014). US food aid and civil conflict. *The American Economic Review, 104*(6), 1630–1666. https://doi.org/10.1257/aer.104.6.1630

Nunnenkamp, P., Öhler, H., & Sosa Andres, M. (2017). Need, merit and politics in multilateral aid allocation: A district-level analysis of World Bank projects in India. *Review of Development Economics, 21*(1), 126–156. https://doi.org/10.1111/rode.12259

Öhler, H., & Nunnenkamp, P. (2014). Needs-based targeting or favoritism? The regional allocation of multilateral aid within recipient countries. *Kyklos, 67*(3), 420–446. https://doi.org/10.1111/kykl.12061

Olsen, G. R., Carstensen, N., & Høyen, K. (2003). Humanitarian crises: What determines the level of emergency assistance? Media coverage, donor interests and the aid business. *Disasters, 27*(2), 109–126. https://doi.org/10.1111/j.1467-7717.2003.2000009.x

Öhler, H., & Nunnenkamp, P. (2014). Needs-based targeting or favoritism? The regional allocation of multilateral aid within recipient countries. *Kyklos, 67*(3), 420–446. https://doi.org/10.1111/kykl.12061

Organisation for Economic Co-operation and Development. (2005). *The Paris Declaration on Aid Effectiveness*. https://doi.org/10.1787/9789264098084-en

Organisation for Economic Co-operation and Development (2020). Net ODA (indicator). https://data.oecd.org/oda/net-oda.htm

Paul, B. K. (2006). Disaster relief efforts: An update. *Progress in Development Studies, 6*(3), 11–223. https://doi.org/10.1191/1464993406ps139oa

Plümper, T., & Neumayer, E. (2009). Famine mortality, rational political inactivity, and international food aid. *World Development, 37*(1), 50–61. https://doi.org/10.1016/j.worlddev.2008.05.005
Radelet, S. (2006). A primer on foreign aid (Center for Global Development Working Paper No. 92). https://www.cgdev.org/publication/primer-foreign-aid-working-paper-92

Sen, A. (1991). Public action to remedy hunger. Interdisciplinary Science Reviews, 16(4), 324–336. https://doi.org/10.1179/iss.1991.16.4.324

Strandow, D., Findley, M. G., & Young, J. K. (2016). Foreign aid and the intensity of violent armed conflict (AidData Working Paper No. 24). https://www.aiddata.org/publications/foreign-aid-and-the-intensity-of-violent-armed-conflict

Strömberg, D. (2007). Natural disasters, economic development, and humanitarian aid. Journal of Economic Perspectives, 21(3), 199–222. https://doi.org/10.1257/jep.21.3.199

Sen, A. (1991). Public action to remedy hunger. Interdisciplinary Science Reviews, 16(4), 324–336. https://doi.org/10.1179/iss.1991.16.4.324

Tierney, M. J., Nielson, D. L., Hawkins, D. G., Timmons Roberts, J., Findley, M. G., Powers, R. M., Parks, B., Wilson, S. E., & Hicks, R. L. (2011). More dollars than sense: Refining our knowledge of development finance using AidData. World Development, 39(11), 1891–1906. https://doi.org/10.1016/j.worlddev.2011.07.029

United Nations Development Programme (2019). Human Development Index (HDI) [Web page]. http://hdr.undp.org/en/content/human-development-index-hdi

van Weezel, S. (2017). A spatial analysis of the effect of foreign aid in conflict areas. https://ssrn.com/abstract=2450867 or https://doi.org/10.2139/ssrn.2450867

Vogt, M., Bormann, N.-C., Ruegger, S., Cederman, L.-E., Hunziker, P., & Girardin, L. (2015). Integrating data on ethnicity, geography, and conflict: The Ethnic Power Relations data set family. Journal of Conflict Resolution, 59(7), 1327–1342. https://doi.org/10.11177/0022002715591215

Weiler, F., Klöck, C., & Dornan, M. (2018). Vulnerability, good governance, or donor interests? The allocation of aid for climate change adaptation. World Development, 104, 65–77. https://doi.org/10.1016/j.worlddev.2017.11.001

Winters, M. S. (2010). Choosing to target: What types of countries get different types of World Bank projects. World Politics, 62(3), 422–458. https://doi.org/10.1017/s0043887110000092

World Bank. (2012, March 30). Philippines: Typhoon-affected communities cope, seek involvement in disaster preparedness [Press release]. https://www.worldbank.org/en/news/press-release/2012/03/30/philippines-typhoon-affected-communities-cope-seek-involvement-in-disaster-preparedness

World Bank (2014a, July 15). Philippines: World Bank Group scales up support for Mindanao peace process [Press release]. https://www.worldbank.org/en/news/press-release/2014/07/15/world-bank-group-scales-up-support-for-mindanao-peace-process-in-the-philippines

World Bank. (2014b, June 12). World Bank Group announces new partnership strategy for the Philippines [Press release]. https://www.worldbank.org/en/news/press-release/2014/06/12/world-bank-group-announces-new-partnership-strategy-for-philippines

Zhang, G. (2004). The determinants of foreign aid allocation across China: The case of World Bank loans. Asian Survey, 44(5), 691–710. https://doi.org/10.1525/as.2004.44.5.691

How to cite this article: Rosvold E. L. Disaggregated determinants of aid: Development aid projects in the Philippines. Dev Policy Rev. 2020;38:783–803. https://doi.org/10.1111/dpr.12465

Electronic copy available at: https://ssrn.com/abstract=3721360
8.1 Descriptive statistics

**TABLE A1**  Descriptive statistics

|                              | Mean  | SD    | Min   | Max   |
|------------------------------|-------|-------|-------|-------|
| Aid project start            | 0.349 | 0.477 | 0     | 1     |
|                             | (65.15) | (34.86) |       |       |
| Ongoing aid project         | 0.902 | 0.297 | 0     | 1     |
|                             | (9.79) | (90.21) |       |       |
| Proinval HDI                 | 0.517 | 0.110 | 0.201 | 0.873 |
| Disaster exposure, 2 year ma| 0.568 | 0.752 | 0     | 5     |
| Conflict exposure, 2 year ma| 1.073 | 2.65  | 0     | 28    |
| Christian-majority province | 0.675 | 0.469 | 0     | 1     |
|                             | (32.5) | (67.5) |       |       |
| Share of Christian area     | 62.090| 32.376| 0     | 99.28 |
| No. aid projects year before| 4.037 | 2.979 | 0     | 14    |
| Population                  | 1 012 390 | 1 323 559 | 14 180 | 11 855 975 |
| Conflict affected (battle-deaths), 2 year ma | 5.772 | 19.588 | 0 | 242 |
| Distance to capital, km     | 487.621 | 308.841 | 0 | 1049.94 |
| Observations                | 1 440 |       |       |       |

8.2 Different conflict exposure specification: Battle-related deaths

All models have also been run with an alternative conflict exposure specification of battle-related deaths.
**Table A2** Logit random effects models on aid project start, 1996-2012

|                      | (1)         | (2)         | (3)         | (4)         | (5)         | (6)         | (7)         | (8)         |
|----------------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|
| Provincial HDI       | 0.158       | −1.534      | 0.039       | −1.495      | −0.265      | −1.432      | −1.865      | −2.660*     |
|                      | (0.949)     | (1.268)     | (0.914)     | (1.262)     | (0.876)     | (1.216)     | (1.383)     | (1.178)     |
| Disaster exposure,   | 0.155       | −0.052      | 0.135       | −0.058      | −0.177      | −0.181      |             |             |
| 2 year ma            | (0.127)     | (0.135)     | (0.131)     | (0.138)     | (0.393)     | (0.355)     |             |             |
| Conflict affected    | 0.002       | 0.001       | 0.003       | 0.002       | −0.002      | −0.002      |             |             |
| battle deaths, 2 year | (0.004)     | (0.004)     | (0.005)     | (0.004)     | (0.004)     | (0.003)     |             |             |
| Christian area       | 0.006*      | 0.004       |             |             |             |             |             |             |
|                      | (0.003)     | (0.002)     |             |             |             |             |             |             |
| Christian-majority  |             | −1.205      | −1.000      |             |             |             |             |             |
| province             |             | (0.828)     | (0.879)     |             |             |             |             |             |
| HDI X Christian      |             | 2.626       | 2.296       |             |             |             |             |             |
|                      |             | (1.676)     | (1.852)     |             |             |             |             |             |
| Disaster exposure X  |             | 0.359       | 0.138       |             |             |             |             |             |
|                      |             | (0.409)     | (0.372)     |             |             |             |             |             |
| Battle-deaths X      |             |             |             |             |             |             |             |             |
| Christian            |             |             |             |             |             |             |             |             |
| No. aid projects     | −0.006      | −0.003      | −0.012      | −0.014      |             |             |             |             |
| year before          | (0.066)     | (0.068)     | (0.067)     | (0.071)     |             |             |             |             |
| Distance to capital, | −0.023      | −0.033      | 0.006       | 0.042       |             |             |             |             |
| km (ln)              | (0.092)     | (0.093)     | (0.093)     | (0.115)     |             |             |             |             |
| Population (ln)      | 0.620***    | 0.622***    | 0.614***    | 0.610***    |             |             |             |             |
|                      | (0.117)     | (0.119)     | (0.115)     | (0.109)     |             |             |             |             |
| N                    | 1360        | 1360        | 1360        | 1360        | 1360        | 1360        | 1360        | 1360        |
| aic                  | 1243.622    | 1205.416    | 1246.030    | 1209.173    | 1244.368    | 1208.868    | 1244.500    | 1210.278    |
| bic                  | 1347.927    | 1325.366    | 1360.766    | 1339.554    | 1364.318    | 1344.464    | 1380.096    | 1361.520    |
| ll                   | −601.811    | −579.708    | −601.015    | −579.586    | −599.184    | −578.434    | −s96.250    | −576.139    |

*Note: Standard errors in parentheses.*

Clustered on provinces, all models have time-fixed effects and control for lagged incidence.

*p < 0.05, **p < 0.01, ***p < 0.001.