Donor Competition and the Speed of Emergency Aid

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Abstract

Timely assistance is a precondition for effective emergency relief in the aftermath of natural disasters. This article investigates whether donor countries react with less urgency to natural disasters in situations where they have weaker commercial interests. Analyzing humanitarian aid flows from 45 donor countries after 392 fast-onset natural disasters between 2000 and 2016, our results show that donors are quicker to commit aid to close trade partners. Moreover, we exploit the daily frequency of our data to identify whether commercial competition with major donors induces donors to accelerate the aid decision. Results from a trilateral analysis (i.e., major donor, other donor, recipient) show that donor competition is an important driver of the speed of aid. Donors are more likely to commit aid on the day after a major donor's aid decision and this effect is larger for donor countries that have more similar export patterns as the major donor in the affected country. Finally, we find some evidence that lead donors may be capable of fostering donor cooperation along geopolitical lines.

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1 Introduction

More than 7,300 natural and man-made disaster events occurred around the globe since 2000. They caused 1.23 million casualties, affected the livelihoods of more than 4 billion people, and accumulated economic costs of almost US$ 3 trillion (CRED & UNDRR, 2020). Although these events occur in both rich and poor countries at similar frequencies, they are often much more damaging in the developing world because of worse infrastructure and fewer capabilities to assist disaster victims (Kahn, 2005, Strömberg, 2007). Hence, many developing countries require international humanitarian assistance to cope with these catastrophes. Donor governments, usually from rich countries, then step in to provide emergency relief. This is important not only to deal with catastrophes' direct consequences, but also to help mitigating more long-term negative effects, ranging from a decline in life satisfaction and life expectancy to higher risk of conflicts erupting in the future (Neumayer and Plümper, 2007, Nel and Righarts, 2008, Luechinger and Raschky, 2009).

A fast provision of emergency relief in the aftermath of natural disasters is essential for its effectiveness. When earthquakes strike or volcanoes erupt, a difference of a couple of days—if not hours—in the decision to provide aid can save hundreds of lives. The international aid community emphasizes the importance of rapid donor response after disasters occur. In fact, the 42 donors organized in the Good Humanitarian Donorship (GHD) initiative (most of which are included in our sample) endorse a common set of principles that emphasize the need of a rapid donor response. Explicit goals are to "strive to ensure flexible and timely funding" (Principle 5) and to "[m]aintain readiness to offer support to the implementation of humanitarian action" (Principle 17).[1] The commitment to provide quick disaster relief also figures prominently among the key priorities communicated by individual donors. For example, the United States Agency for International Development (USAID) declares that "[a]ll efforts must be made to ensure that timely and appropriate assistance is efficiently delivered to the neediest victims."[2] Given the importance of a fast response to disasters, it is important to evaluate aid activities not only based on the monetary volume of aid, but also on response's timeliness.

Building upon the empirical literature on humanitarian aid allocation (Fink and Redaelli, 2011, Raschky and Schwindt, 2012, Annen and Strickland, 2017) and donor coordination (Steinwand, 2015, Davies and Klasen, 2019, Humphrey and Michaelowa, 2019), our paper is the first to analyze whether the speed of the aid decision (like aid allocation itself) is subject to ulterior motivations—and in particular to competition between donors. Previous work has only investigated the speed of aid disbursements *after* the initial aid decision was made (Kilby, 2011, Kersting and Kilby, 2016). Our paper is closely related to McDowell (2017) who analyzes

[1]The full list of the 24 Principles and Good Practice of Humanitarian Donorship are available at https://www.ghdinitiative.org/ghd/gns/principles-good-practice-of-ghd/principles-good-practice-ghd.html (accessed November 2020).

[2]See the USAID's operational policy (chapter 251) at https://www.usaid.gov/ads/policy/200/251 (accessed February 2021). Similarly, Ireland's Department of Foreign Affairs emphasizes its goal to "respond effectively, efficiently and in a timely manner to the humanitarian needs of crisis affected peoples." For more information, see https://www.irishaid.ie/media/irishaid/allwebsitemedia/20newsandpublications/publicationpdfsenglish/humanitarian-relief-policy1.pdf (accessed November 2020).

the speed of loan approval after countries have submitted a letter of intent to the International Monetary Fund.[3]

In particular, no study exists so far that analyzes the decision speed with which donors respond to humanitarian crises in a rigorous setting. This paper investigates whether commercial interests accelerate the speed of a donor's first aid commitment after natural disasters. To do so, we combine daily data on aid flows from the UN Office for the Coordination of Humanitarian Affairs (OCHA, 2017) with disaster start dates provided by the International Disaster Database (Guha-Sapir, 2017). Our sample consists of 392 fast-onset natural disasters that took place in 121 (recipient) countries between 2000 and 2016, leading to almost 3,000 aid flows originating from 45 different donor countries.[4]

Given how little we know so far about the speed of aid, we first analyze, descriptively, whether (donor and recipient) political and economic characteristics are associated with the speed with which countries decide to provide relief. If aid speed follows the same logic as the broader patterns of aid allocation, we would expect that close trade partners and countries that are of geopolitical importance receive a more favorable treatment—i.e., faster assistance. We create a unique measure, in days, of the time that passes after the onset of an emergency before a donor commits (for the first time) to provide relief. In line with expectations, we find that the speed with which donors respond to natural disasters is not driven by recipient needs alone. Rather, donors react faster to natural disasters that occur in countries that are more important trade partners or more distant in terms of foreign-policy preferences.

In the main part of our analysis, we depart from these correlations at the level of disaster events and, to take full advantage of the daily nature of our data, construct a trilateral panel data set (i.e., major donor, other donor, recipient) of aid commitments at daily frequency. This allows us to investigate whether the interaction between donors has consequences for the speed of aid. Presumably, donors that are competing with one another are more likely to speed up and provide aid faster after its rival committed to assist. Moreover, we are able to include event-day-fixed effects that absorb all factors that are specific to a given disaster day, such as the information available to the international community on the needs on disaster impact, and we can thus identify arguably causal effects. Identification in this rigorous setting stems from within-day variation between donors.

To be more precise, we assess whether a donor is more likely to commit to assist the day after a major donor has decided to provide aid to a specific disaster event. We expect the influence that a given major donor has on the decision of other donors to increase with the salience of their commercial and geopolitical interests. Therefore, we estimate whether (i) the similarity in terms of export and import patterns between a pair of donors in a given recipient country, and/or (ii) the alignment in foreign-policy preferences of these two donors (measured by their voting alignment at the UN General Assembly) make it more likely that the aid decision by a major donor crowds in support from other donors. While it is reasonable to expect, *ex*

[3] McDowell (2017) shows that the waiting time for approval decreases with bank exposure of the Fund's five major shareholders.

[4] Our donor sample includes, in addition to G20 members, any country that has provided emergency aid at least once (on average) in each year in the period between 2000 and 2016.

ante, that the attention that a major donor draws from other donors increases with economic competition, the effect of political similarity is more ambiguous, as donors have good reasons to keep a close eye on the moves of geopolitical allies as well as foes.

Contrary to most other studies, which can only study the final allocation outcome, our approach comes with the advantage that we observe the process as it unfolds. That is, for each disaster event, we study how the behavior of major aid providers, which are the natural first movers, affect the course of action of other donors, day after day.

In our baseline analysis, we define two different types of major donors. First, we examine how the United States, the most important donor in our sample and the largest provider of humanitarian aid worldwide (Thomas and Urquhart, 2020), affects the speed of the aid decision of other donor countries.[5] Second, another contribution of our study is to asses how recipient-year-specific lead donors steer the behavior of other aid providers. Hence, instead of imposing, *a priori*, a fixed set of major donors that should be as relevant to all recipient countries, we follow Steinwand (2015)'s definition and empirically identify, for every year in each recipient country, who is the lead donor (if there is one at all). Broadly speaking, these are donors that typically maintain long-term bonds with the recipient countries under their sphere of influence, and make their leadership role evident to all other participants in the aid community. Therefore, we expect these donors to possess the greatest amount of local expertise, and to be thus in a position to dictate the pace to other donors.

The analysis of the daily interaction between donors shows that major donors indeed exert considerable influence over the speed of aid of other donors and that this influence is strengthened by commercial and, in some cases, also by geopolitical similarity between these countries. We find, for instance, that if the United States decides to provide emergency relief to a given recipient country today, it increases the average probability that other donors will contribute tomorrow by up to 6.8 percentage points. This effect is even greater for donors whose exports to the disaster-struck country are more similar to the United States'. According to our estimates, a donor with the same (recipient-specific) sectoral export structure as the United States would be more than 10 percentage points more likely to decide to provide assistance on the day after the US government than a donor without any overlap in the export structure. We interpret this as evidence of commercial competition.

We come to similar conclusions when we examine donor response to (recipient-country-year-specific) lead donors, which are—as expected—even more influential in shaping other donors' decisions than the United States. Specifically, we find that lead donors' aid commitment triggers stronger reaction of other donors based not only on their export similarity, but also in terms of foreign-policy alignment. At least among G20 members, the probability of following the lead donor increases significantly with the other donor's alignment on foreign-policy issues, as measured by voting agreement in the UN General Assembly. That is, at least for the subsample of countries that care presumably the most about geopolitical arrangements, bonds of alliance among donors seem to speak louder than their potential political disputes.

Taken together, our results show that donor countries react with less urgency to natural

[5] In a future version of this paper, we will also present results for other important donors.

disasters in situations where they have weaker commercial interests at stake. Decisions to assist are also affected to some degree by geopolitical considerations. Our findings thus stand in sharp contrast to the UN Resolution 46/182 (OP2), which states that "humanitarian assistance must be provided in accordance with the principles of humanity, neutrality and impartiality" (OCHA, 2009). Thus, this study raises important concerns about the neutrality of bilateral humanitarian aid provision and about its effectiveness in general, thus underscoring the necessity to promote mechanisms that foster donor cooperation and coordinated humanitarian assistance in international fora.

We proceed as follows: Section 2 describes the data and provides a descriptive analysis of what explains the variation in the speed of the aid at the disaster-event level. In Section 3, we present our main analysis based on daily aid decisions. Finally, Section 4 summarizes our paper and concludes.

2 Measuring the Speed of Aid

In this section, we introduce the data and our measure of aid speed, namely the *duration* (in days) between disaster start and donors' commitment to assist. We then use this data to provide a simple regression analysis of the factors that are associated with the speed of emergency aid at the disaster-event level. That is, before moving to the daily analysis in Section 3, we first analyze whether the promptness with which donors react to catastrophes is associated with disaster severity, need indicators, and variables that capture donors' commercial and political interests.

2.1 Data

Our measure of the speed of aid relies on data on humanitarian aid commitments from the Financial Tracking System (FTS) of the UN Office for the Coordination of Humanitarian Affairs (OCHA, 2017). Humanitarian assistance is defined as "[a]n intervention to help people affected by natural disasters and conflict to meet their basic needs and rights" (OCHA, 2017).[6] The FTS tracks humanitarian funding flows worldwide and is based on self-reported information, provided by either donor governments, recipient agencies, collected from donor websites, or quoted in pledging conferences.[7] The FTS is widely used in policy analysis and academic research (e.g., Fink and Redaelli, 2011, Raschky and Schwindt, 2012, Eichenauer et al., 2020) and is arguably the best database available for analyses that, like ours, are not restricted to

[6] Although definitions of humanitarian assistance vary across countries, this is not of concern in our case as we restrict our analysis to those aid flows that have been linked to a particular emergency in FTS. These events are typically those that led to a UN emergency appeal.

[7] In cases where donation data stem from various sources, FTS invests significant efforts into cross-validation and reconciliation. For a more detailed description of the data collection and subsequent cross-checking process, refer to `https://fts.unocha.org/sites/default/files/criteria_for_inclusion_2017.pdf` (accessed April 2020). By comparing FTS records with data of the OECD's Development Assistance Committee, Fink and Redaelli (2011) find only minor differences between both databases, which shows that FTS has relatively good data coverage. See Harmer and Cotterrell (2005) for a discussion of strengths and weaknesses of FTS data.

OECD donors, but rather encompasses a wide range of donor countries.[8] It is crucial for our purposes that the database covers humanitarian assistance in response to natural disasters and contains information on individual decision dates.

While FTS reports humanitarian aid flows contributed, committed and pledged, we exclude the latter as these represent only a "non-binding announcement of an intended contribution or allocation by the donor" (OCHA, 2017).[9] While the database covers information on aid flows provided by 166 bilateral donors, including countries such as the Democratic Republic of Congo and North Korea, we focus on those with significant donor activities. As such, we limit our analysis to the behavior of the G20 members and all other countries that have provided emergency aid to at least one disaster event per year, on average. In other words, we remove countries that do not satisfy the threshold of 17 (or more) records of emergency aid provision in the 17-year period (2000 to 2016) included in the sample.[10] Thus, we are left with 45 donor countries, who provided more than 2,800 emergency aid flows to 121 (recipient) countries.[11]

We then measure donor i's speed of aid after disaster event k in recipient country r by computing the duration, in days, from disaster onset, $StartDate_{i,k,r,t}$,[12] until the day on which donor i first decided to provide assistance to recipient country r to cope with disaster event k, $DecisionDate_{i,k,r,t}$[13]. The day on which an emergency event started is taken to be Day 1 to account for the time difference between donor and recipient as well as for a certain imprecision of the exact day of onset for certain disaster types.[14] That is:

$$Duration_{i,k,r,t} = DecisionDate_{i,k,r,t} - StartDate_{i,k,r,t} + 1 \tag{1}$$

where higher values of $Duration_{i,k,r,t}$ imply slower aid speed.

[8] In contrast to the commonly used OECD Creditor Reporting System and the project-level database AidData (Tierney et al., 2011), FTS has the advantage that the it covers virtually every country in the world. Even countries with a low aid transparency, like China and Saudi Arabia, are covered by FTS.

[9] Committed and contributed funds, on the other hand, constitute either a *de facto* payment, guaranteed by a signed contract, or the actual transfer of funds and in-kind goods from the donor to the recipient. Donors send humanitarian assistance either directly to the affected country or channel relief through multilateral institutions or via non-governmental organizations like the Red Cross.

[10] In a future version of the paper, we will run robustness tests with different thresholds.

[11] Table 6 in the Appendix reports all donor countries in our sample together with the number of aid provisions, amount contributed and average duration.

[12] $StartDate_{i,k,r,t}$ denotes the start date of the disaster event k as registered on the International Disaster Database (Guha-Sapir, 2017), maintained by the Centre for Research on the Epidemiology of Disasters (CRED). The database covers information on disaster characteristics, such as the disaster type, magnitude, number of people affected, number of people killed, and—crucial for our purposes—information on the start and end dates. All disasters included in the data set must meet at least one of the following criteria: (i) 10 or more people have died, (ii) 100 or more people have been affected, (iii) a state of emergency has been declared, or (iv) a call for international assistance has been made in response to the wreck.

[13] FTS defines the variable *decision date* as the "[d]ate on which a donor is reported to have made a funding commitment" (see FTS website at `https://fts.unocha.org/glossary` (accessed September 2020). Rather than studying the decision day, one may want to analyze information on the exact day on which aid packages reach the disaster area, or when funds are transferred. Unfortunately, this information is not available for most project records. However, these dates may be more appropriate to study aid effectiveness rather than—as we do—the political decision to provide aid.

[14] In the case of storms, to account for donors' efforts toward disaster preparation, all aid decisions taken in the week before the onset are assumed to have been made on Day 1.

Table 1 – Fast-onset Natural Disasters (2000-2016)

	No. of events (1)	Avg. no. people killed (2)	Avg. no. people affected (3)	Avg. no. donors (4)
Earthquake	72	31,088.39	3,251,377.04	23.40
Flood	228	188.40	2,985,759.10	11.12
Landslide	16	472.04	65,084.46	9.64
Storm	118	8,180.48	1,945,625.34	14.96
Volcanic activity	16	64.55	70,874.75	13.03
Total	450	10,691.22	2,661,197.62	15.47

From the resulting difference, we exclude aid flows with a decision time greater than or equal to 180 days, since aid delivered with such a delay hardly aims at urgent needs that require speedy assistance. The selection of 180 days as cut-off level is in line with the UN's definition of a flash appeal, which structures a coordinated humanitarian response for up to six months after the start of an emergency.[15]

To be able to precisely measure the aid speed, we restrict our analysis to disaster types with a clearly identifiable start date. This means that we, similarly to Fink and Redaelli (2011), restrict our analysis to natural fast-onset disasters, and thus exclude events such as drought, extreme temperature, and insect infestation. The remaining disaster types include earthquakes, floods, landslides, storms, and volcanic activity. In a second step, we keep only those events that have a precise start day, i.e., exclude entries for which only a start month or year is available. This focus on fast-onset disasters comes with the advantage that it mitigates endogeneity concerns, since the exact outburst timing of these fast-onset disasters is unpredictable. Furthermore, the natural catastrophes themselves typically do not last more than a day—in contrast to the humanitarian catastrophe that they trigger, which can last much longer. Hence, differently from slow-onset events, such as cold winters or droughts, there is no reason to believe that the speed of aid may affect the occurrence and timing of a rapid-onset disaster nor whether and when such event is considered to be a humanitarian crisis.

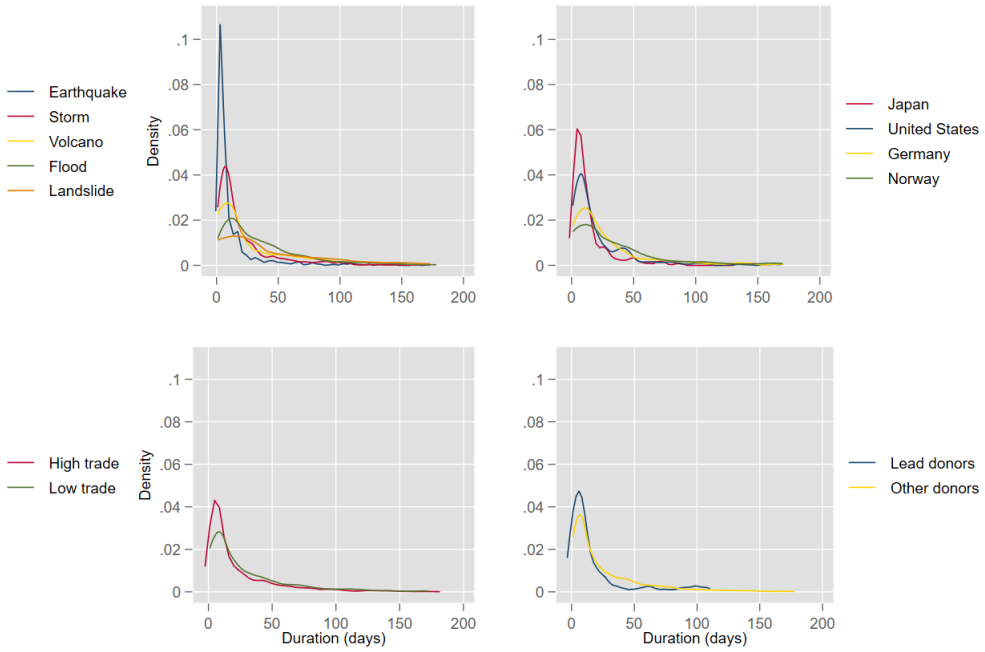
Our final sample consists of 392 fast-onset disasters. Since 29 of these affect more than one country at the same time, we end up with 450 emergency-recipient events. For example, the 2004 Indian Ocean tsunami affected at least nine different countries: India, Indonesia, Malaysia, Maldives, Myanmar, Seychelles, Somalia, Sri Lanka, and Thailand. Table 1 reports disaster-type-specific information on the frequency and severity of disasters, as well as on the average number of donors active per catastrophe in our sample.

Figure 1 illustrates how the distribution of our speed measure varies according to different dimensions. The upper-left panel shows significant heterogeneity with respect to disaster type. Donor countries' response time is the shortest after earthquakes, followed by storms. Landslides trigger the slowest response. Turning to differences among four selected donor countries, Japan has the shortest average response time to natural disasters, followed by the United States. Germany and Norway are significantly slower. The bottom-right panel shows that recipient-

[15]More information at https://www.unocha.org/sites/dms/CAP/FAs_What_you_need_to_know.pdf (accessed April 2020).

year-specific lead donors provide significantly faster assistance.[16] Finally, in the bottom-left corner, dividing the sample according to high and low trade ties between donor and disaster-affected country, we find that countries with closer commercial links (i.e., donor-recipient pairs with above-median export and import flows) get faster relief. Overall, we conclude from this figure that the speed of aid shows considerable variation across disaster types, donor countries, and according to the strength of commercial ties between donor and recipient.

Figure 1 – Duration Distribution



2.2 Correlates of the Speed of Aid

In the context of humanitarian aid, whose ethical foundations were established in humanitarian law, it would be particularly worrisome if the promptness of donor reaction were to be driven by ulterior motivations. In contrast to the more general development assistance, emergency relief's sole purpose is to temporarily assist individuals in times of great vulnerability, with no strings attached, and should be thus "provided in accordance with the principles of humanity, neutrality and impartiality" (OCHA, 2009). Therefore, to analyze whether our measure of speed of emergency aid, *Duration*, is associated with (bilateral) commercial and geopolitical motivations, we regress it on selected variables of interest using ordinary least squares.[17]

First, we analyze whether close trade partners receive preferential treatment, as speedier assistance may help mitigate the damage to commercial ties (Gassebner et al., 2010). If a donor country exports a substantial part of its production to a country that has been hit by a natural disaster, it may be inclined to provide aid faster than usual to make sure that its exports do not

[16] We define and discuss the concept of "lead donors" in Section 3.

[17] In the Appendix, we also present results for unilateral (donor and recipient) characteristics.

lose their market. Likewise, donors that rely on particular countries for crucial imports should react more quickly to avoid having their supply chains disrupted. We measure trade ties with (the logarithm of) both exports and imports flows between donor and recipient in constant 2010 US dollars (IMF, 2017).

Second, we examine the role of geopolitical ties for the speed of aid. It is not clear, *a priori*, how political alignment may affect the speed of humanitarian assistance. On the one hand, closer political ties could be associated with countries receiving faster aid from their allies. Donors may speed up their emergency aid to express their support of befriended countries or even to ensure the survival of politically-aligned governments in cases where a severe disaster threatens the political stability of an entire country (Drury and Olson, 1998, Drury et al., 2005). On the other hand, donors may give preferential treatment to persuade adversaries or recipients that are politically distant to make concessions to the donor in the future. This second effect seems to be more likely to influence emergency aid contributions rather than general development assistance. In contrast to emergency aid, the provision of assistance aimed at long-term economic and structural development requires a fair amount of collaboration between donor and recipient and hence at least some goodwill to facilitate negotiations (Fink and Redaelli, 2011, Annen and Strickland, 2017). Many aid initiatives have long-run goals, such as the alleviation of poverty, which require certain stability in bilateral relations. In contrast to general development aid, emergency aid requires hardly any negotiation and thus considerably less coordination with recipient countries. Therefore, it is reasonable to conceive that this type of aid provides donors with an opportunity to approach nations in distress, while bypassing potential bilateral conflicts.

The case of the 2010 Haiti earthquake provides a prime example of these two opposing mechanisms. In the aftermath of the disaster, Taiwan—which currently maintains diplomatic relations with 14 countries including Haiti—engaged in a large-scale humanitarian mission. Taipei's first rescue team reached Haiti on January 16 and the first medical team arrived five days later. (The People's Republic of) China, which considers Taiwan as a renegade province and attempts to isolate Taiwan diplomatically, showed similar generosity towards Haiti, despite refusing diplomatic relations with the government in Port-au-Prince as a consequence of Haiti's diplomatic recognition of Taiwan. Tubilewicz (2012, p.6) describes these activities of the two Asian donors as "aid competition." Beijing's first rescue team reached Haiti two days *before* the one sent by Haiti's close ally Taiwan. In line with the behavior of China in the case of the Haiti earthquake, Fink and Redaelli (2011) find politically *less* affine countries to be more likely to receive emergency aid from a particular donor. In a similar manner, we expect that less affine countries receive speedier assistance.

To measure political ties, we include the voting alignment between donor and recipient at the UN General Assembly, which is a widely used indicator in the empirical aid literature (e.g., Thacker, 1999, Kilby, 2009, 2011, Faye and Niehaus, 2012). More precisely, our indicator of political alignment between donor i and recipient r is the absolute difference of their ideal points,

calculated by Bailey et al. (2017).[18] That is, $UNGA\Delta_{i,r,t} = |idealpoint_{i,t} - idealpoint_{r,t}|$.[19]

Additionally, to account for transportation costs of aid provided in kind and for cultural similarities between countries, we control for (the logarithm of) geographic distance in kilometer between donor i and recipient r,[20] and for a binary variable that takes a value of one if both countries share an official language.[21]

Table 2 presents the results for increasingly conservative sets of fixed effects to deal with unobserved confounding characteristics. We start with emergency-recipient-fixed effects in columns 1 and 2, add donor-year-fixed effects in columns 3 and 4, include donor-disaster type-fixed effects in columns 5 and 6, and add donor-recipient-fixed effects in columns 7 and 8.[22] We show results for the full sample (uneven columns) and for G20 donors only (even columns). This allows us to focus on (mostly) large aid providers that presumably care the most about consolidating their own agendas abroad and have more agency to tie the speed of aid provision to their objectives. We observe the following. First, there is evidence that commercial and geopolitical ties are associated with relief promptness. We find that, in most specifications, the more a donor country relies on imports from the recipient country, the faster, on average, it provides assistance. According to column 8, our preferred specification, doubling the imported amount decreases *Duration* by 10%. In this strict model, which includes also donor-recipient-fixed effects, for the restricted sample of G20 donors (column 8), our results indicate that recipients which are less politically aligned with donors receive aid significantly quicker. This is in line the broader literature on humanitarian aid allocation, and in particular with Fink and Redaelli (2011) and Annen and Strickland (2017), who argue that emergency aid, due to its more short-term horizon, is frequently used as a less costly tool (in comparison to official development aid) to try to sway political "foes."[23] In our settings, however, due to our fixed-effect structure, these findings imply in particular that, for a given donor-recipient pair, aid provision gets faster (slower) if the pair become politically more distant (closer) over time.

Table 4 (in the Appendix) provides additional evidence of distortions in the speed of emergency aid. In the strictest specifications, we find that more democratic countries and recipients that occupy a seat at the UN Security Council at the time of the disaster are rewarded

[18] For each year, Bailey et al. (2017) estimate a country's ideal point within a one-dimensional preference space. How a country votes (i.e., yay, nay or abstain) in each UNGA vote is thus seen as a function of its ideal point. Therefore, the more similar are the voting behaviors of two countries, the closer their ideal points are, and hence the smaller the absolute difference between the two.

[19] Table 7 in the Appendix provides descriptive statistics of all variables.

[20] We define the distance between countries as the distance between the major cities of the two countries, weighted by their population size. See Mayer and Zignago (2011).

[21] Past research has shown that shorter distance and same language can facilitate the provision of emergency aid (e.g., Strömberg, 2007). We have also experimented controlling for donor and recipient having common colonial history and common major religion, but, contrary to sharing a language, these similarities did not turn out to play a significant role (results not shown).

[22] We include disaster-type dummies to account for unobserved characteristics of the different disaster types. It is conceivable that different types of disasters *per se* trigger different responses from the aid community. For example, Eisensee and Strömberg (2007) report that the newsworthiness of emergencies depends on disaster type.

[23] Bommer et al. (2019) show that humanitarian aid can also be distorted by regional differences within recipient countries, and favor, for instance, the birth region of political leaders.

with faster assistance.[24] We report that donors are nevertheless responsive to need, as aid speed increases significantly with the number of disaster victims.

Taken together, these results suggest that commercial and geopolitical ties affect the speed with which donors respond to humanitarian crises. However, these results should be interpreted with caution. Although we control for many confounding factors with various fixed effects, these results cannot be interpreted in a causal manner. What is more, our estimation sample only includes information on the decision time if the respective donor has committed aid after a specific disaster. Therefore, we thus face the problem of incidental truncation of our data. We thus turn to our analysis at the day level, thus mitigating both issues.

Table 2 – Correlates of the Speed of Aid

	b/se (1)	b/se (2)	b/se (3)	b/se (4)	b/se (5)	b/se (6)	b/se (7)	b/se (8)
Exports, D to R (log)	-0.0492***	-0.0278	-0.0158	0.0086	-0.0413***	-0.0163	-0.0312	-0.1485
	(0.0144)	(0.0201)	(0.0161)	(0.0220)	(0.0149)	(0.0214)	(0.0674)	(0.1818)
Imports, from R to D (log)	-0.0297**	-0.0715***	-0.0313**	-0.0512***	-0.0452***	-0.0686***	-0.0595	-0.1452*
	(0.0136)	(0.0198)	(0.0147)	(0.0152)	(0.0136)	(0.0202)	(0.0629)	(0.0693)
UNGA delta	-0.1823***	-0.1389**	0.0707	-0.1026	0.0650	-0.1379*	-0.9570	-2.0106**
	(0.0535)	(0.0630)	(0.1504)	(0.0866)	(0.1450)	(0.0788)	(1.4077)	(0.7250)
Distance (log)	0.0429	0.0121	0.1687**	0.1574**				
	(0.0694)	(0.0899)	(0.0775)	(0.0738)				
Common language	-0.1090	-0.0749	-0.1903**	-0.1545				
	(0.0921)	(0.0845)	(0.0811)	(0.0925)				
EMRE FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Donor-Year FE	No	No	Yes	Yes	Yes	Yes	Yes	Yes
Donor-Disaster FE	No	No	No	No	Yes	Yes	Yes	Yes
Donor-Recipient FE	No	No	No	No	No	No	Yes	Yes
Only G20 Donors	No	Yes	No	Yes	No	Yes	No	Yes
N	2582	1299	2427	1246	2399	1229	1369	777

Significance levels: * p < 0.1, ** p < 0.05, *** p < 0.01. Two-way clustered (at donor and recipient level) standard errors in parentheses. Dependent variable: *Duration*.

[24] See Kuziemko and Werker (2006), Dreher et al. (2009*a*) and Vreeland and Dreher (2014) for a discussion of why UN Security Council members would receive more aid.

3 Daily Analysis

We now turn our analysis to the event-day level. That is, for each disaster event, we study how the behavior of major aid providers (the United States or recipient-year-specific lead donors) affect the course of action of other donors, day after day, since we believe that these major, influential donors offer a clearer opportunity for identification, as these are, in most cases, the natural first movers.[25] This approach comes with the additional advantage that we can control for all information available to the international community with day fixed effects. Therefore, we build upon a rich strand of research on donor interaction that includes studies of both coordination (Djankov et al., 2009, Aldasoro et al., 2010, Bourguignon and Platteau, 2015) and competition (Fuchs et al., 2015, Steinwand, 2015, Davies and Klasen, 2019) between donors.

What makes our study different and significantly improves our ability to identify not only patterns of coordination and competition, but also important features of the political economy of humanitarian aid, is that we can, roughly speaking, watch the response to disaster emergencies as it unfolds, day after day. Instead of only looking at the final picture, as the previous literature does, our unique vantage point lets us track arguably causal reaction chains among donors. Thus, in addition to observing who is moving after whom, we can single out commercial and geopolitical drivers of daily aid decisions. To be clear, we do not only expect competition between donors to affect the speed of their aid decision, but that competitive behavior affects the response timing differentially based on the strength of donors' interests.

3.1 Empirical Strategy

To test whether there is a causal link between donor countries' commercial and political interests and the speed of aid, we take full advantage of the daily nature of our data. We construct a panel data set in which the unit of analysis is donor-emergency-recipient by day. That is, for every emergency-recipient event, we observe each of our 45 donor countries for a maximum of 180 days from disaster start until the day in which the donor decides to provide aid.[26]

The question that we want to answer is whether and how, during a specific emergency, the

[25] Nevertheless, it is important to note that characterizing donor interaction is not trivial. The difficulties begin already in trying to assess, from an empirical standpoint, what kind of outcome is actually efficient. For instance, even though there is ample debate in the literature about what would be the ideal behavior of a group of donor countries in the aftermath of a disaster, it is still not straightforward to characterize, from the outside, what the most desirable outcome would be. On the one hand, it is clear that we should avoid having some donor countries free riding on others. On the other hand, however, a scenario in which a large set of countries, even if only to show goodwill, provide so much assistance (and this is particularly the case for perishable in-kind aid) that it becomes superfluous and overwhelms recipients' absorptive capacity and needs is not efficient either. Moreover, the fact that aid has arguably both private and public-good-like properties further complicates the issue, as successful coordination may imply different things to different kinds of aid (Steinwand, 2015). According to Steinwand (2015, p.444), "[p]rivate good characteristics arise when donors obtain a benefit from providing aid that is not shared with other donors," whereas "[p]ublic goods characteristics of aid arise when donors use aid to promote goals that are shared and can be enjoyed by other donors, such as improved public health and general economic development."

[26] In most specifications in this section, some donors inevitably leave the sample, either because they never provided assistance in response to a disaster in which the major donor has also been involved or due to the fixed-effect structure.

aid decision of important donors to provide aid today influences the behavior of other (potential) donors tomorrow and, by doing so, nudges the latter to speed up. *A priori*—if there is an effect at all—we would expect that the aid decision by major countries could either encourage other donors to help or end up crowding out resources that would otherwise have been donated. To help disentangling these conflicting motivations, we use bilateral and trilateral variation in commercial and political similarity among countries involved in each of the disaster events in our sample.[27] In our baseline specifications, we analyze how donors react to aid decisions taken by the United States, the largest (in terms of total amount donated) and most frequent donor in our sample, and by the recipient-country-year-specific lead donor.

According to Steinwand (2015), two attributes separate lead donorship from conventional aid provision: lead donors typically maintain long-term bonds with the recipient countries under their sphere of influence, and their leadership role is evident to all. The second point is particularly relevant in our setting, as it strengthens our case that lead donors are, by definition, at a privileged position to drive the behavior of other donors. To empirically determine which country (if any) is the lead donor in each recipient country in a given year, we use data on official development assistance (ODA) provided by the OECD (2020). We follow Steinwand (2015) and require that the lead donor meets all of the following five criteria: (i) the lead donor has the largest share in the recipient country's aid receipts in a given year; (ii) the lead donor has the largest share in the recipient country's aid receipts during at least five out of nine consecutive years;[28] (iii) the lead donor must not drop out of the first place (in terms of aid share) for more than two consecutive years within this nine-year window; (iv) the share of the lead donor must be substantially larger than that of the second largest donor;[29] and (v) the lead donor must operate in a concentrated environment (i.e., with small donor fragmentation).[30] The most frequent lead donor in our sample is the United States (33 recipient-year pairs), followed by Japan (24), Australia (15), and France (12). About 24% of the recipient-year pairs in our sample have a lead donor. Figure 3, in the Appendix, indicates the most frequent lead donor (if any) in each recipient country during our sample period.

With this in mind, we proceed to estimating the following regression equation using ordinary least squares:

$$Aid_{i,k,r,d} = \gamma_1 Aid_{j,k,r,d-1} + \gamma_2 Aid_{j,k,r,d-1} \times SI_{i,j,k,r,t-1} + H(Days_{i,k,r,d}) + v_{i,k,r,d} \qquad (2)$$

where our dependent variable, $Aid_{i,k,r,d}$, is a binary variable that indicates whether donor

[27] In our setting, 'trilateral' refers to two donors and one recipient country; and 'bilateral' refers to two donor countries.

[28] This is to avoid short-term fluctuations. Steinwand (2015) argues that aid programs often last around four to five years, and thus requires the lead donor to be the major aid provider in the majority of the time during approximately two aid cycles.

[29] The difference between the top two shares must be larger than the conditional median of this difference for the subsample that satisfies the longitudinal criteria.

[30] The aid environment in a recipient-year is considered concentrated if the Hirschman-Herfindahl Index (HHI) of donor concentration is above median for the subsample that satisfies the longitudinal criteria.

country i on day d has already provided any humanitarian assistance to recipient country r in response to disaster k. On the right-hand side of the equation, we include a binary variable that indicates whether major donor j (the United States or the lead donor) has already decided to provide aid on day $d-1$ and an interaction variable between $Aid_{j,k,r,d-1}$ and one of three similarity indices, $SI_{i,j,k,r,t-1}$.[31] We test three different channels: two indices reflecting commercial competition, and one that captures joint political interests.

Moreover, we add a polynomial function ($H(.)$) of the number of days passed between disaster start and the decision date of donor i to provide its first assistance.[32] To account for unobserved characteristics that may influence the timing of aid provision, we include in all specifications weekday-, day-of-the-month-, month-, and emergency-donor-fixed effects.

In some specifications (as indicated in the table below), we also add emergency-day-fixed effects, i.e., 180 binary variables for each day after disaster start. Although this comes with the disadvantage of no longer being able to identify the common effect that the decision date of aid provision by major donor j has on the behavior of other donors (γ_1 in Equation (2)), it significantly improves the identification of the interaction term. Once we control for all disaster-day-specific variation that is common to all donors (for example some new information on disaster impact becoming available to the international community), we are able to pin down in which ways a donor's decision to (not) follow a major donor depends on its commercial and political interests.

Starting with economic motivations, we construct trilateral indicators of export and import similarity between donors i and j, relative to recipient country r. To capture commercial competition between donors in the respective recipient country, we use sectoral (SITC, Rev. 2) international trade data (Growth Lab, 2019) and, following Finger and Kreinin (1979) and Fuchs et al. (2015), calculate both export and import similarity indices (ESI and ISI, respectively) for each donor pair in a particular recipient country. Thus, the similarity of the export structure of donor countries i and j in recipient country r, in year t, is given by:

$$ESI_{i,j,r,k,t} = \sum_{s} Min(X_s^{i,r,k,t}; X_s^{j,r,k,t}) \in [0,1] \tag{3}$$

where $X_s^{i,r,k,t}$ represents i's exports in sector s to r in year t as a share of i's total exports to r in t. Analogously, we use the sectoral import share instead to calculate $ISI_{i,j,r,k,t}$. The indices take values between zero and one, with one indicating perfect similarity. Figure 2, in the Appendix, shows the ESI and ISI between the United States and Japan, two important donor countries in our sample, in each recipient country. We hypothesize that donors with a higher similarity in export and import structures with respect to the major donor in a given disaster-affected country are more likely to give emergency aid when major donors decide to do so, which implies a positive γ_2.

Turning to donors' geopolitical interests, we create a political similarity index, $PSI_{i,j,t}$, to measure alignment between donor countries based on their voting patterns at the UN General

[31] The similarity indices do not vary daily, but rather yearly, which is why they are indexed by t.
[32] In our baseline specification, we control for a polynomial function of degree 3.

Assembly. We follow our approach in Section 2, but now use the ideal-point distance between donors, i.e., $UNGA\Delta_{i,j,t} = |idealpoint_{i,t} - idealpoint_{j,t}|$. Then, we construct an index that increases with the similarity of votes cast by donor countries i and j in year t:

$$PSI_{i,j,t} = \frac{-UNGA\Delta_{i,j,t} - Min(-UNGA\Delta_{i,j,t})}{Max(-UNGA\Delta_{i,j,t}) - Min(-UNGA\Delta_{i,j,t})} \in [0,1] \tag{4}$$

As previously discussed, and differently from our measures of trade similarity, the implications of donor countries having more similar foreign-policy preferences are not straightforward, and are thus particularly worthy of empirical examination. Whereas a positive coefficient for the interacted PSI would indicate that donors are more likely to follow the leadership of important countries if they are politically aligned—and thus signal cooperation—a negative parameter could be evidence of donor competition fueled by geopolitical rivalries.

3.2 Results

Table 3 presents the results for the daily analysis. We analyze how donors react to the aid decision of both the recipient-year-specific lead donors (columns 1-4) and that of the United States (columns 5-8) as a function of donors' export similarity (panel A), import similarity (panel B), and political similarity (panel C). All specifications include weekday, day of the month, month, and emergency-donor fixed effects, and a 3rd-order polynomial function of the number of days passed between disaster start and each donor's decision to provide first assistance.

Starting with panel A, we find that a commitment to provide emergency aid by both the lead donor and the United States significantly increases the probability that other donors will also decide to commit on the day after. More interestingly, the likelihood that these donors will follow increases with ESI (at the 1%-level of significance). According to our strictest specification, in column 3, which includes emergency-day fixed effects, the lead donor commitment makes it 28.3 percentage points more likely that a donor country with an identical export structure (in a given affected country) also commits to provide aid on the next day. Considering that the mean of the dependent variable is below 4%, the effect is also sizable: 1.9 points for the average ESI with the lead donor in our sample (0.07). When we look at the reaction to the United States, the interaction term for the full donor sample is also significant at the 1% level, and indicates that the probability of donors with the same export structure to follow increases by 14.7 percentage points. Setting ESI to its sample mean of 0.28, the effect is with 4.1 points far from neglegible. Perhaps surprisingly, we obtain similar results when we restrict the sample of donors to G20 members. These results show that major donors induce other donors to speed up their aid giving if they compete over export markets.

Turing to panel B, we do only find weak evidence that competition over import goods leads to a similar crowding-in effect. The level effect of the major-donor commitment remains positive and statistically significant, but its interaction term is in most cases indistinguishable from zero.

Finally, when we look at PSI (panel C), we find some evidence that the interaction among donors is also affected by political ties. In this case, however, rather than competition, our results indicate that the crowding-in effect of lead donors increases with foreign-policy alignment,

which could thus signal policy coordination or, at least, international leadership. It is remarkable that this leadership role seems to be played by the respective lead donor and that the United States does not fulfil this function in the average country. Restricting the sample to G20 donors, the effects become stronger, which is in line with our expectations that larger donors are those that care the most about foreign policy. To sum up, comparing these findings with the evidence (discussed in the previous section) that donor countries provide faster assistance to recipients which are less politically aligned brings valuable insights, and demonstrates, in particular, how different the bilateral relationship between donors is from that between donor and recipient.

Table 3 – Donor Competition and the Speed of Aid

	Dependent variable: *Aid*							
	Lead	Lead	Lead	Lead	USA	USA	USA	USA
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
	Panel A: Export Similarity							
Aid Major	0.050**	0.045**			0.029***	0.053***		
	(0.018)	(0.020)			(0.011)	(0.014)		
ESI * Aid Major	0.171**	0.224***	0.283***	0.245***	0.077***	0.042	0.147***	0.156*
	(0.064)	(0.028)	(0.060)	(0.065)	(0.025)	(0.032)	(0.035)	(0.087)
	Panel B: Import Similarity							
Aid Major	0.066***	0.081**			0.047***	0.063***		
	(0.021)	(0.031)			(0.009)	(0.010)		
ISI * Aid Major	0.113*	0.112*	0.047	0.048	0.015	0.012	0.035	0.011
	(0.061)	(0.061)	(0.055)	(0.050)	(0.017)	(0.018)	(0.023)	(0.027)
	Panel C: Political Similarity							
Aid Major	0.017	-0.019			0.050**	0.068*		
	(0.040)	(0.033)			(0.023)	(0.038)		
PSI * Aid Major	0.114*	0.197***	0.074	0.190**	0.004	-0.001	0.056	0.095*
	(0.059)	(0.053)	(0.075)	(0.074)	(0.038)	(0.057)	(0.036)	(0.051)
H(Daycount)	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Weekday FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Day FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Month FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Emergency-Donor FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Emergency-Day FE	No	No	Yes	Yes	No	No	Yes	Yes
Only G20 Donors	No	Yes	No	Yes	No	Yes	No	Yes
N	14,152	6,004	11,057	4,099	65,947	26,168	53,464	16,963

Significance levels: * p < 0.1, ** p < 0.05, *** p < 0.01. Two-way clustered (at donor and recipient level) standard errors in parentheses. All regressions include weekday, day of the month, month, and emergency-donor fixed effects, and a 3rd-order polynomial function of the number of days passed between disaster start and each donor's decision to provide first assistance. Major (donor) stands for recipient-year-specific lead donors in columns 1 to 4 and for the United States in columns 5 to 8.

3.3 Robustness

Work in progress.

4 Conclusion

Although much has been written about what determines the allocation of emergency relief (e.g., Drury et al., 2005, Fink and Redaelli, 2011, Raschky and Schwindt, 2012), less attention has been dedicated to one of the most important prerequisites for its effectiveness: the speed of its provision. Donor countries differ substantially in terms of how fast they respond to natural disasters, and we provide novel evidence that some of these variations are systematic, and not only driven by need: commercial and geopolitical interests play a significant role in explaining the speed of emergency aid. Closer trade partners and countries that have conflicting foreign-policy preferences receive faster assistance, and so do richer and more democratic recipients. Even if we cannot be certain if these distortions necessarily imply deliberate favoritism from the part of donor countries, they are nevertheless concerning. Based on the ethical principles of humanitarian law, emergency aid has been devised as a tool to provide quick (mostly short-term) relief to countries at times of great vulnerability, regardless of potential differences or animosity. As our results indicate, however, this is not what happens in practice.

Commercial and geopolitical biases in the speed of aid are also visible in the interaction between donors whose aid decisions are a function of the behavior of major (competing) donors. Exploiting daily aid data after natural catastrophes, we find that donor countries are more likely to provide aid on the day after a major donor has decided to do so. This effect is stronger if the donor competes with the major donor over exports in the respective disaster-affected country. Specifically, the likelihood that countries speed up and follow the decision of major donors to donate increases substantially with the similarity of the pair's exports to a given disaster-struck recipient.

Our results indicate, furthermore, that donor interaction is not exclusively driven by competitive behavior. The evidence of commercial competition notwithstanding, in some cases there are also signs that important recipient-year-specific lead donors (as defined by Steinwand, 2015) prompt politically-aligned countries to follow their aid decisions, indicating thus coordination along geopolitical lines.

Since we exploit daily variation in the data and are thus able to include of a comprehensive set of fixed effects—even for every calendar day after each disaster, which removes any common effect that a specific day may have on the behavior of all donors—we obtain arguably causal estimates. At the same time, we acknowledge several limitations of our analysis. First, we lack information on the actual delivery date and are thus confined to an analysis of commitment dates. Although aid commitments are legally binding, information on the day the aid flow arrives at the disaster-affected area would help to grasp the implications for aid effectiveness. Second, future research on emergency aid should put more emphasis on how aid requests from disaster-affected countries affect donor response. The recipient behavior is an important part of the donor decision to provide aid (Carnegie and Dolan, n.d.). Third, although a speedy decision-making process is an important prerequisite for (most types of) disaster aid to be effective, a fast response following a disaster is not the sole objective of emergency assistance. Disaster preparedness, for example, should be an important part of humanitarian aid activities. To the extent to which a long decision time stems from aid coordination efforts among donors or from

a focus on reconstruction and disaster preparedness, donors should not be solely judged on their aid promptness. Beyond the timeliness of the aid decision, future research should evaluate the effectiveness of disaster aid efforts more broadly.

Furthermore, more research is needed to understand how to create binding mechanisms that foster collaboration and take advantage of heterogeneous donor expertise. In line with Annen and Knack (2018) and Dellmuth et al. (2021), our results indicate that delegating aid implementation to multilateral agencies may be a promising way to improve aid allocation and effectiveness.

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Appendix

A Additional correlates of the Speed of Aid

In addition to the bilateral characteristics discussed above, we also analyze whether the variation in our measure of aid speed, *Duration*, is explained by recipient and donor characteristics.

A.0.1 Recipient Characteristics

The economic variables of interest in this case are recipient's GDP per capita (in logarithmic form) and trade (exports and imports) as a percentage of GDP—both taken from WDI. The former is not only a a measure of a country's economic importance, but also reflects its self-aid capacity.[33] The latter is a measure of trade openness, which we expect to be positively correlated with the speed of aid.

To capture donor's political interests in the disaster-affected country, we add a dummy variable that takes a value of one if a recipient is a temporary member of the UNSC. In line with Dreher et al. (2009*a*,*b*), we expect donors to engage in vote-trading activities and thus to provide faster aid to UNSC members. Note, however, that a positive coefficient could be simply explained by the fact that disaster-struck UNSC members can arguably communicate their humanitarian needs to a greater audience of potential donors and thus mobilize faster disaster aid (again, see Dreher et al., 2009*a*,*b*). Moreover, we add recipient's UNGA ideal point to account for its foreign-policy preferences.

We include, in addition, an index that reflects the quality of electoral democracy in the recipient country.[34] On the one hand, (democratic) donors may be more likely to provide aid to democracies faster in order to support the recipient's institutions. On the other hand, donors could also favor autocracies if they believe that countries with such a regime are less capable to handle disasters by themselves (see Sen, 1991).[35] Moreover, aid effectiveness could differ in democracies and autocracies. Accordingly, Plümper and Neumayer (2009) find that, in the context of famines, autocracies need much more aid to reduce mortality. Finally, donors guided by commercial interests could provide faster support to autocracies to buffer trade reductions. As the evidence presented by Gassebner et al. (2010) suggests, trade with autocracies suffers more from disasters than commercial relationships of democracies.

There are several reasons to believe that the speed with which a country receives aid depends also on its institutional characteristics. For instance, donors may reward recipient merit (see Öhler et al., 2012) and, if this is the case, countries with a lower level of corruption should be more likely to receive timely support after a catastrophe. Besides, donor decisions may take recipients' institutional capacity into account and thus provide faster emergency aid to counteract the reduced self-aid capacity. More specifically, donors may anticipate that their humanitarian aid takes longer to arrive at the final destination in countries with high levels of

[33] A positive coefficient for recipient GDP per capita would not necessarily indicate foul intentions by donors, as poorer recipient countries are likely more difficult to reach.

[34] V-DEM's Electoral democracy index.

[35] Most of the 45 donors in our sample are democracies.

corruption and thus donate faster to ensure prompt delivery. To at least partially capture these phenomena, we include a measure of control of corruption as a proxy of institutional quality (Kaufmann et al., 2009).[36]

We follow Raschky and Schwindt (2012) and use population size (in logarithmic form) as a further control for the socioeconomic environment.[37] Finally, this setting allows us to include disaster-type, donor-year, donor-disaster-type, recipient, and donor-recipient fixed effects.

A.0.2 Donor Characteristics

Finally, we analyze whether also donor characteristics are relevant to explain the speed of humanitarian assistance. Similarly to the recipient-level analysis, we include (the logarithm of) donor GDP per capita and trade as a percentage of GDP, as we expect donors that are richer and more active in international trade to provide aid faster—either because of self-interest or because they are in a position to act quicker. Besides, we also include donors' UNGA ideal point to account for political alignment.

Furthermore, we control for the size of donor population (in logarithmic form), and for the quality of donor democratic institutions. Donor population size proxies donor countries' aid capacity, which we thus expect to be negatively associated with decision time. With respect to the regime type of donors, decision-making processes in authoritarian donor countries are less constrained by veto players than in democracies, where checks and balances may slow down decisions. In Saudi Arabia and Morocco, for example, the king decides whether to provide emergency aid.[38] At the same time, the need to satisfy veto players and different opinions represented in legislature and government could lead to quicker decision-making processes as different groups lobby for their interests.[39] Which of these two effects dominates the other is an empirical question.

We include, additionally, a dummy variable indicating whether a donor country is part of the OECD Development Assistance Committee (DAC) in a given year. While all DAC donors endorse the GHD framework and thus the associated timely response requirements, non-DAC donors also highlight the rapidity of their response and emphasize their reaction time as being a key point of distinction with their DAC counterparts (Harmer and Martin, 2010). Non-DAC donor Israel, for example, claims that "[n]o other country can dispatch search and rescue teams and field hospitals as fast and effectively."[40] Similarly, India's government highlights its speedy

[36]The control of corruption index "[r]eflects perceptions of the extent to which public power is exercised for private gain, including both petty and grand forms of corruption, as well as 'capture' of the state by elites and private interests" (Kaufmann et al., 2009).

[37]We had also included population density as an additional control variable, as different predictions exist with regards to its effect on humanitarian response (see Fink and Redaelli (2011)). On the one hand, densely populated areas may be in larger need of assistance as a greater density complicates evacuation of survivors, and may thus facilitate the spread of infectious diseases. On the other hand, areas with high population density may possess better networks that ease rescue efforts after a disaster. Nevertheless, it did not seem to play a role for the speed of aid.

[38]See Al-Yahya and Fustier (2011) for an overview on Saudi Arabia's humanitarian aid.

[39]See Round and Odedokun (2004) for a discussion of the role of checks and balances on aid effort.

[40]Israel also claims that its "200-strong relief team was the first on the scene in January 2010 after the earthquake hit Haiti" and that it "was one of the first countries to send aid according to the needs

assistance, which is tied to the country's ambition for increasing international visibility (Meier and Murphy, 2011). While the comparative advantage of DAC donors may lie in their significant experience with aid delivery, non-DAC donors might be able to decide on aid provisions in a more flexible manner given their independence from a regulatory aid framework or the need for coordination with other donors (see ECOSOC, 2008, for a discussion).[41] At the same time, however, most non-DAC donors do not have dedicated facilities or capacities to quickly disburse funds after a shock.

We include also emergency-recipient, donor, donor-disaster-type and donor-recipient fixed effects.

With respect to recipient characteristics, the results in Table 4 show that not only need (measured by the total number of people killed by each disaster) explain aid speed. Our findings show that when disasters hit places that are richer and more democratic, it takes on average fewer days for donors to commit to their first aid flow. Although this could be an indication of favoritism, it may just as well be the case (not necessarily less problematic) that these countries, due to being more developed, are simply able to vent their needs faster and more effectively. Nevertheless, it is remarkable that the result for democracy survives (and actually increases in magnitude after) the inclusion of donor-recipient fixed effects.

Lastly, as reported in Table 5, donor characteristics provide a more nuanced picture. In addition to the clear positive relationship between country size (in terms of population) and aid speed, among the subsample of G20 donors, we find that countries with foreign-policy preferences that are more liberal, or Western, are on average significantly slower to provide assistance. In fact, according to column 8, increasing a donor ideal point by one standard deviation would slow its aid provision by almost 80%. Moreover, our results indicate that DAC donors are faster, and more democratic donors are, if anything, slower to provide relief.

and request of the Japanese government" after the 2011 earthquake. See website of Israel's Ministry of Foreign Affairs, available at: https://mfa.gov.il/MFA/ForeignPolicy/Aid/Pages/default.aspx (accessed February 2021).

[41] India, for example, lacks a common humanitarian aid policy. Meier and Murphy (2011, p.11) describe the country's humanitarian aid bureaucracy as "organically grown" with decisions made "in an ad hoc manner" and "on a case-by-case basis." They conclude that "such a flexible set up enables India to [...] provide aid quickly".

Table 4 – Correlates of the Speed of Aid (Recipient)

	b/se (1)	b/se (2)	b/se (3)	b/se (4)	b/se (5)	b/se (6)	b/se (7)	b/se (8)
(R) Trade (%GDP)	0.0009	0.0008	0.0012	0.0007	0.0066	0.0074	0.0096*	0.0095*
	(0.0011)	(0.0013)	(0.0012)	(0.0013)	(0.0051)	(0.0051)	(0.0048)	(0.0049)
(R) UNSC	-0.1060	-0.0539	-0.0733	-0.0121	-0.2395	-0.1214	-0.3103*	-0.3154*
	(0.1180)	(0.1297)	(0.1192)	(0.1344)	(0.1678)	(0.1662)	(0.1536)	(0.1567)
(R) UNGA Ideal Point	-0.0391	-0.0105	-0.0377	-0.0211	0.0723	0.2112	0.0895	0.1725
	(0.0908)	(0.0831)	(0.0900)	(0.0812)	(0.2659)	(0.2348)	(0.2854)	(0.2696)
(R) Democracy Index	-0.5139**	-0.6991***	-0.5213**	-0.6921***	-1.2046*	-1.7837**	-1.3687**	-1.8939**
	(0.2237)	(0.1881)	(0.2256)	(0.1909)	(0.6576)	(0.6402)	(0.5910)	(0.6530)
(R) GDP p.c. (log)	-0.2085***	-0.1855**	-0.2158***	-0.1897**	-0.5934	-0.8045	-1.5431**	-1.0983
	(0.0724)	(0.0674)	(0.0731)	(0.0686)	(0.7530)	(0.8266)	(0.6777)	(0.6287)
(R) Corruption index	0.2470**	0.2374***	0.2433**	0.2353**	-0.2167	-0.3141	-0.3020	-0.3780
	(0.0960)	(0.0811)	(0.0967)	(0.0829)	(0.2677)	(0.3133)	(0.2695)	(0.3376)
(R) Population (log)	0.1002***	0.1082***	0.1039***	0.1036***	3.2064*	2.2174	2.9308	2.7325
	(0.0227)	(0.0244)	(0.0233)	(0.0264)	(1.7946)	(1.9516)	(1.9555)	(2.0857)
Total killed (log)	-0.1343***	-0.1303***	-0.1444***	-0.1357***	-0.1492***	-0.1338***	-0.1755***	-0.1483***
	(0.0164)	(0.0185)	(0.0168)	(0.0177)	(0.0144)	(0.0188)	(0.0183)	(0.0209)
Disaster-type FE	Yes	Yes	No	No	No	No	No	No
Donor-Year FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Donor-Disaster FE	No	No	Yes	Yes	Yes	Yes	Yes	Yes
Recipient FE	No	No	No	No	Yes	Yes	No	No
Donor-Recipient FE	No	No	No	No	No	No	Yes	Yes
Only G20 Donors	No	Yes	No	Yes	No	Yes	No	Yes
N	2404	1250	2370	1234	2360	1218	1444	882

Significance levels: * p < 0.1, ** p < 0.05, *** p < 0.01. Two-way clustered (at donor and recipient level) standard errors in parentheses. Dependent variable: *Duration* (log).

Table 5 – Correlates of the Speed of Aid (Donor)

	b/se (1)	b/se (2)	b/se (3)	b/se (4)	b/se (5)	b/se (6)	b/se (7)	b/se (8)
(D) DAC	-0.1669	-0.3921**	-0.2982*	-0.5747***	-0.3262*	-0.6024***	-0.2176	-0.5248
	(0.1186)	(0.1726)	(0.1556)	(0.1961)	(0.1660)	(0.1887)	(0.3862)	(0.3891)
(D) Trade (%GDP)	-0.0000	0.0026	0.0025	0.0121**	0.0037*	0.0110**	-0.0005	0.0199**
	(0.0005)	(0.0025)	(0.0019)	(0.0044)	(0.0020)	(0.0050)	(0.0033)	(0.0071)
(D) UNGA Ideal Point	-0.0505	-0.0381	0.0830	0.4781***	0.1202	0.5714***	0.3062	0.7023***
	(0.0532)	(0.0587)	(0.1894)	(0.1010)	(0.2185)	(0.0953)	(0.2777)	(0.1927)
(D) GDP p.c. (log)	-0.1029	-0.0323	-0.2036	0.3755	-0.1744	0.3330	-0.1746	0.9831
	(0.0705)	(0.0858)	(0.3586)	(0.4544)	(0.3683)	(0.4127)	(0.4859)	(0.7455)
(D) Democracy Index	-0.2614	-0.1317	1.0738	0.5364	0.6516	0.0326	1.5978	3.6243**
	(0.2369)	(0.2921)	(1.1192)	(1.0231)	(1.1197)	(1.0888)	(1.9208)	(1.3425)
(D) Population (log)	-0.1219***	-0.0749	-1.5068***	-1.6754**	-1.2780***	-1.3223***	-2.5617***	-3.3163**
	(0.0372)	(0.0433)	(0.4353)	(0.7359)	(0.4359)	(0.4262)	(0.7239)	(1.4999)
EMRE FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Donor FE	No	No	Yes	Yes	No	No	No	No
Donor-Disaster FE	No	No	No	No	Yes	Yes	Yes	Yes
Donor-Recipient FE	No	No	No	No	No	No	Yes	Yes
Only G20 Donors	No	Yes	No	Yes	No	Yes	No	Yes
N	2737	1345	2737	1345	2708	1333	1672	879

Significance levels: * p < 0.1, ** p < 0.05, *** p < 0.01. Two-way clustered (at donor and recipient level) standard errors in parentheses. Dependent variable: *Duration* (log).

Table 6 – List of Donors

	No. of contributions	Total amount contributed (USD million)	Average duration (days)
Argentina	20	0.10	24.40
Australia	98	53.16	22.40
Austria	46	13.71	34.43
Belgium	50	25.29	33.58
Brazil	31	4.91	23.90
Canada	124	23.78	22.44
China	41	38.71	18.17
Cyprus	19	0.90	56.68
Czech Republic	50	6.74	27.70
Denmark	75	9.24	25.76
Estonia	28	1.89	16.18
Finland	43	15.69	25.70
France	110	31.45	20.10
Germany	178	35.72	28.71
Greece	38	5.91	21.50
Hungary	23	0.75	24.83
India	14	12.22	17.93
Indonesia	8	5.53	10.75
Ireland	78	18.15	30.47
Israel	18	2.82	17.17
Italy	116	27.87	22.00
Japan	153	27.36	15.23
Korea, Republic of	67	9.67	20.96
Luxembourg	96	10.23	37.24
Monaco	24	1.65	50.42
Netherlands	66	40.62	26.55
New Zealand	67	20.18	26.13
Norway	124	37.78	33.07
Poland	23	2.00	19.87
Portugal	17	3.03	19.06
Russian Federation	34	40.84	17.88
Saudi Arabia	47	513.06	35.77
Singapore	38	1.21	24.61
Slovakia	18	5.22	19.28
Slovenia	19	1.23	14.37
South Africa	11	0.93	26.73
Spain	95	53.36	21.62
Sweden	146	27.72	27.68
Switzerland	97	22.49	39.21
Thailand	18	1.10	19.22
Turkey	61	57.64	33.31
United Arab Emirates	55	19.43	41.13
United Kingdom	86	68.58	25.60
United States	295	54.38	20.71
Venezuela	21	0.42	20.90

Table 7 – Descriptive Statistics

	Disaster-Level Analysis				
	mean	sd	min	max	count
Duration (days)	25.91	31.01	1.00	178.00	2,886
Total killed (log)	5.03	3.04	0.00	12.31	2,886
(R) Trade (%GDP)	66.02	32.54	0.17	277.14	2,693
(R) UNSC	0.09	0.28	0.00	1.00	2,886
(R) UNGA Ideal Point	-0.45	0.60	-2.07	2.33	2,822
(R) Democracy Index	0.49	0.22	0.08	0.91	2,745
(R) GDP p.c. (log)	7.62	0.99	5.46	10.85	2,814
(R) Corruption index	-0.54	0.60	-1.72	2.34	2,881
(R) Population (log)	16.89	1.99	9.30	21.01	2,878
(D) Trade (%GDP)	83.10	67.49	19.80	437.33	2,862
(D) UNGA Ideal Point	1.06	0.84	-1.37	2.94	2,871
(D) GDP p.c. (log)	10.50	0.71	6.77	12.15	2,886
(D) Democracy Index	0.81	0.20	0.02	0.92	2,862
(D) Population (log)	17.03	1.76	10.38	21.04	2,886
Exports, D to R (log)	13.39	3.16	0.00	20.99	2,814
Imports, from R to D (log)	12.96	3.72	0.12	22.00	2,765
UNGA delta	1.58	0.88	0.00	4.36	2,808
Distance (log)	8.78	0.70	5.63	9.88	2,853
Common language	0.16	0.37	0.00	1.00	2,853
	Daily Analysis				
	mean	sd	min	max	count
Aid	0.04	0.19	0.00	1.00	74,780
Aid USA	0.75	0.43	0.00	1.00	466,380
Aid Lead	0.75	0.43	0.00	1.00	131,040
ESI USA	0.28	0.19	0.00	0.75	519,480
ESI Lead	0.07	0.16	0.00	0.75	519,480
ISI USA	0.32	0.28	0.00	1.00	519,480
ISI Lead	0.08	0.19	0.00	0.95	519,480
PSI USA	0.60	0.20	0.00	1.00	516,780
PSI Lead	0.76	0.20	0.00	1.00	130,320

Figure 2 – Export and Import Similarity Indices of Japan and the United States (2000-2016 Average)

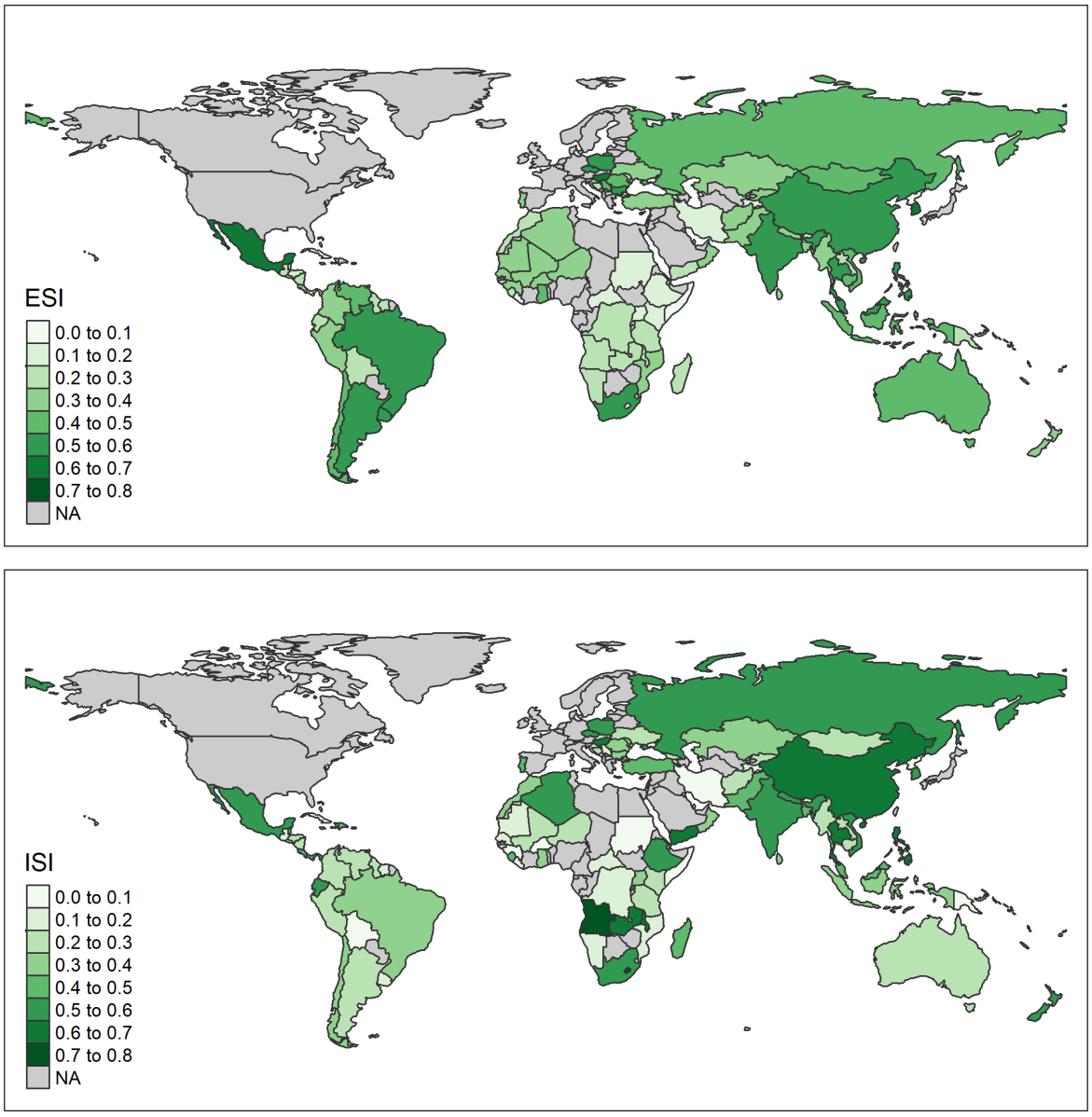
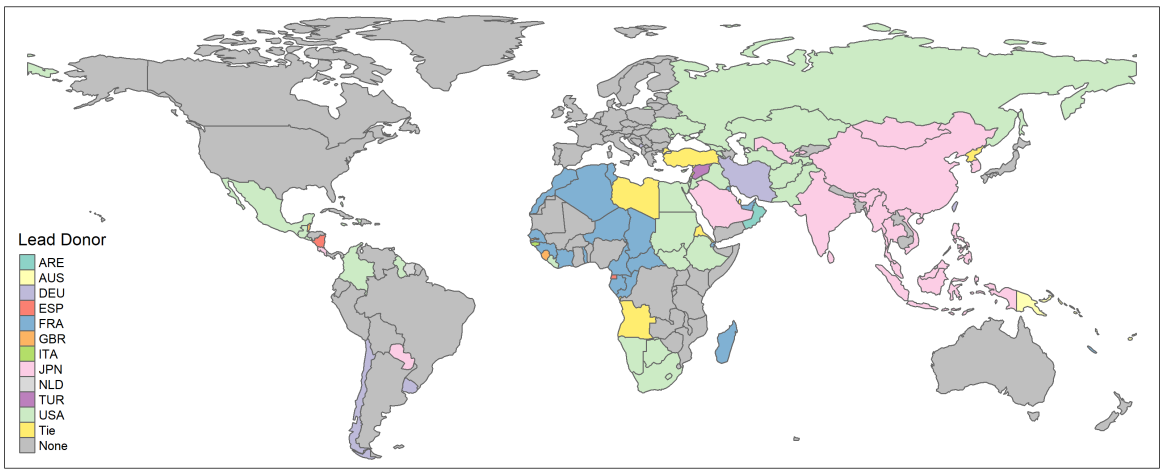


Figure 3 – Most Frequent Lead Donor by Country (2000-2016)



New Zealand and Portugal are the most frequent lead donors in some small island states that do not show up in the map.