

# Keeping Friends Close, But Enemies Closer: Foreign Aid Responses to Natural Disasters

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## Abstract

*World framing...* // Natural disasters represent rare opportunities for strategic opponents to actively inflict harm, or at the very least, passively enjoy tactical advantages over afflicted countries. However, contrary to the extant literature that has found that aid donors are largely motivated by strategic considerations when dispensing aid, anecdotal evidence suggests that countries often receive substantial humanitarian aid following natural disasters, even from strategic opponents. In this paper, we square this seeming incongruity by arguing that natural disasters can serve to, at least temporarily, emphasize the humanitarian, as opposed to the political or economic, aspects of a bilateral relationship. We argue that natural disaster severity increases the likelihood of donors giving humanitarian aid to strategic adversaries in the short term. However, we find that in the long-term, donors are still more likely to pursue strategic self-interest by increasing civil society aid to strategic adversaries following a natural disaster. We test our findings using a new measure of strategic interest which we argue improves upon existing measures by accounting for third-order dependencies in dyadic data. Our findings suggest that social context matters in short-term humanitarian aid allocation. They also have important implications for the future of foreign aid allocations more generally, as the number of natural disasters is likely to rise, not fall, with changing climate conditions.

*whose opponents?*

- key contributions clear?

- lit referenced

- Who would you like to have as reviewer?

Say more about what the  
gains are from using your measure  
(as discussed)  
of strategic interests...  
of strategic interests...

To disaster-inspired humanitarian  
aid or top off self-interested  
"political" aid or does it result  
in a reallocation?  
(within-country and/or across?)

Why 3rd-order effects?

# Introduction

In the early morning hours of December 26, 2003, a massive earthquake measuring 6.3 on the Richter scale struck the city of Bam, Iran. Its effects were devastating. Out of Bam's 100,000 residents, approximately 26,000 to 40,000 were killed while those who survived were left to grapple with the destruction of 70 to 90 percent of the city's housing infrastructure (Montazeri et al., 2005).<sup>1</sup> As part of the international response that followed, more than 44 countries sent aid, including the United States, which contributed eight plane loads of medical and humanitarian supplies as well as several dozen teams of experts to the relief effort.

However, while the US response to the 2003 Bam earthquake was seemingly analogous to that of any foreign actor offering aid and support, *a priori*, it was not obvious whether the *United States* would send any humanitarian aid at all, to say nothing of whether Iran would accept it. Just the year prior, then-President George W. Bush had famously anointed Iran membership in the "Axis of Evil" (Heradstveit and Bonham, 2007). Meanwhile, at the time of the earthquake, US-Iran relations were particularly delicate as the countries navigated the issue of nuclear weapons in Iran.<sup>2</sup> Indeed, given the broader context of contentious bilateral relations, the process of transferring aid from the US to Iran entailed greater intentionality than normal. To initiate the flow of any aid, President Bush was obliged to institute a special 90-day measure to ease US sanctions on Iran (which had been in place since 1979 and continue to be enforced to this day).<sup>3</sup> For Iran's part, accepting US aid meant allowing U.S. military planes to land in Iran, which had not happened in over 20 years.<sup>4</sup> For a country that had undergone a revolution in part because the US military was perceived to have had too strong a domestic influence, such an act was far from benign.<sup>5</sup>

2  
Needs  
some more,  
at least  
in the footnotes

<sup>1</sup>Fathi, Nazila. "Deadly Earthquake Jolts City in Southeast Iran." *The New York Times*. 26 December 2003. Accessed October 2017: <https://web.archive.org/web/20090620230700/http://www.nytimes.com/2003/12/26/international/26CND-QUAKE.html?ex=1225166400&en=c550b50a2ad59dd6&ei=5070>

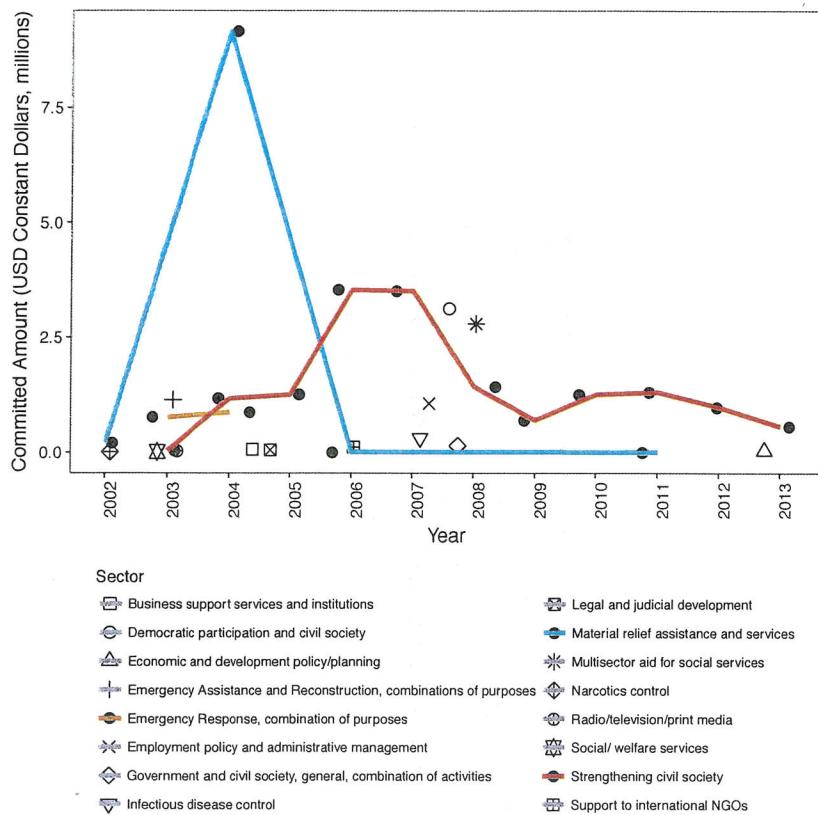
<sup>2</sup>[http://news.bbc.co.uk/2/hi/middle\\_east/3362443.stm](http://news.bbc.co.uk/2/hi/middle_east/3362443.stm)

<sup>3</sup>"US eases Iran sanctions to speed earthquake relief." *China Daily*. 1 January 2004. Accessed October 2017: [http://www.chinadaily.com.cn/en/doc/2004-01/01/content\\_295063.htm](http://www.chinadaily.com.cn/en/doc/2004-01/01/content_295063.htm)

<sup>4</sup>"Iran Quake Toll May Hit 50,000." *China Daily*. 31 December, 2003. Accessed October 2017: [http://www.chinadaily.com.cn/en/doc/2003-12/31/content\\_294833.htm](http://www.chinadaily.com.cn/en/doc/2003-12/31/content_294833.htm)

<sup>5</sup><https://www.stratfor.com/geopolitical-diary/geopolitical-diary-tuesday-dec-30-2003>

**Figure 1: US aid commitments to Iran, 2002 - 2013**



Intriguingly, the Bam earthquake not only increased US humanitarian aid to Iran, but also involved other types of aid as well. Figure 1 shows that after 2004, aid commitments to "strengthen civil society" increased markedly and consistently, reaching its apex with the creation of the 2006 "Iran Democracy Fund" to promote democracy in Iran.<sup>6</sup> Meanwhile, US aid for a variety of developmental purposes, (i.e. economic and development policy and planning, infectious disease control, social/welfare services) also increased sporadically following 2003. Particularly noteworthy is that because the US State Department designated Iran a "state sponsor of terrorism" in 1984, Iran has generally been barred from receiving US foreign aid and indeed.<sup>7</sup>

What to make of this remarkable turn of events? Why did the US send humanitarian aid to Iran despite its objectively chilly extant relations? And what drove Iran to accept

<sup>6</sup>Carpenter, J. Scott. "After the Crackdown: The Iran Democracy Fund." *The Washington Institute for Near East Policy, PolicyWatch 1576* 8 September 2009. Accessed May 2018: <http://www.washingtoninstitute.org/policy-analysis/view/after-the-crackdown-the-iran-democracy-fund>

<sup>7</sup>Available data from AidData and the OECD suggest that the US did not commit any aid to Iran from 1974 to 2001.

it? Was this event *sui generis* or is it possible to observe other dyadic pairs acting in a similar fashion more generally? And if so, does increasing humanitarian aid to strategic opponents crack the door open toward sending other types of aid? Answering these questions has important implications for our understanding of how donors allocate aid more broadly. Furthering such an understanding is perhaps more important than ever given that the incidence of natural disasters is likely to increase with changing climate conditions. Meanwhile, given an existing literature that emphasizes strategic factors as driving foreign aid, a more nuanced understanding of what motivates donor aid allocations is needed to answer these questions.

In this paper, we derive and test four hypotheses to explain the development and drivers of aid commitments. We show that countries are more likely to commit to providing more humanitarian aid to strategic opponents, relative to strategic allies, that have faced a natural disaster, suggesting that natural disasters can have a humanizing effect on strategic allies. However, this effect seems to only apply to humanitarian aid, which is generally intended as stop-gap, rather than an active catalyst of economic development. We further find that donors are still primarily interested in furthering their strategic interests when it comes to longer-term goals as they tend to increase civil society aid, rather than development aid, following a natural disaster. We evaluate our argument using a new measure of strategic interest that we believe greatly improves on existing measures given its ability to: 1) capture the third-order effects that the broader literature on donor motivations generally neglects 2) and more efficiently incorporate many different dimensions of strategic interest.

*Sounds like  
the stronger  
effect is in  
hostile relations?  
w?*

*You haven't  
even told  
the reader  
what 2nd  
order effects  
are involved...*

In what follows, we first give a brief overview of the existing literature on natural disasters and foreign aid allocations before outlining our hypotheses. We then introduce our new measure of strategic interest, and present our empirical analysis of how natural disasters condition foreign aid allocation decisions.

# Accounting for Natural Disasters in Determining Donor Motivations for Foreign Aid

Natural disasters can lead to the destruction or impairment of physical and social infrastructure and even more significantly, the devastating loss of human lives. For example, the 1985 Mexico City Earthquake, one of the most devastating natural disasters in modern times, killed at least 10,000 people<sup>8</sup> and cost around 4 billion 1985 dollars (around 9 billion in 2017 dollars).<sup>9</sup> While the resulting devastation prompted the Mexican government to institute a number of regulatory measures to limit future damage, 32 years later, Mexico City's 2017 earthquake still resulted in a death toll of at least 360<sup>10</sup> and the recovery effort could cost more than 2 billion dollars.<sup>11</sup> The 2011 Fukushima incident meanwhile, stands out for both its death toll and high cost, leaving nearly 1,600 dead and more than 174,000 displaced.<sup>12</sup> Recent projections estimate that it will cost around 187 billion dollars – double the 2013 estimate.<sup>13</sup> Similarly, estimates put the cost of responding to Hurricane Harvey, which left 82 dead,<sup>14</sup> at around 180 billion dollars, likely to be the most expensive natural disaster in US history.<sup>15</sup>

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<sup>8</sup>The Editors of Encyclopaedia Britannica."Mexico City earthquake of 1985." *Encyclopaedia Britannica*. 20 September 2017. Accessed September 2017: <https://www.britannica.com/event/Mexico-City-earthquake-of-1985>

<sup>9</sup>Williams, Dan. 'Mexico Quake Loss put at \$4 Billion: Report by U.N. Panel Includes Damages to Economy.' *Los Angeles Times*. 25 October 1985. Accessed September 2017: [http://articles.latimes.com/1985-10-25/news/mn-14160\\_1\\_mexico-city](http://articles.latimes.com/1985-10-25/news/mn-14160_1_mexico-city).

<sup>10</sup>The Associated Press. 'Death toll rises to 360 in Mexico earthquake.' *The Denver Post*. 21 September 2017. Accessed October 2017: <http://www.denverpost.com/2017/09/30/mexico-earthquake-death-toll-update/>

<sup>11</sup>The Associated Press. "Economic Costs of Mexico's Earthquake Could Surpass \$2B." *Insurance Journal* 29 September 2017. <http://www.insurancejournal.com/news/international/2017/09/29/465995.htm>

<sup>12</sup>Hamilton, Bevan. 'Fukushima 5 years later: 2011 disaster by the numbers.' *CBC News*. 10 March 2016. Accessed September 2017: <http://www.cbc.ca/news/world/5-years-after-fukushima-by-the-numbers-1.3480914>

<sup>13</sup>McCurry, Justin. 'Possible nuclear fuel find raises hopes of Fukushima plant breakthrough.' *The Guardian*. 30 January 2017. Accessed September 2017: <https://www.theguardian.com/environment/2017/jan/31/possible-nuclear-fuel-find-fukushima-plant>

<sup>14</sup>Moravec, Eva Ruth. "Texas officials: Hurricane Harvey death toll at 82 in 2017, 'mass casualties have absolutely not happened.'" *The Washington Post*. 14 September 2017. Accessed September 2017: [https://www.washingtonpost.com/national/texas-officials-hurricane-harvey-death-toll-at-82-mass-casualties-have-absolutely-not-happened/2017/09/14/bff3ffea-9975-11e7-87fc-c3f7ee4035c9\\_story.html?utm\\_term=.f5eecca9ee21](https://www.washingtonpost.com/national/texas-officials-hurricane-harvey-death-toll-at-82-mass-casualties-have-absolutely-not-happened/2017/09/14/bff3ffea-9975-11e7-87fc-c3f7ee4035c9_story.html?utm_term=.f5eecca9ee21)

<sup>15</sup>'Hurricane Harvey Damages Could Cost up to \$180 Billion.' *Fortune*. 3 September 2017. Accessed September 2017: <http://fortune.com/2017/09/03/hurricane-harvey-damages-cost/>

*Is it the point here first  
no country is spared natural  
disasters?*

Few countries are spared the devastation that natural disasters can wreak. Between 1980 and 2004, approximately 7,000 natural disasters led to the deaths of around two million people and further negatively affected the lives of five billion more, according to the dataset maintained by the Centre for Research on the Epidemiology of Disasters (CRED) at the University of Louvain. The economic costs are also considerable and rising, with the direct economic damage from natural disasters between 1980-2012 estimated to be around \$3.8 trillion (Gitay et al., 2013). *and the costs are rising.*

*Hm, that's  
more than 2/3  
of the world's  
population*

While dealing with both the immediate and long-term damage wrought by natural disasters can seriously drain existing resources for any country, developing countries generally find it especially difficult to cope. Often, their existing physical infrastructure is grossly unequal to the task of withstanding natural disasters. Meanwhile, the resilience and capacity of their institutional infrastructure is often ill-suited to dealing with the often long and complex process of rebuilding. In general, when natural disaster strikes, developing countries are likely to experience more serious damage and have less state capacity to recover. For example, prior to its 2010 earthquake, Haiti had no building codes and many of its buildings were not designed to withstand even a mild earthquake.<sup>16</sup> Meanwhile, the lack of governmental leadership and low state capacity, along with other factors, has meant that even 7 years after the disaster, Haiti has yet to fully recover (Hartberg et al., 2011).

*How can  
be established  
based on a  
source  
2011?*

From a purely strategic perspective then, natural disasters represent an opportune time to inflict harm on a strategic adversary, especially if it is a developing country, as both government officials and public resources are fully engaged with responding to the emergency. Yet, anecdotal evidence suggests that strategic adversaries rarely take advantage of this tactical opportunity, at least as far as can be openly observed. Many of the deadliest natural disasters (which should present foreign opponents the best opportunity to inflict harm) do not seem to have been followed up by hostile overtures. For instance, Taiwan did not use the 1976 Tangshan earthquake, believed to be the largest earthquake in the 20th century by death toll, as an opportunity to attack China.

*World may  
have seen  
a position  
to do so.*

<sup>16</sup>Watkins, Tom. 'Problems with Haiti building standards outlined.' CNN. 2010 January 14. Accessed September 2017: <http://edition.cnn.com/2010/WORLD/americas/01/13/haiti.construction/index.html>

Similarly the 2011 Fukushima disaster was not followed by hostile gestures from China nor did Russia react to Hurricane Harvey with belligerence toward the US.<sup>17</sup>

These examples seem just not credible...

Context of course matters. There is a sizable difference between taking advantage of a country that one has contentious relationship with and taking advantage of a country with which one is actively engaged in outright conflict. In the former context, though taking preemptive action against a strategic opponent may lead to short term gains, it could very well lead to long term losses. But even by this hard-nosed logic, we might expect countries to simply do nothing when tragedy befalls their strategic opponents. Such behavior would fit well with the larger literature that investigates donor motivations for allocating foreign aid. Indeed, scholars have produced a large body of evidence suggesting that donors overwhelmingly prioritize strategic considerations over developmental or humanitarian ones when dispensing aid.<sup>18</sup>

Yet, much anecdotal evidence suggests that rather than taking preemptive strikes or doing nothing, natural disasters encourages the flow of *aid* from strategic opponents. For example, during the famine that ravaged North Korea from 1994 to 1998, the United States, South Korea, Japan and the European Union stepped up as the primary donors of food aid (Noland, 2004). Meanwhile, Taiwan was one of the biggest donors to China in the aftermath of the 2008 Sichuan earthquake.<sup>19</sup> Taiwan also actively contributed to the rescue effort<sup>20</sup> and further offered to share the technical expertise it developed from its own devastating earthquake experience in 1999.<sup>21</sup> Similarly, following Hurricane Katrina, the United States accepted Russian aid, despite coetaneous frosty relations.<sup>22</sup>

<sup>17</sup>Note, whether countries take advantage of their strategic opponents using more covert methods during times of natural disaster is a more open question.

<sup>18</sup>For example, see McKinlay and Little (1977, 1978, 1979); Maizels and Nissanke (1984); Schraeder et al. (1998); Alesina and Dollar (2000); Berthélemy (2006); Stone (2006); De Mesquita and Smith (2007); Bermeo (2008); Hoeffler and Outram (2011); Dreher et al. (2015).

<sup>19</sup>'FACTBOX-Earthquake aid for China.' 14 May 2008. <http://uk.reuters.com/article/idUKPEK29448220080514>

<sup>20</sup>French, Howard and Edward Wong. 'In Departure, China Invites Outside Help.' *The New York Times*. 16 May 2008. Accessed September 2017: <http://www.nytimes.com/2008/05/16/world/asia/16china.html>

<sup>21</sup>Hille, Kathrin. 'Taiwan shares quake lessons with Sichuan.' *Financial Times*. 9 June 2008. Accessed September 2017: <https://www.ft.com/content/b0204002-3641-11dd-8bb8-0000779fd2ac>

<sup>22</sup>'U.S. accepts Russian Katrina aid.' *UPI*. 2 September 2005. Accessed September 2017. <https://www.upi.com/US-accepts-Russian-Katrina-aid/39221125680989/>.

Are these anecdotes of non-strategic behavior indicative of a systemic pattern or one-off exceptions to the rule of strategic self-interest? If the former, what could explain this decidedly non-strategic behavior? Finding an answer to these questions in the current literature is difficult. For one, in evaluating the relative roles that donor interest and recipient need play in foreign aid allocation, what researchers refer to as recipient need may be more precisely understood as 'developmental need' and as such, targeted towards addressing chronic poverty. To that end, development need is frequently measured using gross domestic product (GDP) or gross national product (GNP) per capita;<sup>23</sup> and occasionally a more holistic measures of social outcomes such as the Physical Quality of Life Index,<sup>24</sup> the average life expectancy,<sup>25</sup> or the daily caloric intake.<sup>26</sup>

*\* Here or in  
the context of  
for 26 may be  
you want to  
reference  
Bilateral 2012  
and for  
Only and my  
chapter on  
first aid! Only*

Meanwhile, a ~~much~~ <sup>only</sup> smaller body of research investigates the degree to which aid is given in response to acute crises, such as natural disasters, which will be referred to here as humanitarian need. Considering that around 11% of ODA was officially categorized as being given for humanitarian reasons in 2015, the systematic failure to include natural disasters as a potential driver of foreign aid is puzzling.<sup>27</sup> What evidence that does exist suggests a null or small effect of humanitarian aid on foreign aid allocations. For instance, Bermeo (2008) finds no relationship between the number of people affected by disasters and the allocation of bilateral aid for France, Japan, the UK and the US.<sup>28</sup> Similarly, David (2011) finds no statistically significant relationship between development aid flows and climatic or human disasters. David does find evidence for increased development aid following geological disasters, but the effect is <sup>only found with a</sup> lagged by 2 years<sup>29</sup> and substantively small.<sup>29</sup> Yang (2008) also finds that ODA increases after a

<sup>23</sup>For example, see McKinlay and Little (1977, 1978, 1979); Maizels and Nissanke (1984); Alesina and Dollar (2000); Berthélemy (2006); Stone (2006); De Mesquita and Smith (2007); Bermeo (2008).

<sup>24</sup>See Maizels and Nissanke (1984).

<sup>25</sup>See Schraeder et al. (1998).

<sup>26</sup>See McKinlay and Little (1979); Schraeder et al. (1998).

<sup>27</sup>Total ODA for DAC countries was 131.6 billion in 2015, 15.6 billion of which was designated as humanitarian assistance <http://www.oecd.org/dac/development-aid-rises-again-in-2015-spending-on-refugees-doubles.htm> <http://www.oecd.org/dac/stats/humanitarian-assistance.htm>

<sup>28</sup>Note, Bermeo (2008) also conceptualizes humanitarian aid using measures of the number of refugees and civil war, with mixed effects across countries for both.

<sup>29</sup>David (2011) defines climatic events as 'floods, droughts, extreme temperatures and hurricanes'; human disasters as: famines and epidemics; geological events as: earthquakes, landslides, volcano

hurricane, but only with a lag of 2 years.<sup>30</sup>

Finally, there appears to be virtually no work that has explored whether there are interactive effects between donor's strategic interest and recipient's humanitarian need. To our knowledge, our paper is the first to explore whether there may be an interactive relationship between donor's strategic interest and recipient's humanitarian need on foreign aid allocation decisions.

## How Natural Disasters Affect Foreign Aid Allocations

Expenditure of public resources to relieve the human suffering of foreigners shifted from being a virtually inconceivable act to a relatively commonplace one around the turn of the twentieth century, in no small part due to the unparalleled scale of modern war and disaster. The devastation wrought by the two world wars was particularly instrumental in bringing about this change. However, such aid was strictly intended to serve as temporary transfers that would facilitate a return to the previous status quo, rather than a long-term commitment to "development" as such. The turn toward development aid was instead fostered by ongoing Cold War hostilities, which simultaneously promoted the use of aid to further donor's strategic goals while also building a new norm of rich countries aiding poor countries (Lancaster, 2008).

The role of mitigating disaster and suffering on the one hand and furthering strategic interest on the other, are baked into modern foreign aid's very conception. This history also suggests that initial humanitarian aid meant to serve as a temporary expedient can lead to the establishment of aid with longer-term strategic goals. Whether this pattern exists more generally and if so, whether it is driven primarily by strategic or humanitarian concerns is unclear however. The role of the Cold War in foreign aid's origin story dictated that recipients of humanitarian aid were generally within a partic-

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eruptions and tidal waves.

<sup>30</sup>Strömberg (2007) does find a positive and significant relationship between aid and natural disasters, but his paper is concerned with emergency aid in particular, not foreign aid. Similarly, Olsen et al. (2003) find that donors are more likely to give aid for strategic reasons, though their analysis is confined to emergency aid.

ular strategic bloc, making it difficult to untangle strategic from humanitarian drivers. The vignette of US-Iran aid relations following the 2003 Bam earthquake provides some anecdotal evidence, however, that contrasting examples exist.

As such, looking at how natural disasters affect foreign aid allocation is not only interesting in its own right but also provides an exogenous instrument with which to identify the role of donor interest and recipient need in explaining the development of aid commitments. To that end, we derive and test four hypotheses as to how natural disasters affect foreign aid allocations. In so doing, we seek to offer a more nuanced understanding of the principle drivers of foreign aid allocations.

## Short-term Humanitarian Response to Natural Disasters

Responding to natural disasters quickly and efficiently is often crucial to saving lives and alleviating human suffering. The first 72 hours after a natural disaster are often critical as services like electricity, gas, water, and telecommunications may all be disrupted. The timely deployment of humanitarian aid is the first response that donors can extend to countries struck by natural disaster. In what follows, we develop two hypotheses as to how the interaction between strategic interests and natural disaster severity can affect humanitarian aid allocation.

How much aid can really reach recipients within that time frame? Can we even measure this?

## Realist Imperviousness to Natural Disasters

The logic of realism dictates that countries are driven by self-interest to amass power, which is seen as zero-sum. Thus, realist scholars expound the view that "foreign aid is today and will remain for some time an instrument of political power" (Liska, 1960). Under this logic, donors commit aid to recipient countries primarily to further their own strategic interests.

With regards to the interaction between natural disasters and strategic interests then, the realist perspective suggests that donors do not send more humanitarian aid to their strategic opponents in the event of a natural disaster because it is against their

## Natural Disasters as (Temporary) Humanizers of Strategic Opponents

The constructivist literature stresses however that social context matters for understanding how countries interact with each other. As opposed to material interests, under this logic, international interactions are shaped by shared ideas and norms. New research in behavioral economics also underscores the idea that different social contexts cause people in identical situations to behave differently. (Kahneman, 2003; Do, 2011)

Following this vein, natural disasters can encourage donors to increase aid to their strategic opponents because such disasters can drastically shift the social context of the relationship. That is, the loss of human life and destruction of infrastructure, which natural disasters provoke, can serve to, at least temporarily, emphasize the human aspect of the bilateral relationship as opposed to the political, economic, and military aspects which generally typifies foreign relations between two countries. Moreover, if natural disasters do have a humanizing effect, than we might expect strategic opponents to be particularly sensitive to it given the greater gap of humanization they must traverse compared to strategic allies. For example, seeing disaster befall Cubans may humanize them more for Americans compared to Russians purely as a function of the US and Cuba's historic antagonism. The historical antagonism may increase the potential for Cubans to be humanized in American eyes compared to Russians, who already have a relatively sympathetic perception of Cubans.<sup>34</sup>

That is not to say that natural disasters can always bridge this divide among strategic opponents. For example, India and Pakistan have had an uneasy history in accepting aid from each other following natural disasters.<sup>35</sup> In general, we contend only

<sup>34</sup>Note, regardless of the actual motivation of donors when they give aid to their strategic opponents, there is anecdotal evidence to suggest that aid given under such circumstances can also serve to humanize the donors as well. For example, in the wake of US and South Korean aid for the North Korean famine, one refugee summarized his reaction to the US Institute for Peace this way: "We were taught all these years that the South Koreans and Americans were our enemies. Now we see they are trying to feed us. We are wondering who our real enemies are" Natsios (1999). This suggests that to some extent, social context can matter.

<sup>35</sup>Ravishankar, Siddharth. "Cooperation between India and Pakistan after Natural Disasters." Stimson Center. 9 January 2015. Accessed September 2017: <https://www.stimson.org/content/cooperation-between-india-and-pakistan-after-natural-disasters>

that natural disasters make it more *likely* that a strategic adversary will contribute aid because they reframe the context of bilateral relations toward empathy and altruism. The constructivist frame of understanding how the interaction between natural disasters and strategic interests affects humanitarian aid allocations thus leads us to the following hypothesis:

*H1B: Donors who are strategic opponents of the recipient are more likely than strategic allies to be sensitive to the humanizing effect of natural disasters and consequently, are likely to send more development aid.*

## Long-term Responses to Natural Disasters

Intriguing  
Bayesian  
constructivism?

Donor countries may dispense aid which not only serves to immediately address the natural disaster at hand, but also through other channels that have longer-term objectives. Here, we make a distinction between civil society aid and development aid. Civil society aid is aimed at supporting non-governmental organizations (NGOs) and their programs. Often, the goal of such aid is to empower grass-roots advocacy and improve governance and government accountability. Meanwhile, development aid is targeted toward promoting long-term economic development in a recipient country often through the building of infrastructure like roads and hospitals as well as the building of human resources via technical training and education. In what follows, we develop hypotheses as to how the interaction between strategic interest and natural disasters can affect the allocation of these two different types of aid.

## Natural Disasters as Strategic Opportunities

If, as following the realist logic, foreign aid is used to promote donor interests, then donor governments should be especially inclined to increase the allocation of civil society aid. This is because aiding the development of civil society is an inherently political act.<sup>36</sup> From supporting the growth of government watch dogs to increasing advocacy

for all kinds of donors?  
for all kinds of recipients?

<sup>36</sup><http://foreignpolicy.com/2013/05/21/the-prickly-politics-of-aid/>

of previously marginalized social groups, whether it is their intention or not, donors are able to exert influence over a recipient's domestic politics by directing funds to civil society.

With respect to natural disasters, countries may be motivated to give more civil society aid to their strategic opponents because the temporary suspension in the normal dynamics of the relationship represents a unique opportunity to increase civil society aid and initiate a shift in the nature of the bilateral relationship. That is, donor countries may either already recognize all to well or come to recognize that the natural disasters offers an opportunity to improve the terms of their relationship with the affected country. Either way, donors may seize on a country's inherent vulnerability following a natural disaster to decide to *strategically* increase their civil aid so as to increase their chances of exerting domestic influence over the recipient countries. As such, we derive the following hypothesis:

H2A: Natural disasters present an opportune window for donors to exert influence over recipients who are their strategic opponents and as such, donors are more likely to send civil society aid to their strategic opponents.

### Natural Disasters as (Permanent) Humanizers of Strategic Opponents

Whereas humanitarian aid provides stop-gap measures to address the immediate aftermath of a natural disaster, the focus of development aid is to build the conditions for long-term, sustainable economic growth. As such, if as the constructivist frame contends, natural disasters can have a humanizing effect on strategic opponents that is not only short-term, but long-term, then this should be manifested in an increase in development aid. That is, the initial devastation wrought by a natural disaster may not only encourage greater humanitarian aid, but may also encourage greater contact and mutual understanding between donors and recipients and a greater donor commitment to recipient development. As in H1B, strategic opponents may be particularly sensitive to this humanizing effect because relative to strategic allies, they are more likely to have had a dehumanizing view of the recipient country. This results in the final

hypothesis:

H<sub>2B</sub>: Natural disasters have a long-term humanizing effect on their strategic opponents and as such, donors are more likely to send development aid to their strategic opponents.

## Measuring Strategic Relationships

One reason for evaluating the *motivations* for aid and not aid *outcomes* is that aid given for strategic reasons may still further development objectives, albeit incidentally, while aid given for humanitarian reasons may also bring unexpected strategic benefits (Maizels and Nissanke, 1984). However, evaluating the motivations for aid is not a straightforward process – any given aid project may work toward providing assistance to a recipient country as well as strategic benefits to a donor country.

Of critical importance to investigating whether strategic considerations (and by extension, the interaction between strategic considerations and humanitarian need) affect foreign aid considerations then is constructing a valid and reliable measure of strategic interest. In our review of the literature of the drivers of foreign aid however, we find that Alesina and Dollar (2000)'s remark that "unfortunately the measurement of what a 'strategic interest' is varies from study to study and is occasionally tautological," still holds true. Indeed, strategic interest has alternately been operationalized as: trade intensity (Berthélemy and Tichit, 2004; Bermeo, 2008; Hoeffler and Outram, 2011), UN voting scores (Alesina and Dollar, 2000; Weder and Alesina, 2002; Hoeffler and Outram, 2011; Dreher and Fuchs, Forthcoming), arms transfers (Maizels and Nissanke, 1984), colonial legacy (Alesina and Dollar, 2000; Bermeo, 2008; Berthélemy and Tichit, 2004; Berthélemy, 2006), alliances (Bermeo, 2008; Schraeder et al., 1998), regional dummies (Bermeo, 2008; Berthélemy, 2006; Maizels and Nissanke, 1984), bilateral dummies (Alesina and Dollar, 2000; Berthélemy and Tichit, 2004; Berthélemy, 2006)<sup>37</sup> or some combination of the above. Meanwhile other papers take a negative approach and argue that any shortfall between what would theoretically be expected from poverty-

This should become apparent as a contribution earlier

Is this "negative" or residualist?

<sup>37</sup>A US-Egypt or US-Israel dummy seems to be the most common instance of a bilateral dummy

efficient aid allocation and actual aid allocation (Collier and Dollar, 2002; Nunnenkamp and Thiele, 2006; Thiele et al., 2007), or similarly between a theoretical allocation based on good governance and actual aid allocation (Dollar and Levin, 2006; Neumayer, 2005), is evidence of strategic interest at play.

Such inconsistency in the operationalization of strategic interest is not simply a matter of using different variables to measure the same concept but a matter of using different variables to measure different *aspects* of the underlying concept. However,

*This starts to sound like an argument for a (steep) variable but then you veer off in a different direction...*

while a dyad's strategic bilateral relationship is quite multifaceted, to date, there has not been a readily available measure of strategic relationships which captures its various aspects the same way that scholars have done for other complex concepts.<sup>38</sup> To address this problem, we create a new measure of strategic interest that is able to capture different aspects of strategic interest into one variable, which we discuss more fully in the next section.

## A new measure of strategic relationships

Our measure of strategic relationships introduces greater coherency to the literature by providing a more rigorous measure that captures aspects of strategic interest. We do so by measuring the latent space of three different dyadic variables: dyadic alliances, UN voting and joint membership in an intergovernmental organizations (IGOs).  
*... before you here return to it*

We then combine the latent distances for each variable through a principal components analysis (PCA). As such, our political strategic relationship measure is the first principal component that results from the PCA of the latent distance between each variable.

The three component variables were chosen because they capture to different degrees, the political and military relationship between two countries and, perhaps not coincidentally, because of their ubiquity in the foreign aid literature and. Dyadic alliances largely capture the strategic and military aspect of the dyadic relationships.

*and what?*

*But why the use these examples instead of, say Treier & Jackman's Democracy Variable or some such?*

<sup>38</sup>For example, Polity and Freedom House have provided measures of political institutions while the World Bank's World Governance Indicators (WGI) project provides measures for six dimensions of governance

Meanwhile, joint membership in IGOs is better able to capture the dyadic relationship across many political issue areas over multiple fora while UN voting is better able to capture this relationship in a centralized fora.

The main advantage of calculating the latent space of different dyadic variables as opposed to using alternative specifications such as the S Score algorithm<sup>39</sup> is that it allows us to account for third order dependencies within the data. To review, first order dependency refers to the propensity for some actors to send or receive more ties than others, second-order dependency refers to reciprocity of exchange between actors, and a third-order dependency refers to interactions among three or more actors. Dyadic data are rife with these types of dependencies, and aside from first-order dependencies, they pose serious challenges to the basic assumption of independence between observations (Poast, 2010; Hoff and Ward, 2004).

More precisely, third order dependency includes the concepts of (a) transitivity, (b) balance and (c) clusterability. Formally, a triad  $ijk$  is said to be transitive if for whenever  $y_{ij} = 1$  and  $y_{jk} = 1$ , we also observe that  $y_{ik} = 1$ . This follows the logic of "a friend of a friend is a friend". Meanwhile, a triad  $ijk$  is said to be balanced if  $y_{ij} \times y_{jk} \times y_{ki} > 0$ . Conceptually, if the relationship between  $i$  and  $j$  is 'positive', then both will relate to another unit  $k$  identically, either both positive or both negative. Finally a triad  $ijk$  is said to be clusterable if it is balanced or all the relations are all negative. It is a relaxation of the concept of balance and seeks to capture groups where the measurements are positive within groups and negative between groups.

Thus third order dependencies suggest that "knowing something about the relationship between  $i$  and  $j$  as well as between  $i$  and  $k$  may reveal something about the relationship between  $i$  and  $k$ , even when we do not directly observe it" (Hoff and Ward, 2004). Such dependences would seem especially relevant for our purposes as one cannot understand the strategic relationship between two countries without taking into account their respective relationships with other countries. The importance for ac-

Ah, I see!  
I had  
skimmed  
the section  
too quickly  
before your  
presentation

<sup>39</sup>Leeds and Savun (2007), for example, measure a states "threat environment" as the set of all states for which ones is contiguous with or which is a major power and with an S score below the population median.

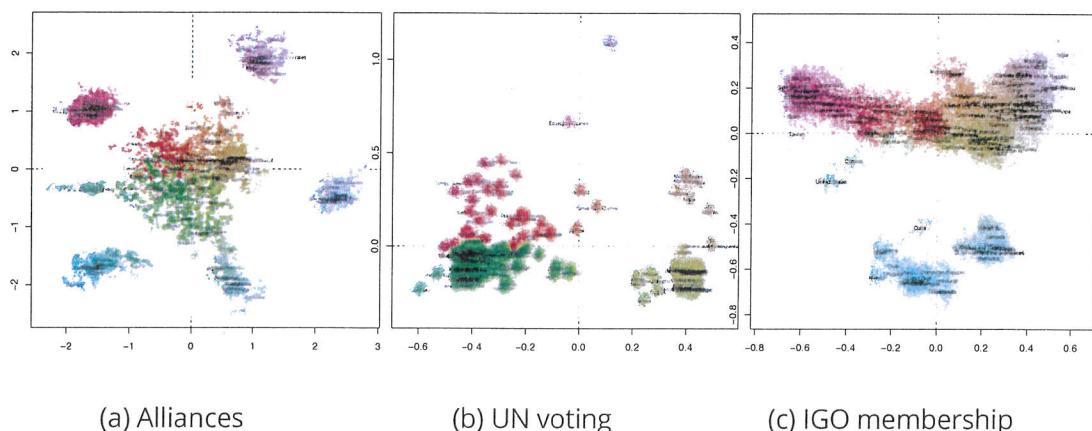
counting for these dynamics have long been acknowledged in the foreign aid literature. Trumbull and Wall (1994) for example, note that, "donors do make their decisions with knowledge of what each other are doing, and may actually act cooperatively. Any study that ignores the interrelationship of donor behavior risks problems with simultaneity bias." However, we find that until now, this critique has largely gone unaddressed by the existing literature.

To do so, we run a null generalized bilinear mixed effects model (GBME) to estimate the latent space for each component of our strategic interest variables (Hoff, 2005), which is formally represented as follows:

$$\theta_{i,j} = a_i + b_j + \gamma_{i,j} + z'_i z_j$$

where  $\theta_{i,j}$  is the dyadic variable of interest (e.g., alliances),  $a_i$  estimates 'sender' effects,  $b_j$  estimates 'receiver' effects and  $z'_i z_j$  is the bilinear effect which estimates the latent space and accounts for third order dependencies common in dyadic data. We estimate the model via Gibbs sampling of full conditionals of the parameters. For a more detailed discussion of this model, see Hoff (2005). In Figure 2, we present a visualization of the resultant latent space we calculated for each variable for the year 2005.

**Figure 2:** Latent Spaces for components of Political Strategic Interest Measure during 2005



Countries that cluster together in this two-dimensional latent space are more

Good, this is, & I recall correctly where our conversation started year ago. But above, you've talked about measuring dependencies in strategic relationships, not in allocation as such.

likely to interact with each other. The plots for alliances, UN voting and IGO membership suggest that there is distinct clustering among countries. Moreover, these clusters are different across the different measures, suggesting that each variable is indeed capturing different aspects of strategic interest.

After estimating the latent spaces for these components, we calculate the Euclidean distance between each dyad for each component. We then combine them in a principal components analysis (PCA) to reduce the dimensionality of our measure while retaining as much variance as possible. That is, alliances, UN voting and joint membership in IGOs all capture certain aspects of political strategic interest. Instead of choosing only one of them as our measure of strategic interest as other papers have done, we combine them in order to increase our explanatory power. We estimate the PCA of these variables for each year separately<sup>40</sup> and use the first principal component for each year as our measure of strategic interest. On average over all the years, we find that the first component of our PCA of alliances, UN voting and joint membership in IGOs, which we use as our measure of strategic interest, explains about 51% of its variance. For further validation checks of our strategic interest variable, please see Appendix A.

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to summarize it at this point  
with an intuitive account of  
what your measure does or doesn't  
mean

## Data

### Aid flows

Our data from foreign aid flows is taken from the AidData project (Tierney et al., 2011). This database includes information on over a million aid activities from the 1940s to the present. We use the country level aggregated version of this database to create a directed-dyadic dataset of total aid dollars committed. In this analysis, we focus specifically on OECD donor countries as they both are the best able and have the best incentive to give foreign aid to advance their strategic interests. In the final tally, our dataset

<sup>40</sup>For each year, we conduct a bootstrap PCA of 1000 subsamples each

for alliances was retrieved from the Correlates of War (COW) Formal Alliance dataset (Gibler, 2009). Following (Bueno de Mesquita, 1975) and (Signorino and Ritter, 1999), we distinguish between different types of alliances with the following weighting scheme: 0 = no alliance, 1 = entente, 2 = neutrality or nonaggression pact, 3 = mutual defense pact.

UN voting data was obtained from the United Nations General Assembly Data set (Strezhnev and Voeten, 2012). Here we calculate the proportion of times two states agree out of the total number of votes they both voted on. Agreement means either both vote yes, both vote no, or both abstain. This measure is similar to the ‘voting similarity index’ readily available from the dataset except the voting similarity index does not account for mutual abstentions.

Meanwhile IGO voting data was obtained from the Correlates of War International Governmental Organizations Data Set. (Pevehouse et al., 2010). Dyads were coded as 1 if they belonged to the same IGO as a full member or an associate member and coded as 0 if one or both of them was an observer, had no membership, was not yet a state or was missing data.<sup>42</sup>

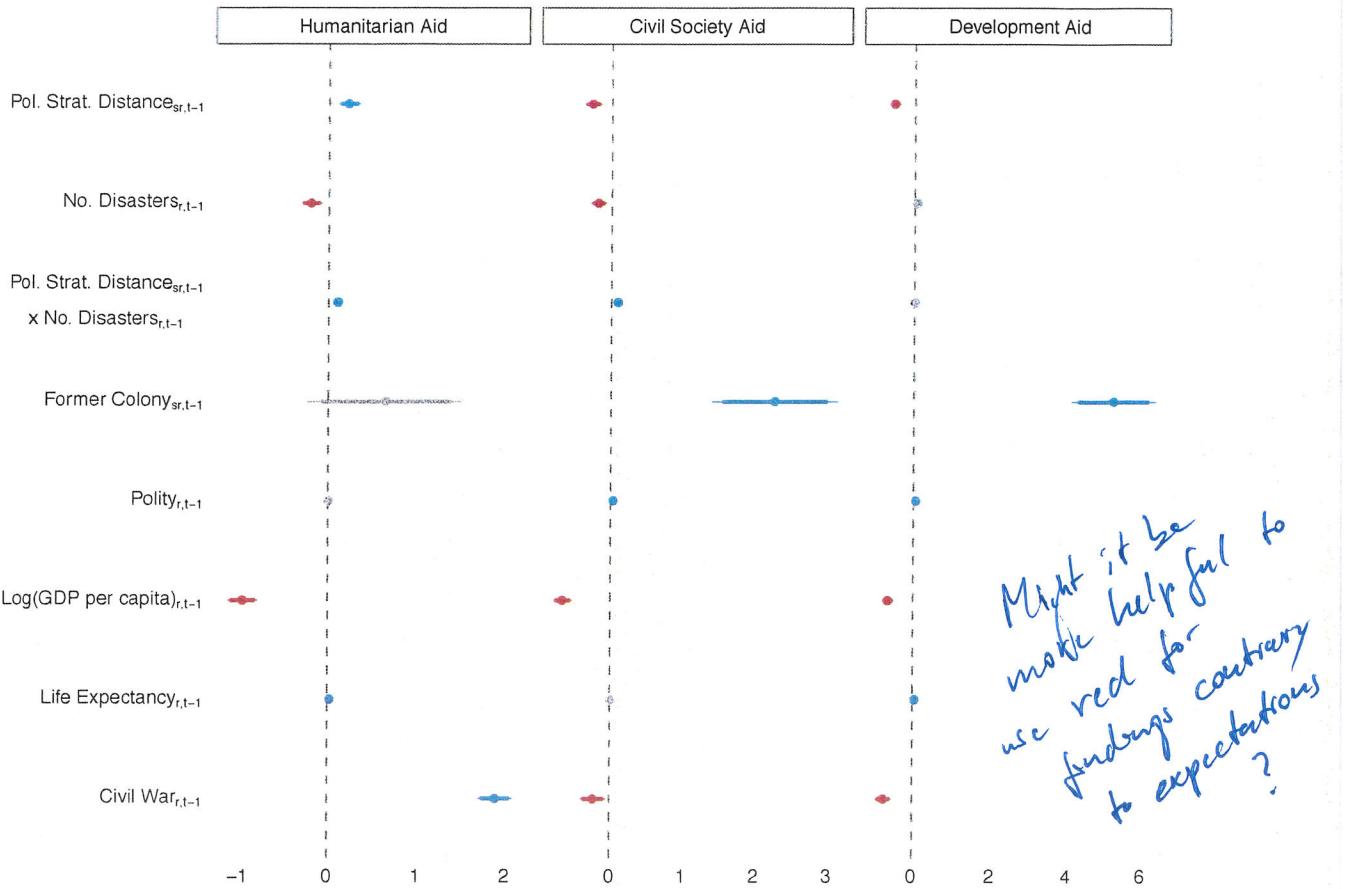
## Natural Disasters

Almost all the empirical work on natural disasters relies on the publicly available Emergency Events Database (EM-DAT) maintained by the Center for Research on the Epidemiology of Disasters (CRED) at the Catholic University of Louvain, Belgium<sup>43</sup>. EM-DAT defines a disaster as a natural situation or event which overwhelms local capacity and/or necessitates a request for external assistance. For a disaster to be entered into the EM-DAT database, at least one of the following criteria must be met: i) 10 or more people are reported killed; ii) 100 people are reported affected; iii) a state of emergency is declared; or iv) a call for international assistance is issued. We use

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<sup>42</sup>Note we had attempted to make distinctions between different types of membership much like for alliances but found that very few states were noted to be Associate Members or Observers of an IGO for the time period that we are conducting our analysis. Thus we chose to use the simpler coding scheme.

<sup>43</sup><http://www.emdat.be/>



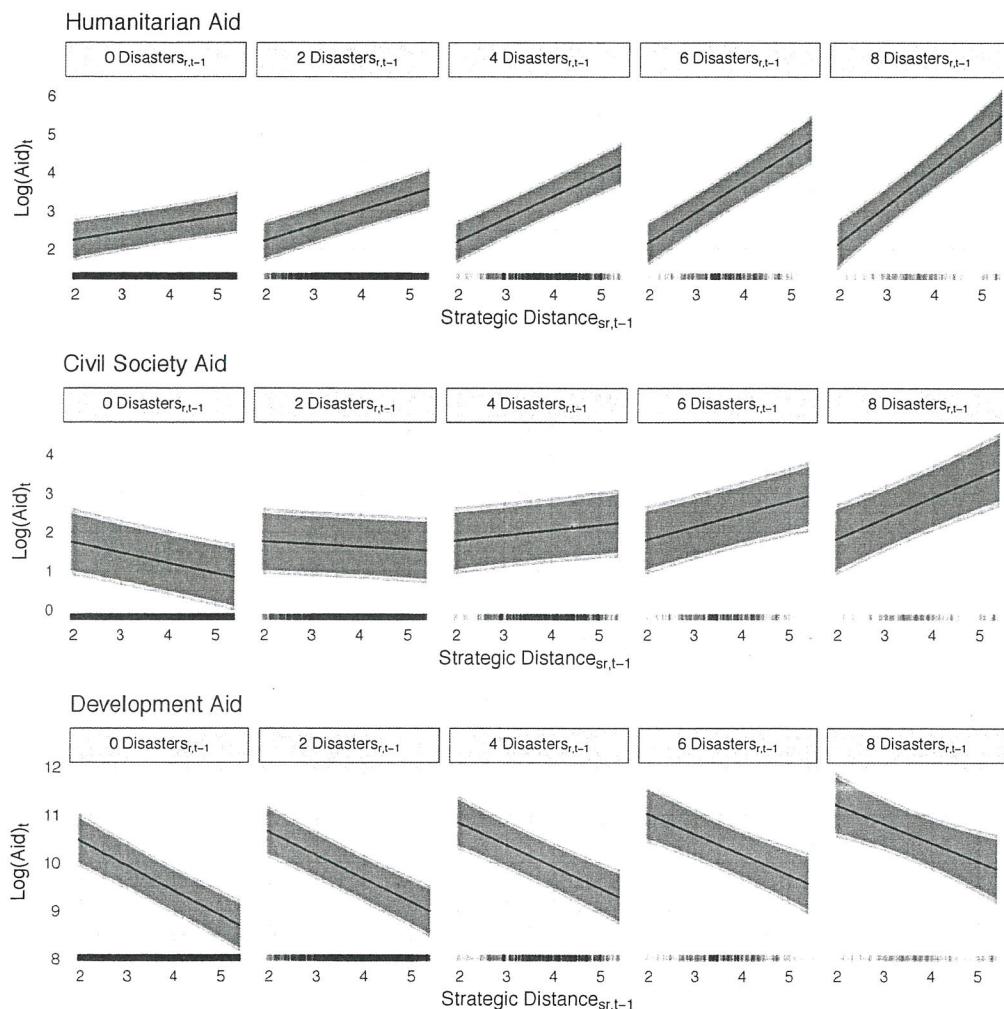
**Figure 3:** Coefficient plots for the main analyses with interaction terms across each dependent variable, humanitarian aid, civil society aid and development aid. Coefficients that are significant at the 5% level are shaded in blue if the coefficient is positive and red if the coefficient is negative. Coefficients that are not significant at the 5% level are shaded in gray.

The results of this analysis are shown below in a coefficient plot in Figure 3.<sup>44</sup> We test Hypothesis 1A and 1B using the model with 'Humanitarian Aid' as the dependent variable. The results show a positive and statistically significant relationship between the interaction of *Strategic Distance* and the *No. Disasters*. To interpret these results, we turn to Figure 4 ('Humanitarian Aid' panel) where we plot the substantive effect of this interaction term on humanitarian aid over the range of *Strategic Distance* for different levels of natural disaster severity.

These results suggest that the greater the number of natural disasters a country experiences, the more likely it is to receive humanitarian aid from a strategic adversary. This is apparent in the rising slope of the relationship between strategic interest

<sup>44</sup>Note, to examine the model results without the interaction effects, please see Figure 8 in Appendix A.1

Why # of disasters rather than severity?



**Figure 4:** Simulated substantive effect plots for each dependent variable (humanitarian aid, civil society aid, and development aid) for different levels of natural disaster severity across the range of the strategic distance measure.

This is all fine (i.e. the interpretation seems sensible and the findings are interesting) but what worries me is that you find an increasing pattern for strategic distance even with zero natural disasters and that effect seems clearly significant. Why?

and humanitarian aid as the number of natural disasters increases. As such, these results are consistent with H1B, which suggests that donors may be more likely to dispense humanitarian aid to their strategic adversaries because such disasters humanize them. Conversely, these results do not support H1A, which hypothesizes that donors are more likely to give to their strategic allies in the wake of a natural disaster to further their own self-interest. This result suggests that donors do not always act in their self interest when dispensing foreign aid under some circumstances. Notably when natural disasters are particularly severe, they may have, at least in the short term, a humanizing effect on strategic adversaries.

Meanwhile, we test H2A by examining the effect of the interaction between strategic interest and natural disasters on civil society aid. In Figure 3 we similarly find a positive and significant relationship between this interaction and civil society aid. The substantive effects plot (in the 'Civil Society Aid' panel in Figure 4) meanwhile also suggests that donors are more likely to target aid to civil society in their strategic adversaries the more natural disasters that country experiences, supporting H2A. These results suggest that donors may not be completely abandoning their strategic interest but are also acting to take advantage of vulnerable recipients to mold the relationship to their interests.

*too strong of an expectation?*

Finally, we test H2B by analyzing how the interaction between strategic interest and natural disasters affects development aid allocation. From, Figure 3, we can see that this coefficient is not statistically significant. Examining the substantive significance in Figure 4 ('Development Aid' panel) we can see that while the level of development aid does increase as the number of natural disasters increases, the slope between strategic interest and development aid is only minimally affected, suggesting little support for H2B. These results suggest that whatever humanitarian impulse donors may have felt toward their strategic adversaries (which H1B suggests exists), this effect only applies to short-term humanitarian aid and not long-term development aid.

## Persistence of foreign aid allocation over time

How persistent are these changes that we observe? To answer this question, we re-estimate the original models for different lag lengths for the main interaction terms<sup>45</sup>. These models are estimated separately for each lag length (lags of 1 through 6 years). The coefficient plots for the interaction term of interest and its constituent terms, number of natural disasters and strategic distance are shown in Figures 5, 6, and 7 for the outcome variables humanitarian aid, civil society aid and development aid respectively across each lag value.

From Figure 5, we can see that the interaction between strategic interest and natural disasters is rather persistent. This suggests that donors are more likely to allocate humanitarian aid to their strategic adversaries for some time following a natural disaster, suggesting some staying power for the ability of natural disasters to shift donors from acting in their own strategic interests to acting in the humanitarian interest of aid recipients (supporting H1B).

Meanwhile, Figure 6 shows that while the interaction between strategic interest and natural disasters positively affects the allocation of civil society aid, this effect is only consistently significant for the first three years following a natural disaster (supporting H2A). One way to interpret these results is that donors recognize the difficulty of trying to influence domestic politics through civil society aid relatively quickly and waste relatively little time in abandoning such attempts. Another interpretation is that civil society aid is actually rather effective and as such, recipient governments are likely to push back against allowing it in fairly short order. Teasing out the exact mechanism would be a fruitful area for future research.

Would be great to be able to say more here; right now it sounds very post hoc and speculative

Finally, Figure 7 extends the earlier finding that the interaction between strategic interest and natural disasters has little effect on development aid across a variety of different lags. This result further suggests that there is little support for H2B, that is natural disasters do not seem to prompt donors to care concern themselves with recipient's long-term interests.

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<sup>45</sup>The covariates are measured using a one-year lag throughout

## Conclusion

Our analysis suggests that a more nuanced understanding of the drivers of foreign aid is in order. In particular, we show that donors are not always driven by strategic interests. We find that donors are driven to allocate humanitarian aid to strategic adversaries struck by natural disasters. We argue that one explanation for this finding is that the human suffering natural disasters induce can serve to humanize strategic adversaries, thus prompting greater aid from donors that have historically been hostile. As shown in our lag models, these findings are surprisingly persistent.

However, though natural disasters may increase short-term humanitarian aid, we find that strategic considerations still reign large when one considers the effect on the distribution of aid with longer-term targets. We find that strategic adversaries are more likely to distribute civil society aid in the more natural disasters a country experiences, they are not more likely to distribute development aid. Because civil society aid inherently involves engagement and intervention in the domestic politics of a recipient country, an increase in civil society aid is indicative of a greater desire to increase donor influence over a recipient country, at least relative to development aid. Our analysis suggests however, that these results are rather short-term.

These results should be of particular interest as climate change continues to increase the incidence and the intensity of natural disasters. They suggest that while countries that experience natural disasters can expect humanitarian aid even from their strategic adversaries, they should also be on guard for efforts to influence domestic politics in favor of the the interests of donors who have historically been antagonistic.

pure constructionism:  
discourse/inaction-based change  
then qualit. change in relationship  
⇒ strong/generous effect if there is a chance of changing the social relationship?  
How: who most needs this policy advice - and the what would be the consequence if they took the advice?