REVIEWER 1

Major Comments.

(1) I think that this paper's primary findingthat donors increase aid to opponents but not to allies in the aftermath of natural disasteris an important one. Both the consideration of the (vast) extant literature on the strategic motivations for aid allocation and the novel theorizing by the authors are done carefully and well. I also appreciate that the finding is supported by a wealth of anecdotal examples.
   - *Thank you for this comment!*

(2) I really like the whole theory section of the paper, especially the careful reading of the strategic environment in aid and the naive vs. more strategic reading of why donors may distinguish between allies and opponents in humanitarian aid-giving. I think this moves the literature forward in a productive way.
   - *Thank you for this comment!*

(3) Theorizing civil society aid: I think that the authors have a choice to make with regards to the discussion of civil society aid. On the one hand, I think that they could group civil society aid with development aid and essentially test humanitarian vs. all other kinds of aid. This would still allow them to both theorize and test the main relationship of the paperthat between strategic alliances and humanitarian aid. On the other hand, if they want to maintain the three-part distinction in types of aid, then there is more theoretical and empirical work to be done in teasing out civil society aid. I note some of the empirical issues in 4b-c. On theorizing:
   - The authors state that civil society aid is "to empower grass-roots advocacy and improve governance and government accountability." This may be true, but there can also be a more strategic logic, especially in strategic opponents. For example, when the U.S. allocates civil society aid to Russia, much of it goes to pro-democracy groups or support for freedom of the press, which does support civil society but is also anti-regime. In this case, civil society aid may be about laying the groundwork for long-term change within strategic allies. It is worth looking into some specific civil society projects that happen after natural disasters to support the logic in the paper that natural disasters serve as an entrance into domestic politics within strategic opponents. In general, the authors need to be more clear about how civil society aid is defined and how it is strategically different from development aid.
     - *Thanks for pointing out where our theory needed further clarification. We absolutely agree with the reviewer that civil society aid can in fact be pursued for more strategic purposes; this was in fact the point that we were trying to make in our paper. We have hopefully since clarified our language to better reflect this. We have also tried to make a clearer distinction between civil society and development aid. Following the reviewer's suggestion, we have also identified some suggestive anecdotal evidence that this may in fact be occurring. We hope that the distinction that we make between civil society and development aid (in brief, supporting civil society has a much higher ability to affect domestic politics, which makes its strategic value much higher than development aid) makes it clearer why testing these two aid categories separately might be fruitful.*

(4) Types of aid: The empirical tests rely on distinguishing between humanitarian, civil society, and development aid. I have several outstanding questions about these distinctions.

- Strategic labeling of humanitarian aid: I would like the authors to consider the possibility that there is a strategic logic to how donors label aid, which may vary between strategic allies and opponents. For example, as illustrated nicely in the authors' Iran example, in order for the U.S. to allocate any aid to Iran, it was necessary to create new aid levers outside of the normal aid bureaucracies and allocation processes. This was true in this specific case because of economic sanctions, but it may also be true in order to generate public appetite for aid going to strategic opponents. With a strategic ally, there are already preexisting development aid channels and it may be more possible bureaucratically to send resources through those channels (without needing a distinct aid category of humanitarian aid) to provide post-disaster support or to enable allied recipients to reallocate, say, budget support in the health sector to disaster relief (and allies tend to receive more fungible forms of aid in the first place). The humanitarian aid classification may thus be more necessary with strategic opponents compared to strategic allies. One way to check this would be to see whether some of the types of aid within development aid increase for strategic allies in the aftermath of natural disasterfor example, do donors allocate more to food aid (but maybe less to other sectors, so the net effect is zero?). This would still indicate humanitarian support for allies, just through different bureaucratic channels.
  - *We have taken up your suggestion and explored the possibility of strategic labelling as illustrated through Figure 9. Here we break down how much development aid was given to countries experiencing that experienced either 0 disasters or 1-3 disasters across different types of development aid. The comparison between 0 or 1-3 disasters was used to maximized comparability, as around 40 percent of the country-years in the dataset had 0 disasters, while 43 percent experienced 1-3 disasters. This figure suggests that i) countries that are strategic allies (located at low levels of strategic distance) are more likely to get more aid related to economic infrastructure and services while ii) countries that experience disasters are much more likely to get debt relief when the they are strategic opponents (that is at high levels of strategic distance), compared to countries that experience 0 natural disasters. However, while Figure 9 does seem to be consistent the reviewer's hunch that it may be easier to distribute different types of aid depending on whether one is a strategic opponent or strategic ally, there does not seem to be much in the way of strategic labelling going on. That is, the additional aid for economic infrastructure services to strategic allies and the additional aid for debt relief appear to be given in on top of existing levels of aid; neither appear to be offsetting other types of development aid.*

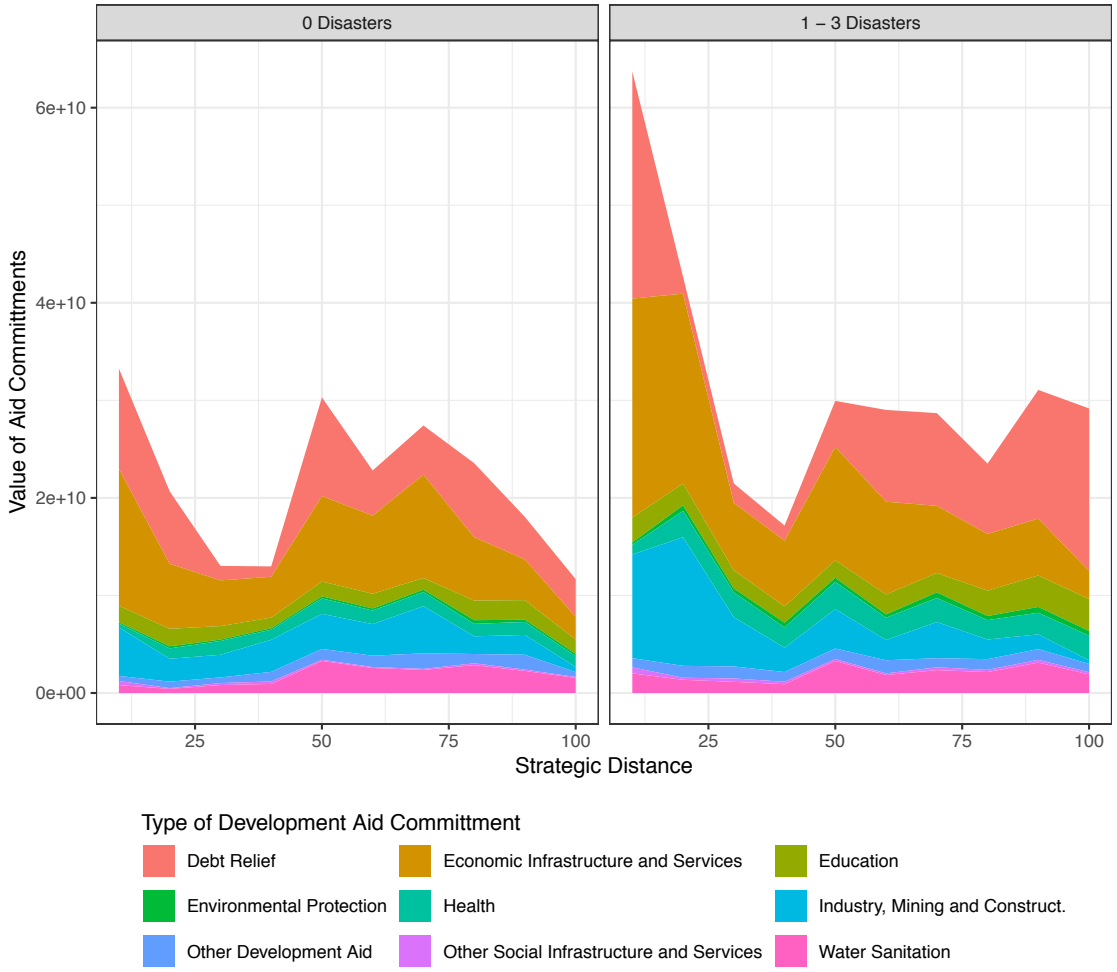

FIGURE 1. Value of Aid Commitments categorized by type of development aid and by the number of disasters

- Why is "women" categorized as civil society aid? Aid aimed at women's empowerment could as easily be categorized as development aid. It would be useful to understand at a project level what types of projects fall into this category to understand whether "women" is capturing, say, women's political organizations or women's economic empowerment. If it is simply a heterogenous category that doesn't fall neatly into any of the authors' categories, then they could re-run the models classifying "women" as civil society vs. development and see if it makes a difference. It is also worth noting that women are disproportionately affected by natural disasters, and there could be a humanitarian logic behind increasing women's programs in the years after a natural disaster.
  - *Reviewer 1's comments cuts to the tension between donor motivations and aid outcomes that we seek to distinguish between in this paper. Indeed, civil society aid as a whole has often been understood as not only promoting civil society for it's intrinsic sake but as an instrumental mechanism to bring about development (Van Staveren and Webbink, 2012; Howell and Pearce, 2002). For that matter, humanitarian aid can also be understood*

as responses to acute crises that are necessary for laying the foundation for longer term developmental outcomes. Given the messy link between motivations for aid and aid outcomes that plague the literature more generally however, we choose in this paper to focus only on donor motivations. To that end, we code aid given to support women as civil society aid however because they are targeted toward promoting women's rights and gender equality, which are commonly accepted to form an important facet of civil society (Esplen, 2016). Nevertheless, we do acknowledge Reviewer 1's argument that it is possible that aid given to support women could have more direct developmental outcomes than what we had originally imagined when we coded this category under civil society aid. However, the overall substantive impact of this decision should be negligible as aid coded as being given to women takes up 0.1% of the total amount of aid considered in this dataset and 3.6% of the aid coded as 'civil society aid' in this dataset. As such, recoding this variable is unlikely to affect our findings.

- There seem to be some missing aid categories. Where do things like governance aid, budget aid, and technical assistance fall? I am particularly wondering whether these categories (especially budget aid) are falling into civil society aid through the "Government and Civil Society" tag, as these are decisively not support for civil society. How does civil society aid relate to Dietrich's notion of bypass aid? Is it always non-governmental?
  - *These aid categories were deliberately excluded from our analysis precisely because it would be difficult to categorize them along the distinctions that we make when we define humanitarian, civil society and development aid. These excluded aid categories take up around 30% of the sum of total aid over the time period under consideration in this paper.*

(5) Empirics: The models rely on testing the interaction term between strategic proximity and the number of natural disasters.

- It would be good to see in an Appendix the factor analysis used to calculate the strategic proximity variable as well as the summary statistics on this variable.
  - *Sure! Please see the Appendix in the revised paper.*
- I would like to see the models re-run using a dummy variable for whether a natural disaster occurred at all rather than the number of natural disasters. I don't see how the number of natural disasters affects the strategic calculus of whether to respond with humanitarian aid, especially since the number of disasters has little to do with their scale. Using a dummy variable would ease interpretation of the interaction terms and their constituent terms. It also seems more consistent with the authors' argument: they argue that natural disasters are a "shock" which prompts donors to respond based on varying levels of strategic alliance.
  - *We have rerun the analysis using a dummy variable for whether a natural disaster occurred instead of a count of natural disasters. We show the substantive results of this analysis below in Figure 2. The findings from this analysis reflect those that we observe when we use the count variable. We have included these revised results in the appendix of our paper.*
  - *We choose to include these results in the appendix rather than as part of the main analysis in our paper because the relative lack of variation in the*

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binary variable makes it impossible to present how aid is distributed differently to strategic allies vs. strategic opponents over increasing intensities of natural disasters.

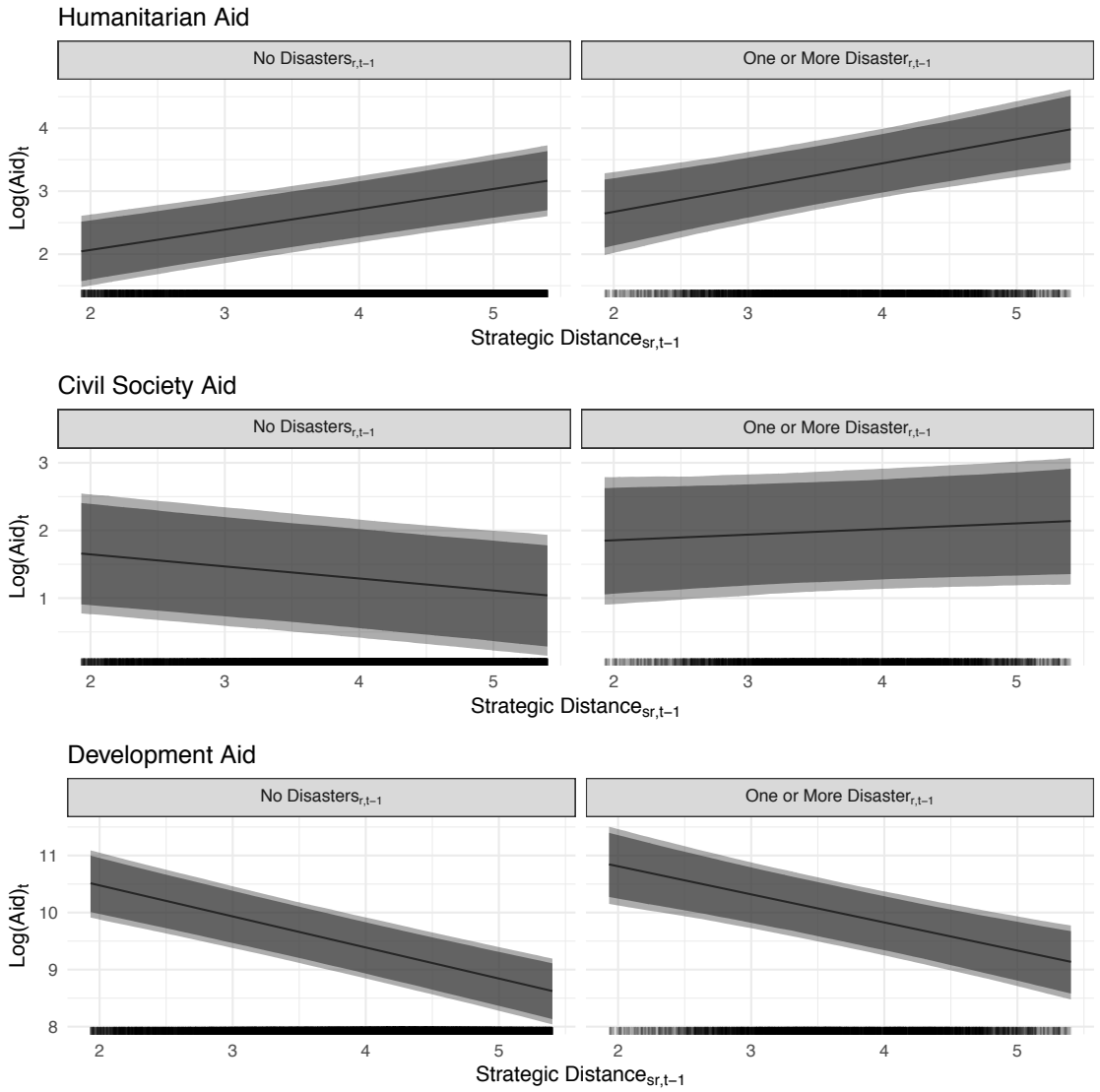

FIGURE 2. Simulated substantive effect plots for development aid for varying lags of variables of interest and whether or not a recipient country experienced a natural disaster across the range of the strategic distance measure.

- If the authors do think that the scale of the natural disaster matters for the response, then using the number of deaths seems more appropriate that the number of disasters, since one large disaster could be far more damaging than five small ones.
  - *We have rerun the analysis using the number killed from a natural disaster instead of a count of the number of natural disasters. We show the substantive results of this analysis below.*

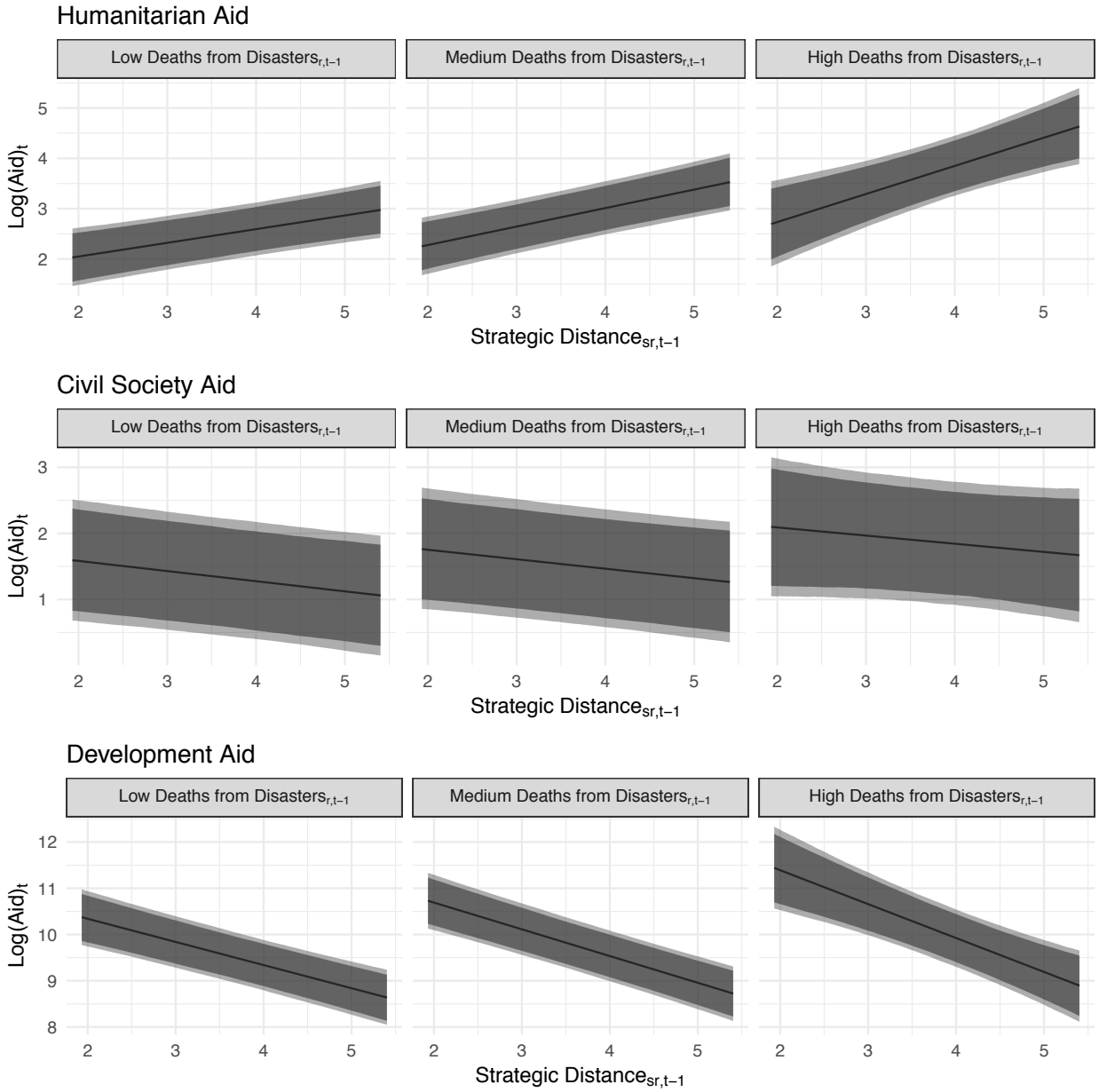

FIGURE 3. Simulated substantive effect plots for development aid for varying lags of variables of interest and different levels of natural disaster severity (specifically, the log of the number killed) across the range of the strategic distance measure.

– *The substantive trends with respect to humanitarian aid and development aid are notably similar to results that rely on a count of the number of natural disasters. There is a difference, however, with respect to the finding for the civil society aid dependent variable. In our analysis with the count of the number of natural disasters we saw that at higher counts of natural disasters the slope between the amount of civil society aid given and strategic distance became positive. Here we see a less pronounced change in the*

slope between strategic distance when there are a higher number of deaths. This is perhaps explained by the fact that this measure has a missingness rate of 10.8%.

- *With regards to other potential measures, the EM-DAT database provides the data on number people injured, homeless, or affected and the dollar amount of the disaster. However such data has a high degree of missingness and, by their own admission, frequently imprecise or under-reported. For instance there is 79% missingness for the number of injured, 36% missingness for the total number of homeless and 33% for the total damages. The number of affected has comparatively less missingness, with 9.6%, however the EM-DAT Gudelines note that, "The indicator affected is often reported and is widely used by different actors to convey the extent, impact, or severity of a disaster in non-spatial terms. The ambiguity in the definitions and the different criteria and methods of estimation produce vastly different numbers, which are rarely comparable." Generally all the indicators have varying degrees of imprecision. For instance, the guidelines further state, "Any related word like 'hospitalized' is considered as injured. If there is no precise number is given, such as 'hundreds of injured', 200 injured will be entered (although it is probably underestimated)." Given these problems with these other potential measures, we decided to focus on the number of disasters as our measure of disaster intensity.*

Minor Comments.

(1) The legend on Figure 1 did not come out clearly, and the different categories of aid cannot be easily distinguished.
   - *Thanks for pointing this out! We have fixed the legend so that it is more legible.*

(2) I think H3 is phrased the opposite of what the authors intended.
   - *H3 was indeed phrased the opposite of what we intended and we have since fixed this unfortunate oversight.*

Reviewer 2

Major Comments.

(1) The manuscript asks whether donors respond differently to natural disasters in strategic allies and adversaries. In particular, the authors put forth hypotheses across three different types of aid - humanitarian, civil society and development - and posit that an interaction will exist between "strategic distance" and disasters. The idea is sound and worth testing, particularly with regard to civil society aid, but the execution is not as good as it could be and the paper feels dated in both literature review and time covered. I would strongly suggest reframing the paper to focus more on the civil society findings (as well as the humanitarian findings), updating the analysis and literature review, and paying additional attention to some empirical difficulties. I'll say some more on each of these.

- *We thank the reviewer for taking the time to provide her/his comments!*

(2) I thought the most interesting finding is that donors may be using a humanitarian disaster to "sneak" civil society aid to groups in countries not aligned with themselves - if this holds up it is a really neat finding. It also suggests that recipients are right to be worried about donors having multiple purposes when responding to humanitarian crises. I would highlight the importance of this more, as it would be the newest finding in the paper. The North Korean example regarding "changing hearts and minds" could play into this - it is a clear example of influencing the opinion of the people, rather than the government, toward the donor.

- *We largely agree with the reviewer but we also think that the findings in terms of the development and humanitarian aid findings are also quite interesting. Though the development aid findings largely mirror expectations from the literature we still see it as an important validation of our strategic interest measure. Just as important the fact that the humanitarian aid finding has essentially the opposite effect of development aid is also quite interesting and makes an important contribution to the literature. To make our perspective on these findings more clear we have revised the paper to reflect what we see as our contribution here.*

(3) Breaking H1 into three parts (the middle one clearly a straw man) is not helpful. Also on framing I recommend removing the multiple anecdotes of disasters in wealthy states in the front of the paper - these have nothing to do with interactions between aid donors and recipients, they are confusing in the context of the questions asked in the paper, and removing them would streamline the argument.

- *We would respectfully push back on this comment: We think that making the distinction between H1A and H1C is especially helpful for reasoning through why a finding that shows that donors give even more to strategic opponents is an indication strategic, rather than a humanitarian motivation. We also think that the middle hypothesis (H1B) is quite valuable given that this is precisely the finding that the previous literature would expect for us to find. Overall, we think that having all three hypotheses explicitly laid out also helps the reader think through our theoretical reasoning as well as gives a better foundation for how to interpret the subsequent empirical findings that we find. That being said, the point on the type of anecdotal evidence that we use is well-taken and we have*

adapted the anecdotes that we use in our paper to better align with the rest of the paper.

(4) I believe H3 is stated exactly the opposite of what the authors intended to say. Also, it does not necessarily seem consistent with H1A/C- if states experience a lot of infrastructure destruction then much of the disaster aid may be designated to rebuild infrastructure. In this way it seems like a longer-term disaster response, and then the same logic that plays out in H1 might play out here too.

- *H3 was indeed phrased the opposite of what we intended and we have since fixed this unfortunate oversight.*

(5) The literature review is dated. In particular, it misses some key contributions from recent years regarding donor intent and foreign aid. Most notable are Bueno de Mesquita and Smith (2009, 2015); Fleck and Kilby (2010); Clist (2011); Bermeo (2017, 2018). Multiple of these studies note the importance of considering changes in donor intent and behavior across three periods (Cold War, 1990s, post-2001), which the authors should certainly test in their empirics. Carter and Stone (2015) have written the definitive piece on UN voting and aid, which should certainly be referenced.

- *The development of this paper was quite long and we appreciate Reviewer 2 pointing out these later works that we overlooked and have incorporated them into the manuscript. Inspired by this comment, we have also incorporated additional relevant readings from: Andrabi and Das (2017), Bryant et al. (2018), (Carnegie and Marinov, 2017), Dreher et al. (2011), (Dreher and Fuchs, 2015), Dreher et al. (2018), Eisensee and Strömberg (2007), Fuchs and Vadlamannati (2013), Harmer et al. (2005), Milner and Tingley (2013), Neumayer (2003), Olsen et al. (2003), Qian (2015), Strömberg (2007) which hopefully has made the literature review even more relevent and timely.*

(6) A key contribution the authors could be making is on the measure of strategic difference, using network analysis and combining information from three variables - UN voting, alliances, and membership in IGOs. It is difficult to assess the suitability of this with the information given. We don't know which IGOs were included in developing this measure. There is updated data for UN voting (Bailey et al., 2017).

- *Thank you for this suggestion! We have added a bit more descriptive information on the IGOs included in the COW dataset to help give readers a better idea of the underlying data our analysis is based on. Given the number of IGOs in the data-set, we would run into space constraints if we tried to document each and every one of them. However, we have added a note in the text inviting readers to go to the COW website if they are interested in learning more. With regards to the UN data, note that the constraint that we face is that IGO data only goes up until 2005.*
- *As the underlying data is updated, however, our approach can be easily used to generate updated measures of strategic interest. If we find that there is significant interest among scholars for our measure, we will then also be happy to regularly update the strategic interest variable and make it available through a website and/or the Harvard dataverse.*

(7) On the empirical setup, it would be nice to see results on total aid in addition to the results by category. Do disasters shift total levels of aid and does this interact with strategic distance?

- *Here we present results for a model on total aid as well. Here we find strong evidence that countries are more likely to give aid to those that are strategically proximate to them and we also find robust support for an interactive relationship between strategic distance and the number of disasters. We certainly find the results for total aid interesting, but our hypotheses are dependent on differentiating between different types of aid and as such we choose to focus on that in the paper.*

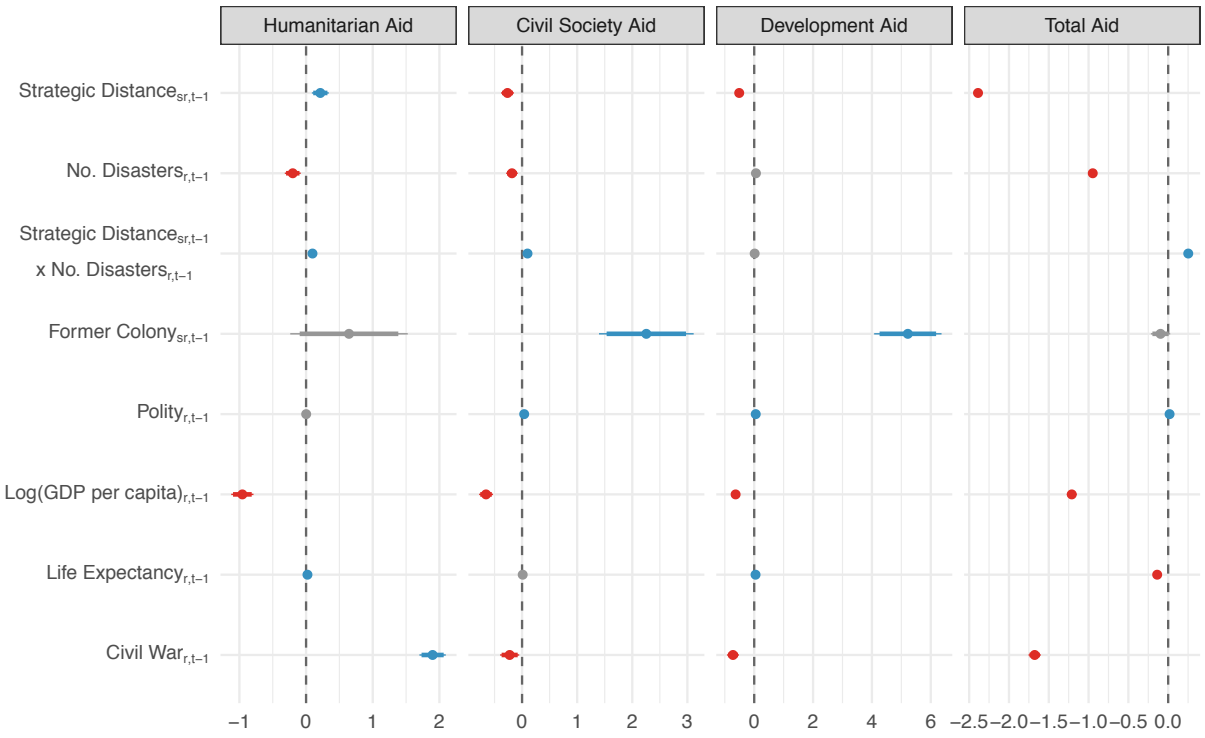

FIGURE 4. Parameter estimates for models using our three original aid dependent variable and total aid.

(8) Have the authors considered threshold effects? It is possible that there are discontinuities - perhaps for recipients that are either really close or really far from the donor in terms of strategic distance are treated differently but the many countries in the middle see no impact for small changes in strategic distance, regardless of disasters.

- *We thank the reviewer for this comment but we have not found evidence for non-linear effects between strategic distance and aid. We tested this by incorporating a squared version of the strategic distance into our specification along with the original term, and found no support for a non-linear relationship. We are happy to provide additional details if requested.*

(9) The period of analysis is cause for concern. First, it is not really a good idea to start in 1975 using disaggregated aid data. Countries were not required to report

the purposes of aid for earlier years and before 1995 there was significant lack of reporting by category and it was not uniform across donors. Some donors almost never marked the sector of aid (just reported the total amount by recipient) and others did report. This is particularly problematic in AidData (which the authors use), since this source only includes aid that is reported at the project level. So large sums of aid are excluded from AidData in earlier years because donors did not code its purpose. This makes it impossible to create meaningful categories for humanitarian, civil society, and development aid, since donors did not distinguish across types.

- *Note that for the Aid Data version 3.0, which is what we use in the paper, the AidData team themselves code aid projects according to different sectors. We have confirmed this both in terms of the documentation given for the version 3.0 data as well as in terms of the actual data. We double checked this by seeing if the sum of the disaggregated aid categories by purpose code equals the aggregated aid cateogries across purpose codes and found this to be so. As such, there should be no concerns about missing data in this regard.*

(10) It is also problematic to end the analysis in 2006. Why exclude ten years of more recent data? It can be particularly problematic to do so since multiple studies have shown that patterns in aid giving vary across the Cold War, 1990s, and post-2001 period. This analysis is swamped by Cold War years and may not hold for the more recent periods.

- *We agree with Reviewer 2 and ideally we would also have liked to extend the analysis past 2005. However, we face the constraint that the IGO data is simply not available past 2005 which restricts our ability to construct our strategic interest variable and consequently, also restricts our ability to model the relationship between strategic interest and aid.*
- *To show the potential relevance of our findings for more recent periods we have run our models using only data from the post Cold War period. The results are presented below and mirror the findings presented in the paper. We have included these results in the appendix.*

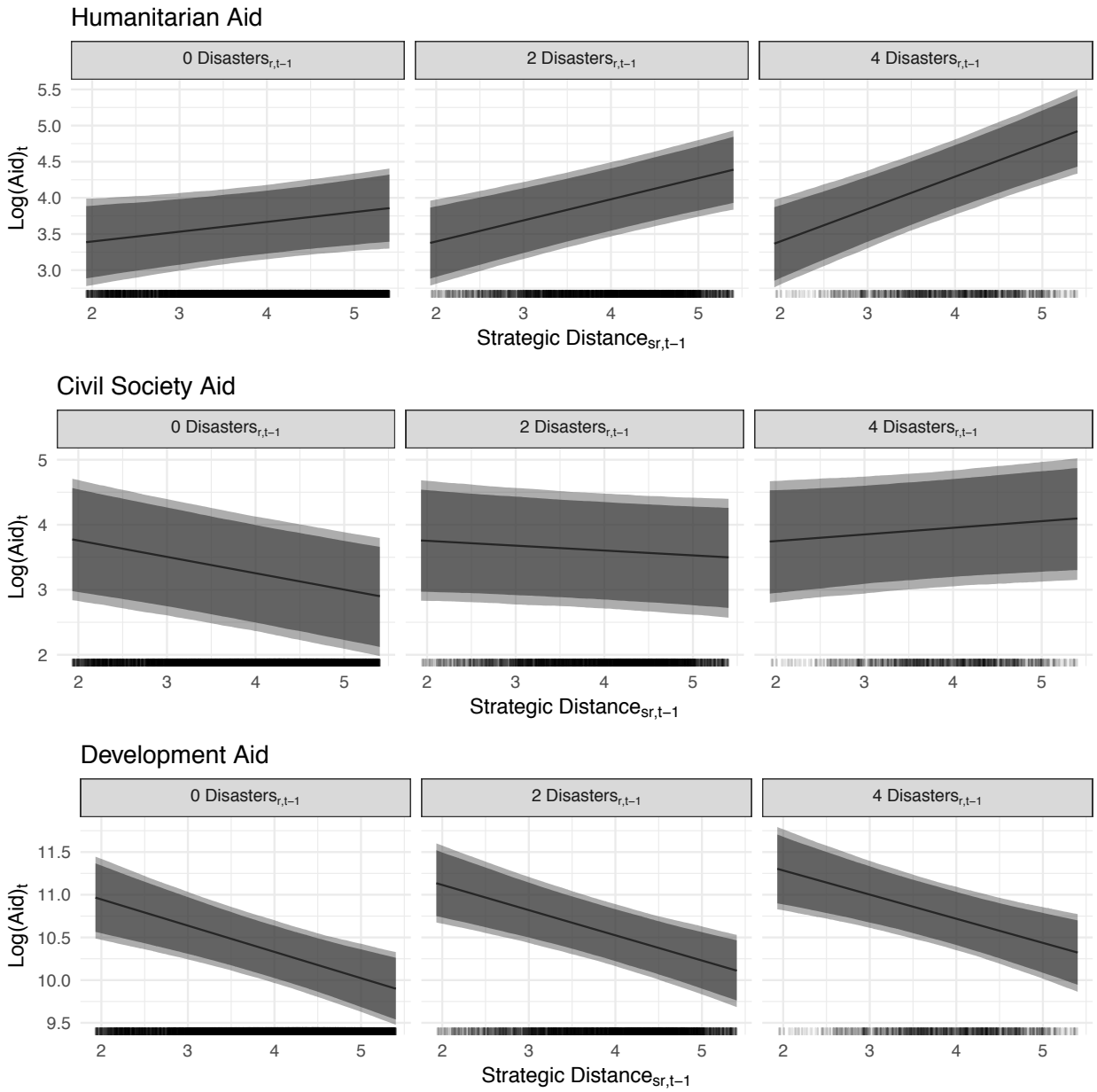

FIGURE 5. Simulated substantive effect plots for development aid for varying lags of variables of interest and different levels of natural disaster severity across the range of the strategic distance measure for the post Cold War period.

- *Additionally, we also run our models using only data from 2002-2005 (post-2001 period in our sample). The results are presented below and mirror the findings presented in the paper. We have included these results in the appendix as well.*

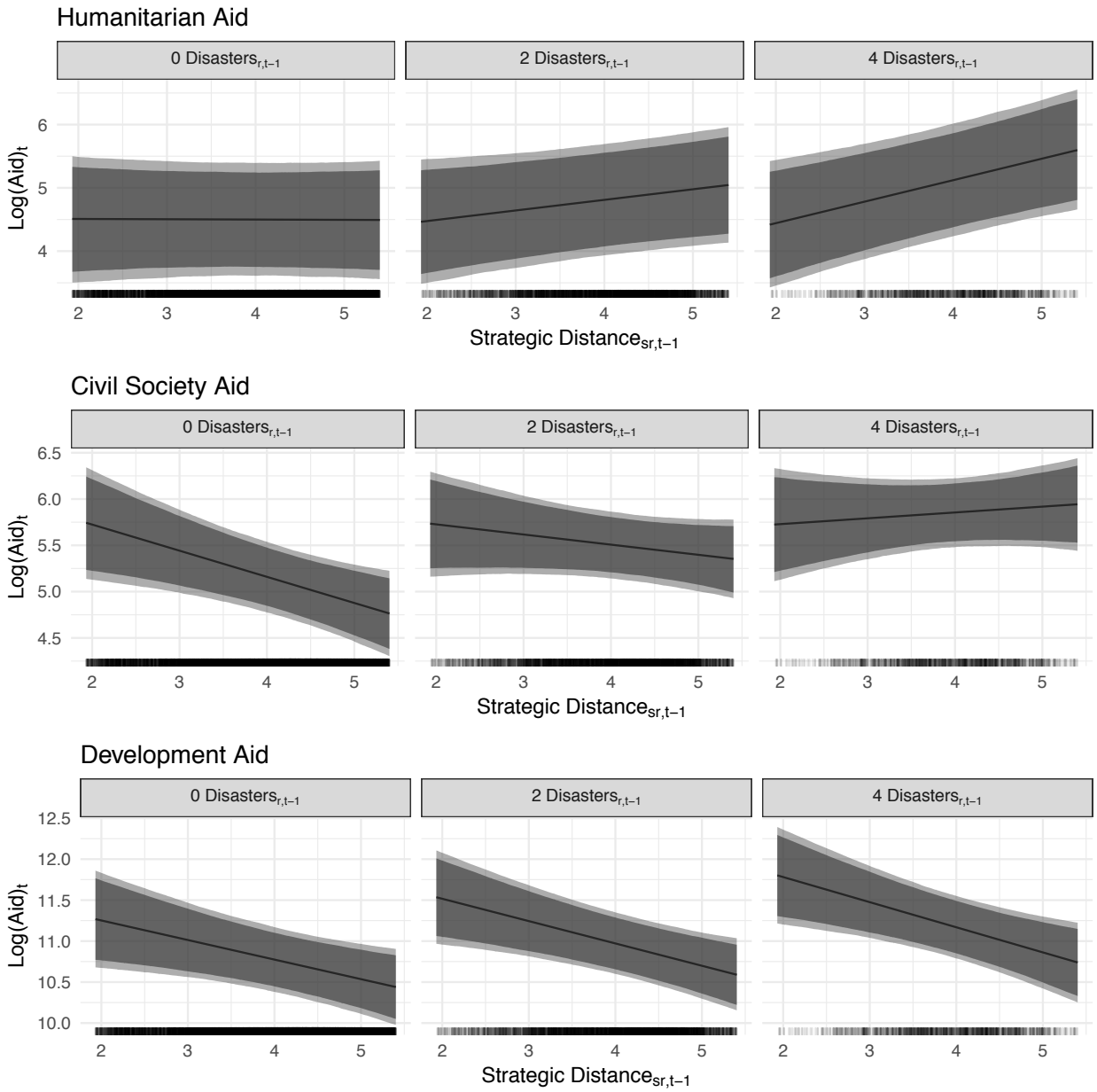

FIGURE 6. Simulated substantive effect plots for development aid for varying lags of variables of interest and different levels of natural disaster severity across the range of the strategic distance measure for 2001-2005.

(11) The count of natural disasters seems like the wrong measure of disaster intensity. A measure of number of people affected or dollar value of damages would better measure need in the wake of a disaster.

- *We have rerun the analysis using the number killed from a natural disaster instead of a count of the number of natural disasters. We show the substantive results of this analysis below.*

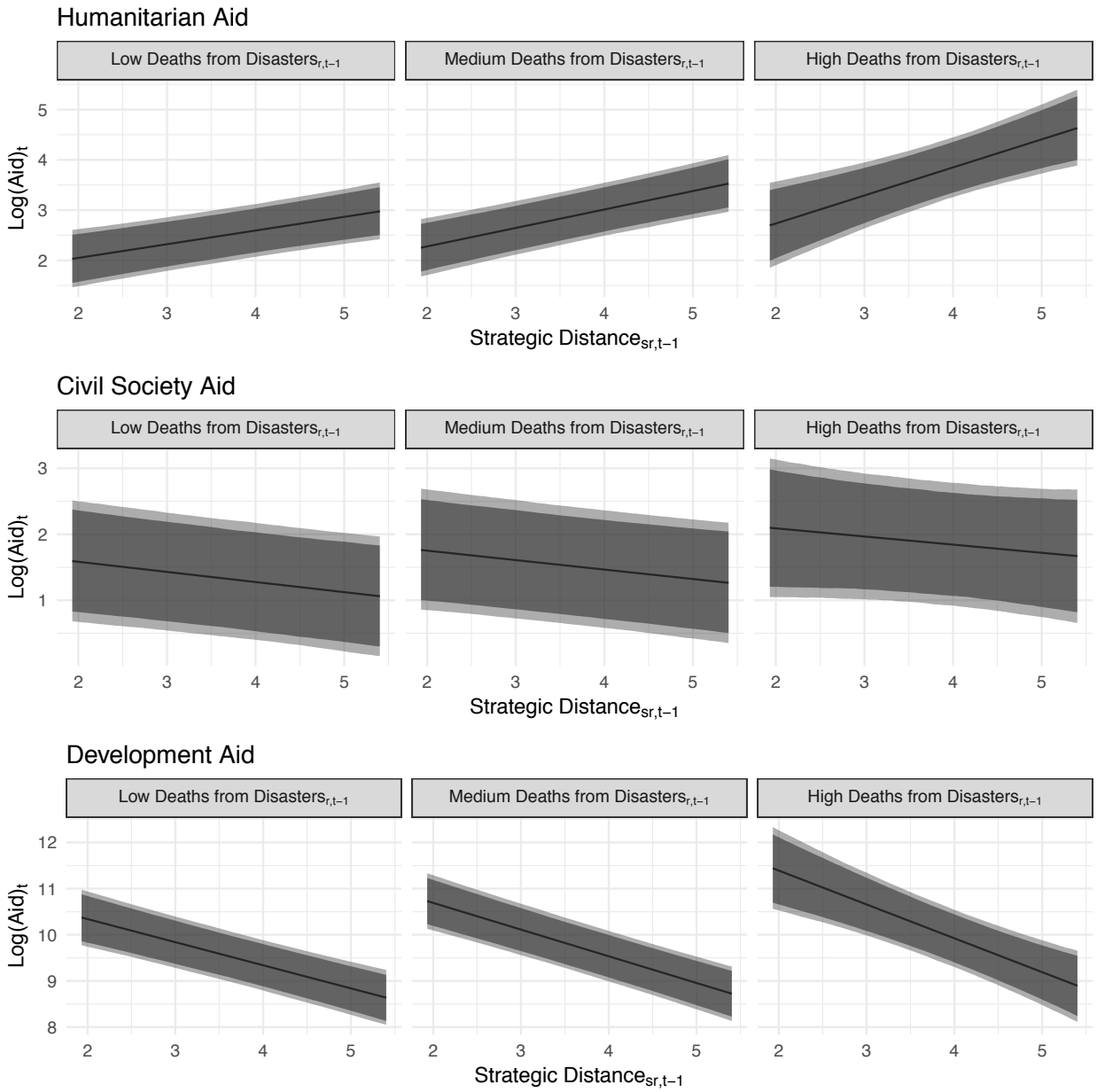

FIGURE 7. Simulated substantive effect plots for development aid for varying lags of variables of interest and different levels of natural disaster severity (specifically, the log of the number killed) across the range of the strategic distance measure.

- *The substantive trends with respect to humanitarian aid and development aid are notably similar to results that rely on a count of the number of natural disasters. There is a difference, however, with respect to the finding for the civil society aid dependent variable. In our analysis with the count of the number of natural disasters we saw that at higher counts of natural disasters the slope between the amount of civil society aid given and strategic distance became positive. Here we see a less pronounced change in the slope between strategic distance when there*

are a higher number of deaths. This is perhaps explained by the fact that this measure has a missingness rate of 10.8%.

- *With regards to other potential measures, the EM-DAT database provides the data on number people injured, homless, or affected and the dollar amount of the disaster. However such data has a high degree of missingness and, by their own admission, frequently imprecise or under-reported. For instance, there is 79% missingness for the number of injured, 36% missingness for the total number of homeless and 33% for the total damages. The number of affected has comparatively less missingness, with 9.6%, however the EM-DAT Gudelines note that, "The indicator affected is often reported and is widely used by different actors to convey the extent, impact, or severity of a disaster in non-spatial terms. The ambiguity in the definitions and the different criteria and methods of estimation produce vastly different numbers, which are rarely comparable." Generally all the indicators have varying degrees of imprecision. For instance, the guidelines further state, "Any related word like 'hospitalized' is considered as injured. If there is no precise number is given, such as 'hundreds of injured', 200 injured will be entered (although it is probably underestimated)." Given these problems with these other potential measures, we decided to focus on the number of disasters as our measure of disaster intensity.*

(12) Donor and year fixed effects would be more in-line with the theory and existing literature, rather than donor and recipient random effects. The theory would imply that within a donor in a given year, the donor awards aid differently across recipients. Although there could be within-recipient differences over time for individual donors as well, the need to account for time invariant donor characteristics (while still allowing dyad characteristics to vary over time) suggests that donor fixed effects are worth considering.

- *We have rerun the analysis using a fixed effects specification and show the results below. The results remain broadly the same.*
- *Additionally, when running a Hausman specification test for our models we fail to reject the null hypothesis at both the 90 and 95% confidence intervals, providing at least some initial evidence that we are justified in our choice (Greene, 2008).*

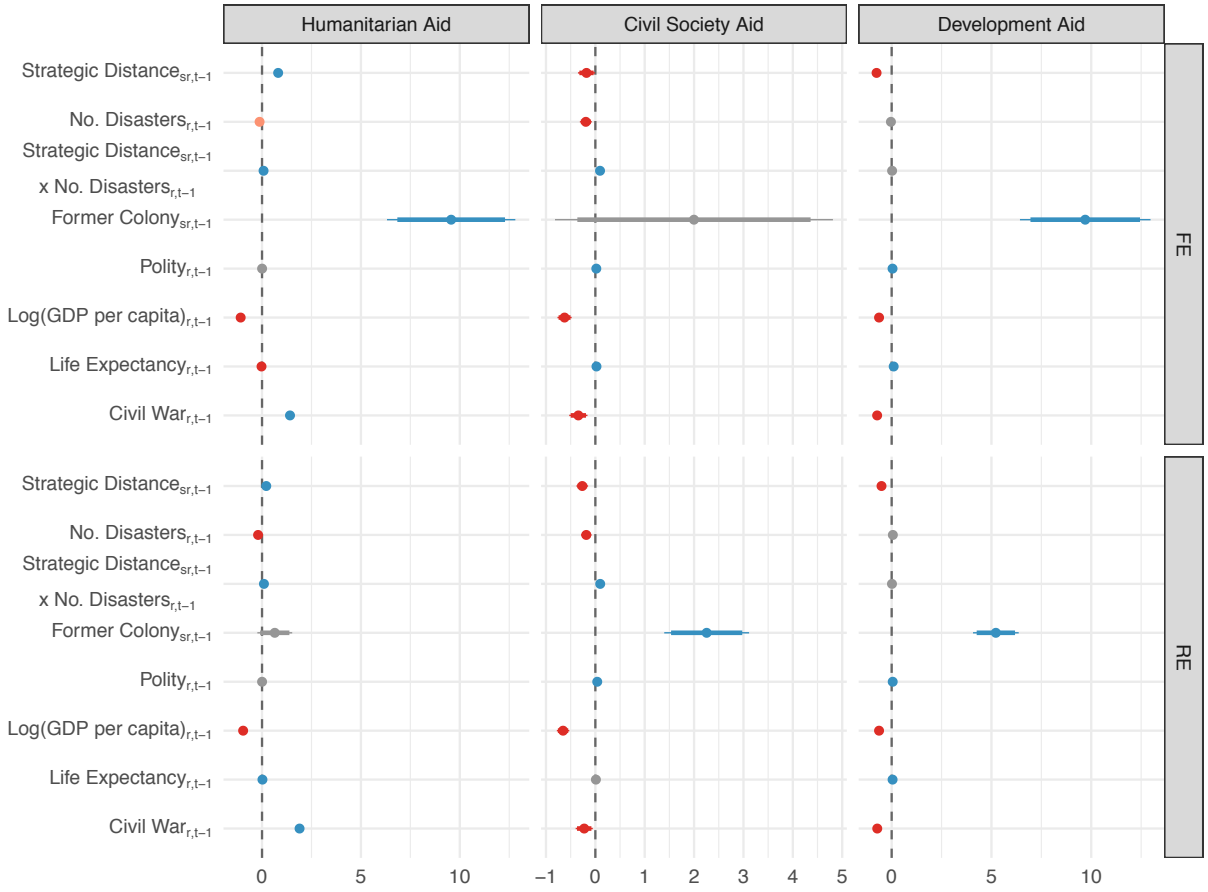

FIGURE 8. Comparison between parameter estimates using fixed and random effects.

(13) Multiple studies have shown that donors vary the composition of aid based on recipient characteristics. The positive relationship between humanitarian aid and strategic difference even in the absence of a disaster, coupled with the negative relationship between development aid and strategic difference, suggests that donor may simply be giving different types of aid to allies and adversaries. Perhaps they are more worried about going through the government in adversaries and so use aid that is more easily channeled through NGOs (similar to the Dietrich logic on corruption/governance and aid channels). This would suggest that, even absent disasters, donors are giving to both allies and adversaries but doing so differently. The same applies when a disaster strikes: allies and allies may both get more aid (hard to tell from the way it is presented), but for allies it is development aid and for adversaries it is humanitarian aid. The authors should address these patterns and possible implications for their theory.

- *This is indeed a legitimate concern. Following a suggestion made by Reviewer 1, we seek to explore the extent to which this is an issue by looking at whether donors strategically shift the type, that is the label, of aid they dispense within the overall category of development aid* ***while keeping the overall level of***

***aid the same**, which would be a cause for concern. This is illustrated in Figure 9. Here we break down how much development aid was given to countries experiencing that experienced either 0 disasters or 1-3 disasters across different types of development aid. The comparison between 0 or 1-3 disasters was used to maximized comparability, as around 40 percent of the country-years in the dataset had 0 disasters, while 43 percent experienced 1-3 disasters. This figure suggests that i) countries that are strategic allies (located at low levels of strategic distance) are more likely to get more aid related to economic infrastructure and services while ii) countries that experience disasters are much more likely to get debt relief when the they are strategic opponents (that is at high levels of strategic distance), compared to countries that experience 0 natural disasters. However, while Figure 9 does seem to be consistent the reviewer's hunch that it may be easier to distribute different types of aid depending on whether one is a strategic opponent or strategic ally, there does not seem to be much in the way of strategic labelling going on. That is, the additional aid for economic infrastructure services to strategic allies and the additional aid for debt relief appear to be given in on top of existing levels of aid; neither appear to be offsetting other types of development aid.*

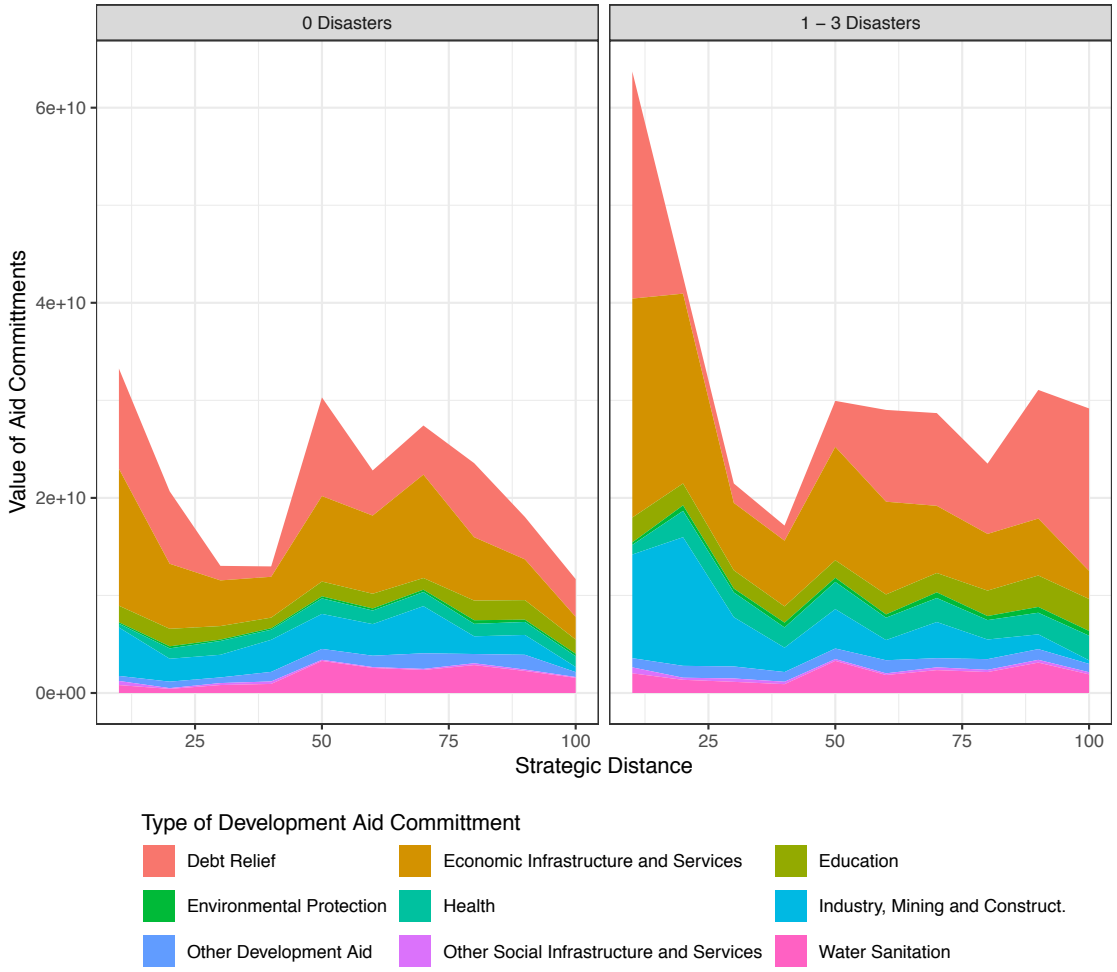

FIGURE 9. Value of Aid Commitments categorized by type of development aid and by the number of disasters

Reviewer 3

Major Comments.

(1) This paper argues that the extent to which natural disasters lead to an increase in bilateral aid allocation is a dependent upon the strategic relations between countries. They examine this relationship using dyadic data, and a novel measure of strategic interest. I find the discussion of potential theoretical mechanisms surrounding the impact of natural disasters upon aid allocation to be well executed and rather common sense. Therefore I think the main contribution of the paper is its empirical analysis, particularly with respect to the effect of strategic interest. Thus I would suggest a revise and resubmit.

- *Thank you for your comments!*

(2) One key empirical part of the paper is the introduction of the new measure of strategic interest. I think this measure is a good addition to the literature. However there is one methodological concern that it raises, which is that this measure of strategic interest is an estimate with uncertainty. This introduces a statistical bias akin to measurement error. Therefore the statistical models need to take this into account.

- *Below we show results when taking into account uncertainty in the latent variable compared with our original estimates. We do this by simulating 1000 values of each latent variable estimate from the underlying distribution. From this we create 1000 versions of our dataset in which for each dataset we have a different sampled value of the strategic interest variable. We then run each of our models on those 1000 datasets and combine the parameter estimates using Rubin's rules (Rubin, 1987). We present the results of this analysis juxtaposed against our original model in the figure below.*

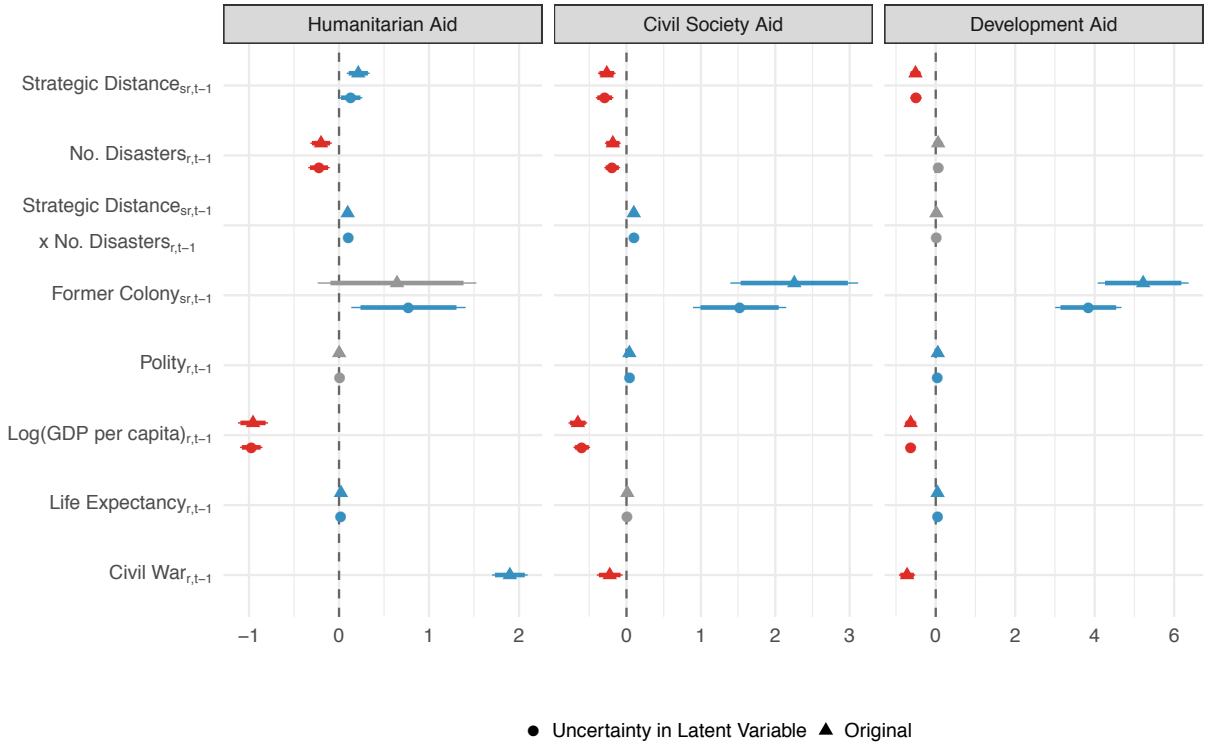

FIGURE 10. Effect of accounting for uncertainty in latent variable.

(3) Another concern is that strategic interest as operationalised is correlated with factors such as trade and FDI, i.e. economic interests. In the case of the impact of natural disasters on aid, and development assistance in particular, I would think it's exactly such economic linkages that would be relevant for donors. For example to help rebuild infrastructure that facilitates trade between them. Therefore this economic interdependence needs to be incorporated in the empirical specification.

- *With regards to FDI data, dyadic data does exist from OECD and UNCTAD but there is a significant amount of missing data in these datasets and they start, at the very earliest, around 2001. As such, we do not see it as feasible to use dyadic FDI data for our analysis. However, we can control for the trading relationships between countries in our analysis. Below we show the results of our model when including trade as a control. The results are largely robust to the simpler specification that we present in the paper. We have not yet included this analysis in the appendix but are happy to do so upon request.*

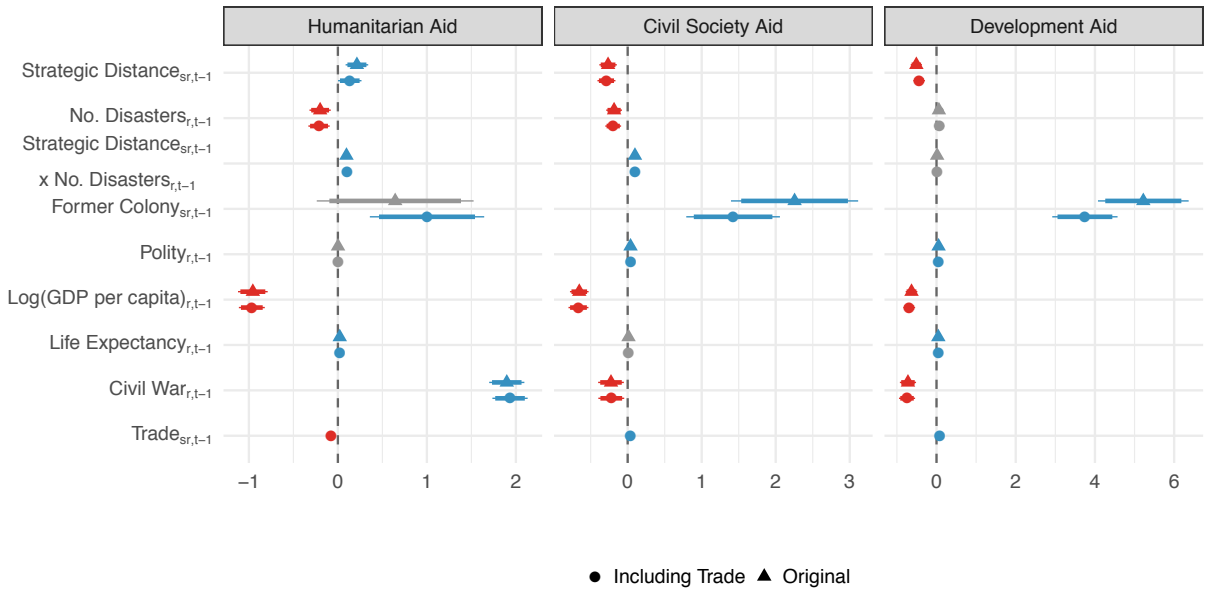

FIGURE 11. Effect of Including trade in model specification.

(4) I also have other comments/suggestions related to the use of this measure of strategic interest:
- It would be interesting to see how much better this measure is at explaining variation in aid commitments compared to existing bilateral approaches. e.g. compare the latent space measure of alliances to the simple measure of whether the countries share an alliance or not.
  - *To answer this question we set up two different versions of our general specification, one in which we use our strategic interest measure and another in which we use a raw measure of alliance. We then perform a 30-fold cross validation procedure. This works by randomly assigning each unit in our dataset to one of thirty folds, running the model excluding a fold, and then generating predictions for the fold that was left out. Once we have generated out-of-sample predictions in this manner for every fold, we then calculate the root mean squared error (RMSE) for models using the raw alliance measure and models using the strategic interest measure. The results are presented in the table below. In general we see a very small decrease in RMSE when incorporating our measure versus a raw measure of alliance. Thus the improvement in predictive fit for the various aid dependent variables from incorporating our measure is minimal.*

	Latent Space Measure	Raw Alliance Measure
Humanitarian Aid	5.037	5.042
Development Aid	5.030	5.035
Civil Society Aid	4.368	4.371

TABLE 1. Out-of-sample RMSE statistics based on a 30-fold cross validation.

- I'd be interested to see which aspects of strategic interest drive the results. Therefore it would be nice to see the results from simply including each of the latent space measures in the model, to potentially see their relative importance.
  - *In the figure below, we present results when using the individual latent distance measures from our analysis instead of the aggregated version we present in our paper. However, we believe that there is value from generating a single measure of strategic interest for conceptual reasons, thus we focus on that for the paper. In future research, exploring the different roles that these measures can play is definitely of interest to us. Currently, we do not have a specific theory about the varying effects that these measures may have on aid or more broadly.*

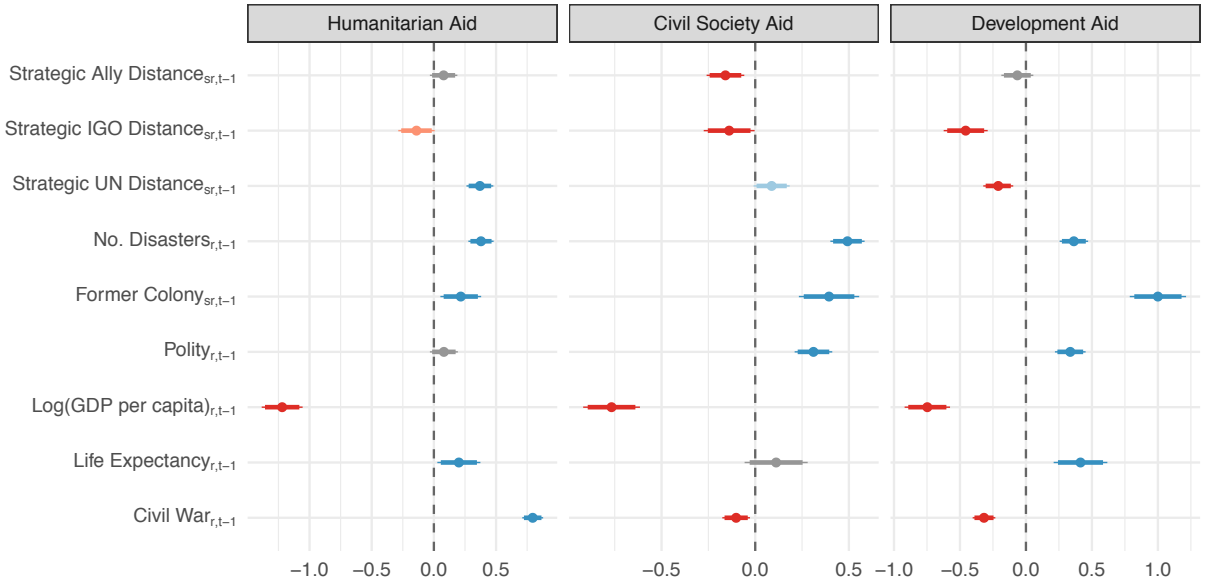

FIGURE 12. Effect of individual latent variables. Standardized regression estimates provided.

(5) I have further concerns about the empirical specification used in the paper:
- Aid tends to have pretty strong temporal dependence, particularly within dyads. However no efforts are taken to model this dependence. Therefore it's important to ensure the results are robust to models that take this into account, such as including a lagged dependent variable or more elaborate specifications such as an Error Correction Model.
  - *Below we show that our results are robust to the inclusion of lagged versions of the dependent variables. Given that our results are robust to the inclusion of a lagged DV, we opt for the more parsimonious specification in the model that we present in our paper. We have not yet included this analysis in the appendix but are happy to do so upon request.*

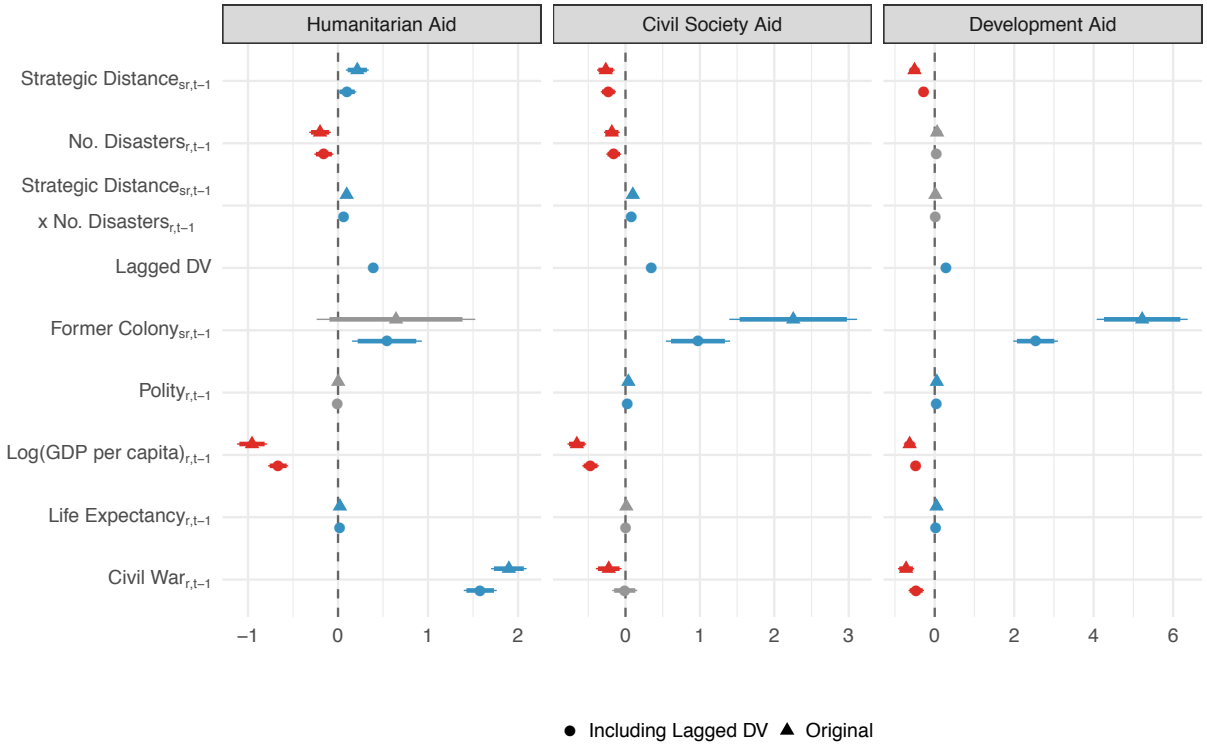

FIGURE 13. Effect of accounting for uncertainty in latent variable.

- There should be discussion of why fixed effects models aren't estimated, given their common use in the aid literature and given that unobserved unit heterogeneity is likely correlated with the right hand side variables. At least FE models should be estimated as a robustness test.
  - *We have rerun the analysis using a fixed effects specification and show the results below. The results remain broadly the same and a Hausman test indicates that a random effects specification is preferred.*

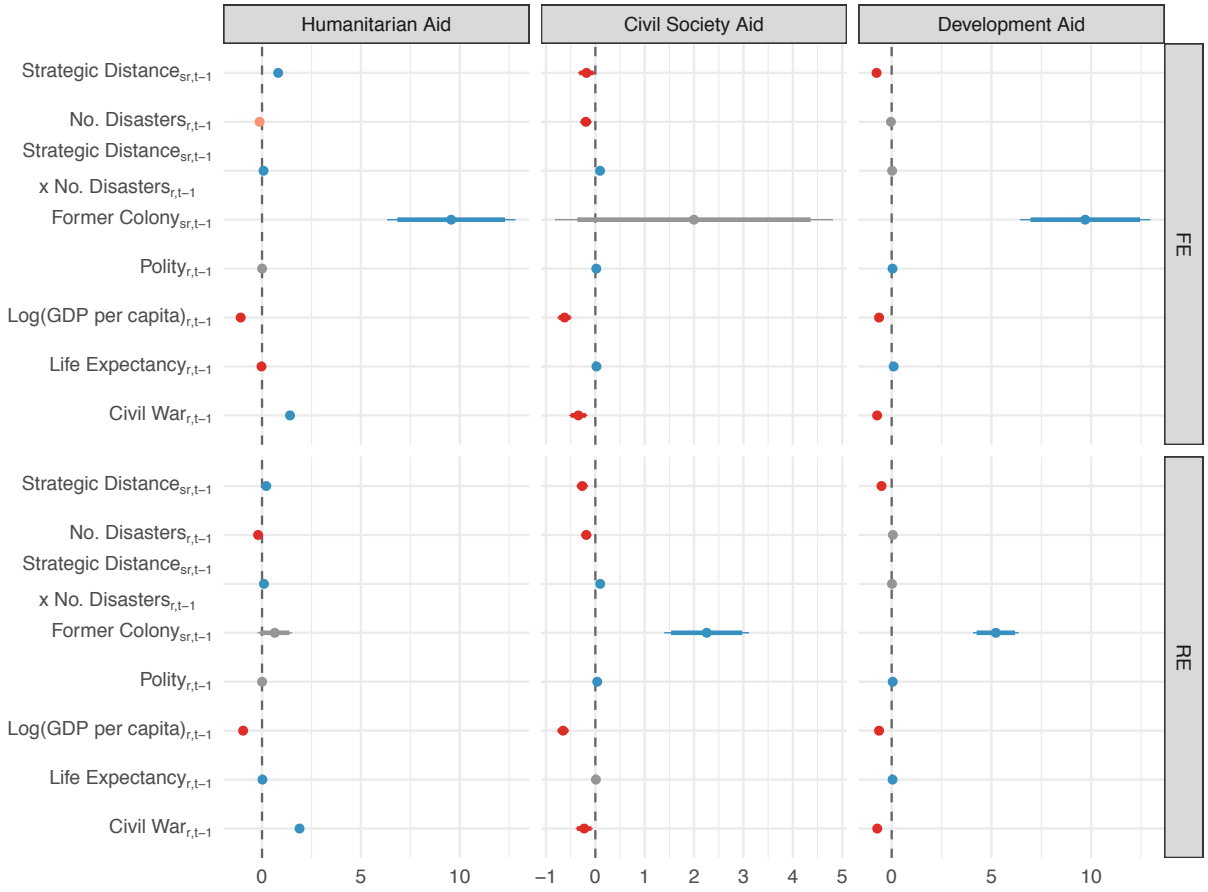

FIGURE 14. Comparison between parameter estimates using fixed and random effects.

- Any justification for why the independent variables are lagged by one year?
  - *We use one year lags because while our natural disaster data is pinpointed to the day, we do not have correspondingly fine-grained data on foreign aid distributions. Thus we take a conservative approach and lag by one year to guarantee that the aid is committed after the incidence of a natural disaster. In general we are following standard practices here with regards to why we lag our control variables by one year. However, we do agree that exploring differing lag structures is often of interest, and this is why we examine the persistence of foreign aid allocation over time with regards to our primary parameters of interest (strategic distance and number of disasters) in the manuscript.*

(6) Regarding the dependent variable could there be an issue of countries committing more to non-strategically aligned countries, with the expectation that they will not accept all of this money? Some information on how the relationship between commitments and disbursements varies according to strategic interest would be useful.

- *Thanks for this comment. We initially decided to use aid commitments as our preferred for a number of reasons i) coverage of data for aid commitments is*

better than for aid disbursements ii) this is the measure most commonly used in the literature and thus using it will allow our findings to better speak to existing findings. Meanwhile, other work has found that donors generally do disburse the aid they have committed to a high degree, including with regards to humanitarian aid in particular (Hudson, 2013).

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