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Abstract

The relationship between aid and voting in UN agencies has been well documented in the aid literature. We extend this analysis to the wider field of international negotiations, outside the sphere of formal voting, where decisions are mostly taken by consensus. Is aid used strategically to influence the negotiations in this context, too? Based on a novel dataset on negotiation behavior under the UN Framework Convention on Climate Change we assess whether countries obtaining aid react by expressing increased support and/or reduced opposition towards the donor. Applying linear and instrumental variable regressions on a three-dimensional panel dataset with donor-recipient dyads for the period 2002-2013 enables us to distinguish between long-term partnerships and the strategic use of aid for the purpose of the negotiations. We find that aid can indeed buy support in the climate negotiations, but that this opportunity tends to be limited to mitigation and adaptation aid, rather than general aid. We argue that this is due to both greater demand for and greater supply of these specific types of aid, whose allocation is under the direct responsibility of the specialized delegates participating in the negotiations.

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"Mr. President, I deeply regret that European delegation offered money here for adoption of this document."[1]

1. Introduction

The strategic allocation of development aid is well documented in the existing literature on UN voting. Through the strategic use of aid, donor countries induce aid recipient countries to vote in line with their positions on important issues discussed at the United Nations General Assembly (UNGA) (Dreher et al. 2008) or the United Nations Security Council (UNSC) (Kuziemko and Werker 2006). Anecdotal evidence suggests that the strategic use of aid may go beyond this and also be relevant in the broader context of international negotiations, to ensure support or avoid opposition even when there are no formal votes. Consensus decisions rather than majority voting are a widespread phenomenon in international politics. Even in organizations like UNGA that also use majority voting, most decisions are taken by consensus (Häge and Hug 2016). We suggest that buying support should be relevant in these contexts, too. Motives can range from pushing forward a certain agenda, to avoiding public criticism that may put the government in a negative light in the international media and influence national constituents.

We study this phenomenon in the field of global environmental politics. As in many other fields, decisions are taken by consensus, and therefore formal votes play a much lesser role than positional statements within the negotiations. Our new dataset describing negotiation behavior under the United Nations Framework Convention on Climate Change (UNFCCC) allows us to assess statements of support and opposition towards other parties' positions, rather than voting (Castro 2017). At regular meetings of the UNFCCC bodies, country delegates negotiate a wide variety of climate-related issues ranging from implementation and monitoring of the performance of existing measures and agreements, to the preparation of

[1] Statement of a Cuban delegate at the UNFCCC meeting in Copenhagen, quoted by Dimitrov (2010, p. 813).

new agreements relating to mitigation, adaptation, the provision of financial and technical support, among others. Using the summaries of these negotiation meetings published in the Earth Negotiations Bulletins (ENBs), we code the instances in which one country agrees with or opposes the positions expressed by its peers, as well as the negotiation issue to which this support or opposition relates.

On this basis, we identify the role of aid as a strategic tool in a country's negotiation strategy.[2] Is increased aid related to greater support and less opposition? If so, is this any aid, or only such funding that is directly related to the area under negotiation, i.e., in our context, aid for the adaptation to or the mitigation of global climate change? Different causal pathways are consistent with such a correlation: Does aid lead to a better understanding and hence greater alignment between the donor and the recipient, is it directly used to obtain more favorable statements by the recipient country, or is it used ex post to reward or punish potential recipients depending on their negotiation behavior?

Section 2 reviews what we know from the extant literature on aid and voting as well as the relevant literature on negotiation behavior. Section 3 provides the conceptual framework for our analysis and derives the hypotheses that will then be tested based on data and methods described in Section 4. Section 5 presents the results of a three-dimensional panel analysis, and uses a variety of fixed effects approaches and a placebo test based on a novel interpretation of instrumental variable approaches to improve our understanding of the causal relationship between aid and negotiation support. Section 6 concludes.

2. Insights from existing literature

This article brings together scholarship on international negotiations with the literature on UN voting. Within the negotiations literature, several concepts can help us understand how or why aid could be used strategically to encourage specific negotiation behavior. Threats and promises are well-known negotiation tactics (Hovi 1998; Odell 2000; Odell 2002; Dür and Mateo 2010; Bailer 2012). Clearly, the commitment to provide aid is part of these promises,

[2] While the paper focuses specifically on the use of aid to influence multilateral negotiation processes, this does not mean to exclude other strategies that may be used by parties to influence a negotiation, such as the provision of expert information, offering other kinds of material promises and threats, use of blaming and shaming, bundling of issues into package deals to allow for logrolling, forming coalitions, gaining support from non-state actors, etc.

and the announcement to withdraw aid is part of the threats. However, this part of the literature does not focus specifically on the role of aid, and discussions generally remain at the level of a comparison of different types of negotiation tactics and strategies and an analysis of the reasons behind the choice of negotiation tactics and strategies. Most of this literature is case study-based and qualitative in nature. Some recent examples include Elms (2006) on the use of bargaining strategies in bilateral trade negotiations; Narlikar and Odell (2006) on multilateral trade negotiations; Dür and Mateo (2010), Schneider (2009) and McKibben (2013) on EU negotiations; Wagner (1999), Underdal (2011), and Bailer (2012) on environmental negotiations. The last two studies are among those rare examples that attempt to use a large-N quantitative approach to the study of negotiation strategies.

The promise to provide aid in exchange of support in a multilateral negotiation can also be considered as an example of issue-linkage. Issue-linkage is usually characterized as a way to enhance the chances of cooperation by allowing parties to change the structure of payoffs in the negotiation game, e.g., by expanding the opportunities to punish non-cooperation (Oye 1985; Barrett 1997).[3] Alternatively, aid provision—particularly aid for purposes that are specific to the issues under negotiation—can be regarded as a side-payment or transfer that is also usually introduced in multilateral agreements as a way to reduce heterogeneity across parties and thus encourage broader participation (Carraro and Siniscalco 1993; Chen 1997). Issue-linkage and side payments are useful strategies in long-term negotiation processes that are best characterized as repeated games (Axelrod 1984; Oye 1985; Wagner 2001).

The relevant negotiations and game-theoretic literature also examines the contribution of these (and other) bargaining strategies to the overall outcome of the negotiations—the likelihood to achieve full cooperation—and to compliance and enforcement problems (see, in addition to the above, Hopmann 1995; Wagner 1999; Underdal 2011). However, the literature has so far not fully addressed the question of how effective they are in influencing individual partner countries' negotiation behavior towards preference alignment with a donor within a multilateral setting. Existing research rather looks generally at which forms of bargaining may be conducive to drawing other negotiators on one's side (Sebenius 1992; Money 1998; Wagner 1999). In addition, Weiler (2012) looks at how the choice of negotiation strategies affects parties' individual success at the negotiations.

[3] A common example of issue linkage cited in the literature is the introduction of trade sanctions as a way to encourage compliance with multilateral environmental agreements.

In contrast, the literature on UN voting explicitly focuses on the use of development aid in multilateral decision-making. This literature is vast, with first publications already in the 1960s (see, e.g., Keohane 1966). Rai (1980) summarizes and updates this early literature. He clearly delineates the possible causal channels, namely the use of aid as a means to either incentivize (ex ante), or to reward or punish (ex post) voting alignment (or the lack thereof) with the donor at the General Assembly. In the 1990s, the general effect of aid on UNGA voting is rejected based on econometric analysis (Sexton and Decker 1992), but reconfirmed for "important votes", i.e. votes on topics of actual relevance to the donor (Wang 1999). Simultaneously, several authors explore the reversely causal channel of voting alignment leading to more aid. Thacker (1999), for instance, finds that UN voting alignment with the United States, the most powerful member of the IMF, increases a country's probability of receiving an IMF loan. Towards the end of the 1990s the strategic use of aid in the context of UN voting was already a well-established result.

Nevertheless the field has grown ever more quickly in the 2000s, with authors further trying to disentangle reward and punishment from inducement (Derouen and Heo 2004), and examining the UNSC and the United Nations Commission on Human Rights rather than just UNGA voting (Kuziemko and Werker 2006; Dreher and Vreeland 2009; Lebovic and Voeten 2009; Bueno de Mesquita and Smith 2012; Hwang, Sanford and Lee 2015). Recent studies also increasingly look beyond the US at a broader set of donor countries (Pincin 2012; Lim and Vreeland 2013; Bueno de Mesquita and Smith 2016), and at the influence that such donors may exert on multilateral agencies (like the IMF, the World Bank and regional development banks) to mobilize their funding for vote buying purposes (Barro and Lee 2005; Kilby 2006; Reynaud and Vauday 2009; Dreher, Vreeland and Sturm 2012). In addition, some studies differentiate between different types of aid that are more or less conducive to strategic use in the context of UN vote buying (Dreher, Nunnenkamp and Thiele 2008; Kilby 2013a, 2013b; Kersting and Kilby 2016). Conceptually, there has also been a discussion on how to disentangle the effect of vote alignment when preferences are aligned anyway, from the effect of alignment when initial preferences are truly opposing (Andersen, Harr and Tarp 2006; Kilby 2011; Carter and Stone 2015). Finally, some studies consider the effect of this type of strategic aid on development outcomes (Stone 2004; Dreher, Eichenauer and Gehring 2014; Dreher and Kilby 2010).

In a few cases authors also look at voting outside the UN, e.g., at the International Whaling Commission (Miller and Dolšak 2008; Strand and Tuman 2012). However, we are not aware

of any study that extends the analysis to the wider field of international negotiations, outside the sphere of formal voting. It appears highly plausible that aid is used strategically there as well. However, there are several caveats to consider:

First, making statements within an international negotiation process is conceptually different from voting. It allows for a more nuanced expression of preferences than just a yes- or a no-vote. Moreover, even if a country is in clear agreement or disagreement with another party's statement, it will not necessarily see any need to express this within the plenary. Such a lack of expression is different from an abstention in a vote (Ehlermann and Ehring 2005, 67). The country in question may simply rely on others to make the relevant point or feel that it has not (yet) sufficiently familiarized itself with the specific topic under discussion to form a clear opinion. It may also use diplomatic language in a way that is identifiable as disagreement only by those directly involved, or it may support a position not because it is convinced by its actual content, but because it believes that such support will delay the negotiation process.

Second, statements within international negotiation processes usually have no immediate effect on the overall outcome of the negotiation process. Statements can be used strategically to obtain a better starting position in the following round of negotiations (e.g., by initially exaggerating ones' demands or positions), and they can be revised at any time.[4] For this reason, swaying such statements—which would be considered 'cheap talk' or 'bluffing'—may not appear important enough to donors to attempt any influence through aid within international negotiations. From this perspective, statements in negotiation processes could resemble the votes qualified as "unimportant" in the UN voting literature and, just as the latter, not show any significant relationship to development aid.

Third, other than at the UN, negotiators from industrialized countries typically represent their country only in a very specific thematic area and within an ex-ante defined mandate, and their authority may not go beyond that (Skovgaard and Gallant 2015; see also Groen and Niemann 2010 for the specific case of the EU delegation to the UNFCCC). For industrialized country negotiators this implies that they may not have a handle on overall aid and can commit funding only in their specific field. Similarly, negotiators from developing countries may not

[4] For a study analyzing such strategically adopted extreme positions, see Schneider and Cederman 1994. A broader discussion on the difference between actors' preferences and their strategically adopted positions can be found in Frieden 1999 and Morrow 1999. On the dynamics of making and withdrawing proposals in the climate change negotiations, see Yamin and Depledge 2004, 440.

be overly interested in general development aid, but prefer funding over which they will have more direct authority. The distinction between different types of aid that could be relevant as a strategic tool hence appears even more important in the context of international negotiations than in the context of UN voting.

In sum, the expected mechanisms relating aid and negotiation support may not be fully identical to those discussed in the above cited literature, and it is not a priori clear, to what extent we will find a relationship between aid and negotiation support at all. In the following section, we will clarify the possible mechanisms and illustrate them with some of the ample anecdotal evidence and suggestive statements by negotiators from the UNFCCC.

3. Conceptual framework

If statements in the framework of international negotiations are generally not binding, and usually do not directly lead to any outcome, why would anyone care about support or criticism in this context at all? The following arguments may be relevant in this context:

First, media often intensively report about international negotiations. In addition, Non-Governmental Organizations (NGOs), business lobbies and other interest groups closely observe the negotiation process (Betzold 2013; Böhmelt et al. 2014). At the UNFCCC, these groups directly attend most of the meetings. Under such conditions, whatever is said does not remain behind closed doors. We thus expect support or opposition by other parties to affect the reputation of the national delegation or even of the government as a whole through information that spreads to peers outside the negotiation process and to the domestic public. Most countries prefer to be seen as 'deal makers' rather than as obstructive laggards or 'deal breakers'. Criticism is hence perceived as 'shaming and blaming' while praise is perceived as a sign of successful international diplomacy.

Conrad's discussion of the Chinese problem with the international media blaming the country for the failure of the UNFCCC's summit in Copenhagen represents an illustrative example:

"*China's negotiating style during the final hours of Copenhagen has captivated media observers around the world […]. The state of negotiations posed an imminent risk of Premier Wen Jiabao being associated with a political failure. […Eventually] the team around Wen*

Jiabao was primarily concerned with limiting the damage and insulating the Prime Minister from the foreseeable failure of the summit." (Conrad 2012, 444).

Second, changing positions, unless well explained, can appear inconsistent and be considered as a sign for incompetence, weakness or opportunism. A frequent and/or drastic change will be caught by the media, which may imply reputational cost for the delegation at least with respect to particular audiences.

Third, while they are non-binding, statements given at any time of the negotiations pave the way for the (dis)agreement on which the negotiations will end: Initial support for any proposition in the negotiations can lead to social pressure on other parties to follow suit. Thus, achieving support at any point within the negotiations leads to path dependencies that increase the chance of an agreement on this point in the future. Similar dynamics can occur in the context of initial criticism: Criticism by one country may trigger criticism by others. These dynamics make each individual statement more relevant than it may appear at first glance.

Finally, under the type of consensus-based decision-making procedure that is typical of the UNFCCC and many other arenas of international negotiation, any individual party has a de facto veto power over any decision (Steinberg 2002; Yamin and Depledge 2004, 443; Ehlermann and Ehring 2005, 65).[5] It therefore becomes essential to convince *all* parties to support an emerging consensus. Hence convincing each individual country becomes very important—more important than in UNGA voting where a few opposing views cannot block the decisions. This in turn suggests that donors may resort to all means at their disposition—including threats and promises related to aid—to convince recipient countries to support their positions.

On the basis of these arguments, we expect parties to care about support and opposition in the negotiations. While the political benefits and costs may be less pronounced than if there had been a direct vote, we still expect them to be sufficiently pronounced to induce action by parties trying to obtain the former, and to avoid the latter. Development aid can be a useful tool in this respect.

[5] Note that there are a few exceptions to this rule as "consensus" does not necessarily require unanimity, but just a general sense that the parties in the room will not challenge the decision—which has at times been interpreted in a rather peculiar way in international negotiations, as discussed by Michaelowa, Michaelowa and Bagchi (2016).

Development aid may be related to support or opposition in the negotiations in different ways. On the one hand, aid can generally elicit support for the donor by fostering mutual understanding and trust through the experience of fruitful collaboration. This collaboration and exchange may lead to the natural development of common principles and ideas, so that positions become more aligned. This can generate ties between certain donors and recipients, especially in the long run. We do not consider this as a strategic use of aid because the alignment of preferences and the potentially resulting support in the climate negotiations are then more of a by-product than the central objective of the engagement in aid. As expressed by Goldsmith, Horiuchi and Wood (2014, 90), who discuss the use of aid in this specific context: "By doing good, a country can do well". In other words, aid allows the donor to increase its soft power, but this need not even be intentional, particularly not in the context of a rather specific issue-area such as climate change.

On the other hand, aid can be used strategically to buy support in the negotiations. This support buying can happen individually (vote buying by individual donors), as illustrated by the following example of Japan prior to the negotiation of the Kyoto Protocol:

"*In Japan, ministers are distributing funds with an eye on diplomatic aims. The government's Cool Earth Partnership, announced last year, includes US$10 billion for climate projects in developing countries. After interviewing government officials, Friends of the Earth Japan concluded that the scheme was designed in part to buy support for Japan's position at Kyoto protocol negotiations, where the country is pushing for India and China to do more to limit emissions. Ministers are currently considering partnership projects in some of the world's poorest nations, such as Burkina Faso and Bangladesh.*"[6]

However, votes might also be bought by the group of developed countries as a whole, e.g., when mechanisms for the financing of poor countries are directly built into the text of the agreement under discussion in order to elicit their overall consent, and to make them swallow those parts of the agreement they would otherwise oppose.[7] For instance, when parties suggested the "Copenhagen Accord" as a minimalistic substitute for the much broader agreement initially intended, the promise of 100 billion USD/year in climate finance figured in the document. In this context, some vulnerable developing country delegates explicitly

[6] *New Scientist*, 13 January 2009 (https://www.newscientist.com/article/dn16406-comment-climate-aid-is-tantamount-to-bribery/).
[7] For the theory on such broad transfers, see Carraro and Siniscalco 1993 and Chen 1997.

voiced the allegation of a bribe that industrialized countries were using to obtain consensus on an inacceptable document, simply to mask their failure. Dimitrov reports a number of related statements, notably the following statement by the Sudanese ambassador:

"*[The Copenhagen Accord] is murderous. It condemns and turns Africa into a furnace because 2 degrees Celsius results in 3.5 degrees [temperature rise in Africa] according to IPCC. [...] The promise of 100 billion US dollars would not bribe us to destroy the continent.*" (Dimitrov 2010, 811)

The quote of the Cuban delegation at the beginning of this paper is taken from the same context.

While these examples suggest that aid is provided (or at least promised) ex ante, other accounts suggest that aid may also be provided ex post as a reward or be withdrawn as a punishment. This follows the tit-for-tat or reciprocating strategy suggested by Axelrod (1984) as a way to encourage cooperation in repeated negotiations, and is also in line with UN voting literature where evidence has been found for both. While this suggests that there may be a reverse causality issue (does aid cause support, or does support cause aid?), we believe that the distinction is not substantially meaningful here. Firstly, as in the tit-for-tat game, these multilateral negotiations typically consist of several rounds that stretch over many days, allowing for reciprocating strategies: today's reward for yesterday's support in turn constitutes an incentive for further support tomorrow. In addition, an ex-post reward or punishment may well be anticipated, which is then substantively equivalent to an initial promise. Aid commitments are not much more than promises anyway, since subsequent disbursements cannot be fully taken for granted. The same argument can be made for threats of withdrawal. The media reported some anecdotal evidence related to such threats:

"*The US State Department is denying climate change assistance to countries opposing the Copenhagen accord*"[8]

"*It was made very clear by the EU, UK, France and the US that if they did not back them then they would suffer.*"[9]

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[8] The Guardian, 9 April 2010 (http://www.theguardian.com/environment/2010/apr/09/us-climate-aid).
[9] African diplomat, cited by The Guardian, 11 April 2010 (http://www.theguardian.com/environment/2010/apr/11/climate-aid-threats-copenhagen-accord).

This clearly suggests a strategic use of development aid to obtain support. As far as possible, we will attempt to empirically disentangle this strategic use of aid for support in the climate negotiations, from the less strategic use discussed initially, when a better understanding is simply the natural by-product of increased aid. Along with multiple fixed effects and a somewhat indirect interpretation of a standard instrumental variable approach (see Section 4), we will distinguish between several types of aid that may be conceptually different in this respect.

General aid, i.e. Official Development Assistance (ODA) as a whole, can a priori be used in both ways. It is the basis of bilateral cooperation between donor and recipient governments, and can generate long-term partnerships between countries. As argued above, while such partnerships can be beneficial in a concrete negotiation context, they are not built up with this specific objective, and the related funding can hence not be considered as strategic for support in these negotiations. However, as highlighted in the UN voting literature, general ODA can also be used as an incentive, threat or reward, and in principle, this is also true for the specific context of the climate negotiations. To the extent that ODA is valuable to the recipient, its promise represents the famous 'carrot', and the threat of its withdrawal the corresponding 'stick'.

Yet, the negotiators on both sides are different from the diplomats that represent their countries in the UN General Assembly or the UNSC. In the climate negotiations, the typical negotiator is a specialized staff from an environmental agency or ministry, and even if the heads of state are frequently flown in at the end of the negotiations for the final speech, the more specialized staff is de facto responsible to negotiate the deal (Skovgaard and Gallant 2015). As mentioned above, these negotiators may not have the authority over general ODA. On the donor side, they would need to enter complex negotiations with other parts of their own government in order to induce a change in overall aid. More easily, they can promise specific climate finance, which falls in their area of responsibility. On the recipient side, there may also be a greater demand for climate-specific funding, because other funding will be channeled into government budgets that are not under the control of the agencies represented in the negotiations. Assuming that recipients' delegates have a strong interest in the size of their own budget, which affects their standing within the domestic government, they will hence prefer specific climate funding to general ODA. In such a setting, we should expect climate finance rather than development aid in general, to be used for strategic purposes within the UNFCCC negotiations.

Within climate finance, we can further distinguish between two aid-related categories, namely aid for the adaptation to, and aid for the mitigation of global climate change ('adaptation aid' and 'mitigation aid'). If developing country negotiators do not only care about boosting their budget, adaptation aid should be preferable to them. This is because adaptation directly addresses the needs of their domestic population in terms of preventing the local effects of droughts, floods, heat waves or other climate-related events. In contrast, mitigation addresses a global public good: the reduction of emissions that will eventually lead to less warming across the world. Since the benefits from global public goods are globally non-excludable by definition, there is no particular local benefit of a mitigation activity implemented locally as compared to the same activity implemented elsewhere. In reality, the line cannot be drawn so sharply because most mitigation projects also bring about some local co-benefits such as infrastructural development or job creation, but for a given amount of aid, the directly locally relevant effect will still be higher for adaptation aid than for mitigation aid.

This leads us to formulate a set of nested hypotheses, from broad to specific:

> H1: Aid is used to buy support (or avoid opposition) in the negotiations.
>
> H2: Climate aid, rather than general aid, is used to buy support (or avoid opposition) in the negotiations.
>
> H3: Adaptation aid, rather than mitigation aid, is used to buy support (or avoid opposition) in the negotiations.

4. Data and empirical methods

4.1. Data

Our dataset consists of a three-dimensional panel with dyadic information for donor-recipient pairs over the years 2002-2013. While we coded negotiation-related data since 1995, the time series is restricted by the availability of reliable data on climate aid. Donors considered are the traditional members of the OECD's Development Assistance Committee (DAC) as far as they correspond to parties to the UNFCCC. Since EU donors typically speak with one voice in the climate negotiations, they are considered as a single donor here. Information referring to the EU is correspondingly aggregated across all EU members. Overall the dataset hence includes the following ten donors: Australia, Canada, the EU, Iceland, Japan, Korea, New Zealand,

Norway, Switzerland, and the United States. Similarly, all 149 DAC aid recipients are included that have simultaneously been parties to the UNFCCC.

The dependent variable is obtained from a new dataset describing negotiation behavior under the UNFCCC (Castro 2017). The data covers all regular meetings of the UNFCCC bodies across the different areas under discussion. Coding is based on the summaries of these negotiation meetings as published by the International Institute for Sustainable Development (IISD) in its Earth Negotiations Bulletins (ENBs) (IISD 2000-2013). Each issue of the ENB records a full day of negotiations covering discussions on all the items and topics on the agenda for that day. Using the ENBs for coding negotiation behavior has several advantages but also some limitations. The main advantage is the availability of a long time series of consistent data. Despite not being full transcripts, the ENBs are the most complete and regular reports of the climate change negotiations, and are written by trained reporters in an objective way and with a consistent language over the years. In addition, there is an effort to keep them neutral and independent from any political side. However, they present just summarized versions of the discussions, and it is very difficult to ascertain what is not reported. Specific statements are attributed to countries only for those negotiation meetings that are open to observers. Whenever the ENBs cover closed meetings, the statements are not attributed to particular parties. The dataset thus excludes most informal meetings in which very controversial or very detailed issues are discussed. Despite this, we expect that open meetings—in which those informal discussions are frequently reviewed and recapitulated—will still reflect the main patterns of support and opposition between donors and recipients.

The dataset codes how countries interact with each other in the negotiations as reported by the ENBs. We thereby distinguish between supportive statements (speaking on behalf of, supporting, or agreeing with one another) on the one hand and opposing statements (delaying, opposing or criticizing others' positions or statements) on the other. For example, volume 12, issue 493 of the ENB, from 6th December 2010, reports: "VIETNAM, PERU and BENIN stressed that the Kyoto Protocol is the cornerstone of the regime to address climate change. […] JAPAN said since not all major emitters are part of the Kyoto Protocol, a second commitment period is neither fair nor effective." This unit of text is coded as an agreement between Vietnam, Peru and Benin (with separate observations for each of the possible dyads), and as opposition by Japan against these three countries. Further coding examples can be found in the Online Appendix A, which includes a summary of the data's codebook.

This coding scheme is applied to all negotiations during the period of analysis, so that we have a variable recording all instances in which each country expresses support or opposition towards any of the other countries participating in the discussions. In our context, we are interested only in recipients' reactions to donor statements, so that we drop observations on exchanges among donors or among recipients alone, as well as donors' reactions to recipients. Overall, we find a total of 3158 statements in which recipients criticize or support any donor over the years 2002-2013. Descriptive statistics of this data are available in Online Appendix A, including the evolution of support and opposition over time (Figure A1), sub-categories of statements, and rankings of the most active recipients (Tables A1-A4). [10] The most straightforward way to compute measures for support ('*Supportive statements*') and opposition ('*Critical statements*') is then simply to add up the respective number of statements by each recipient with respect to each donor across the different negotiation meetings in any given year.

This simple aggregation of supportive and opposing statements hides a more nuanced range of relationships reflected in the sub-categories mentioned in brackets above. Within the supportive statements, we have at one extreme the case of countries actively coordinating their positions so that one of them is able to 'speak on behalf' of the others; then the case of countries directly expressing 'support' for one of their peers; and finally the cases in which countries simply 'agree' with what someone else already said. Within the opposing statements, one extreme is the case in which a country openly 'criticizes' another's positions, actions or statements, followed by a country simply expressing an 'opposing' position, and finally a country seeking to 'delay' the discussion of someone else's proposal.

If countries consider the reputational costs and benefits of support and opposition in the negotiations, the above-mentioned differences in the sub-categories should be relevant to them. Open criticism, for instance, will much more easily attract the attention of the media than a mild statement of disagreement. In our preferred measure, we hence weight the different sub-categories before building the sum. In addition, we integrate supportive and opposing statements in a single indicator for all statements, by subtracting the weighted sum of the latter from the sum of the former. This leads to a '*Support index*', which takes into

[10] The negotiations encompass interactions not only between individual countries, but also between country groups or coalitions such as the group of Least Developed Countries, the African Group, the EU or the G77. For this analysis, we exclude all observations in which such coalitions speak, except for the case of the EU as a donor.

account both the frequency and the degree of the support and ranges from -18 (strong and frequent opposition) to 20 (strong and frequent support):

$$\begin{aligned} \textit{Support index}_{ijt} = \quad & 3 \cdot \textit{speaking on behalf}_{ijt} + 3 \cdot \textit{support}_{ijt} + 2 \cdot \textit{agreement}_{ijt} \\ & -1 \cdot \textit{delay}_{ijt} - 2 \cdot \textit{opposition}_{ijt} - 3 \cdot \textit{criticism}_{ijt}, \end{aligned} \quad (1)$$

whereby each of the variables *speaking on behalf*$_{ijt}$ etc. measures the frequency of the respective type of statement for each donor *i*, recipient *j*, and year *t*.

As an example: In 2010, China opposed the EU eight times, but also agreed with the EU once. The *Support index* for this particular year and dyad is hence coded as:

$$\textit{Support index}_{EU,\ China,\ 2010} = 3 \cdot 0 + 3 \cdot 0 + 2 \cdot 1 - 1 \cdot 0 - 2 \cdot 8 - 3 \cdot 0 = -14$$

To ensure that our findings are robust to the weights described above, we also build a non-weighted overall measure of support and criticism, which ranges from -9 (frequent opposition) to 10 (frequent support):

$$\begin{aligned} \textit{Unweighted support index}_{ijt} = \quad & \textit{speaking on behalf}_{ijt} + \textit{support}_{ijt} + \textit{agreement}_{ijt} \\ & - \textit{delay}_{ijt} - \textit{opposition}_{ijt} - \textit{criticism}_{ijt} \end{aligned} \quad (2)$$

In order to put these values into perspective, we also code how many times each country (donor or recipient) is reported by the ENBs to speak in each year ('*Interventions donor*' and '*Interventions recipient*'), even when this participation does not entail supporting or criticizing another party. This is to be able to control for the fact that some countries simply participate in the debate more often than others do, which may be related to the size of their delegation, the delegates' language proficiency and the like. As an alternative measure of donors' and recipients' level of activity in the negotiations, we also count the total number of (supportive and opposing) interactions for each dyad and year ('*Dyadic interventions*').

The explanatory variables are bilateral ODA commitments (in millions of constant 2014 USD) for each donor-recipient dyad and year as reported by OECD (2016). We use total commitments as well as commitments based on the so-called 'Rio markers' that separately

identify mitigation and adaptation aid.[11] Data verified by the DAC and hence more reliable than earlier data[12] is available for mitigation aid since 2002, and for adaptation aid since 2010.

To reduce the effect of outliers, both the dependent variables and the aid variables are used in natural logarithms. To avoid the creation of missing values for values smaller or equal to zero we first rescale the numbers by adding a constant. To allow for a more flexible functional form, we further introduce square terms for all variables reflecting the level of negotiation activity by recipients, donors or dyads. For details on these transformations, see Online Appendix A, Table A5.

In addition to these main variables, we use a number of controls, such as the '*Trade relationship'* between the donor and the recipient (UN Comtrade 2016), the absolute difference between the donor's and the recipient's level of democracy ('*Democracy*') (Quality of Government Institute 2016),[13] Voeten's (2013) voting similarity index, i.e., the share of aligned UN votes between donor and recipient ('*UN alignment*'), recipients' vulnerability to climate change ('*Vulnerability*') as measured by the ND-GAIN vulnerability index, (ND-ECI 2015) and the natural logarithm of the recipients' '*GDP per capita'*, PPP (constant 2011 international $) (World Bank 2016). All variable definitions and basic descriptive statistics are presented in the Online Appendix A, Table A5. In complementary models used to check the robustness of our results we include further variables such as foreign direct investment flows between the two countries in each dyad, as well as separate measures for exports and imports instead of the *Trade relationship* variable.

4.2. Methodological approach

Since the data are in the form of a three-dimensional panel, we have the possibility to use dyad fixed effects as well as year fixed effects. This controls for all time invariant donor and recipient characteristics as well as for characteristics that vary only over time and not across dyads. The year fixed effects capture the influence of individual years such as, for instance,

[11] The Rio markers include two types of variables, depending on whether adaptation or mitigation are the main objective of the respective aid activity ('*Adaptation principal', 'Mitigation principal*') or only one relevant objective among others ('*Adaptation significant', 'Mitigation significant*'). For this analysis, we created aggregate measures of total adaptation and total mitigation aid.

[12] Generally, the reliability of these data has been questioned quite severely (see Roberts et al. 2008, Michaelowa and Michaelowa 2011, and Weikmans et al. 2017). However, there is some evidence that the current data available online is more reliable (Bagchi, Castro and Michaelowa, 2016).

[13] Based on the Freedom House (2015) civil liberties and political rights scores, obtained from the Quality of Government dataset 2016.

the year 2009 with the Copenhagen summit, but also general trends over time. The dyad fixed effects capture the influence of all unobservable or otherwise omitted variables that are specific to the donor and/or the recipient. The latter substantially reduce the potential sources of endogeneity. Dyad fixed effects notably control for long-term relationships between a donor and a recipient, based, e.g., on common culture and language, or on prior development cooperation. If aid is positively significant in this type of model, the effect cannot be explained by the natural alignment of preferences between long-term development partners, and therefore suggests that aid is used strategically. To control for unobserved time-variant country characteristics (Bai 2009, 1232) in our robustness tests we further include (i) the interaction of recipient and year fixed effects, and (ii) the interaction of donor and year fixed effects. This can capture differing reactions to period-specific shocks (such as the Copenhagen failure) or to more gradual shifts over time (such as the phasing in of new negotiation topics that may influence existing alliances). More generally, we will show how the results change with the inclusion of different types of fixed effects.

Another way to explore whether aid is truly used strategically or whether recipients simply react to any aid with a sympathetic orientation towards the donor, is to run a placebo two-staged least squares (2SLS) model with an instrument that ensures that variation in aid is exogenous to the international climate negotiations. We follow Jackson's idea to instrument aid with a variable whose exogenous variation is taken from disasters striking other recipients of the same donor (Jackson 2014). The idea is simple: Assuming that a donor's overall aid budget is fixed for any given year, if a major disaster happens somewhere in the world, funding will be reallocated to this region and away from other countries. This generates an exogenously driven reduction of aid for these other countries. As the amount of funding that is reallocated depends on the importance of the country hit by the disaster in the donor's overall aid budget, disasters are weighted by this country's share in the donor's aid budget during the previous ten years. We follow Jackson in using data from the Emergency Events Database (EM-DAT) (CRED 2015). From this database we draw information on the number of people affected by disasters (in thousands). On this basis, the instrumental variable can be defined as:

$$IV_{ijt} = \sum_k \theta_{ikt} \cdot (people\ affected)_{kt} \quad (3)$$

With $k \in \{1,2,\dots,j-1,j+1,\dots J\}$, i.e., including all recipients except j, and

$\theta_{ikt} = \frac{\sum_{\tau=t-10}^{t-1} ODA_{ik\tau}}{\sum_{\tau=t-10}^{t-1} ODA_{i\tau}}$, the weight of recipient *k* in donor *i*'s aid budget.

In our specific context, however, some doubts with respect to the exogeneity of this variable may remain. Since we analyze the international climate negotiations, disasters linked to climatological and meteorological extreme events may have a direct effect on the negotiations. Hence, the exclusion restriction could be violated. In addition, if a neighboring country is hit by crisis, this experience may lead to a change in one's negotiation strategy that could be spuriously related to a change in aid.

To avoid these potentially remaining sources of endogeneity, we adjust the instrument by taking into account only biological, geophysical and complex[14] disasters, and by excluding not only the recipient itself, but also all neighboring recipients. The coding of neighbors is based on Neumayer's contiguity measure (Neumayer 2011). According to this measure, countries are considered as contiguous if they either share a border, or if they are separated by less than 150 km across an ocean. On this basis we construct our adjusted instrumental variable:

$$IV2_{ijt} = \sum_k \theta_{ikt} \cdot (people\ affected\ by\ bio., geophys.\ or\ complex\ disasters)_{kt} \qquad (4)$$

with $k \in \sim N$. The set $\sim N$ contains all recipients except *j* or any of its neighbors.

In the regressions, we will use the natural logarithm of these variables (previously adding +1 to avoid the generation of missing values). In this form, the instruments should better match the original aid variables, which are equally logged. Given that different types of aid (general, adaptation or mitigation aid) may be correlated more or less strongly with instruments based on the different disasters, we calculate the first stage for each type of aid with each type of disasters and then select the IV with the highest Kleibergen-Paap F statistic for the final model.

We also assess whether the postulated strategic use of aid and the related negotiation behavior of the recipients can always be observed immediately, i.e., within a given year, as we expect given the fast pace and constantly evolving nature of the negotiations. We therefore run further placebo regressions using 1- and 2-year lags and 1-year leads of the aid variables.

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[14] In the EM-DAT dataset, complex disasters are defined as famines whose main cause is not a drought. Other types of non-climatological and non-meteorological disasters were also tested, but they proved to be too weakly correlated with aid to be useful instruments.

To provide information on whether it is primarily the amount of aid received or just the mere possibility to receive aid at all that influences recipients' support for donors at the negotiations, we further run separate models with a dummy for any positive aid flow ('*Dummy (Aid)'*) on the one hand, and other regressions restricted to dyads with positive aid flows.

A separate methodological consideration needs to be given to the case of the alternative dependent variables ln(*Supportive statements*) and ln(*Critical statements*). Looking at them separately might be relevant since it could be that support and criticism are influenced by aid in different ways. The two variables are left-censored as less than zero statements cannot be made. This suggests the use of a Tobit model. However, dyad fixed effects are not compatible with this approach because their consistent estimation requires a large number of periods, while we only have 5 years for adaptation aid and 11 years for mitigation aid. We hence apply a Poisson pseudo-maximum likelihood (PPML) model, which allows us to address the left-censoring at zero while providing more flexibility in terms of adding fixed effects.[15]

Given the three-dimensional nature of the panel dataset, special care also needs to be given to clustering. It is clearly insufficient to cluster at the recipient-donor dyad level, as this would imply that any observations for the same donor but different recipients or for the same recipient but different donors should be uncorrelated. For a sufficiently large sample across all dimensions, multi-way clustering would be ideal, as suggested by Cameron, Gelbach and Miller (2011). However, given that we only have ten donors in our sample, multi-way (as well as simple donor-level) clustering does not lead to a consistent estimation of the variance-covariance matrix. For our main specifications we therefore use clusters at the recipient level. In robustness checks we also run the regressions with multi-way clustering at the recipient and donor levels despite the above mentioned methodological concerns.[16]

5. Empirical results

Table 1 presents our basic results based on panel regressions with dyad and year fixed effects. Equations 1-3 use all available observations for the different aid variables while Equations 4-5 use the limited sample available for adaptation aid for total aid and mitigation aid as well.

[15] While PPML has been more frequently used to estimate gravity models in international trade, some recent applications can be found in the aid allocation literature, too (see Dreher, Gehring, and Klasen 2015).

[16] The panel and IV regressions using clustering are implemented with the user-written command *reghdfe* in Stata (Correia 2017).

While this leads to slightly changed coefficient estimates, the substantive outcomes are identical: Total ODA does not affect the statements made in favor or against a donor country. For adaptation and mitigation aid, however, we do find evidence for a positive relationship. However, the size of the coefficients appears surprisingly small, indicating that a 1% increase in aid leads to an increase of only about 0.003% on our *Support index*. This small elasticity of support has to be put in perspective, however, with the huge relative change in climate aid we often observe from one year to the other. This is partly driven (somewhat artificially) by the fact that the majority of countries do not receive any mitigation or adaptation aid at all during most of time.[17] Hence donors may easily multiply initial climate aid a thousand times and more if they want to use it as a bargaining tool.

These results lend support to H1 that aid is used to buy support and/or avoid opposition in the negotiations. Given that the aid variables are not lagged and that the panel regressions are based on annual data, the outcomes reflect a short-term relationship, not an effect of aid that could build up over time and generate a natural alignment between donor and recipient. Time-invariant general characteristics of donor and recipient that could lead to their positional closeness and simultaneously to intensive development cooperation are controlled for through the dyad fixed effects and cannot bias the coefficient estimates.

The results are equally consistent with H2 that posits that climate-change related aid, rather than general ODA, should be used for this purpose. However, we do not find any evidence for a greater effect of adaptation aid as compared to mitigation aid (H3). In contrast, mitigation aid has a similar effect—or even a substantially greater effect when looking at Equation 5 for which the sample is reduced to the same period for which information on adaptation aid is available. It seems that the co-benefits of development projects in the area of mitigation have been attractive enough to make this type of aid interesting for recipients. There may also be some lobbying by domestic private entrepreneurs who want to implement mitigation projects. In addition, awareness of adaptation as a climate-related aid category has only emerged in very recent years. Given that adaptation is closely related to the resilience of the local population and infrastructure—its ability to react to shocks such as heat waves, droughts or floods—it is often difficult to disentangle it from more general development aid (Buchner et

[17] Driven by the many zeroes to start with, the median increase in mitigation and adaptation aid (excluding all dyads during which aid simply remains at zero) is 25'200'000% and 10'696'550% respectively. The median reduction in the sample is more modest, with values of -100% for both types of climate aid (we do not have the problem of zero-starting values here).

al. 2011, 30; Pickering et al. 2015, 151). Finally, budgets for mitigation aid are substantively larger than those for adaptation aid (see the descriptive statistics in Table A5, Online Appendix A). In any case, H3 is clearly rejected by the available evidence.

Table 1: Buying support at the UNFCCC

Dependent variable: ln(Support index)	(1)	(2)	(3)	(4)	(5)
Variables for Aid:	Total aid	Adaptation aid	Mitigation aid	Total aid	Mitigation aid
ln(Aid)	0.0001	0.0026**	0.0033***	-0.0003	0.0042***
	(0.62)	(0.03)	(0.00)	(0.30)	(0.00)
Interventions recipient	-0.0001	0.0030***	-0.0006	0.0035***	0.0026***
	(0.92)	(0.00)	(0.36)	(0.00)	(0.01)
Interventions recipient^2	-0.00001***	-0.0001***	-0.00001***	-0.0001***	-0.0001***
	(0.00)	(0.00)	(0.01)	(0.00)	(0.00)
Interventions donor	-0.0001	0.0001	-0.0001	0.0001	0.0001
	(0.24)	(0.46)	(0.20)	(0.50)	(0.42)
Interventions donor^2	-0.0000	-0.0000	-0.0000	-0.0000	-0.0000
	(0.73)	(0.56)	(0.52)	(0.78)	(0.44)
Trade relationship	0.0021	0.0050	0.0026	0.0043	0.0046
	(0.59)	(0.48)	(0.56)	(0.51)	(0.49)
Democracy	-0.0003	0.0013	-0.0002	0.0008	0.0012
	(0.82)	(0.65)	(0.87)	(0.77)	(0.68)
UN voting	0.0192***	-0.0033	0.0157***	-0.0056	-0.0055
	(0.00)	(0.69)	(0.01)	(0.52)	(0.50)
Vulnerability	0.2445*	0.5252	0.2550*	0.5277	0.5440
	(0.08)	(0.25)	(0.07)	(0.24)	(0.23)
ln(GDP per capita)	-0.0367**	-0.0548	-0.0392**	-0.0544	-0.0561
	(0.03)	(0.18)	(0.02)	(0.17)	(0.17)
Observations	15330	5110	15330	5110	5110
Number of clusters	129	129	129	129	129
Year FE	YES	YES	YES	YES	YES
Dyad FE	YES	YES	YES	YES	YES
Adj. within R-squared	0.095	0.081	0.108	0.071	0.100

Note: Clustering at recipient level. P-values in parentheses. *** p<0.01, ** p<0.05, * p<0.1.

The coefficient estimates for the control variables are only partially significant. Apparently, the dyad fixed effects already capture most of the relevant effects. Notably in the regressions on adaptation aid most controls are insignificant. This may be related to the substantially smaller sample we have in this case (the same occurs when we take a comparable sample for general and mitigation aid). One frequently significant variable is *Interventions recipient*. Both recipients who often criticize and recipients who often voice agreement (i.e., the

recipients at both ends of the *Support index* scale) are doing so to some extent, just because they are generally very active.

In addition, vote alignment in the UN General Assembly is positively significant in some regressions indicating that positional closeness and/or mutual understanding between nations is correlated across different policy areas. Furthermore, highly vulnerable countries tend to support the donors more strongly and to voice less opposition. This may be due to the fact that some Western countries, and notably the EU, have been seen as rather progressive actors during the last decade. Finally, recipients' GDP per capita is negatively significant, suggesting that the greatest disagreement occurs between developed and emerging economies, which should primarily capture the BASIC countries (Brazil, South Africa, India and China) that have built their own negotiation group and have become increasingly assertive over time during our period of observation.

These results are robust to various modifications of the estimation model presented in Section B of the Online Appendix. Tables B1 to B3 show almost identical results based on regressions with the *Unweighted support index*, on parsimonious regressions that only include *Interventions donor and Interventions recipient* and their squares along with the dyad and year fixed effects, and on regressions that control for *Dyadic interventions* instead of *Interventions donor* and *Interventions recipient*, or for *Exports* and *Imports* instead of the overall dyadic *Trade relationship*. The only substantive difference in all these tests is that adaptation aid is no longer significant in the regressions controlling for *Dyadic interventions* while the coefficient for mitigation aid further increases. Table B4 shows the results for multi-way clustering. As compared to Table 1 coefficients remain identical (as they should), and mitigation aid remains strongly significant. Only adaptation aid is no more significant at conventional levels. Generally, the effect of adaptation aid appears somewhat less robust than the effect of mitigation aid.

Table 2 shows how the results react to changes in the type of fixed effects included in the regression. The first line replicates the results from Table 1 for comparison. As mentioned earlier, we expect the dyad fixed effects to be crucial to distinguish long-term commonalities or friendship between donor and recipient from the short-term strategic use of aid in the negotiations. If aid also affects negotiation support by building up long-term friendly relationships between donor and recipient, we should find stronger positive coefficients in regressions without the dyad fixed effects, and possibly a positively significant effect for

general aid as well. This is indeed the case: the coefficient of total ODA multiplies by 3 and 4 and becomes significant in the regression using only year fixed effects and in the regression using a combination of year and donor fixed effects, at least for the full sample (Column 1). There is no increase, however, for the coefficients of mitigation and adaptation aid in these regressions. This suggests that overall aid may be effective by generally building friendship between countries, while adaptation and mitigation aid affect negotiation behavior of recipients only in the short run, i.e., through their strategic use in a given negotiation round.

The last two rows of Table 2 further confirm the existence of such a short-term strategic relationship between climate aid and negotiation support. They include the strictest possible form of control for unobservables by including not only dyad fixed effects, but also countryXyear fixed effects in the regression models. As compared to our baseline specifications in Table 1, the coefficients and significance levels remain virtually unchanged.

Table 2: Coefficients of aid by types of fixed effects included in the model

Dependent variable: ln (Support index)	(1)	(2)	(3)	(4)	(5)
Variables for Aid:	Total aid	Adaptation aid	Mitigation aid	Total aid	Mitigation aid
Model includes:					
- Dyad & year FE	0.0001	0.0026**	0.0033***	-0.0003	0.0042***
(same as Table 1)	(0.62)	(0.03)	(0.00)	(0.30)	(0.00)
- Donor & year FE	0.0004**	0.0025*	0.0028***	0.0003	0.0036***
	(0.02)	(0.05)	(0.01)	(0.32)	(0.00)
- Recipient & year FE	0.0001	0.0020	0.0025***	-0.0001	0.0028***
	(0.30)	(0.10)	(0.01)	(0.67)	(0.01)
- Year FE	0.0003**	0.0024*	0.0028***	0.0003	0.0035***
	(0.02)	(0.06)	(0.01)	(0.27)	(0.00)
- Dyad FE &interactive	0.0001	0.0026**	0.0033***	-0.0003	0.0042***
recipient x year FE	(0.63)	(0.03)	(0.00)	(0.29)	(0.00)
- Dyad FE & interactive	0.0001	0.0026**	0.0033***	-0.0003	0.0042***
donor x year FE	(0.66)	(0.03)	(0.00)	(0.31)	(0.00)
Observations	15330	5110	15330	5110	5110

Note: Table shows results for the main explanatory variable *ln(Aid)* in separate regressions with different fixed effects. The effect of control variables (same set as in Table 1) is not reported. Clustering at recipient level. P-values in parentheses. *** p<0.01, ** p<0.05, * p<0.1.

At the same time, dyadic fixed effects and even their combination with country-specific trends as captured by the countryXyear fixed effects cannot exclude reverse causality. However, given our arguments above, excluding reverse causality would even be conceptually problematic because it would downward bias the two-directional correlation we want to estimate. In fact, rather than this type of endogeneity, there are certain forms of *exogenous* changes in aid that would be problematic if they were the drivers of the effects we showed in Tables 1 and 2. If the increase in support we find for increased climate aid was based on a pure random shock in aid unrelated to the negotiations, this would not reflect the strategic interaction underlying our support-buying hypothesis. So far, we cannot exclude that short-term random variations in aid that evoke some spontaneous gratitude drive the above-described results. As explained in Section 4, we carry out an instrumental variable regression to clarify the issue. Our support-buying hypothesis requires the results based on the instrumental variable approach to be insignificant.

Table 3 presents the results of the corresponding 2SLS procedure. As explained in Section 4, for each type of aid, we chose the instruments showing the highest correlation in the first stage. We thus use instruments based on geophysical disasters for total ODA (columns 1-2), instruments based on complex disasters for adaptation aid (columns 3-4), and instruments based on all natural disasters for mitigation aid (columns 5-6) (for the exact definition of instruments, see Online Appendix A, Table A5). We present the regressions with both the *IV2* and *IV* version of the instrument. In nearly all cases, the partial F statistics show a reasonable correlation between our instruments and the different aid variables. Only in case of mitigation aid, the correlation with (any type of) disasters is limited and the best we can achieve is a Kleibergen-Paap F statistic of just above five for *IVnatural* (for the complete first-stage results, see Online Appendix, Table B5). We thus need to rely on the slightly less credible *IV* (rather than *IV2*) version of the instrument, which includes disasters that happened in the recipient countries' neighbors.

Table 3: Exogenous variation in aid (2SLS estimation, second stage)

Dependent variable: ln(Support index)	**(1)**	**(2)**	**(3)**	**(4)**	**(5)**	**(6)**
Variables for Aid:	Total aid	Total aid	Adaptation aid	Adaptation aid	Mitigation aid	Mitigation aid
Instrumental variables:	IV2geoph	IVgeoph	IV2complex	IVcomplex	IV2natural	IVnatural
ln(Aid)	0.0078	0.0030	-0.0043	-0.0062	0.0140	0.0036
	(0.46)	(0.66)	(0.65)	(0.54)	(0.60)	(0.81)
Interventions recipient	-0.0002	-0.0002	0.0043*	0.0047*	-0.0023	-0.0007
	(0.79)	(0.83)	(0.08)	(0.08)	(0.59)	(0.78)
Interventions recipient^2	-0.00001***	-0.00001***	-0.0001***	-0.0001***	-0.0000	-0.0000
	(0.00)	(0.00)	(0.00)	(0.00)	(0.84)	(0.32)
Interventions donor	-0.0002	-0.0001	0.0001	0.0001	-0.0001	-0.0001
	(0.27)	(0.31)	(0.55)	(0.57)	(0.30)	(0.26)
Interventions donor^2	0.0000	0.0000	0.0000	0.0000	-0.0000	-0.0000
	(0.60)	(0.92)	(0.92)	(0.83)	(0.57)	(0.72)
Trade relationship	0.0023	0.0024	0.0029	0.0023	0.0041	0.0026
	(0.55)	(0.51)	(0.62)	(0.69)	(0.60)	(0.63)
Democracy	0.0014	0.0004	0.0001	-0.0000	0.0001	-0.0003
	(0.65)	(0.86)	(0.96)	(1.00)	(0.93)	(0.85)
UN voting	0.0184***	0.0192***	-0.0079	-0.0092	0.0046	0.0152
	(0.01)	(0.00)	(0.51)	(0.45)	(0.88)	(0.39)
Vulnerability	0.2570	0.2497*	0.5254	0.5397	0.2895	0.2626*
	(0.11)	(0.08)	(0.24)	(0.24)	(0.11)	(0.10)
ln(GDP per capita)	-0.0346*	-0.0363**	-0.0504	-0.0511	-0.0470	-0.0403
	(0.08)	(0.03)	(0.23)	(0.24)	(0.16)	(0.11)
Observations	15330	15083	5110	5060	15330	15083
Number of clusters	129	129	129	129	129	129
Year FE	YES	YES	YES	YES	YES	YES
Dyad FE	YES	YES	YES	YES	YES	YES
Kleibergen-Paap F	27.220	47.740	8.333	7.145	2.688	5.583
Cragg-Donald F	18.350	34.600	4.522	3.872	3.912	7.379
Kleibergen-Paap LM.	23.250	36.880	7.865	6.857	2.656	5.077

Note: Clustering at recipient level. P-values in parentheses. *** p<0.01, ** p<0.05, * p<0.1.
For the first stage regressions, see Online Appendix B, Table B5.

In any case, none of the aid-related coefficients is positively significant any more. These results suggest that a fully exogenous increase in aid independent of the UNFCCC negotiations does not trigger any greater support or reduced criticism by the recipient. They hence lend further support to our hypothesis that the aid-related increase in support or decrease in criticism demonstrated earlier is indeed based on strategic interaction within the negotiations.

We proceed with a plausibility check of the contemporaneous nature of the strategic interaction between donors and recipients we postulated earlier, by running placebo regressions for different lags and leads of the aid variables (Online Appendix B, Table B6). In the full sample, none of the aid coefficients is significant. In the reduced sample, two out of nine coefficients become significant, but small in value terms and with an unexpected sign. We thus consider that these results are spurious and that overall, this exercise confirms that the strategic interaction happens within a given year.

We finally examine in more detail what drives our results. Is it the access to climate aid or changes in its amount that affect recipients' statements in favor of the donors? Are donors rather trying to avoid negative statements or to promote positive ones? To address the first question we decompose the aid variables into '*Dummy (Aid)'*, an indicator variable for whether there has been any aid flowing from the donor to the recipient in a given year, and our previous '*ln(Aid)'*, limited now to strictly positive values of aid. While the results for switches between aid and no aid are significant for both adaptation and mitigation aid, they are fully insignificant when looking merely at the amount of aid (see Online Appendix B, Tables B7 and B8). This suggests that the former is driving our results. Indeed, this was to be expected given that in our data, the switch from no climate aid to some climate aid leads to much greater relative changes than any additions or reductions once aid is provided to a country (see the discussion of the results of Table 1 above). Furthermore, only 47 and 28 recipients have ever gotten mitigation or adaptation aid, respectively, out of our total sample of 129 developing countries. This reduces the sample size in Table B8 from an earlier 5110 to just 198 for adaptation aid, and from 15330 to 550 for mitigation aid. Since this may obviously also affect the significance level, the results based on strictly positive aid values need to be interpreted with some caution. Overall, the results are not surprising and in line with the outcomes presented earlier.

However, when differentiating between the relationship of aid and supportive statements on the one side, and aid and critical statements on the other side, we do obtain some unexpected results. Table 4 presents the corresponding estimations for the full sample using PPML. All aid coefficients are now much higher than before, positive and significant. These results are robust to alternative estimation methods such as Tobit or OLS (not shown).

Regarding the relationship between climate aid and supportive statements, the only change is the size of the coefficient. As shown in Regressions 2 and 3 the elasticity of supportive

statements with respect to both adaptation and mitigation aid is now 0.13, which is 40-50 times higher than in Table 1. Given the large relative change we often observe in these aid categories; these are huge effects. For example, if a recipient moved from no climate aid to an amount of 200'000 USD in the following year—a typical change that lies between the median increase of adaptation and mitigation aid in our sample—the number of supportive statements for the relevant donor would multiply by about 5, ceteris paribus.[18]

Table 4: Separate regressions for positive and negative statements

Dependent variables:	**(1) ln(Supportive statements)**	**(2) ln(Supportive statements)**	**(3) ln(Supportive statements)**	**(4) ln(Critical statements)**	**(5) ln(Critical statements)**	**(6) ln(Critical statements)**
Variables for Aid:	Total aid	Adaptation aid	Mitigation aid	Total aid	Adaptation aid	Mitigation aid
ln(Aid)	0.0465***	0.1288***	0.1257***	0.0324*	0.1165***	0.0928***
	(0.00)	(0.00)	(0.00)	(0.05)	(0.00)	(0.00)
Interventions recipient	0.0349***	0.0907***	0.0240***	0.0431***	0.1102***	0.0363***
	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)
Interventions recipient^2	-0.0001***	-0.0008***	-0.0001***	-0.0002***	-0.0010***	-0.0002***
	(0.00)	(0.00)	(0.00)	(0.00)	(0.01)	(0.00)
Interventions donor	0.0072***	0.0276***	0.0064***	0.0090***	0.0169***	0.0093***
	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)
Interventions donor^2	-0.00001***	-0.0001***	-0.00001***	-0.00001***	-0.0001**	-0.00001***
	(0.00)	(0.00)	(0.00)	(0.00)	(0.02)	(0.00)
Trade relationship	0.5457	0.3935	0.8761	-0.0527	-18.7236**	0.2111
	(0.72)	(0.86)	(0.54)	(0.98)	(0.03)	(0.90)
Democracy	0.0928	-0.1812	0.0829	0.0922	-0.4286	0.0775
	(0.59)	(0.64)	(0.57)	(0.62)	(0.19)	(0.66)
UN voting	1.8114***	-0.2575	0.8268	0.2424	-0.5625	-0.3392
	(0.00)	(0.76)	(0.20)	(0.66)	(0.35)	(0.58)
Vulnerability	11.0274	42.9437	13.5080	-16.7096	-24.6765	-13.8888
	(0.28)	(0.14)	(0.16)	(0.24)	(0.21)	(0.31)
ln(GDP per capita)	-2.4741***	-4.4723	-2.4997***	0.6521	5.0933*	0.4415
	(0.00)	(0.11)	(0.00)	(0.52)	(0.10)	(0.66)
Observations	15340	5120	15340	15340	5120	15340
Number of clusters	130	130	130	130	130	130
Year FE	YES	YES	YES	YES	YES	YES
Dyad FE	YES	YES	YES	YES	YES	YES

Note: Poisson pseudo-maximum likelihood (PPML) estimation used to account for censoring on the dependent variable. Clustering at recipient level. P-values in parentheses. *** p<0.01, ** p<0.05, * p<0.1.

[18] Remember that no aid is coded as 1 USD here due to the logarithmic transformation we use. An increase from no aid to 200'000 USD hence corresponds to a multiplication of the original number (=1) by 200'000. This leads to a multiplier for the number of supportive statements of $e^{0.13 \cdot 200000}$=4.888.

Regarding critical statements, the elasticities for mitigation and adaptation aid are similarly high. What is even more unexpected, however, is that the sign of the coefficients is positive rather than negative. Hence, a greater number of critical statements is associated with more, rather than less aid—quite the opposite of what our theory suggests. We are not aware of any discussion of such results in the UN voting literature either. What could explain this strong positive relationship?

We believe that the most plausible explanation is that we are dealing with yet another type of the short-term reverse causality, which we deliberately did not purge out of the model to allow for strategic interactions in both directions. Interpreted in this way, one could imagine that donors try to appease highly critical opponents by giving them aid. If this interpretation were correct, what we observe would again reflect support buying, albeit not in the way we imagined in the first place. The results are thus in line with our main hypothesis on the strategic use of aid (H1), but the behavioral channel is quite unexpected.

Apparently, the fact that we inadvertently aggregated two opposing effects to a single correlation in our earlier estimations (where we deduct the critical statements from the supportive ones to build our *Support index*) led to the substantially smaller coefficients we found there. In addition, the separate estimations now even lead to significant coefficients for general ODA. It seems that for general ODA the two opposing effects had just cancelled out in our earlier models. Yet, even now, the coefficients for total aid remain considerably smaller and somewhat less robust than for mitigation and adaptation aid. H2 on the predominant use of specific climate aid for strategic purposes in the negotiations is thus confirmed, although less clearly so than in our previous regressions.

The overall picture we obtain suggests a situation in which donors use aid as an effective tool to solicit recipient support and avoid criticism in the negotiations, and/or in which recipients use support and criticism as strategies to obtain higher aid. We cannot distinguish between the two potential directions of the strategic interaction, but in any case, they both provide evidence for our support-buying hypothesis. The correlations between climate aid and recipients' negotiation behavior are sizeable, especially when considering supportive and critical statements separately. Support buying may include cases in which the promise of aid is directly built into an international agreement such as the promise of the 100 billion USD in the context of the Copenhagen Accord. As expected, the effects we find are much stronger and much more robust for climate aid than for general ODA. However, as opposed to our

initial expectations, the strategic use of mitigation aid appears to be at least as important—if not more important—than the use of adaptation aid.

6. Conclusion

Based on a new dataset on member country interactions in the UNFCCC negotiations, we examine whether aid can buy support in international negotiation processes. The theoretical arguments follow the reasoning in the context of UN voting where "vote buying" is an academically long-established phenomenon. While aid may also increase a donor's soft power and induce long-term positive relationships that eventually lead to closer alignment in international negotiations, we focus on short-term strategic interests and related "support buying". Our three-dimensional panel analysis with donor-recipient dyad fixed effects, year fixed effects and clustering at the recipient level reveals that aid can indeed buy support, but that donors tend to use climate-related aid, rather than general ODA, for this purpose. We argue that this is due to both greater demand for and greater supply of this type of financial support, whose allocation is under the direct responsibility of the delegates who are experts in a very specific field (here: international climate policy). Based on a placebo test making use of the exogenous variation in aid inflows due to non-climatological disasters in other recipient countries, we show that the effects are not driven by random changes in aid unrelated to the context of the negotiations.

The fact that we find a significant and robust relationship between climate-related aid and negotiation support clearly shows that despite the fact that most debates in this framework do not directly lead to a decision, the individual statements are taken seriously in the preparation of the final consensus—so seriously that donors are ready to pay for this, both bilaterally and as part of the common agreement being negotiated. The analogy between aid and negotiation support on the one hand, and aid and UNGA or UNSC voting alignment on the other hand shows that the strategic use of aid goes beyond what has been established in the aid literature so far. This should not only hold for the UNFCCC, but also for other similar international negotiations such as in the realm of the World Trade Organization. Our analysis also feeds into the broader debate on donor motivations for foreign aid. In this context, our results suggest yet another component of donor interest beyond the commercial and geopolitical interests considered in the aid allocation literature so far.

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Supplementary Material to "Buying support at the UNFCCC: The strategic use of climate aid"

(Online Appendix)

Contents

Section A: Data and Variables

Section A describes data and variables starting with the Codebook for the negotiations-related database by *Author* (2017). Tables A1-A4 and Figure A1 display descriptive statistics of the negotiations-related data. Table A5 then presents an overview of the definition, sources and descriptive statistics of all variables used in the analysis.

1. Extract from the codebook for dataset XXX (blinded for review)

1.1 General dataset description

This dataset contains dyadic data on how parties to the UN Framework Convention on Climate Change (UNFCCC) react to other parties' oral interventions during the negotiations. It is based on hand coding of summaries of the negotiations under the UNFCCC, and covers all meetings of the official UNFCCC bodies reported in the Earth Negotiation Bulletins (ENBs) between February 1995 (11th Session of the INC in New York) and December 2013 (COP19 in Warsaw). The data covers not only the annual meetings of the Conference of the Parties (COP) to the UNFCCC, but also meetings of the permanent subsidiary bodies to the Convention (in charge of implementing its provisions and of providing scientific and technological guidance) and of ad-hoc negotiation groups established on a temporary basis to debate new agreements. It also covers meetings of specific technical workshops convened in order to inform the negotiation process.

The UNFCCC meetings are usually summarized through daily ENB reports published by the International Institute of Sustainable Development, and can be downloaded from http://www.iisd.ca/vol12/. The ENBs have been chosen as the data source since they are seen as a detailed, consistent and objective source of information by many negotiators and observers in the climate talks, and because there are no publicly available official transcripts of the negotiations.

The dataset was created for the SNSF-funded research project *XXX (blinded for review)*, between 2013 and 2015. The dataset contains relational data between parties to the UNFCCC, which have been obtained by coding how parties to the UNFCCC react to other parties' interventions: the observations in the dataset describe which countries speak on behalf of, support, agree with, delay, oppose, or criticize other countries' statements or positions as reported in the ENBs. The observations also contain information regarding the topic or issue area and the negotiation meeting in which the respective statement was made.

Four coders contributed to the data collection. A sample of ten ENB reports, covering the whole period from the 1990s until the 2010s was independently coded by all coders at the beginning of the process, in order to validate the codebook and ensure that the results were consistent. The findings, and eventual differences across the coders, were subsequently discussed to ensure that all have the same understanding of how to interpret the coding rules.

Along the main coding process, other ENB issues at random were double-coded to ensure that coding still remained consistent over time, and to allow for testing of inter-coder reliability. Inter-coder reliability was tested using Cohen's kappa. For the main variable, coding the types of dyadic interactions between pairs of countries, Kappa between pairs of coders ranged from 0.77 to 0.98, which indicates substantial to almost perfect reliability.[19] More information about the dataset can be found in *Author* (2017).

1.2 Variable description

Country 1: Country (or country group) that says something on behalf of, states something with, agrees with, supports, delays the proposal of, opposes to or criticizes ***Country 2***. For the purpose of this article, only DAC recipient countries have been kept in the ***Country 1*** sample.

Country 2: Country (or country group) whose position or statement is being supported, agreed with, criticized, etc. by ***Country 1***. For the purpose of this article, only DAC donor countries have been kept in the ***Country 2*** sample.

Relation: The type of reaction of ***Country 1*** to a statement/position by ***Country 2***: speaking on behalf of, support, agreement, delaying proposal, opposition, or criticism. Detailed descriptions of the individual types of relations can be found in section 1.3 below.

Conference: Place and year of meeting of the UNFCCC bodies (includes not only COP meetings, but also meetings of its subsidiary bodies).

Topic: Issue area to which the statements by ***Country 1*** and ***Country 2*** refer: Mitigation, adaptation, finance, etc. This information has not been used for this article.

Comment: Usually quotes the text that shows the coded relationship (in quotation marks). May also include comments regarding the coding.

ENB Nr: Number of the Earth Negotiation Bulletin from which the relationship was coded.

ENB_obs: Observation ID within the respective ***ENB Nr***. This variable consists of the 3-digit ENB issue number followed by an observation counter within that ENB.

1.3 Description of coded relationships

On behalf of: when *Country 1* speaks ***on behalf of*** or ***for*** *Country 2*. In this case, it is clear that *Country 1* and *Country 2* (and probably together with a larger group of parties) has previously coordinated a common position, which is being presented by *Country 1* for the whole group. ***On behalf of*** is not coded when a member of an established coalition (such as the EU or the G77) speaks on behalf of this coalition (e.g., "Grenada, on behalf of AOSIS…" is coded simply as a statement by AOSIS). In this case, the membership of these coalitions is

[19] Landis, J.R. and Koch, G.G. (1977). The measurement of observer agreement for categorical data. *Biometrics* 33(1): 159-174.

already fixed, and it is clear that if the coalition makes a statement, all of its members have already agreed to this position.

Example:

- "PANAMA, also speaking for Colombia, Chile, Mexico, Guatemala, Peru, Uruguay and the Dominican Republic, stressed the importance of making progress on REDD (…)" (ENB No. 462).

Support: is used when the text explicitly says that *Country 2* (or its statement) was supported by *Country 1*, even when this support is expressed in different sentences.

Example:

- "He (the EU) said additional effort should be made to reduce uncertainty in GWPs but that parties should use them if they wish. Japan supported the GWP position (…). Australia (…) also supported continued use of GWPs." (ENB No. 2).

Agreement: when several countries are reported to hold the same position on an issue. This may be a text like "several parties, including Country 1, Country 2 and Country 3, proposed …". Agreement may be coded also when two different sentences refer to the same position being held by different countries, even though the relationship (agreeing with each other) is not explicitly written.

Example:

- "The EU, the US and CANADA stressed the need to ensure consistency with the capacity building aspects of other discussions on technology transfer and adaptation." (ENB No. 145).

Delaying proposal: when *Country 1* proposes that *Country 2*'s idea or proposal be discussed at a later time.

Examples:

- "The EU recognized Kazakhstan's aspiration to join Annex B, while highlighting the need to comply with legal requirements relating to Annex B amendments. She supported deferring the issue to COP/MOP 6." (ENB No. 452).
- "TOGO, supported by MALAYSIA, proposed adjourning until numbers were proposed" (ENB No. 74).

Opposition: when the text reports *Country 1* opposing the statement or position expressed by *Country 2*. This has also been coded when the word "opposition" is not explicitly mentioned, but it is clear from the statements that they oppose each other.

Examples:

- "The G-77/CHINA supported this approach while the US, CANADA and JAPAN opposed it" (ENB No. 347).
- "MEXICO underscored its commitment to mechanisms and processes that increase the participation of observers. (…) NIGERIA noted that although participation of stakeholders has been positive, the UNFCCC is an intergovernmental process." (ENB No. 489).

Criticism: when *Country 1* directly criticizes *Country 2* or its position / statement.

Examples:

- "He [the EU] said some developed countries, particularly the US, have not included binding measures in their proposals and emphasized the EU's conviction that P&Ms should be included to fully encompass the Berlin Mandate and Geneva Declaration." (ENB No. 42).
- "The MALDIVES lamented that reliance on the phrase "form should follow function" [used by China] is slowing down the negotiations" (ENB No. 494).

2. Descriptive statistics of supportive and opposing statements by recipients towards donors

Table A1: Types of interactions between donors and recipients

Interaction	No. of statements	Percentage of total
Supportive	***1711***	***54.18***
Agreement	1586	50.22
Support	88	2.79
On behalf of	37	1.17
Opposing	***1447***	***45.82***
Opposition	1423	45.06
Criticism	24	0.76

Table A2: Ten most active aid recipients

Recipient	No. of statements	Percentage of total
Saudi Arabia	313	9.91
China	304	9.63
Brazil	280	8.87
India	206	6.52
South Africa	123	3.89
Tuvalu	115	3.64
Colombia	113	3.58
Bolivia	111	3.51
Mexico	89	2.82
Argentina	88	2.79

Table A3: Ten most supportive aid recipients

Recipient	No. of supportive statements	Total No. of statements	Supportive statements as % of country's statements
Costa Rica	53	53	1.00
Kazakhstan	19	19	1.00
Samoa	14	14	1.00
Papua New Guinea	39	41	0.95
Guyana	15	16	0.94
Chile	58	62	0.94
Uruguay	14	15	0.93
Mexico	82	89	0.92
Indonesia	37	41	0.90
Panama	22	25	0.88

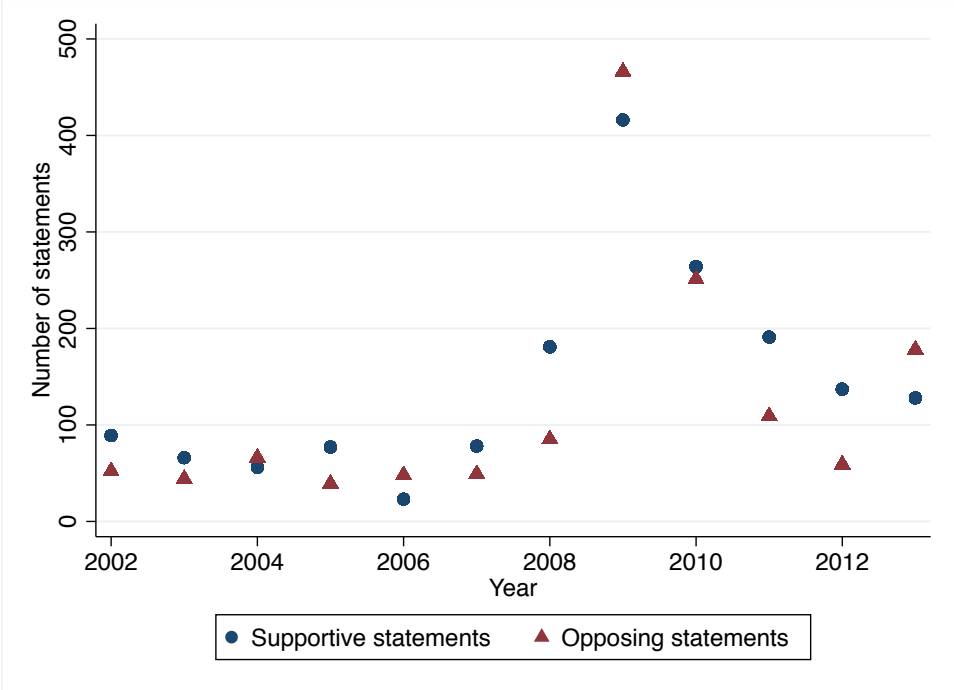
Note: Table based only on recipients with 10 or more interactions (54 out of 97 actively speaking recipients in dataset)

Table A4: Ten least supportive aid recipients

Recipient	No. of supportive statements	Total No. of statements	Supportive statements as % of country's statements
Oman	1	24	0.04
Sudan	1	16	0.06
Nicaragua	1	12	0.08
Libya	1	10	0.10
Jamaica	2	12	0.17
Algeria	7	35	0.20
Venezuela	15	73	0.21
Zambia	3	13	0.23
Bolivia	33	111	0.30
Cuba	11	35	0.31

Note: Table based only on recipients with 10 or more interactions (54 out of 97 actively speaking recipients in dataset)

Figure A1: Evolution of supportive and opposing statements over time



3. Information on overall dataset

Table A5: General data and variable description

Variable	Definition	Observations	Mean	Std. Dev.	Min	Max	Source
Dependent variables							
Support index	Sum of statements a recipient makes referring to a specific donor, by year, whereby each statement is weighted by the degree of support, from -3 (criticism) to +3 (support or speaking on behalf). In most regressions, we use a logged version of this variable. As it includes negative numbers (-18 being the lowest), we add 19 before taking logs.	20860	0.036	1.065	-18	20	Own coding from IISD (2000-2013).
Unweighted support index	Unweighted sum of supportive and opposing statements a recipient makes referring to a specific donor, by year. In most regressions, we use a logged version of this variable. As it includes negative numbers (-9 being the lowest), we add 10 before taking logs.	20860	0.015	0.520	-9	10	Own coding from IISD (2000-2013).
Supportive statements	(Unweighted) sum of positive statements where a recipient agrees with, speaks on behalf of or supports a donor, by year. In some regressions, we use a logged version of this variable. Before creating the log, +1 was added to avoid zeroes.	20860	0.096	0.469	0	12	Own coding from IISD (2000-2013).
Critical statements	(Unweighted) sum of negative statements where a recipient delays, opposes or criticizes a donor, by year. In some regressions, we use a logged version of this variable. Before creating the log, +1 was added to avoid zeroes.	20860	0.080	0.520	0	15	Own coding from IISD (2000-2013).
Main explanatory variables							
Total aid	Bilateral ODA commitments made by donors to recipients (2014 constant prices, USD millions). In most regressions, we use a logged version of this variable. Before creating the log, we rescale it into US dollars and add +1 to avoid the zeroes.	20860	54.851	259.594	0	11534.75	OECD (2016b)
Total aid dummy	Indicator for whether any bilateral ODA commitment was made by the respective donor to the respective recipient (1) or not (0), by year.	20860	0.692	0.462	0	1	OECD (2016b)
Adaptation aid	Climate change related bilateral ODA commitments for adaptation (both as main and significant purpose; 2014 constant prices, USD millions). In most regressions, we use a logged version of this variable. Before creating the log, we rescale it into US dollars and add +1 to avoid the zeroes.	5960	1.086	14.564	0	744.583	OECD (2016a)
Adaptation aid dummy	Indicator for whether any bilateral ODA commitment for adaptation was made by the respective donor to the respective recipient (1) or not (0), by year.	5960	0.057	0.232	0	1	OECD (2016a)
Mitigation aid	Climate change related bilateral ODA commitments for mitigation of greenhouse gases (both as main and significant purpose; 2014 constant prices, USD millions). In most regressions, we use a logged version of this variable. Before creating the log, we rescale it into US dollars and add +1 to avoid the zeroes.	17880	2.063	41.238	0	2625.284	OECD (2016a)

Variable	Definition	Observations	Mean	Std. Dev.	Min	Max	Source
Mitigation aid dummy	Indicator for whether any bilateral ODA commitment for mitigation was made by the respective donor to the respective recipient (1) or not (0), by year.	17880	0.040	0.195	0	1	OECD (2016a)
Control variables							
Interventions donor	Overall number of oral interventions made by a donor during the UNFCCC negotiations, by year. In most regressions we use a squared version of this variable.	20860	59.043	66.442	0	407	own coding from IISD (2000-2013)
Interventions recipient	Overall number of oral interventions made by a recipient during the UNFCCC negotiations, by year. In most regressions we use a squared version of this variable.	20860	3.737	11.744	0	188	own coding from IISD (2000-2013)
Dyadic interventions	Total number of positional statements made by a recipient referring to a specific donor, by year. In most regressions we use a squared version of this variable.	20860	0.176	0.843	0	27	own coding from IISD (2000-2013)
Trade relationship	The value of dyadic trade between the donor and the recipient (imports + exports, in constant 2011 USD) as a fraction of the recipient's GDP.	19540	0.063	0.791	0	63.84	United Nations (2016)
Imports	Bilateral imports by the donor from the recipient (millions constant 2011 USD). We use a logged version of this variable, in which we rescale it to US dollars and add +1 before taking logs to avoid losing the zeroes.	20860	1570.892	13604.07	0	444389.6	United Nations (2016)
Exports	Bilateral exports from the donor to the recipient (millions constant 2011 USD). We use a logged version of this variable, in which we rescale it to US dollars and add +1 before taking logs to avoid losing the zeroes.	20860	1059.594	7356.925	0	218822.8	United Nations (2016)
Democracy	Absolute difference between the donor's and the recipient's level of democracy, measured as the average between the Freedom House civil liberties and the Freedom House political rights indices (rescaled so that higher values mean higher civil liberties or political rights).	20220	2.761	1.805	0	6	Freedom House (2015), obtained from QoG (2015)
UN voting	Voting similarity index (0-1) equal to (total number of votes where both states agree)/(total number of joint votes). It includes all votes and not only important votes.	19485	0.717	0.218	0	1	Voeten (2013)
Vulnerability	Recipient vulnerability measured by the ND-GAIN index that captures a country's exposure, sensitivity and ability to adapt to the negative impact of climate change.	16560	-0.023	0.169	-0.989	0.174	ND-ECI (2015)
GDP per capita	GDP per capita (constant 2011 USD) of the recipient countries. We use a logged version of this variable.	19340	8142.559	8235.965	492.607	48963.45	World Bank (2016)
Instrumental variables							
IV2geophysical	Total number of people requiring immediate assistance during a period of geophysical disaster in any developing country excluding the current recipient and its neighbors, weighted by the disaster-hit countries' share in the current donor's aid for the past ten years. We use a logged version of this variable.	20860	149.958	492.828	0	5195.093	CRED (2015)

Variable	Definition	Observations	Mean	Std. Dev.	Min	Max	Source
IVgeophysical	Total number of people requiring immediate assistance during a period of geophysical disaster in any developing country excluding the current recipient, weighted by the disaster-hit countries' share in the current donor's aid for the past ten years. We use a logged version of this variable.	17580	192.203	554.842	0	5195.093	CRED (2015)
IV2complex	Total number of people requiring immediate assistance during a period of complex disaster in any developing country excluding the current recipient and its neighbors, weighted by the disaster-hit countries' share in the current donor's aid for the past ten years. We use a logged version of this variable.	20860	2.17954	7.920	0	73.490	CRED (2015)
IVcomplex	Total number of people requiring immediate assistance during a period of complex disaster in any developing country excluding the current recipient, weighted by the disaster-hit countries' share in the current donor's aid for the past ten years. We use a logged version of this variable.	17580	2.708	8.797	0	73.490	CRED (2015)
IV2natural	Total number of people requiring immediate assistance during a period of natural (biological and geophysical) disaster in any developing country excluding the current recipient and its neighbors, weighted by the disaster-hit countries' share in the current donor's aid for the past ten years. We use a logged version of this variable.	20860	154.991	492.379	0	5197.406	CRED (2015)
IVnatural	Total number of people requiring immediate assistance during a period of natural (biological and geophysical) disaster in any developing country excluding the current recipient, weighted by the disaster-hit countries' share in the current donor's aid for the past ten years. We use a logged version of this variable.	17580	198.372	553.953	0	5197.406	CRED (2015)

Section B: Additional Statistical Tables

Table B1: Buying support at the UNFCCC, with unweighted dependent variable

Dependent variable: ln(Unweighted support index)	(1)	(2)	(3)	(4)	(5)
Variables for Aid:	Total aid	Adaptation aid	Mitigation aid	Total aid	Mitigation aid
ln(Aid)	0.0001	0.0023**	0.0031***	-0.0003	0.0037***
	(0.62)	(0.04)	(0.00)	(0.22)	(0.00)
Interventions recipient	-0.0001	0.0027***	-0.0006	0.0032***	0.0024***
	(0.87)	(0.00)	(0.32)	(0.00)	(0.01)
Interventions recipient^2	-0.00001***	-0.0001***	-0.00001***	-0.0001***	-0.0001***
	(0.00)	(0.00)	(0.01)	(0.00)	(0.00)
Interventions donor	-0.0001	0.0001	-0.0001	0.0001	0.0001
	(0.28)	(0.39)	(0.25)	(0.43)	(0.35)
Interventions donor^2	-0.0000	-0.0000	-0.0000	-0.0000	-0.0000
	(0.51)	(0.50)	(0.34)	(0.71)	(0.39)
Trade relationship	0.0020	0.0051	0.0024	0.0045	0.0047
	(0.58)	(0.47)	(0.55)	(0.49)	(0.48)
Democracy	-0.0003	0.0006	-0.0002	0.0002	0.0005
	(0.83)	(0.80)	(0.88)	(0.93)	(0.83)
UN voting	0.0179***	-0.0031	0.0147***	-0.0052	-0.0051
	(0.00)	(0.70)	(0.01)	(0.52)	(0.52)
Vulnerability	0.2047	0.4304	0.2145*	0.4331	0.4470
	(0.11)	(0.29)	(0.09)	(0.28)	(0.27)
ln(GDP per capita)	-0.0317**	-0.0493	-0.0340**	-0.0492	-0.0504
	(0.04)	(0.19)	(0.03)	(0.18)	(0.18)
Observations	15330	5110	15330	5110	5110
Number of clusters	129	129	129	129	129
Year FE	YES	YES	YES	YES	YES
Dyad FE	YES	YES	YES	YES	YES
Adj. within R-squared	0.097	0.083	0.111	0.073	0.100

Note: Clustering at recipient level. P-values in parentheses. *** p<0.01, ** p<0.05, * p<0.1.

Table B2: Buying support at the UNFCCC, parsimonious models

Dependent variable: ln(Support index)	(1)	(2)	(3)	(4)	(5)
Variables for Aid:	Total aid	Adaptation aid	Mitigation aid	Total aid	Mitigation aid
ln(Aid)	0.0000	0.0024**	0.0033***	-0.0004	0.0039***
	(0.85)	(0.03)	(0.00)	(0.11)	(0.00)
Interventions recipient	0.0003	0.0032***	-0.0004	0.0036***	0.0030***
	(0.66)	(0.00)	(0.53)	(0.00)	(0.00)
Interventions recipient^2	-0.00002***	-0.0001***	-0.00001***	-0.0001***	-0.0001***
	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)
Interventions donor	-0.0001	0.0001	-0.0001	0.0001	0.0001
	(0.29)	(0.32)	(0.27)	(0.33)	(0.28)
Interventions donor^2	0.0000	-0.0000	-0.0000	-0.0000	-0.0000
	(0.88)	(0.43)	(0.38)	(0.62)	(0.34)
Observations	20860	5960	17880	5960	5960
Number of clusters	149	149	149	149	149
Year FE	YES	YES	YES	YES	YES
Dyad FE	YES	YES	YES	YES	YES
Adj. within R-squared	0.084	0.079	0.101	0.070	0.095

Note: Clustering at recipient level. P-values in parentheses. *** p<0.01, ** p<0.05, * p<0.1.

Table B3: Buying support at the UNFCCC, with different control variables

Dependent variable: ln(Support index)	(1)	(2)	(3)	(4)	(5)	(6)
Variables for Aid:	Total aid	Adaptation aid	Mitigation aid	Total aid	Adaptation aid	Mitigation aid
ln(Aid)	0.0001	0.0014	0.0048***	0.0001	0.0025**	0.0033***
	(0.64)	(0.32)	(0.00)	(0.63)	(0.03)	(0.00)
Dyadic interventions	-0.0086	0.0299	-0.0219			
	(0.60)	(0.20)	(0.23)			
Dyadic interventions^2	-0.0011	-0.0071**	-0.0004			
	(0.27)	(0.04)	(0.67)			
Interventions recipient				-0.0001	0.0031***	-0.0006
				(0.90)	(0.00)	(0.34)
Interventions recipient^2				-0.00001***	-0.0001***	-0.00001***
				(0.00)	(0.00)	(0.01)
Interventions donor				-0.0001	0.0001	-0.0001
				(0.24)	(0.43)	(0.21)
Interventions donor^2				-0.0000	-0.0000	-0.0000
				(0.72)	(0.53)	(0.51)
Trade relationship	0.0029	0.0055	0.0042			
	(0.52)	(0.48)	(0.45)			
ln(Imports)				0.0000	-0.0003	0.0001
				(0.85)	(0.63)	(0.76)
ln(Exports)				0.0002	0.0002	0.0002
				(0.16)	(0.51)	(0.14)
Democracy	0.0001	0.0023	0.0001	-0.0007	0.0010	-0.0006
	(0.96)	(0.43)	(0.97)	(0.63)	(0.71)	(0.66)
UN voting	0.0175***	-0.0092	0.0145**	0.0189***	-0.0046	0.0155**
	(0.01)	(0.22)	(0.01)	(0.00)	(0.59)	(0.01)
Vulnerability	0.2700*	0.4420	0.3018*	0.2299	0.4998	0.2402*
	(0.08)	(0.35)	(0.05)	(0.10)	(0.27)	(0.09)
ln(GDP per capita)	-0.0453**	-0.0556	-0.0496**	-0.0358**	-0.0522	-0.0382**
	(0.05)	(0.19)	(0.04)	(0.04)	(0.20)	(0.03)
Observations	15330	5110	15330	15340	5120	15340
Number of clusters	129	129	129	129	129	129
Year FE	YES	YES	YES	YES	YES	YES
Dyad FE	YES	YES	YES	YES	YES	YES
Adj. within R-squared	0.055	0.072	0.079	0.095	0.080	0.108

Note: Clustering at recipient level. P-values in parentheses. *** p<0.01, ** p<0.05, * p<0.1.

Table B4: Regressions with multi-way clustering

Dependent variable: ln(Support index)	(1)	(2)	(3)	(4)	(5)
Variables for Aid:	Total aid	Adaptation aid	Mitigation aid	Total aid	Mitigation aid
ln(Aid)	0.0001	0.0026	0.0033***	-0.0003	0.0042***
	(0.70)	(0.15)	(0.00)	(0.14)	(0.01)
Interventions recipient	-0.0001	0.0030**	-0.0006	0.0035**	0.0026**
	(0.93)	(0.02)	(0.44)	(0.02)	(0.02)
Interventions recipient^2	-0.00001*	-0.0001***	-0.00001*	-0.0001**	-0.0001***
	(0.06)	(0.01)	(0.09)	(0.03)	(0.00)
Interventions donor	-0.0001	0.0001	-0.0001	0.0001	0.0001
	(0.26)	(0.56)	(0.27)	(0.51)	(0.60)
Interventions donor^2	-0.0000	-0.0000	-0.0000	-0.0000	-0.0000
	(0.81)	(0.61)	(0.53)	(0.76)	(0.54)
Trade relationship	0.0021	0.0050	0.0026	0.0043	0.0046
	(0.73)	(0.50)	(0.68)	(0.53)	(0.51)
Democracy	-0.0003	0.0013	-0.0002	0.0008	0.0012
	(0.83)	(0.70)	(0.88)	(0.81)	(0.72)
UN voting	0.0192**	-0.0033	0.0157**	-0.0056	-0.0055
	(0.02)	(0.85)	(0.05)	(0.78)	(0.75)
Vulnerability	0.2445	0.5252	0.2550	0.5277	0.5440
	(0.13)	(0.29)	(0.11)	(0.27)	(0.27)
ln(GDP per capita)	-0.0367*	-0.0548	-0.0392*	-0.0544	-0.0561
	(0.06)	(0.23)	(0.05)	(0.22)	(0.22)
Observations	15330	5110	15330	5110	5110
Number of clusters (recipients)	129	129	129	129	129
Number of clusters (donors)	10	10	10	10	10
Year FE	YES	YES	YES	YES	YES
Dyad FE	YES	YES	YES	YES	YES
Adj. within R-squared	0.095	0.081	0.108	0.071	0.100

Note: Clustering at recipient and donor level. P-values in parentheses. *** p<0.01, ** p<0.05, * p<0.1.

Table B5: First stage results for Table 3

Dependent variables for the 1st stage:	(1) Total aid	(2) Total aid	(3) Adaptation aid	(4) Adaptation aid	(5) Mitigation aid	(6) Mitigation aid
Instrumental variables:	IV2geoph	IVgeoph	IV2complex	IVcomplex	IV2natural	IVnatural
ln(IV)	-0.1376***	-0.2445***	-0.1894***	-0.1792***	-0.0465	-0.0788**
	(0.00)	(0.00)	(0.00)	(0.01)	(0.10)	(0.02)
Interventions recipient	0.0145*	0.0140	0.1991***	0.2037***	0.1566***	0.1608***
	(0.10)	(0.13)	(0.00)	(0.00)	(0.00)	(0.00)
Interventions recipient^2	-0.0001	-0.0001	-0.0020***	-0.0020***	-0.0008***	-0.0008***
	(0.11)	(0.13)	(0.00)	(0.00)	(0.00)	(0.00)
Interventions donor	0.0148***	0.0144***	0.0001	-0.0001	0.0028**	0.0026*
	(0.00)	(0.00)	(0.99)	(0.99)	(0.05)	(0.06)
Interventions donor^2	-0.00002***	-0.00002***	0.0001**	0.0001**	0.00001**	0.00001**
	(0.00)	(0.00)	(0.04)	(0.03)	(0.02)	(0.02)
Trade relationship	-0.0474	-0.1235	-0.3380	-0.3293	-0.1442	-0.1395
	(0.93)	(0.80)	(0.37)	(0.38)	(0.64)	(0.65)
Democracy	-0.2292	-0.2782	-0.1579	-0.1575	-0.0337	-0.0330
	(0.24)	(0.16)	(0.40)	(0.42)	(0.59)	(0.61)
UN voting	0.1150	0.0281	-0.6885	-0.6917	1.0516***	1.0983***
	(0.80)	(0.95)	(0.11)	(0.11)	(0.00)	(0.00)
Vulnerability	-1.9101	0.2429	0.0886	0.1584	-3.3325	-3.3756
	(0.81)	(0.98)	(0.99)	(0.99)	(0.46)	(0.47)
ln(GDP per capita)	-0.2252	-0.4386	0.6686	0.6990	0.7487*	0.7575*
	(0.88)	(0.77)	(0.51)	(0.51)	(0.06)	(0.07)
Observations	15330	15083	5110	5060	15330	15083
Number of clusters	129	129	129	129	129	129
Year FE	YES	YES	YES	YES	YES	YES
Dyad FE	YES	YES	YES	YES	YES	YES
Adj. within R-squared	0.007	0.008	0.035	0.036	0.084	0.086
Kleibergen-Paap F	27.220	47.740	8.333	7.145	2.688	5.583

Note: Clustering at recipient level. P-values in parentheses. *** p<0.01, ** p<0.05, * p<0.1.

Table B6: Main results of regressions with lags and leads of aid

Dependent variable: ln(Support index)	(1)	(2)	(3)	(4)	(5)
Variables for Aid:	Total aid	Adaptation aid	Mitigation aid	Total aid	Mitigation aid
ln(Aid), 1-year lag	-0.0000	-0.0009	0.0000	-0.0005**	-0.0000
	(0.78)	(0.28)	(0.93)	(0.05)	(0.93)
Observations	15330	3800	14090	5110	5110
Number of clusters	129	127	129	129	129
ln(Aid), 2-year lag	0.0002	0.0001	0.0000	-0.0003	-0.0006
	(0.21)	(0.89)	(0.91)	(0.21)	(0.36)
Observations	15330	2520	12830	5110	5110
Number of clusters	129	126	129	129	129
ln(Aid), 1-year lead	0.0002	-0.0011	-0.0004	-0.0001	-0.0015*
	(0.33)	(0.12)	(0.54)	(0.71)	(0.08)
Observations	14070	5140	14070	3850	3850
Number of clusters	129	129	129	129	129

Note: Table shows results for the main explanatory variable (aid) in separate regressions using different lags and leads. The effect of control variables (same set as those shown in Table 1) is not reported. All regressions with year and dyad fixed effects, and clustering at recipient level. P-values in parentheses. *** p<0.01, ** p<0.05, * p<0.1.

Table B7: Regressions with dummies for aid provision

Dependent variable: ln(Support index)	(1)	(2)	(3)	(4)	(5)
Variables for Aid:	Total aid	Adaptation aid	Mitigation aid	Total aid	Mitigation aid
Dummy (Aid)	0.0011	0.0359**	0.0497***	-0.0021	0.0638***
	(0.54)	(0.03)	(0.00)	(0.61)	(0.00)
Interventions recipient	-0.0001	0.0029***	-0.0006	0.0035***	0.0026***
	(0.92)	(0.00)	(0.35)	(0.00)	(0.01)
Interventions recipient^2	-0.00001***	-0.0001***	-0.00001***	-0.0001***	-0.0001***
	(0.00)	(0.00)	(0.01)	(0.00)	(0.00)
Interventions donor	-0.0001	0.0001	-0.0001	0.0001	0.0001
	(0.24)	(0.47)	(0.20)	(0.49)	(0.41)
Interventions donor^2	-0.0000	-0.0000	-0.0000	-0.0000	-0.0000
	(0.73)	(0.57)	(0.55)	(0.77)	(0.42)
Trade relationship	0.0021	0.0050	0.0026	0.0042	0.0047
	(0.59)	(0.48)	(0.56)	(0.51)	(0.49)
Democracy	-0.0003	0.0015	-0.0002	0.0008	0.0014
	(0.82)	(0.60)	(0.89)	(0.75)	(0.62)
UN voting	0.0192***	-0.0031	0.0158***	-0.0054	-0.0056
	(0.00)	(0.71)	(0.01)	(0.54)	(0.50)
Vulnerability	0.2446*	0.5294	0.2546*	0.5262	0.5420
	(0.08)	(0.24)	(0.07)	(0.24)	(0.23)
ln(GDP per capita)	-0.0367**	-0.0548	-0.0390**	-0.0536	-0.0561
	(0.03)	(0.18)	(0.03)	(0.18)	(0.17)
Observations	15330	5110	15330	5110	5110
Number of clusters	129	129	129	129	129
Year FE	YES	YES	YES	YES	YES
Dyad FE	YES	YES	YES	YES	YES
Adj. within R-squared	0.095	0.081	0.110	0.070	0.103

Note: Clustering at recipient level. P-values in parentheses. *** p<0.01, ** p<0.05, * p<0.1.

Table B8: Regressions with only strictly positive values for aid

Dependent variable: ln(Support index)	(1)	(2)	(3)	(4)	(5)
Variables for Aid:	Total aid	Adaptation aid	Mitigation aid	Total aid	Mitigation aid
ln(Aid)	0.0002	0.0090	-0.0002	-0.0018	-0.0027
	(0.65)	(0.35)	(0.98)	(0.15)	(0.73)
Interventions recipient	0.0003	-0.0012	-0.0039***	0.0038***	-0.0022
	(0.67)	(0.86)	(0.00)	(0.00)	(0.72)
Interventions recipient^2	-0.00002***	-0.0001	-0.0000	-0.0001***	-0.0001
	(0.00)	(0.35)	(0.36)	(0.00)	(0.31)
Interventions donor	-0.0001	-0.0017	-0.0023*	0.0002	-0.0004
	(0.46)	(0.23)	(0.08)	(0.30)	(0.82)
Interventions donor^2	-0.0000	-0.0000	0.0000	-0.0000	-0.0000
	(0.54)	(0.69)	(0.16)	(0.54)	(0.51)
Trade relationship	0.0029	0.4652	0.4631	0.0047	0.8590
	(0.51)	(0.51)	(0.45)	(0.52)	(0.16)
Democracy	0.0002	0.1191	-0.0066	0.0000	0.1602**
	(0.88)	(0.19)	(0.82)	(1.00)	(0.05)
UN voting	0.0228***	0.2176	0.1350	-0.0097	-0.0628
	(0.00)	(0.61)	(0.29)	(0.33)	(0.82)
Vulnerability	0.2321	3.3746	1.0496	0.5878	2.9885
	(0.16)	(0.61)	(0.61)	(0.31)	(0.63)
ln(GDP per capita)	-0.0409*	1.2201	-0.3129*	-0.0645	1.1135
	(0.06)	(0.30)	(0.07)	(0.23)	(0.29)
Observations	10890	198	550	3677	213
Number of clusters	128	28	47	122	28
Year FE	YES	YES	YES	YES	YES
Dyad FE	YES	YES	YES	YES	YES
Adj. within R-squared	0.135	0.074	0.153	0.063	0.105

Note: In this table, the sample is limited to observations with strictly positive values of aid (*Aid* >0). Clustering at recipient level. P-values in parentheses. *** p<0.01, ** p<0.05, * p<0.1.