



ALMA MATER STUDIORUM
UNIVERSITÀ DI BOLOGNA

ARCHIVIO ISTITUZIONALE DELLA RICERCA

Alma Mater Studiorum Università di Bologna Archivio istituzionale della ricerca

Climate negotiators'and scientists'assessments of the climate negotiations

This is the final peer-reviewed author's accepted manuscript (postprint) of the following publication:

Published Version:

Climate negotiators'and scientists'assessments of the climate negotiations / Dannenberg, Astrid; Zitzelsberger, Sonja; Tavoni, Alessandro. - In: NATURE CLIMATE CHANGE. - ISSN 1758-678X. - ELETTRONICO. - 7:6(2017), pp. 437-442. [10.1038/nclimate3288]

Availability:

This version is available at: <https://hdl.handle.net/11585/657520> since: 2020-03-02

Published:

DOI: <http://doi.org/10.1038/nclimate3288>

Terms of use:

Some rights reserved. The terms and conditions for the reuse of this version of the manuscript are specified in the publishing policy. For all terms of use and more information see the publisher's website.

This item was downloaded from IRIS Università di Bologna (<https://cris.unibo.it/>).
When citing, please refer to the published version.

(Article begins on next page)

This is the final peer-reviewed accepted manuscript of:

Dannenberg, A., Zitzelsberger, S., & Tavoni, A. (2017). Climate negotiators' and scientists' assessments of the climate negotiations. *Nature climate change*, 7(6), 437-442.

The final published version is available online at:

<https://doi.org/10.1038/nclimate3288>

Rights / License:

The terms and conditions for the reuse of this version of the manuscript are specified in the publishing policy. For all terms of use and more information see the publisher's website.

Climate negotiators' and scientists' assessments of the climate negotiations

Astrid Dannenberg^{a,*}, Sonja Zitzelsberger^b, and Alessandro Tavoni^c

^aDepartment of Economics, University of Kassel, Nora-Platiel-Straße 4, 34109 Kassel, Germany and Department of Economics, University of Gothenburg; Box 640, 405 30 Gothenburg, Sweden

^bDepartment of Economics, University of Kassel, 34109 Kassel, Germany

^cGrantham Research Institute on Climate Change and the Environment, London School of Economics, London WC2A2AE, UK

Abstract

Climate negotiation outcomes are difficult to evaluate objectively because there are no clear reference scenarios. Subjective assessments from those directly involved in the negotiations are particularly important, as this may influence strategy and future negotiation participation. Here we analyze the perceived success of the climate negotiations in a sample of more than 600 experts involved in international climate policy. Respondents were pessimistic when asked for specific assessments of the current approach centered on voluntary pledges, but were more optimistic when asked for general assessments of the outcomes and usefulness of the climate negotiations. Individuals who are more involved in the negotiation process tended to be more optimistic, especially in terms of general assessments. Our results indicate that two reinforcing effects are at work: a high degree of involvement changes individuals' perceptions and more optimistic individuals are more inclined to remain involved in the negotiations.

The difficulty and controversy in evaluating the outcomes of the climate negotiations, and any negotiations for that matter, are caused by the lack of a counterfactual situation. One is thus forced to compare the outcomes of the negotiations with hypothetical reference scenarios which, depending on the circumstances or personality of the evaluator, may range from a dramatic scenario in which the negotiations collapse to the best case scenario in which all major emitters sign and ratify an ambitious agreement. For this reason, it is not hard to find diverging views on the success of the climate negotiations (1–3). In this paper, we investigate the views of the experts involved in the diplomatic and scientific efforts relating to climate change. Their beliefs are insightful because they reveal trends across different expert groups, and may ultimately be informative about what to expect from future climate negotiations. Specifically, our study enables us to make the following contributions

Users may view, print, copy, and download text and data-mine the content in such documents, for the purposes of academic research, subject always to the full Conditions of use:http://www.nature.com/authors/editorial_policies/license.html#terms

*To whom correspondence should be addressed, dannenberg@uni-kassel.de.

Author contributions: A.D. and A.T. designed research; A.D. and S.Z. analyzed data; A.D., S.Z., and A. T. wrote the paper.

Competing Financial Interests statement: The authors declare no conflict of interest.

to the climate policy literature. First, we shed light on the experts' perspective with regards to the achievement of the collective 2°C target and the country-specific pledges set forth in the Paris Agreement. Such insights are highly relevant and readily applicable to domestic as well as international climate policy. Second, the experts' assessment of the success of past and current negotiations is important because it gives us an indication of the degree of effort that negotiators will exert in the future: if they have little confidence in a given architecture, it is reasonable to assume that they will disengage from it and prioritize alternative approaches in future negotiations. Third, from an academic standpoint, the study is a testbed to validate or refute scholarly theories and observations on the basis of the experts' views. In sum, accounting for often-neglected behavioral and contextual factors can substantially improve the economic analysis of the climate change problem and can provide policy makers with useful tools to better design future climate change policies (4).

Previous studies have investigated opinions and traits of negotiators and policy makers using survey or experimental methods (5–15), but none have examined the perceived success of the international climate negotiations. Another related branch of literature has studied the climate conferences as important sites for transnational action where a multitude of actors, including non-state actors, come together to exchange ideas and knowledge, build interpersonal relationships, organize resistance, and propose policy alternatives (16–22).

Our analysis is based on data from a worldwide survey with 656 respondents from more than 130 countries. Participants were recruited from the two main institutions that the international community has established to address climate change: the United Nations Framework Convention on Climate Change (UNFCCC) and the Intergovernmental Panel on Climate Change (IPCC) (see Methods and Supplementary Table 1). Using a standardized online questionnaire, we asked respondents about their views on several past and recent outcomes of the climate negotiations. We thereby distinguished between “general assessments” in which respondents were not provided with any evaluation criteria and “specific assessments” in which the evaluation criteria were clearly specified (see Supplementary Information for a brief overview of the history of climate negotiations and our questionnaire).

Analytic Approach

To avoid bias arising from the public debate, the survey took place in the months preceding the twenty-first Conference of Parties (COP) in December 2015 in Paris. During that time, it was not yet clear how exactly the final agreement would look, but the general approach was well known thanks to the preparatory work of the Durban Platform for Enhanced Action since late 2011. Specifically, it was known that the “intended nationally determined contributions” (INDCs) would be the main tool of the then forthcoming agreement. The intended contributions are non-binding national pledges for reducing greenhouse gas emissions in the coming years. Countries were asked to submit their pledges ahead of attending COP 21 in Paris.

In our empirical analysis, we pay special attention to the interrelation between individuals' involvement in the negotiation process and their evaluations. To this end, we take into

account how often an individual participated in the climate conferences and in which role. Individuals can attend the COPs either as member of a party or an observer organization. Parties are the main actors at the COPs. Coming from ministries and related agencies, most party members act as representatives of states or regions, and they define positions and make decisions on behalf of the constituency. National delegations also include non-state actors representing different expert or interest groups who support the formation of specific positions (23). Observers take part in the conferences without having been delegated decision power in the negotiation process. At the individual level, the distinction between party and observer is not always sharp, as a fraction of COP participants, in particular non-state actors such as non-government organizations (NGOs) or scientists, assume different roles in different years. Our sample includes mainly state actors who attend the COPs as parties and scientists who often attend as observer or party. Other non-state actors are only included if they have been part of national delegations (see Methods).

We assume that the degree of involvement in the negotiation process is higher the more COPs an individual has attended; furthermore, everything else equal, involvement is assumed to be higher when one attends a COP as party member as opposed to observer. Importantly, in order to relate involvement to the evaluation of the outcome, we have to take into account when an individual took part. For the evaluation of the Kyoto Protocol, we consider the attendance rate from COP 3 in 1997 in Kyoto to COP 7 in 2001 in Marrakech, as the Kyoto Protocol was adopted and finalized during these conferences. For the evaluation of the Durban Platform of Enhanced Action, we consider the attendance rate from COP 15 in 2009 in Copenhagen to COP 20 in 2014 in Lima. The failed attempt to agree on a successor to the Kyoto Protocol at COP 15 in Copenhagen initiated a new bottom-up approach that started with the Copenhagen Accord, continued with the Durban Platform of Enhanced Action, and finally resulted in the Paris Agreement.

Fig. 1 presents an overview of the outcomes that we included in the survey and the type of assessment. For the Kyoto Protocol and the general usefulness of the climate conferences, respondents were not provided with any evaluation criteria, but were instead asked for a general assessment based on their own evaluation criteria. In the case of the Durban Platform and the forthcoming Paris Agreement, we used two different types of evaluations. First, respondents were asked how confident they were about the Durban Platform with respect to participation, stringency, and overall effectiveness. These questions did not provide any evaluation criteria and thus also elicited general subjective assessments. Second, respondents were asked four questions about the INDCs. These questions clearly specified the evaluation criteria in the sense that, in hindsight, the answers to these questions can be evaluated as objectively right or wrong. They thus elicited a specific assessment.

Assessment of the Climate Negotiations

Our main regressions are based on binary probit models. To this end, we define a binary variable titled “optimistic,” which is set to one if an individual provided a more optimistic assessment and zero otherwise (see Methods). Our main explanatory variables are the number of COPs that an individual attended either as a party member (“Involvement as Party”) or as an observer (“Involvement as Observer”). All included control variables are

listed in the legends of Tables 1 and 2. The definitions and summary statistics of all the explanatory variables are shown in the Supplementary Tables 2 and 3. We also provide robustness analyses in the Supplementary Tables 7-21 which show that our main results hold under alternative estimation models, different sets of explanatory variables, and separate regressions for the UNFCCC and the IPCC sample.

The upper part of Table 1 presents the regression results for all the general assessments. This includes the assessments of the Kyoto Protocol, the Durban Platform, and the perceived usefulness of the climate conferences. The results show that a high degree of involvement as party, that is, a high number of COPs attended as a party member, increases the likelihood of providing an optimistic assessment. This effect is statistically significant in four out of five questions. The marginal effect of 0.09 for the Kyoto Protocol means that an individual's likelihood of giving an optimistic assessment increases on average by approximately 9 percentage points for every additional COP attended as party. The values for the other questions can be interpreted in the same way. Perceptions are clearly influenced by whether respondents attended the climate meetings predominantly as party member or observer. The effect of being involved as observer is positive and significant in only two out of five questions. In the other three questions, it is negative, and in one of them, significant.

The lower part of Table 1 shows the regression results for the specific assessments of the INDCs. Here, we find that involvement as party has a positive and significant effect only when it comes to fulfillment of the announced pledges. An additional attendance as a party increases the estimated probability of being confident that countries will fulfil their pledges on average by 2 percentage points. In two out of four questions, there is no significant effect and, when asked whether the current INDCs were sufficient to reach the 2°C target, the more involved respondents are even more skeptical than those who were less involved. Individuals with a higher attendance rate as observer also have lower confidence that the current INDCs will be consistent with the 2°C target. There is no significant effect for the other three questions.

Fig. 2 illustrates the average estimated probability of being optimistic for all questions, depending on the number of relevant COPs attended as party. It shows that respondents' general assessments of the Kyoto Protocol, the Durban Platform, and the usefulness of the climate conferences are generally more optimistic than the specific assessments of the INDCs. The general assessments become more optimistic with respondents' involvement in the negotiations. The exception is "stringency" which we will discuss below. In contrast, the specific assessments of the INDCs, again with one exception, do not change or become more pessimistic with involvement. Thus, while the difference between the general assessments and the specific assessments is moderate for individuals who were not deeply involved in the relevant COPs, the difference clearly increases with the degree of involvement, and is quite large for highly involved individuals.

Causality

Thus far, the regression analysis points to a link between degree of involvement and respondents' optimism: the more an individual has been involved in the negotiation process

the more likely it is that this person has a positive general view on the outcomes. However, the causality could also run in the other direction: the more optimistic an individual, the more likely it is that this person gets involved in the process and perseveres. Pessimistic individuals may simply drop out of the negotiation process.

In order to test for this possibility, we ran another series of regressions with a subsample. Specifically, to control for the degree of involvement, we consider only individuals who served two or three times as party. Due to a relatively low number of observations for the Kyoto Protocol, we can run this test only for the assessments of the recent outcomes (usefulness of climate conferences, Durban Platform, and INDCs). Restricting the sample to individuals with a similar number of COP attendances as party allows us to control for the degree of involvement and to distinguish between parties to the latest COPs (20 and 21) and parties to earlier COPs. Of course, we do not know if some of the negotiators who did not attend COPs 20-21 will re-join future negotiations, but we do know that they missed two very important conferences. The results for both general and specific assessments are shown in Table 2. The dummy variable “Party at latest COPs” indicates whether an individual was a party member at COPs 20 and 21. The sign of the dummy variable is always positive and in five out of eight questions it is statistically significant. Interestingly, the finding that the “late parties” are more optimistic than the “early parties” (as defined above) applies to both general and specific assessments. Fig. 3 illustrates the difference in the average estimated probabilities of providing an optimistic assessment between early parties and late parties, confirming that the latter are more optimistic irrespective of the type of assessment.

Discussion

Our empirical analysis provides two important findings. First, respondents’ assessments of negotiation issues vary substantially, with low confidence in the current approach of voluntary pledges, but more positive general assessments of the climate negotiations. These findings broadly accord with recent international climate policy analyses. Our pre-Paris study highlights low confidence in the INDCs to deliver in terms of meeting the 2°C target and more generally in terms of achieving “stringency.” It should be noted that, at the time the survey was administered, it was still unknown how many countries would pledge an INDC and what their content would be. The pessimism displayed by the surveyed experts has been confirmed by subsequent analyses of the effects of the aggregated INDCs (24, 25), which conclude that the Paris Agreement’s stated ambition is incompatible with what has been pledged so far, even assuming that all nations delivered on their promises (26). Time will tell if the experts’ pessimism with regards to the fulfilment of the INDCs and the ambition of future pledges is appropriate.

Compared to the low confidence in stringency and the INDC approach, we find evidence of relatively greater optimism in the general assessments of what has been achieved, in particular with regards to participation of relevant actors. This finding is consistent with an increasing recognition of the importance of additional functions of the negotiation process apart from the official outcomes, as well as of the increasing role played by bottom-up solutions, polycentric governance, and collaborations taking place beyond traditional state actors (19–22). Within a fragmented climate regime, the negotiations serve as an umbrella

for the numerous domestic and transnational climate governance initiatives, by sub- and non-state actors, which have been identified as a response to the gridlock in multilateral efforts (27–30). While such bottom-up collaborations are unlikely to suffice to compensate for the lack of ambition of the current governmental pledges, the hope is that these initiatives may help to strengthen future climate policy.

Our second important finding is that respondents who have been highly involved in the negotiation process have more optimistic general views about the climate negotiations, compared to respondents whose involvement was limited or absent. Our data suggest that involvement affects the degree of optimism, and, at the same time, optimism affects the degree of involvement.

One reason why involvement may alter the assessment is self-serving bias. More involved negotiators have greater responsibility for the outcome and may thus be more inclined to evaluate the negotiations more positively. It has long been known in psychology that perceptions of success are not only influenced by objective evidence, but also by subjective impressions and needs (31–35). There are also material incentives for the negotiators to favorably assess the outcome of the meetings and praise their successes, such as social status and career prospects. An indication for the existence of self-serving bias in the outcome evaluation is that the positive effect of higher involvement seems to be stronger for general assessments than for specific assessments. Research in psychology has shown that self-serving bias is likely to manifest itself when the assessment context is ambiguous and allows room for choosing the evaluation criteria (36).

Another explanation for the positive effect of involvement on general views is information asymmetry between more involved and less involved negotiators. Experienced delegates have greater access to confidential information; they have the opportunity to interact directly with other negotiators and to accumulate personal knowledge which requires repeated interactions and established social networks. They also have a broader perspective on the achievements of past negotiations, historical shifts in positions and attitudes, and the difficulties that come up in the course of the negotiations.

Our data also provide evidence of a self-selection effect, by showing that negotiators who attended the latest conferences are more optimistic than negotiators who attended earlier conferences and then opted out of the negotiation process. This finding applies to both general and specific assessments. We do not know why the negotiators left the process. National governments principally have control over who is part of the delegation team, but there is undoubtedly some discretionary scope for proposing to be included in a delegation or to drop out of it. Those individual decisions are likely to depend on several factors, since taking part in the negotiation process represents an opportunity to get access to information, contacts, and other benefits. However, personal perceptions of the negotiations surely play a role as well, with optimistic individuals being more motivated to attend the meetings than those who are disillusioned about the prospect of making progress.

A direct implication of this research is that the outcomes of the negotiations can be better and more coherently assessed by using specific and verifiable criteria for success.

Furthermore, since negotiators' expectations about crucial elements of the Paris Agreement are relatively low, we can expect efforts to complement the agreement with additional instruments in the future. Scholars of climate policy have suggested a number of avenues to entice climate cooperation, such as trade arrangements among a coalition of leaders aimed at inducing compliance by laggards (37), sectoral agreements that facilitate coordination (2), improving the negotiation process by streamlining its procedures and redefining the roles of key actors (38, 39), a shift from broad UN-style multilateralism towards minilateralism revolving around a smaller set of relevant actors (40), or a combination of multiple subglobal policies (27, 41). However, due to the increasingly fragmented governance landscape, there appears to be little agreement among policymakers and practitioners on how to move the negotiations forward (42, 43). So far negotiators have deliberately avoided linking trade agreements to climate policy, in order not to jeopardize successful cooperation on other issues. Whether this attitude will change and whether the different views will converge over time depends on many factors, including a shared belief that the new approach will lead to a better result overall than the current approach. Expectations of the involved actors are crucial (44), and since our research has focused on past and current climate policy, the systematic elicitation of expectations about not-yet-existing policy instruments appears to be a fruitful area for future research.

Methods

Our data stem from a worldwide survey carried out in the months preceding COP 21 in Paris by means of a standardized online questionnaire that consisted of three parts. In the first part, participants were asked to assess (i) the consequences of climate change for the future living conditions up to 2100; (ii) the importance of climate change policy; and (iii) the chances that countries would reduce their emissions relative to business-as-usual in the absence of a new international climate agreement. The second part was about the perceived success of the climate negotiations. Participants were asked to assess (i) the Kyoto Protocol; (ii) the future success of the Durban Platform for Enhanced Action with respect to participation, stringency, and overall effectiveness; (iii) the INDCs; and (iv) the usefulness of the climate conferences apart from the official outcome. All assessments in the first and second part were elicited by means of a Likert-type scale with either four or five possible answer categories. The third part of the questionnaire contained questions about the participants' personal background, such as gender, age, nationality, the field in which they have obtained their highest degree or training, and the type of organization in which they work. This part also included a question on how much respondents trust their intuitions when they make decisions. Psychological studies have shown that judgements often depend on whether a person relies on his or her intuition, as opposed to careful reasoning (45). In the empirical analysis, we used the responses from the second part as dependent variables and the responses from the first part and the third part as explanatory variables. The definitions and summary statistics of the explanatory variables can be found in the Supplementary Tables S2 and S3.

The invitation to take part in the online questionnaire was sent out via email. The contacts came from two sources. First, we used four participation lists for the Conferences of Parties between 2010 and 2014 provided by the UNFCCC (COPs 16-18, COP 20). The email

addresses came from previous studies or were searched in the Internet. The COP participation lists provided by the UNFCCC distinguish between “parties” and “observer organizations.” To have a clear and transparent selection criterion, we only invited people who were listed on the UNFCCC participation lists at least once as party. This means that, apart from scientists, non-state actors are only included in the sample if they have been part of national delegations. Individuals who attended the COPs only as observer (and never as party) are not included. This group of participants has clearly become much larger and more diverse over the years (17, 20), which is why we believe that their perceptions deserve a study of its own.

The second source was the list of authors and reviewers for the fifth IPCC Assessment Report which is available on the IPCC website. The email addresses were obtained through Internet searches. Including the IPCC sample increased the variation in the COP attendance rates as, by definition, delegates are more likely to attend multiple COPs as party. Importantly, when we pool the UNFCCC sample and the IPCC sample in a regression, we always control for region, field of highest training, employer organization, and other socio-demographic and attitudinal characteristics.

Out of a total of about 10,000 contacted persons whose contact details were available, 656 completed the survey and could be used for the empirical analyses. The response rate of 6.6% is not high but fairly typical for this kind of survey (5–8, 12). Separated by source, we approached 9,120 people listed on the UNFCCC lists and 900 people on the IPCC list. The response rates for these two groups were 5% and 22%, respectively. Since the response rate for the UNFCCC sample is relatively low, we conducted two different non-response analyses for this group. First, we compared the regional distribution between respondents who completed the survey and non-respondents who were contacted but did not complete the survey. Of the UNFCCC participants who completed our survey, 27% are from Europe, 23% from Africa, 20% from Asia, 13% from North America, another 13% from South America, and 4% from Australia/Oceania. The respective frequencies for the contacted persons who did not complete the survey are 22%, 27%, 24%, 10%, 13%, and 4%. Note that the proportions are based on delegation country and not nationalities as delegation country is the only available information for non-respondents. The regional distribution of respondents and non-respondents are not significantly different from each other (Pearson Chi squared test, $P > 0.10$). They are also very similar to the regional distribution of the recent COPs. Of the parties to COPs 16-20, on average, 21% were from Europe, 27% from Africa, 25% from Africa, 9% from North America, 13% from South America, and 4% from Australia/Oceania. Second, we compared the answers between respondents and dropouts (people who started but did not complete the survey). Of course, we could only compare the answers to the questions that enough of the dropouts answered which mainly were the questions in the first part of the survey (on the impacts of climate change and the importance of climate change policy). The number of dropouts that could be used for the comparisons ranges between 67 and 120. Depending on the type of question, we used Mann-Whitney-Wilcoxon tests, Fisher’s Exact tests, or T-tests. For 20 out of 21 questions the answers were not significantly different between the two groups ($P > 0.10$). Based on these comparisons, we do not expect a selection bias in the data. Further details on the participants can be found in the Supplementary Table S1 and separate analyses for the UNFCCC sample and the IPCC

sample can be found in Tables S7-S10. They show that our main results can be found in both samples.

In the main paper, we present results from binary probit models for which the dependent variable “optimistic” was built by merging multiple answer categories of the Likert scale into one. When there were four answer categories, the optimistic variable takes the value one when the respondent chose one of the two more optimistic answer categories and it equals zero when one of the two more pessimistic answer categories was chosen. When there were five answer categories, we combine the first two, more optimistic, categories to set the optimistic variable to one, and combine the last three, more pessimistic, categories to set the variable to zero. In the Supplementary Tables 14 and 15, we provide regression results from ordered probit models which are generally very close to the results from the binary probit models presented in the main paper.

We also provide an overview of the effects of the control variables on the dependent variable (Supplementary Tables 4 and 5). The results show that the individuals who are optimistic about countries’ willingness to reduce emissions in the absence of a new international agreement up to 2050 (besides the existing UNFCCC) are also more inclined to provide more optimistic evaluations of the climate conferences. A plausible explanation for this is that these individuals are generally more optimistic about the feasibility of climate policy, for example in terms of emission abatement costs or future technological progress. Another finding that consistently comes up is that individuals who rely on their intuitions often provide a more optimistic assessment. Although we cannot say much about the cognitive and psychological processes behind this relationship, it is interesting to know that confidence in intuitive thinking is associated with an optimistic view while low confidence in intuitive thinking appears to be associated with a more pessimistic view. Researchers working for a university or research institute as well as individuals working for an environmental NGO or a private company tend to be more pessimistic about the INDC approach than government officials. The effects of region are not clear-cut, with one plain exception: Europeans are more likely to see the Kyoto Protocol as success compared to almost every other region (or negotiation block). This is not surprising since the Europeans were the driving force behind the Kyoto Protocol, especially when the US gave way for new leadership by choosing not to ratify the agreement.

Finally, we provide additional regression analyses in the Supplementary Tables 11-13 to account for the diversity within the national delegations (22). To this end, we use the information about individual affiliations provided in the COP participation lists (instead or in addition to the employer organization). With a few exceptions (less than 1%), party members in the sample rarely changed the affiliation category from one COP to another; that is, individuals might have switched between different government institutions but they rarely switched between government and non-government institutions. Most of the respondents who attended the COPs as party represented a government institution (67%) but a significant share of respondents assumed a dual role by being part of a delegation but not affiliated with a government institution (33%). These individuals had affiliations with a university or research institution, business or state company, NGO, or other organizations. The results show that only seldom does having a dual role have a significant effect on perceptions. Only

with regards to future pledges meeting the 2°C target, respondents with dual roles are significantly more optimistic than the government actors. The regressions also include an interaction term of dual role and involvement in order to test if the effect of involvement differs between government and non-government party members. The interaction term is statistically significant only once: with regards to the fulfillment of the pledges the positive effect of involvement appears to be stronger for respondents with dual roles.

The authors declare that the data supporting the findings of this study are available within the article and its supplementary information files. Informed consent was obtained from all subjects who participated in the study. The research is in accordance with national and EU legislation and with the ethical standards and guidelines of the EU Horizon2020 concerning data collection, storage, protection, retention, and destruction.

Supplementary Material

Refer to Web version on PubMed Central for supplementary material.

Acknowledgments

The work has been supported by the European Union (EU) Horizon 2020 program, action ERC-2014-STG, Project HUCO, grant number 636746. A.T. acknowledges financial support by the Enel Foundation Grant “Climate Negotiations” (RGI-U885). A.T. is supported by the Centre for Climate Change Economics and Policy, which is funded by the UK Economic and Social Research Council.

References

1. Aldy, JE., Stavins, RN. *Architectures for Agreement: Addressing Global Climate Change in the Post-Kyoto World*. Cambridge Univ. Press; 2007.
2. Barrett, S. *Environment and Statecraft: The Strategy of Environmental Treaty-making*. Oxford Univ. Press; 2003.
3. Monbiot G. Grand promises of Paris climate deal undermined by squalid retrenchments. *The Guardian*. 2015 [Accessed July 5, 2016] <http://www.theguardian.com/environment/georgemonbiot/2015/dec/12/paris-climate-deal-governments-fossil-fuels>.
4. Young OR. Effectiveness of international environmental regimes: Existing knowledge, cutting-edge themes, and research strategies. *Proc Natl Acad Sci*. 2011; 108:19853–19860. [PubMed: 22143795]
5. Lange A, Löschel A, Vogt C, Ziegler A. On the self-interested use of equity in international climate negotiations. *Eur Econ Rev*. 2010; 54:359–375.
6. Lange A, Vogt C, Ziegler A. On the importance of equity in international climate policy: An empirical analysis. *Energy Economics*. 2007; 29:545–562.
7. Kesternich M. Minimum participation rules in international environmental agreements: Empirical evidence from a survey among delegates in international climate negotiations. *Appl Econ*. 2015; 48:1047–1065.
8. Karlsson C, Parker C, Hjerpe M, Linnér B. Looking for Leaders: Perceptions of Climate Change Leadership among Climate Change Negotiation Participants. *Glob Environ Polit*. 2011; 11:89–107.
9. Saul U, Seidel C. Does leadership promote cooperation in climate change mitigation policy? *Clim Policy*. 2011; 11:901–921.
10. Bailer S. Strategy in the climate change negotiations: do democracies negotiate differently? *Clim Policy*. 2012; 12:534–551.
11. Weiler F. Determinants of bargaining success in the climate change negotiations. *Clim Policy*. 2012; 12:552–574.
12. Dannenberg A, Sturm B, Vogt C. Do equity preferences matter for climate negotiators? An experimental investigation. *Environ Resour Econ*. 2010; 47:91–109.

13. Hafner-Burton EM, LeVeck BL, Victor DG, Fowler JH. Decision maker preferences for international legal cooperation. *Int Organ*. 2014; 68:845–876.
14. LeVeck BL, Hughes DA, Fowler JH, Hafner-Burton E, Victor DG. The role of self-interest in elite bargaining. *Proc Natl Acad Sci USA*. 2014; 111:18536–18541. [PubMed: 25512497]
15. Bosetti V, Weber E, Berger L, Budesco DV, Liu N, Tavoni M. COP21 climate negotiators' responses to climate model forecasts. *Nature Clim Change*. 2017; 7:185–189.
16. Hjerpe M, Linnér B. Functions of COP side-events in climate-change governance. *Clim Policy*. 2010; 10:167–180.
17. Schroeder H, Lovell H. The role of non-nation-state actors and side events in the international climate negotiations. *Clim Policy*. 2012; 12:23–37.
18. Muñoz Cabré M. Issue-linkages to climate change measured through NGO participation in the UNFCCC. *Glob Environ Polit*. 2011; 11:10–22.
19. Hale T, Roger C. Orchestration and transnational climate governance. *The Rev Int Organ*. 2014; 9:59–82.
20. Betsill M, et al. Building productive links between the UNFCCC and the broader global climate governance landscape. *Glob Environ Polit*. 2015; 15:1–10.
21. Hanegraaff M. Transnational advocacy over time: business and NGO mobilization at UN climate summits. *Glob Environ Polit*. 2015; 15:83–104.
22. Nasiritousi N, Hjerpe M, Linnér BO. The roles of non-state actors in climate change governance: understanding agency through governance profiles. *Int Environ Agreements*. 2016; 16:109–126.
23. Schroeder H, Boykoff MT, Spiers L. Equity and state representations in climate negotiations. *Nature Clim Change*. 2012; 2:834–836.
24. UNFCCC. Synthesis report on the aggregate effect of the intended nationally determined contributions. 2015 Oct 30. FCCC/CP/2015/7, <http://unfccc.int/resource/docs/2015/cop21/eng/07.pdf>
25. Jeffrey, L., et al. 2.7°C is not enough – we can get lower. Climate Action Tracker Briefing. 2015 Dec 8. http://climateactiontracker.org/assets/publications/briefing_papers/CAT_Temp_Update_COP21.pdf
26. Averchenkova, A., Bassi, S. Beyond the targets: assessing the political credibility of pledges for the Paris Agreement. 2016. http://www.lse.ac.uk/GranthamInstitute/publication/beyond-the_targets/
27. Ostrom E. Polycentric systems for coping with collective action and global environmental change. *Glob Environ Change*. 2010; 20:550–557.
28. Keohane RO, Victor DG. The regime complex for climate change. *Perspectives on Politics*. 2011; 9:7–23.
29. Keohane RO, Victor DG. Cooperation and discord in global climate policy. *Nature Clim Change*. 2016; 6:570–575.
30. Falkner R. The Paris Agreement and the new logic of international climate politics. *International Affairs*. 2016; 92:1107–1125.
31. Heider, F. *The Psychology of Interpersonal Relations*. Wiley; New York: 1958.
32. Baumeister, RF. The Self. *The Handbook of Social Psychology*. Gilbert, DT, Fiske, ST., Lindzey, G., editors. McGraw-Hill; Boston MA: 1998. p. 680-740.
33. Campbell WK, Sedikides C. Self-threat magnifies the self-serving bias: A meta-analytic integration. *Rev Gen Psychol*. 1999; 3:23–43.
34. Mezulis AH, Abramson LY, Hyde JS, Hankin BL. Is there a universal positivity bias in attributions? A meta-analytic review of individual, developmental, and cultural differences in the self-serving attributional bias. *Psychol Bull*. 2004; 130:711–747. [PubMed: 15367078]
35. Tavoni A, Dannenberg A, Kallis G, Löschel A. Inequality, communication, and the avoidance of disastrous climate change in a public goods game. *Proc Natl Acad Sci USA*. 2011; 108:11825–11829. [PubMed: 21730154]
36. Dunning D, Meyerowitz JA, Holzberg AD. Ambiguity and self-evaluation: The role of idiosyncratic trait definitions in self-serving assessments of ability. *J Pers Soc Psychol*. 1989; 57:1082–1090.

37. Nordhaus W. Climate clubs: overcoming free-riding in international climate policy. *Am Econ Rev.* 2015; 105:1339–1370.
38. Grasso M, Roberts JT. A compromise to break the climate impasse. *Nature Clim Change.* 2014; 4:543–549.
39. Vihma A. Climate of Consensus: Managing Decision Making in the UN Climate Change Negotiations. *Rev Eur Community Int Environ Law.* 2015; 24:58–68.
40. Eckersley R. Moving Forward in the Climate Negotiations: Multilateralism or Minilateralism? *Glob Environ Pol.* 2012; 12:24–42.
41. Cole DH. Advantages of a polycentric approach to climate change policy. *Nature Clim Change.* 2015; 5:114–118.
42. Hjerpe M, Nasiritousi N. Views on alternative forums for effectively tackling climate change. *Nature Clim Change.* 2015; 5:864–868.
43. Falkner R. International negotiations: Towards minilateralism. *Nature Clim Change.* 2015; 5:805–806.
44. Barrett S, Dannenberg A. Tipping versus cooperating to supply a public good. *J Eur Econ Assoc.* 2017 (in press).
45. Kahneman, D. *Thinking, Fast and Slow.* Macmillan; London: 2011.

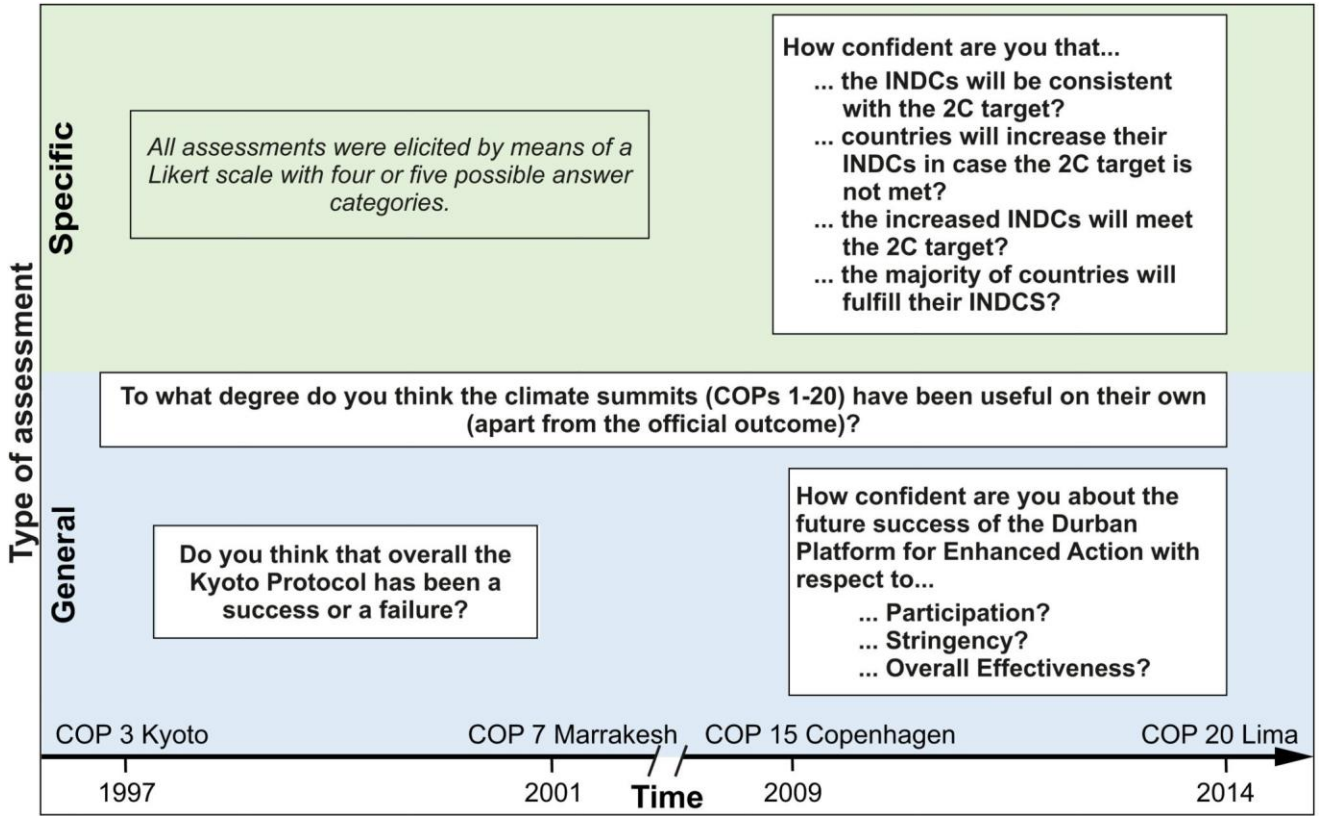


Fig. 1. Overview of outcomes that were evaluated. The vertical axis distinguishes between general assessments and specific assessments. No evaluation criteria were provided in the general assessments, so respondents had to use their own criteria. Evaluation criteria were provided in the specific assessments. The horizontal axis shows the relevant time periods. For the evaluation of the Kyoto Protocol, we consider the attendance rate from COP 3 in 1997 in Kyoto to COP 7 in 2001 in Marrakesh; for all other questions we consider the attendance rate from COP 15 in 2009 in Copenhagen to COP 20 in 2014 in Lima.

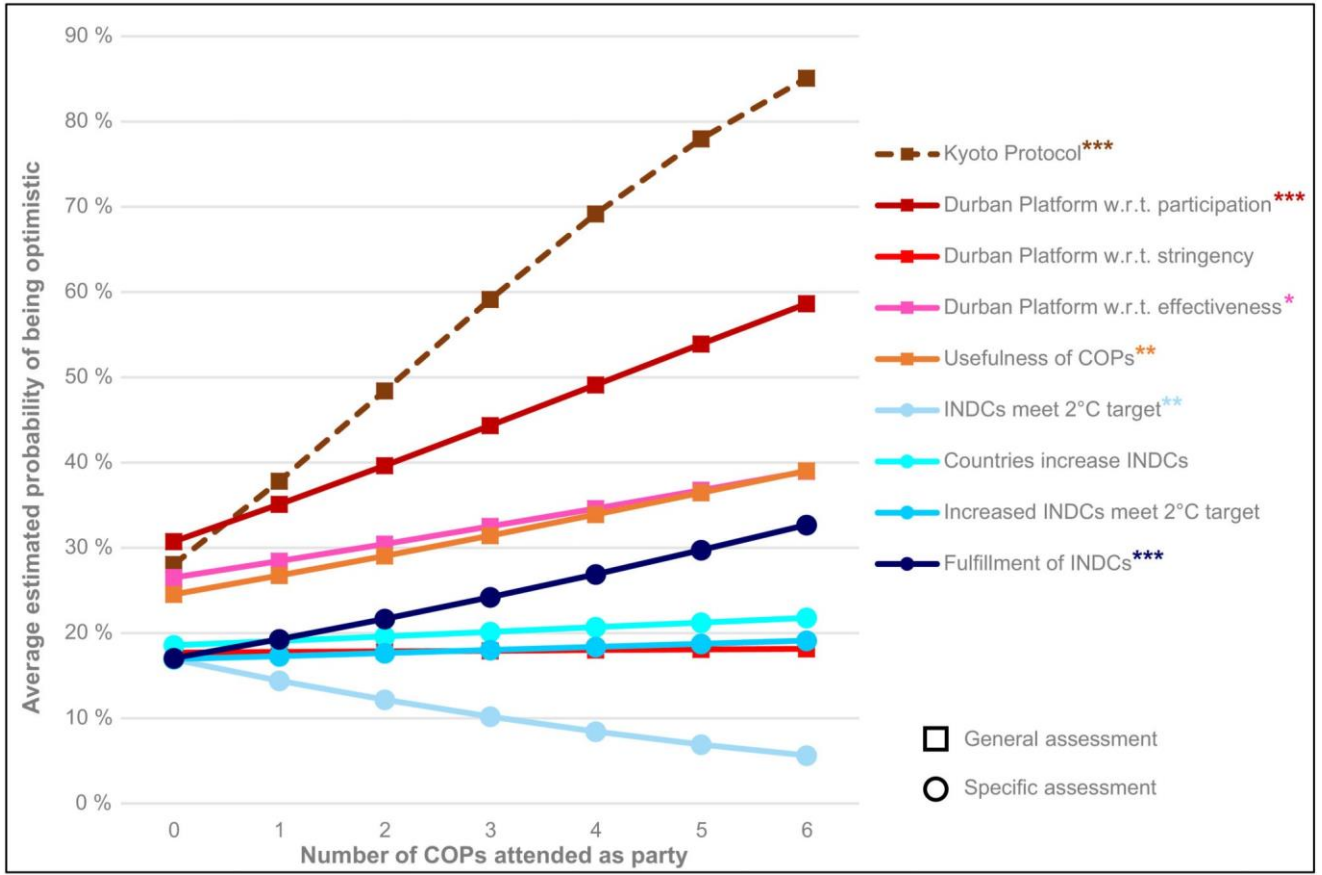


Fig. 2. The average estimated probability of being optimistic based on the number of conferences attended as party. Number of conferences refers to COPs 3-7 for the assessment of the Kyoto Protocol and to COPs 15-20 for all other questions. Solid lines apply to questions for which there are more than 350 observations with a strictly positive number of COP attendances; dashed lines apply to questions for which there are fewer than 50 observations with a strictly positive number of COP attendances. The average estimated probability clearly increases with each additional conference for all but one of the general assessment questions (indicated by a rectangular mark). For the specific assessment questions (indicated by a circular mark) the probability stays constant or decreases for all but one question. The level of significance of the average marginal effect (***) $P < 0.01$, ** $P < 0.05$, * $P < 0.1$) is shown in the legend.

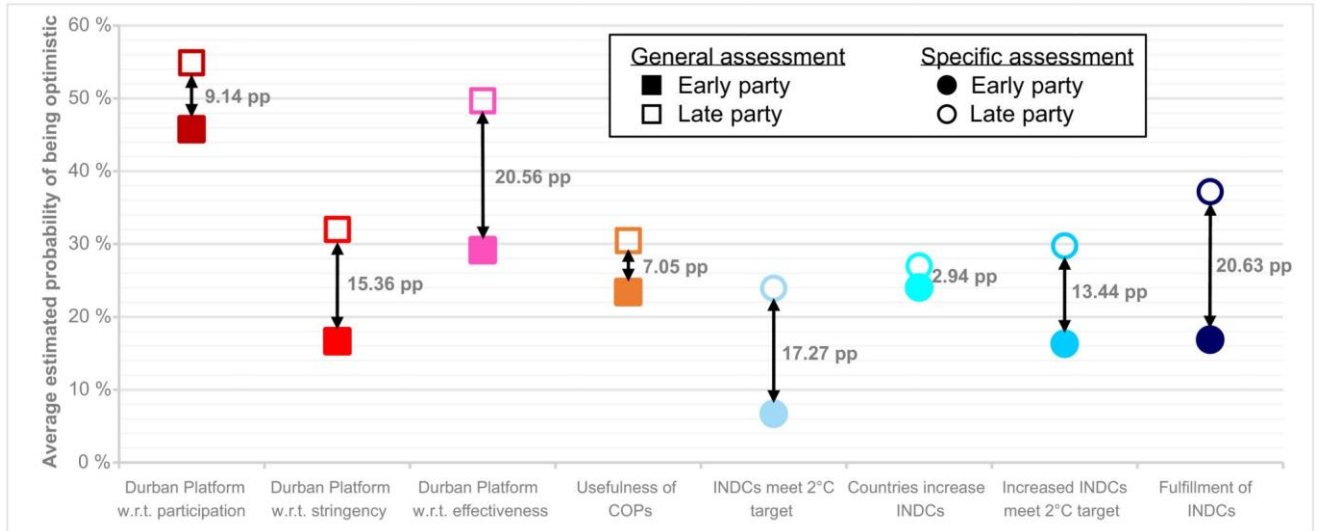


Fig. 3.

The average estimated probability of being optimistic in a subsample who attended two or three COPs as party. General assessments of the Durban Platform and the usefulness of the climate conferences are indicated by a rectangular mark; specific assessments of the INDCs are indicated by a circular mark. The figure shows the difference in the assessments by those respondents who have attended the latest two conferences (COP 20 and COP 21, “Late Party”) and those who have not attended the latest conferences (“Early Party”), controlling for the degree of involvement. The absolute difference in percentage points (“pp”) is shown next to the vertical arrows. For all assessments, “early parties” are on average less optimistic than “late parties.”

Table 1
Regression results on general and specific assessments

General assessments	Kyoto Protocol	Durban Platform			Usefulness of COPs
		Participation	Stringency	Effectiveness	
	<i>Optimistic</i>	<i>Optimistic</i>	<i>Optimistic</i>	<i>Optimistic</i>	<i>Optimistic</i>
<i>Involvement as Party</i>	.0922***	.0450***	.0007	.0200*	.0232**
	(2.6181)	(4.0997)	(.0776)	(1.8230)	(2.0141)
<i>Involvement as Observer</i>	-.0136	.0384*	-.0551***	-.0263	.0506**
	(-.3274)	(1.6695)	(-2.7504)	(-1.0660)	(2.3180)
Controls	Yes	Yes	Yes	Yes	Yes
Observations	456	550	528	551	509
Specific assessments	INDCs meet 2°C target	Countries will increase INDCs	Increased INDCs meet 2°C target	Countries will fulfill INDCs	
	<i>Optimistic</i>	<i>Optimistic</i>	<i>Optimistic</i>	<i>Optimistic</i>	
<i>Involvement as Party</i>	-.0214**	.0053	.0035	.0241***	
	(-2.4472)	(.5662)	(.3936)	(2.5956)	
<i>Involvement as Observer</i>	-.0373*	-.0020	-.0115	-.0175	
	(-1.8250)	(-.0996)	(-.6054)	(-.8471)	
Controls	Yes	Yes	Yes	Yes	
Observations	580	568	572	584	

The numbers show binary probit estimations of average marginal effects and z-values in parentheses. The models are estimated with maximum likelihood, using heteroscedasticity robust standard errors. The stochastic component in the models is assumed to be normally distributed. The dependent variable is a dummy, taking the value 1 if an individual response is categorized as optimistic and 0 otherwise. Level of significance: *** $p < 0.01$, ** $p < 0.05$, * $p < 0.1$. “Involvement as Party” is the number of COPs attended as party, “Involvement as Observer” is the number of COPs attended as observer (COPs 3-7 for the Kyoto Protocol and COPs 15-20 for all others). In addition to the shown explanatory variables, the estimations control for gender, age, trust in own intuitions, perceived importance of climate change, expected consequences of climate change, expectations about emissions reductions in the absence of an international climate agreement, field of the highest degree or training, type of current employer organization, nationality at the continent level, and level of CO₂ emissions per capita in 2013 in respondents’ country of citizenship/delegation.

Table 2
Regression results on the assessment of recent outcomes holding the degree of involvement constant

General assessments	Durban Platform			Usefulness of COPs
	Participation	Stringency	Effectiveness	
	<i>Optimistic</i>	<i>Optimistic</i>	<i>Optimistic</i>	<i>Optimistic</i>
<i>Party at latest COPs</i>	.0914	.1536*	.2056**	.0705
	(.9877)	(1.9487)	(2.4843)	(.8077)
Controls	Yes	Yes	Yes	Yes
Observations	115	102	117	99
Specific assessments	INDCs meet 2°C target	Countries will increase INDCs	Increased INDCs meet 2°C target	Countries will fulfill INDCs
	<i>Optimistic</i>	<i>Optimistic</i>	<i>Optimistic</i>	<i>Optimistic</i>
<i>Party at latest COPs</i>	.1727***	.0294	.1344*	.2063***
	(2.9509)	(.4086)	(1.8147)	(2.5946)
Controls	Yes	Yes	Yes	Yes
Observations	122	121	119	111

Regressions based on a subsample using only individuals with two or three COP attendances as party. The numbers show binary probit estimations of average marginal effects and z-values in parentheses. The models are estimated with maximum likelihood, using heteroscedasticity robust standard errors. The stochastic component in the models is assumed to be normally distributed. The dependent variable is a dummy, taking the value 1 if an individual response is categorized as optimistic and 0 otherwise. Level of significance: *** $p < 0.01$, ** $p < 0.05$, * $p < 0.1$. “Party at latest COPs” is a dummy, taking the value 1 if an individual attended COPs 20 and 21 as party and 0 otherwise. In addition to the shown explanatory variables the estimations control for gender, age, trust in own intuitions, expectations about emissions reductions in the absence of an international climate agreement, field of the highest degree of training, and nationality at the continent level.