

International Commitments and Domestic Opinion: The Effect of the Paris Agreement on Public Support for Policies to Address Climate Change

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Abstract

The Paris Agreement marked a new turn in international environmental agreements, by allowing each country to set its own non-binding goals for emissions reductions. How might purely voluntary international commitments affect domestic support for costly policies to address climate change? We investigated this question by administering survey experiments in the U.S. Our experiments supported three conclusions. First, even voluntary international commitments transformed public opinion. Public support emissions control policies was much higher in scenarios where the U.S. government had joined the Paris Agreement than in scenarios where it had not. Second, voluntary commitments were most consequential in boosting support for policies that imposed intermediate costs on the public, while having smaller effects on policies involving low or high costs. Finally, our experiments exposed the dangers of promising too much (overpledging) or too little (underpledging). These findings have important implications for the design and consequences of international agreements.

Keywords

Paris Agreement, voluntary international commitments, goal setting, public opinion, climate change

Conflict of Interest

There are no conflicts of interest.

Carbon dioxide emissions are causing temperatures to rise, with potentially catastrophic effects for the planet. In recent years, countries have attempted to address this problem by establishing international agreements. In December 2015, nearly every country in the world joined the Paris Agreement, which allows each member state to set its own goals for emission reductions. Importantly, the Paris Agreement does not impose legal or economic penalties on countries that fail to follow through. This novel approach to international environmental law has inspired diverse reactions, ranging from hope (Hale 2016) to caution (Falkner 2016, Victor et al. 2017) or profound skepticism (Dayaralna, et al. 2016).

In this paper, we investigate how voluntary commitments to the Paris Agreement affect public support for costly domestic policies. To shed light on this important question, we conducted a series of survey experiments in which we randomized the existence and intensity of future U.S. commitments to the Paris Agreement. We used the experiments to estimate how U.S. commitments affected public support for policies that varied in their impact on emissions and cost to American households.

Our experiments revealed three key findings. First, even voluntary international commitments can have powerful effects on domestic preferences. In our studies, U.S. public support for costly measures to fight climate change was much higher when the U.S. government had joined the Paris Agreement than when it had not. This conclusion was not preordained. The Paris Agreement is voluntary, with no explicit penalties when countries violate their commitments. Nevertheless, Americans across the political spectrum—Democrats, Independents, and Republicans—were far more likely to embrace costly policies when their government had made a Paris pledge.

Second, international commitments are most consequential when policies are neither too cheap nor too expensive. In our experiments, most Americans welcomed climate policies that were inexpensive, regardless of whether their government had pledged or not. Likewise, most Americans rejected climate policies with large price tags, even when their government had previously promised to take such action. But when policies involved intermediate costs, pledges created majority support for measures that most of the country would have rejected in the absence of a pledge.

Finally, our experiments exposed the dangers of promising too much or too little. When countries pledge to reduce emissions by a certain amount, they create powerful reference points that observers can use to judge policies. Governments must choose their reference points carefully. In our studies, overpledging (setting the bar too high) backfired by depressing public support for ambitious and helpful policies that

nonetheless fell short of the announced target. Underpledging (setting the bar too low) backfired, as well, by legitimizing relatively modest policies and undercutting more aggressive ones. Thus, our research exposes not only the benefits but also the risks of using international agreements to influence domestic opinion on crucial issues such as climate change.

In the remainder of the paper, we develop hypotheses about how voluntary international agreements would affect public opinion. We then test our predictions by analyzing data from three original survey experiments. We conclude by discussing the implications of our findings for future climate policy efforts, and for future research on how international pledges affect domestic politics.

Theory

The Paris Agreement is *voluntary* in two important senses. First, each member state has the freedom to propose how much, and in what ways, it will contribute to the collective goal of mitigating climate change. Earlier agreements, including the Kyoto Protocol of December 1997, imposed binding emissions targets on developed countries. The Paris Agreement, in contrast, involves “nationally determined contributions” (NDCs), i.e., targets that countries set for themselves. The Paris Agreement is also voluntary in a second crucial sense; there are no explicit enforcement mechanisms. The agreement does not stipulate any legal or economic sanctions for members that fail to achieve whatever goals they articulated.

Some view the voluntary nature of the Paris Agreement as an attractive feature. By giving each country the flexibility to set its own goals without any penalties for noncompliance, the agreement attracted the participation of nearly every country in the world, including rich countries that had previously quit or refused to ratify the Kyoto Protocol. Others, however, regard the voluntariness of the Paris Agreement as its fatal flaw. If countries can set their own emissions targets (however trivial the targets might be), and if they can ignore their own targets with impunity, why would anyone expect that the Paris Agreement to drive meaningful changes in climate policies?

Stated more generally, why might voluntary international commitments have an impact? Although voluntary commitments in the environmental domain have been prominent for years (e.g., Welch, Mazur and Bretschneider 2000, Morgenstern and Pizer 2017), they are largely unstudied by political scientists or other scholars interested in public responses to international commitments. We seek to address this gap in the literature.

There are several plausible reasons why voluntary international commitments might prove consequential. First, countries might honor their commitments out of a sense of moral responsibility or a “logic of appropriateness” (March and Olsen 1998). Many individuals would rather not commit a crime, even if there were no chance of being caught. Similarly, many citizens and government leaders might find it wrong to break international promises, irrespective of the consequences.

A second mechanism emphasizes the “logic of consequences.” Breaking a voluntary international agreement could prove costly, even if the agreement contained no legal or economic penalties for noncompliance. Most plausibly, countries could pay a reputational price for failing to meet their commitments. Observers might question whether violators could be trusted to honor agreements in the future. Violators may, therefore, have difficulty attracting partners for new cooperative endeavors, and they could experience forms of retaliation that were not specified in the agreement.

In practice, both the logic of appropriateness and the logic of consequences could operate. In the empirical sections of this article, we test whether and under what conditions the Paris Agreement has any effect, without adjudicating how much of the effect stems from concerns about appropriateness, consequences, or both.

Of course, the impact of voluntary international commitments could vary across individuals, depending on their political orientations. In the domain of climate change, it is well known that the Republican and Democratic parties in the U.S. have articulated different platforms on the topic (Dunlap and McCright 2011). The Republican party has typically pushed to reduce regulations on fossil fuels, while the Democratic party has called for stiffer regulations aimed at reducing carbon dioxide emissions. Researchers have found analogous differences in opinion between individuals belonging to the two parties (Dunlap and McCright 2008).

Given these differences in preferences, would we expect the impact of voluntary international commitments to vary by political party affiliation? On the one hand, one might surmise that the Paris Agreement would have a bigger effect on Democrats than on Republicans, due to differences in policy preferences. The Republican party currently opposes tougher environmental regulations, and achieving those policies might seem a higher priority than honoring international climate pledges. On the other hand, the logics of appropriateness and consequences discussed earlier might resonate

with all individuals. If so, voluntary commitments could prove influential for citizens across the political spectrum.¹

Cost as a Constraint and a Moderator?

It is well known that individuals are sensitive to costs, not only when they behave as consumers in the marketplace, but also when they consider government policies. Apropos to this study, previous research has found that support for a cleaner environment is higher when there are lower costs associated with policies to achieve that goal (Kotchen, Boyle and Leiserowitz 2013, Layton and Brown 2000, Aldy, Kotchen and Leiserowitz 2012). And while not the primary focus of the Bechtel and Scheve (2013) article on what kinds of international environmental agreements citizens would support, cost was clearly the most impactful variable in their study.

What has gone largely uninspected, to our knowledge, is how the impact of an international agreement on support for domestic policies might vary, depending on the costliness of the policies under consideration. Would the presence of an international agreement make citizens more or less sensitive to whatever costs the policy would impose? Would the effect of international commitments be strongest for policies with low, moderate, or high costs?

One might expect agreements to have their biggest effects when policies are neither too cheap nor too expensive. When the costs of a policy are low, citizens might be willing to pay the costs, even in the absence of an international pledge. When the costs of a policy are high, on the other hand, citizens might be unable or unwilling to pay, regardless of whether their government made a commitment or not. For intermediate levels of cost, in contrast, the fact that the government made an international pledge could prove decisive in leading individuals to support the policy.

A countervailing logic could be possible, however. Suppose the public was generally reluctant to support policies with heavy price tags. In just those circumstances, an

¹ Other work suggests that the impact of international commitments can vary, depending on the strength of policy preferences. In his study of international trade, for example, Chaudoin (2014) shows that the impact of an international commitment was operative only on individuals who had unformed opinions about international trade. Proponents and opponents stood firm in their views, on average, in light of new information about international trade commitments. This more informational/preference intensity account of heterogeneous responses differs from what we consider in this paper.

international commitment may supply the necessary “nudge” to get the public to approve. We test these possibilities later in the paper.

Overpledging and Underpledging

Finally there is the question of what impact the *level* of commitment has on support for policy. One starting point for how to think about these questions is the literature in behavioral economics on reference dependent preferences (e.g., Kőszegi and Rabin 2008, Hsiaw 2013). Early work in behavioral economics posited the importance of reference points in decision-making (Kőszegi and Rabin 2008).² Subsequent work considered the connection between goal setting and reference points (e.g., Hsiaw 2013, Hsiaw and Harding 2014). In economic models, goal setting helps individuals solve commitment problems by creating reference point dependence, thereby exposing actors to disutility for failing to live up to their commitments.

One can apply this logic to climate politics. Individuals can judge government policies not only based on the distance between a proposal and their own “ideal point” (preferred level of emissions reduction), but also based on the distance between a proposal and reference points their government might have established by making international commitments.

In this context, it is interesting to consider the potential effects of “underpledging” or “overpledging.” Would setting a high goal--making a large commitment--increase support for greater policy change, or could an ambitious goal backfire by discrediting otherwise helpful proposals that would fall short of the pledge? Would a modest goal make people more willing to undertake ambitious policy changes, or would it sap motivation to do anything more than what the pledge required?³ To our knowledge, the

² Work in the prospect theory tradition (Levy 1997, McDermott 2001) uses reference points to define whether a change would be in the domain of losses or gains.

³ A related question is whether setting lower goals that are more likely to be reached could help facilitate making incremental progress (Falkner 2016, Weitzmann 1980, Rajamani 2016, Aldy et al 2016). This type of “ratcheting up” over time could be one way that countries can make further cuts in emissions. However, if initial pledges were set too high, then support could erode even for more modest policies that, while not achieving the pledge, would still have made some progress. Another analytical question around goal setting is how to optimally set medium versus long term goals, given reference dependence (Hsiaw 2018). In some contexts, evaluating progress on a project too soon can be debilitating for a reference dependent actors. Given the structure of the Paris agreement, where goals are incrementally evaluated, these literatures may be helpful to future research.

literature has not yet addressed these questions. We explore them empirically through the use of survey experiments.

Methodological Challenges and the Role of Micro-level Experiments

Of course, we are not the first to study the consequences of international agreements. A long literature in political science uses historical data to investigate how international agreements affect state behavior across many policy areas, from trade to human rights to the environment (for a review, see Simmons 2010; examples relating to environmental policy include Barrett 2003, Mitchell 2003). Scholars have hypothesized a variety of mechanisms through which international agreements might influence domestic policy. These include mobilizing domestic interest groups (Finnemore and Sikkink 1998; Keck and Sikkink 1999), creating norms, and providing signals about attributes of governments and about the correct policy choices a country should make (e.g., Bearce and Cook 2018).

It is, however, challenging to establish a clear causal link between international agreements and subsequent state behavior (see discussions in Chaudoin, Hays, Hicks 2018, von Stein 2005, Simmons and Hopkins 2005). One complication is that the choice to join an international agreement is endogenous, making it difficult to measure whether joining has a positive, negative, or neutral effect. Furthermore, numerous domestic and international economic forces affect policy, making it difficult to separate the effects of agreements from other confounding variables.

In light of these methodological problems, researchers have begun using survey experiments to study how international commitments affect public support for domestic and foreign policies (e.g., Kreps and Wallace 2016; Tomz 2007, 2008; Wallace 2013; Chilton 2015, Chilton and Versteeg 2016). In these types of studies, participants read a vignette in which the researcher has randomized the presence or absence of an international commitment. By comparing how citizens respond to these different contexts, one can estimate how international commitments affect public opinion. We employ this empirical strategy to study the impact of the Paris Agreement.⁴

⁴ Another important branch of the literature on international agreements considers how the design of the agreement itself influences support for the agreement (Bechtel and Scheve 2013, Kim, Milner, et. al. forthcoming). Our study is best thought of as sitting between work that examines the impact of international commitments involving explicit obligations and the large literature on audience costs, which looks at the effect of inconsistency between claims made by politicians and actual policy (Tomz 2007, Brutger and Kertzer 2016).

Design of Experiment 1

To study whether and how a Paris pledge could work, we embedded experiments in surveys that we administered to representative samples of adults in the United States in November-December 2018. We randomly assigned some respondents to consider a hypothetical future in which the U.S. had joined the Paris Agreement and pledged to reduce emissions. Others considered a hypothetical future in which the U.S. refused to join the agreement and refrained from making a pledge. We then measured opinions about various policy options.

Our study focused on the U.S. for several reasons. First, the U.S. emits more carbon than any country other than China, and U.S. carbon consumption per capita is among the highest in the world. To address global climate change, then, it is important to understand under what conditions Americans would support costly action to curtail their own emissions. Second, in June 2017, President Donald Trump announced that the U.S. would withdraw from the Paris Agreement. Trump's decision opened a unique research opportunity: the ability to construct some vignettes in which the U.S. remained outside the agreement and others in which a future administration (re)joined the agreement.

In the remainder of this section we describe Experiment 1. This initial experiment served as a template for two follow-up experiments, described later in the article.

In Experiment 1, all respondents read the following preamble.

The Paris Agreement is an international agreement about climate change. Every country that joins the agreement promises to contribute to the worldwide goal of fighting climate change, by developing and carrying out a plan to reduce its emissions of carbon dioxide as quickly as possible.

The Paris Agreement does not specify any legal or economic penalties for countries that violate their promises to reduce emissions.⁵

⁵ Half of the preambles included this sentence, followed by an attention check to confirm that respondents understood this fact. The other half did not contain this sentence. Our estimates remained the same whether this sentence was included or not. Thus, throughout the article, we maximize statistical power by pooling respondents who received this sentence with respondents who did not.

In the future, the U.S. government must decide whether to join the Paris Agreement and whether to pass new laws to reduce U.S. emissions of carbon dioxide. On the following screens, we will describe one approach the U.S. government could take in the future and ask whether you approve or disapprove.

We then randomly assigned respondents to one of two conditions: the *Pledge* condition or the *No Pledge* condition. In both cases, we included attention checks to confirm that respondents comprehended the treatment. The *Pledge* condition said:

In 2021, the U.S. government announced that it would join the Paris Agreement. When it officially joined later that year, the U.S. said: “As a member of the Paris Agreement, we pledge to reduce U.S. emissions of carbon dioxide by 25% within ten years.”

We selected a target of 25% for two reasons. First, it resembled the original commitment the U.S. made in 2015, when President Barack Obama pledged to slash U.S. emissions between 26 and 28% by the year 2025. Second, other countries have made pledges of similar magnitudes, with similar time frames.⁶

In contrast, the *No Pledge* condition said:

In 2021, the U.S. government announced that it would not join the Paris Agreement. The U.S. said: “We will not become a member of the Paris Agreement, and we do not pledge to reduce U.S. emissions of carbon dioxide.”

After reading whether the U.S. had pledged or not, we enjoined: “Assuming that happened, we would like to know what you think the U.S. government should do next.”

We then asked respondents to compare two options, which we called Policy A and Policy B. One option would reduce emissions by 25%; the other would maintain the status quo.⁷ The sentences in brackets, which refer to the U.S. pledge, were administered only in the Pledge condition.

⁶ Later in this article, we describe a follow-up experiment in which we randomized the ambitiousness of the U.S. pledge.

⁷ We randomized which option was A and which one was B, but our conclusions did not depend on the ordering.

Policy A: Pass new laws that would reduce emissions by 25% and increase household energy costs by \$32 per month. [This policy would honor the pledge the U.S. had previously made to reduce emissions by 25%.]

Policy B: Do not pass any new laws to reduce emissions. This policy would not affect emissions, and it would not affect energy costs. [This policy would violate the pledge the U.S. had previously made to reduce emissions by 25%.]

After presenting a table that summarized the two policies, we asked members of the Pledge condition: “Assume the U.S. government joined the Paris Agreement and pledged to reduce emissions by 25%. Which policy would be better to do next?” Likewise, we asked members of the No Pledge condition, “Assume the U.S. government did not join the Paris Agreement and did not pledge to reduce emissions. Which policy would be better to do next?” The options were “Policy A would be much better, Policy A would be slightly better, Policy B would be slightly better, or Policy B would be much better.”

After measuring preferences over those two options, we introduced a third possibility, which we called Policy C. As before, the sentence in square brackets appeared only to respondents in the Pledge condition.

Policy C: Pass new laws that would reduce emissions by 10% and increase household energy costs by \$10 per month. [This policy would violate the pledge the U.S. had previously made to reduce emissions by 25%.]

We then asked respondents to choose between Policy A and Policy C, and between Policy B and Policy C.⁸

Two features of this experimental design deserve special mention. First, the design separated the initial decision about joining the Paris Agreement from subsequent decisions about emission-control laws. We randomized whether the U.S. had made a Paris commitment or not, and traced the downstream effects of that decision on support for costly policies that would reduce emissions. Second, the experimental design required participants to choose between pairs of policies. This task simulated the kinds

⁸ After asking respondents to choose between policy options, we asked them to rate each option on a scale from 0 to 10. In the article, we analyze the choices respondents made, but our conclusions remained the same when we analyzed their ratings, as well.

of tough choices leaders and citizens will need to make in the future, while also increasing attentiveness and data quality.⁹

Findings from Experiment 1

We now summarize the findings from our first experiment. The top portion of Figure 1 shows how people responded to the choice between cutting emissions by 25% or taking no action. In the *No Pledge* condition, a majority (64%) opted to cut emissions, despite reading that such action would increase energy costs for the typical American household by \$32 per month. Support for action was even higher (78%) when the government had previously made a Paris pledge. In our experiment, pledging increased public support for action by 14 percentage points.

⁹ Hainmueller, Hangartner, and Yamamoto (2015) find that paired designs, in which respondents evaluate two options side-by-side, produce responses that most closely resemble how people would choose if they confronted such choices in the real world.

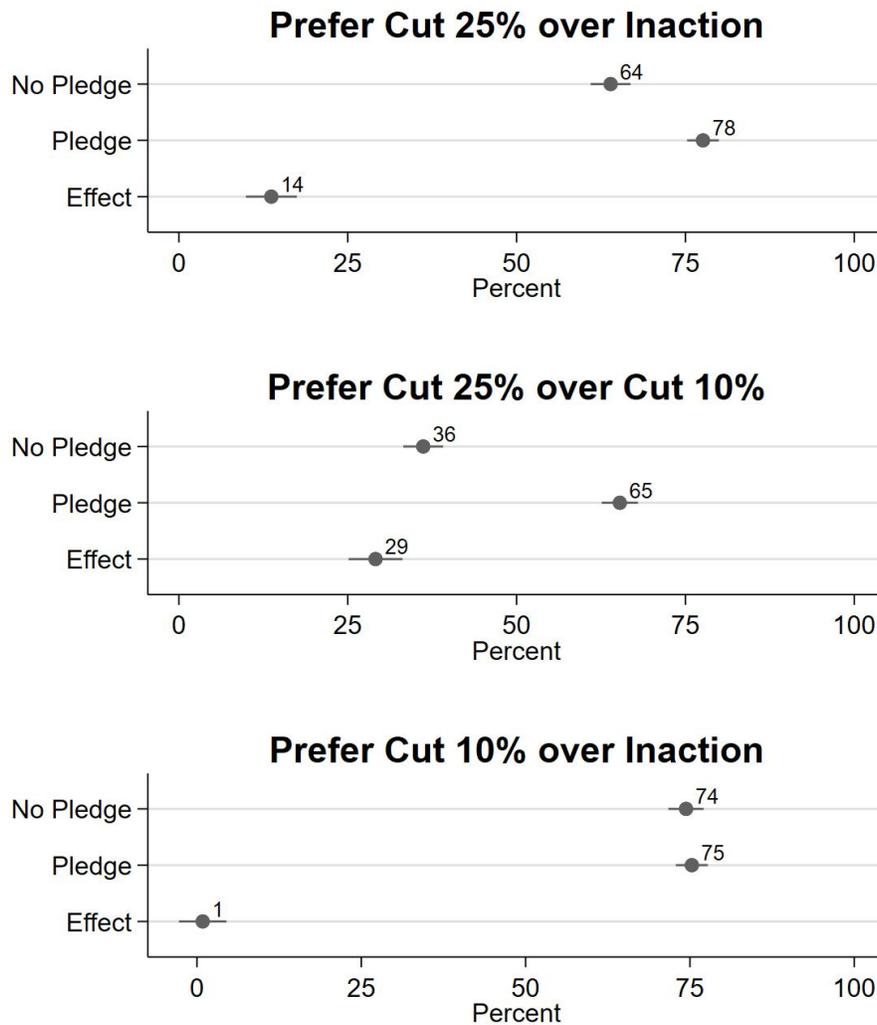


Figure 1: Effect of Pledge on Policy Preferences

This pattern reveals several important features about the politics of climate change in the United States. Notably, most Americans would support costly action to mitigate climate change, even if the U.S. remained outside the Paris framework. Nevertheless, making a pledge could enlarge this majority, even though the Paris Agreement specifies no legal or economic penalties for countries that violate their verbal commitments.

The middle graph summarizes how respondents chose when considering whether to cut emissions by 25% at a cost of \$32 per month, or cut emissions by only 10% at a cost of \$10 per month. When the government abstained from Paris, scarcely more than a third of citizens preferred the more ambitious action. When the government entered the agreement and promised to cut emissions by 25%, however, nearly two-thirds of

Americans embraced this more significant change in policy. In our study, joining the Paris Agreement boosted support for emissions cuts of 25% by 29 percentage points, transforming a clear minority into a clear majority.

This pattern, too, has important implications for climate politics. Although most Americans want to do something about climate change, they do not instinctively incline toward the more substantial—and costly—options. Most would prefer modest action at a modest price over more substantial action at a higher price. In light of such preferences, an ambitious pledge could productively shift public opinion from cheaper policies that would fall short of the pledge, toward costly policies that would honor the pledge.

The bottom portion of Figure 1 summarizes reactions to the final policy pairing: cutting emissions by 10% versus eschewing action entirely. Roughly three-quarters of respondents preferred the 10% option even with the price tag of \$10 per month. Here, the Paris Agreement had no effect: citizens were just as likely to support a 10% cut whether they were told that the U.S. had made a Paris pledge, or whether they were told that the U.S. would not join the agreement.

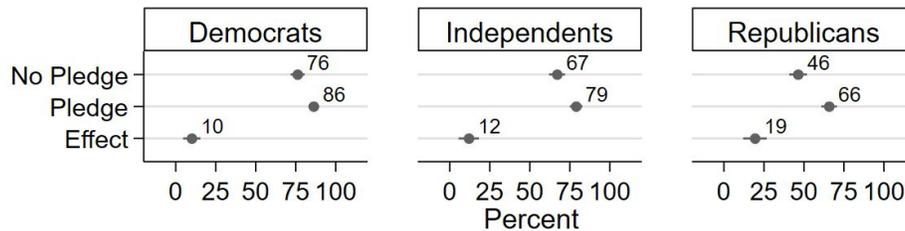
We can gain additional insights by comparing the three graphs in Figure 1. In the top and bottom graphs, a majority of citizens favored action over inaction, even in the absence of a Paris pledge. Nevertheless, the size of the majority declined with the costliness of action. Faced with a choice between cutting emissions or not, 74% of citizens preferred cuts that would cost \$10 per month (bottom graph), but only 64% preferred cuts that would cost \$32 per month (top graph). Later in this article, we treat the question of cost more thoroughly by analyzing a follow-up experiment in which we varied the costs of policies while holding their effects on emissions constant.

The data also qualify our findings about the effects of Paris. Pledging to reduce emissions by 25% increased support for a policy that did exactly that, compared to a policy that did nothing (inaction, in the top graph) or fell short of the pledge (cut 10%, in the middle graph). In contrast, pledging to reduce emissions by 25% did not alter how the public thought about doing nothing versus cutting by 10%. This null finding suggests that the effect of a pledge may vary, depending on whether the pledge is more or less aggressive than the policies being compared. We develop this idea later in the article by presenting follow-up experiments that randomize the strength of the pledge relative to the policy options.

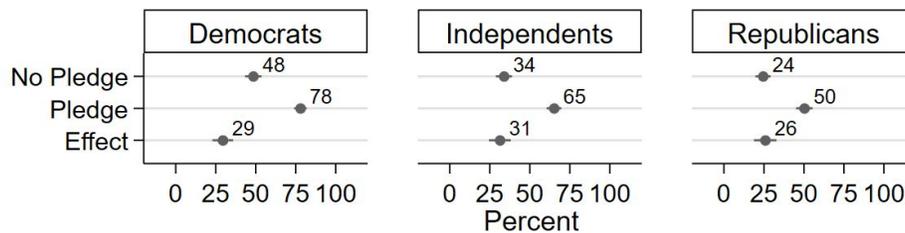
We conclude our analysis of the first experiment by testing whether our main conclusions held not only in the population as a whole, but also by political party. Figure

2 splits the sample into Democrats (36% of the sample), Independents (34% of the sample), and Republicans (30% of the sample).

Prefer Cut 25% over Inaction



Prefer Cut 25% over Cut 10%



Prefer Cut 10% over Inaction

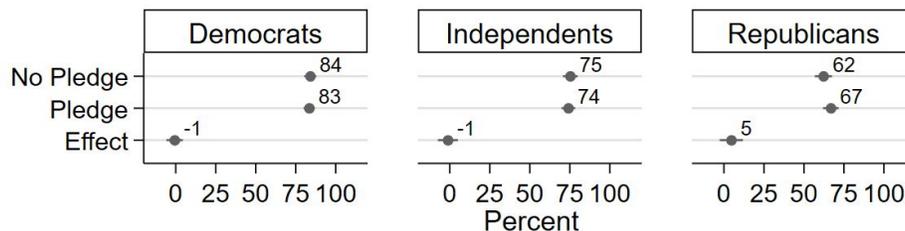


Figure 2: Effect of Pledge on Policy Preferences, by Party

The first row of graphs shows how members of each partisan group chose between cutting emissions by 25% and refraining from passing new laws. In the *No Pledge* condition, support for action was highest among Democrats (76%), intermediate among Independents (67%), and lowest among Republicans (46%). This pattern is consistent with earlier work, which found that support for controlling emissions declines as one moves from left to right across the American political spectrum (Dunlap and McCright 2008, 2011).

Although support for action varied by party, the pledge proved consequential for all three groups. When choosing between a costly policy of reducing emissions by 25% or no policy at all, the existence of a U.S. government pledge increased support for the 25% cut option by 10 percentage points among Democrats, 12 percentage points among Independents, and a remarkable 19 percentage points among Republicans. These treatment effects created a Republican majority for costly action, while strengthening the preexisting majorities among Democrats and Independents. Overall, the first row of graphs in Figure 2 confirms that pledges shape opinion not only in the aggregate, but also within each partisan group.

The second row of graphs in Figure 2 considers the choice between 25% cuts and 10% cuts. As before, policy preferences varied predictably by political party. Nevertheless, in the *No Pledge* condition, a policy of 25% cuts failed to garner a majority in any of the three political groups. Even Democrats, traditionally the strongest proponents of climate action, preferred the less costly alternative of cutting emissions by only 10%. Here again, the Paris pledge transformed opinion in all three groups; it manufactured majorities among Democrats (78%) and Independents (65%), while making Republicans collectively indifferent between the 25% and the 10% options.

Finally, the third row of Figure 2 shows how respondents weighed the choice of inaction versus cutting emissions by 10%. Although the desire for action was strongest among Democrats, majorities in all three groups preferred 10% cuts to doing nothing. Moreover, support for action remained roughly the same, regardless of whether the government had or had not pledged to reduce emissions by 25%. Thus, despite differences in partisan preferences over climate policies, our main conclusions about the Paris Agreement held not only in the aggregate, but also within each political subgroup.

Experiment 2

To better understand public support for costly action on climate change, we fielded a follow-up experiment that repeated our original design but varied the cost of the policy that would reduce emissions by 25%. We randomized whether laws to curtail emissions by 25% would increase energy costs for the average household by \$16, \$32, \$64, or \$128 per month. All other features were identical to experiment 1, including the stipulation that cutting emissions by 10% would cost \$10 per month and that inaction would not affect either emissions or energy prices.

Figure 3 shows how support for a policy to reduce emissions by 25% varied as function of the pledge and as a function of costs. The top row of graphs reveals that most participants in the *No Pledge* condition preferred the 25% reduction option over inaction, even when cutting emissions would impose significant economic burdens on American households. As expected, though, costs caused enthusiasm to wane, from 68% when action would cost \$16 per month, to only 52% when action would cost \$128 per month.

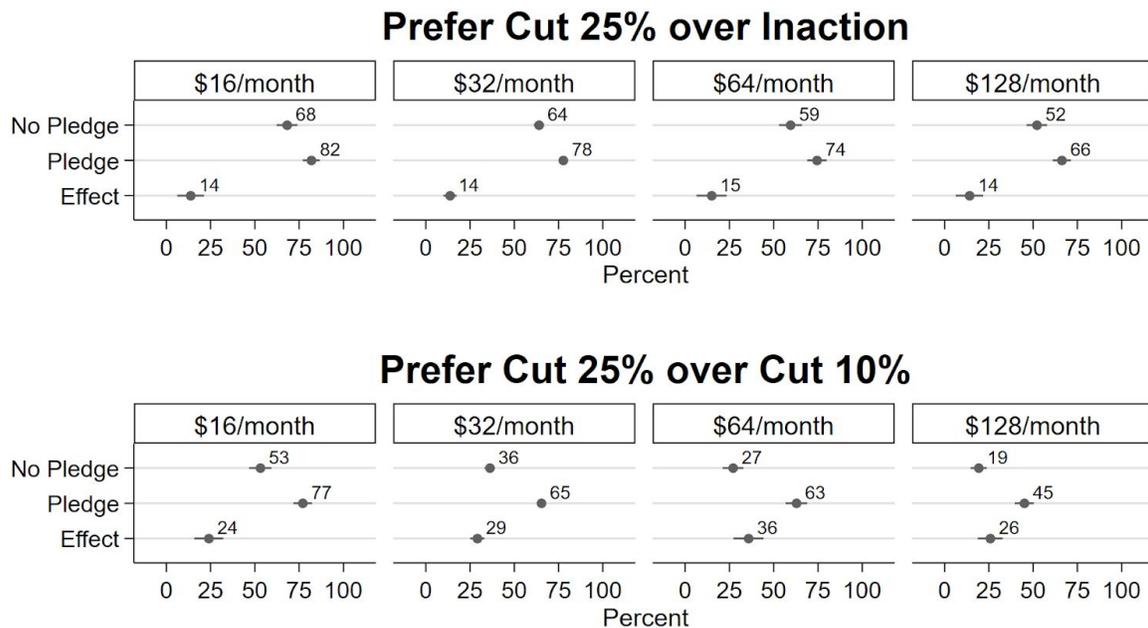


Figure 3: Effect of Pledge, by Cost of Cutting Emissions by 25%

Although costs undermined support for action, they did not moderate the effect of the pledge on the choice between inaction and a 25% reduction. In our study, a U.S. government pledge caused the pro-action coalition to swell by 14-15 percentage points, regardless of whether action would cost as little \$16 or as much as \$128. Earlier, we hypothesized that the pledge might be most potent for policies that would involve intermediate costs. The top row of graphs in Figure 3 does not support this hypothesis, at least for the range of costs we considered.

The bottom row of graphs in Figure 3 corroborates our findings about sensitivity to costs. We asked respondents to choose between 25% cuts, which varied in cost, and 10% cuts, which always cost \$10 per household. Given this menu, most respondents were willing to pay \$16 per month for the more ambitious option, but as costs escalated, support for 25% cuts plummeted. In our study, only 27% would tolerate a cost of \$64 per month, and only 19% would countenance \$128 per month.

The bottom row of graphs in Figure 3 also suggests that the political consequences of pledges might be largest for policies that are neither too cheap nor too dear. When the 25% reduction policy would cost \$16 per month, most citizens favored that option even without the pledge. Conversely, when achieving a 25% reduction would cost \$128 per month, a majority rejected that option even in the presence of a pledge. In both cases, the pledge shifted opinion but did not transform a minority into a majority.

The political implications were more dramatic for policies with intermediate costs. When we presented the 25% reduction policy as costing either \$32 or \$64, a majority of citizens in the *No Pledge* condition rejected that option. At those same cost levels, most citizens in the *Pledge* condition embraced the 25% option. Thus, for costs of \$32 and \$64, the pledge manufactured majorities where none had existed previously. To the extent that policy in democracy reflects--or aspires to reflect--the will of the majority, our experiments suggest that pledges might make the biggest political difference for policies whose costs are neither too low nor too high.

Experiment 3

In the first two experiments, the U.S. government either eschewed the Paris Agreement or pledged to reduce emissions by 25%. We found that this particular pledge increased support for cutting emissions by 25%, but did not make citizens more likely to choose the 10% cuts option over the status quo (a three-quarters majority expressed this preference regardless of pledge condition). These patterns suggest that the effectiveness of a pledge may depend on whether the pledge was more ambitious, less ambitious, or in sync with the policies being considered.

To explore this possibility, our third experiment randomized the level of emissions reductions the U.S. promised to achieve. Some respondents read a scenario in which the U.S. committed to reduce emissions by 10%. Others received a vignette in which the U.S. promised to curtail emissions by 30%. All other aspects of the experimental design remained the same as in experiment 1, including the three policy options and their associated costs.

By combining the data from this experiment with the data from experiment 1, we were able to infer how the ambitiousness of the pledge affected preferences over policies. Figure 4 summarizes the choices citizens made when the government refused to pledge, and when the government pledged to slash emissions by 10%, 25%, or 30%.

The top graph in Figure 4 reveals a distinct “inverted-C” pattern. The share of citizens who preferred a 25% cut over inaction was highest when the U.S. pledged either 10% or 25%. What accounts for this pattern? Promising 10% increased support for action by accentuating the distinction between a 25% cut (which would have honored the pledge) and inaction (which would have violated the pledge). Promising 25% accentuated the same distinction and evoked the same response. Promising 30% backfired, however, by eroding the distinction between the two options, both of which would have abrogated the pledge. Thus, the top graph in Figure 4 illustrates the dangers of overpledging.

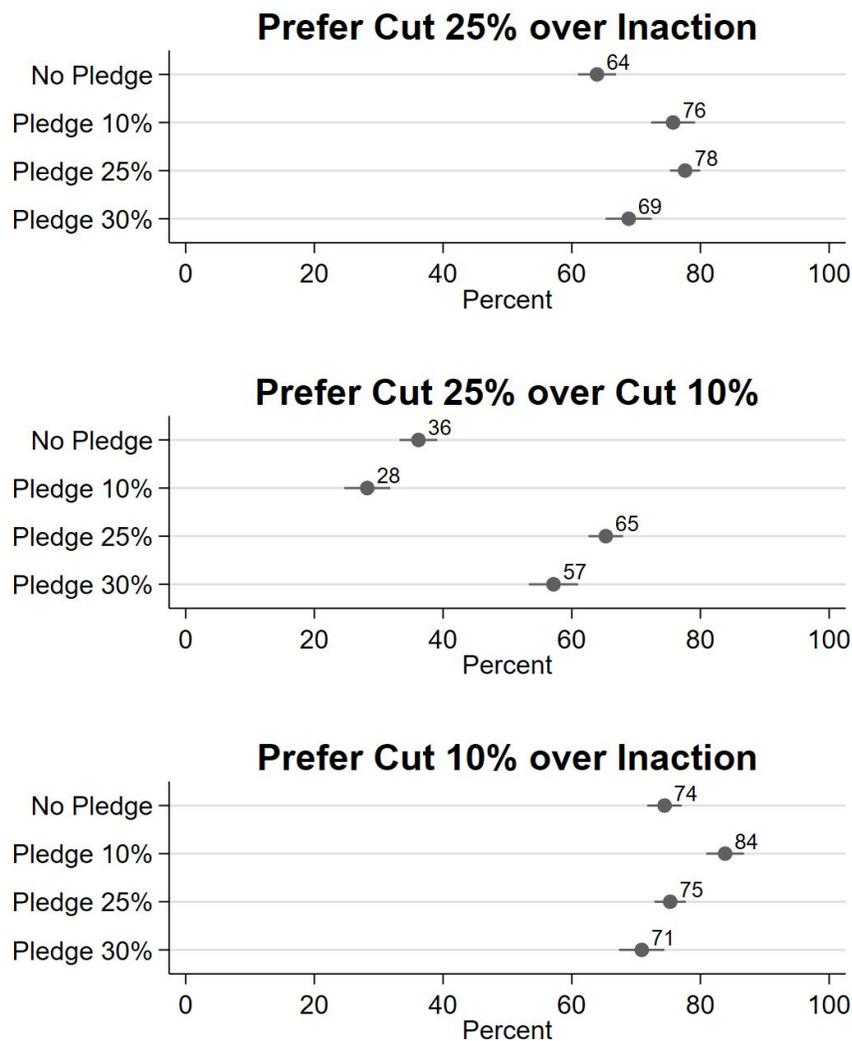


Figure 4: Support for Policies, by Ambitiousness of Pledge

The middle graph of Figure 4 demonstrates the dangers of underpledging. Absent a pledge, 36% of respondents preferred the policy that cut emissions by 25% over the policy that cut emissions by 10%. Relative to this baseline, pledging 10% proved counterproductive. By promising to curtail emissions by 10%, the government created a reference point that validated just such a policy, causing support for more ambitious action to decline by 8 percentage points. Ironically, if the goal is to galvanize public support for deep reductions in emissions, our experiment suggests that modest pledges may be worse than no pledges at all.

As expected, pledging 25% proved far more productive. By driving a wedge between the 25% option (which would have honored the commitment) and the 10% option (which would have violated the commitment), this pledge led nearly two-thirds of the nation to embrace the more ambitious option. Finally, the middle row of Figure 4 reconfirms that overpledging has downsides. By establishing a lofty reference point that neither policy satisfied, the 30% pledge actually resulted in less support for the 25% option than what we observed when the government pledged only 25%.

The bottom graph of Figure 4 considers the choice between 10% cuts and the status quo. Here, too, we observe an “inverted C.” Public willingness to cut by 10% was strongest when that policy would satisfy the pledge while inaction would not. Overpledging completely erased the effect, however, by creating a scenario in which neither alternative met the announced benchmark.

These findings have profound implications for the political dynamics of pledges. In our study, public support for cutting emissions by 25% was highest when the government pledged precisely that amount. One might think it would be politically prudent to pledge less and subsequently aspire to exceed the benchmark; or to pledge more, with the understanding that actual policies might fall short of the official target. Instead, we found that both underpledging and overpledging reduced support for 25% cuts by blurring the distinction between that policy and the alternatives.

Our findings may also rationalize the “ratcheting” provisions in the Paris Agreement. Instead of issuing a single, once-and-for-all pledge, members of the agreement set initial emissions targets, with the option of making more ambitious pledges (ratcheting upward) in the future. By giving countries the flexibility to strengthen their pledges down the road, the Paris Agreement weakens the temptation to overpledge now while creating space for more ambitious targets in the future.

Conclusions and Future Research

How do international commitments affect domestic politics? We explored this question by investigating how the Paris Agreement affects domestic support for costly emission control policies.

Our experiments produced three main conclusions. First, voluntary international agreements can have powerful effects on domestic preferences. Participants in our experiments were far more likely to support emission control policies when the U.S. had joined the Paris Agreement than when it had not, even though the Paris Agreement does not specify legal or economic penalties for failing to comply. Thus, ostensibly unenforceable international pledges can actually transform the domestic political landscape.

Second, international commitments exert their biggest effects on policies that are neither too expensive nor too cheap. In our studies, respondents rejected policies that entailed heavy costs, regardless of whether or not their own government had previously pledged. Respondents also embraced inexpensive policies, not only when their government pledged but also when it refrained. Agreements made the biggest difference when costs fell in the intermediate range, by causing citizens to accept policies they would otherwise reject. This finding has important implications for understanding not only whether but also when voluntary international agreements are most likely to matter.

Finally, our experiments underscored the risks of setting the bar at the wrong level. Setting the bar too high backfired by depressing public support for policies that would make a real difference but fall short of the lofty, unattainable pledge. Setting the bar too low had its own perverse effects, by obscuring the distinction between modest actions and more ambitious ones. To get the most out of international commitments, governments must calibrate their promises carefully, pledging no more nor less than they hope to achieve.

The experimental methods in this paper could be adapted to study other features of international agreements. For instance, some have hypothesized that governments and NGOs enforce voluntary agreements by threatening to “name and shame” noncompliers. In a separate paper (Authors 2019), we test this hypothesis by using experiments to estimate how international naming and shaming affects domestic support for climate policies.

Experiments could also reveal whether international pledges make citizens more or less likely to condition their behavior on the conduct of other nations. Prior research has shown that citizens are more likely to support environmental action when other countries do the same (Bechtel and Scheve 2013; Tingley and Tomz 2014; Bernauer and Gampfer 2015; Chilton, Milner and Tingley forthcoming). It is less clear whether international pledges amplify or dampen this reciprocity mechanism. On the one hand, citizens might not feel bound by the Paris Agreement if other parties fail to comply. On the other hand, pledging could create normative and/or consequentialist reasons for the government to keep its word, regardless of what other countries do. Future experiments could help resolve this debate.

Finally, researchers could use experiments to study how citizens respond to variation in who bears the costs of international commitments. Our experiments indicated how various emission control policies would affect the monthly energy bills of average American households. A common refrain, however, is that other actors should foot the bill for transitioning to a greener economy. How would international agreements affect support for policies if the costs fell primarily on high earners, large corporations, or the U.S. government? How might the distribution of costs affect public support for environmental policies more generally? These are important questions for future research.

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