

Public support for national vs. international climate change obligations

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ABSTRACT

To achieve the goals of the Paris Agreement, much will depend on how governments implement future progression toward more ambitious climate policy. While there is research on the acceptance of international climate policy or specific national policy instruments, we know comparatively little about public support for internationally pledged national emissions targets. We are thus interested in the causal effect of framing government policies aimed toward emission reductions as either national or international obligations. Can policymakers increase support by leveraging one or the other? Our results from a survey experiment in Switzerland indicate that while international frames improve target evaluation, substantive effects are small and we effectively report null findings for our main framing treatments. Eliciting the international obligation may nevertheless be regarded as an advisable strategy for policymakers as it significantly improves young peoples' evaluation of emission targets and also makes less climate-conscious respondents more supportive of the reduction target.

KEYWORDS Climate change policy; emission targets; framing; Paris Agreement; public opinion; survey experiment

Introduction

After years of gridlocked international negotiations and many failed attempts to demand global accountability, the 2015 Paris agreement emerged from within the UNFCCC as the current multilateral mechanism to combat global climate change. This agreement relies on nationally-determined contributions (NDCs) to flexibly design domestic policy solutions for the global fight against the climate crisis. Within their NDCs, nations pledge climate policies that are supposed to progress (i.e., increase in stringency) over time to collectively reach the goal of preventing global temperatures from exceeding

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a maximum of 2°C above pre-industrial levels (UNFCCC, 2015, Article 2). Nation states are the actors that ultimately need to address global climate change with ever-increasing levels of stringency if they want to avoid ever more dangerous and irreversible consequences.

While the global pandemic has silenced climate change protests to some extent, events linked to global warming – extreme weather, such as the record-level temperatures in the western part of the U.S. in 2020, summer flooding in Germany in 2021 or the summer 2022 heatwaves in Europe – have not vanished. The impacts of climate change are happening globally and at an increasing pace. Moreover, scientific evidence (e.g., UNEP Emissions Gap report 2019, IPCC 2018) suggests that climate policy efforts implemented so far will massively overshoot the 2°C Paris Agreement target.

To bring global efforts back on track, much will depend on how governments implement and communicate future progression toward more ambitious climate policy in the next decade. One of the most important aspects of the NDCs are the numerical emission targets countries commit to reach within a given period (Tobin et al., 2018). These national emission targets are important both at the international and national level. First, at the international level, national emission targets signal how each nation intends to contribute to the collective effort of the international community to combat global warming. Second, on the national level, targets are communicated to the domestic public and provide a concrete yardstick against which governments can be held accountable by the public or interest groups (Jacquet & Jamieson, 2016; Tingley & Tomz, 2020).

An emerging literature in international and comparative climate change politics seeks to describe and categorize differences in the ambition of these emission targets (du Pont & Meinshausen, 2018; Holz et al., 2018; Pan et al., 2017; Rowan, 2019; Tobin et al., 2018) or tries to explain these differences with respect to domestic political institutions (Tørstad et al., 2020). Others (Leinaweaver & Thomson, 2021) consider NDCs as political documents that serve both as commitment toward the international community, but also as negotiation positions in ongoing national or international negotiations. In our contribution, we add to the scholarly debate on emissions targets in the context of the Paris Agreement, but focus on public perception of targets within the national sphere. Hence, our article speaks to research on public opinion towards climate policy in democratic political systems. While studies into the public perception of climate change policy have been concerned with the acceptance of multilateral climate policy (Bechtel & Scheve, 2013; Bernauer & Gampfer, 2013; Gampfer et al., 2014) or specific national climate policy instruments (Beiser-McGrath & Bernauer, 2019; Rinscheid et al., 2020; Stokes & Warshaw, 2017; Umit & Schaffer, 2022), we still know comparatively little about public support for nationally determined

contributions, especially with respect to emission targets pledged for the Paris agreement.¹

In this paper, we assume that while there is a uniform need for nations to implement international pledges under the Paris Agreement, differences exist in how climate policy is communicated in the domestic sphere. This communication may lead to differences in support for the climate goals. We argue that policy-makers may frame national climate policy as serving an international goal within the Paris Agreement or as part of a wider national policy package, consequently sidelining the international obligation element. We are interested in exploring whether these framing differences have an impact on public support for and evaluation of emissions targets in the context of the Paris Agreement. Within democracies, differences in public opinion have been shown to matter for the implementation of policies (Schaffer et al., 2022). Accordingly, our contribution to the special issue deals with public acceptance and adds to the wider theme of how policymakers can respond to the climate crisis (Boasson & Tatham, 2022). Findings from our research are directly relevant for policy-makers in democracies pondering on how to best implement increasingly ambitious climate policy without losing acceptance within the public sphere.

To ascertain whether an individual's acceptance of national climate change targets depends on whether regulatory action is attributed to the national government or to international obligations, we implement an experimental manipulation framing climate change targets as either an international commitment or a national one within a nationally representative survey of 4000 respondents in Switzerland in 2019. Our research results in three main findings:

First, we find that providing more information on the relevance of national GHG (Greenhouse Gas Emission) targets does not *generally* lead to a higher acceptance or a better evaluation of the target. Although informing people that the target is national commitment has no effect, reference to the international context increases both support and their evaluation of the reduction target. However, effect sizes are substantively very small. Overall, we cannot claim that informing the public of the reasons why a country needs to attain a specific climate target generally leads to greater support. We could tentatively interpret our results as showing that the international context adds new information that marginally increases both support for the reduction target and especially the evaluation of the target. This is in line with previous findings by Tingley and Tomz (2020), who showed that in the U.S. public support for costly climate measures was much higher in scenarios in which the U.S. was stressed to be part of the Paris Agreement as the international effort to combat climate change.

Second, when we contrast our two frames – international and national – and test them against one another, we conclude that the difference

between the frames is significant only when respondents consider the target to be too high or too low. Reading about the Swiss GHG target being pledged for the international Paris agreement (international framing) leads people to evaluate the target as too low significantly more than when reading the national framing of the same target. The effect is at the borderline of statistical significance, but is substantively small. Hence, we cannot reject the notion that different framings do *not* matter. We thus cautiously evaluate this finding as a weak, but positive sign demonstrating that as soon as the contribution to an international effort is stressed, people seem to be more aware that targets need to be ratchet up.

Finally, we look closer at our null or very small main effects regarding framing, by considering whether people reacted differently to our treatments based on their ideologies, climate concern or age. While we do not find that our framing was affected by whether people consider themselves to be politically left or right, an individual's level of climate concern seems to alter how they evaluate the framing treatments. In line with the literature on framing effects (Druckman, 2004), we find respondents with little concern for the climate to be more susceptible to (international) framing and significantly more supportive of the reduction target when the international framing was administered. Also, we obtain a significant difference in how people react to our national and international framing depending on their age, with younger people more likely to consider targets accompanied by international framing to be too low. Whether this is a life-cycle effect indicating that younger people are generally more environmentally conscious and demand more ambitious targets or whether this is a period effect driven by the current transnational youth movements Fridays for future and the resultant transnational increase in the salience of climate change topics goes beyond the scope of this paper but may constitute a fruitful avenue for future research.

In the following sections, we develop an argument how information and framing may affect support for and evaluation of emission targets within the context of the Paris Agreement. We then test our expectations by analysing data from a nationally representative survey with an embedded experiment in Switzerland. In our conclusions, we discuss consequences of our findings and future avenues for research.

Literature and argument

Observers have long argued that the Paris Agreement is a game-changer in global climate cooperation as it has relocated the international distributional conflicts of the Kyoto period to now take place within the domestic realm (Falkner, 2016). Accordingly, a broader literature has recently begun to conceptualize the stringency of climate change policy as emanating from

domestic distributional conflicts rather than from collective action problems on the international level (Aklin & Mildenberger, 2020; Bayer & Genovese, 2020; Colgan et al., 2021; Hale, 2020).² Within this domestic arena, we observe two relevant developments regarding the more general public stance vis-a-vis climate change that we use as starting points for our research.

First, the salience of the climate change issue in national discourses has increased over the past 20 years (Carmichael & Brulle, 2017; Oehl et al., 2017; Stecula & Merkley, 2019). As a consequence, the topic has also featured more prominently in recent elections and among voters' key concerns (e.g., elections to the European Parliament or the Swiss national election in 2019, see Lüth and Schaffer (2022)). In the recent U.S. elections, climate change also featured prominently in the campaign and tackling this issue was amongst the Biden Administration's first actions in office.³ Overall, we argue that climate change policies have become more salient for voters.

Second, climate change policies have become more politicized within news media (Chinn et al., 2020; Oehl et al., 2017) and more polarized both within the U.S. and Western Europe (Kulin et al., 2021; McCright et al., 2016). Moreover, the ambitious and effective climate policies needed to fulfill the Paris Agreement goals by e.g., introducing or increasing a price on the use of carbon within a market-based scheme will come at a cost. Individuals may be faced with higher expenditures for heating, mobility or housing. The yellow vest protests in France illustrate how more ambitious policies and their distributive consequences may lead to increased politicization of the climate issue and eventually even outright protest (Tatham & Peters, 2022). The politicization of climate policy and the increased association with distributional consequences has opened a political space for populist and right-wing parties to campaign as antagonists of climate policy on an issue that formerly could have been described as a valence issue (Schaffer & Lüth, 2021). Overall, more stringent climate change policies may lead to an even greater politicization of the topic.

What implications follow for elected policymakers from both increases in public salience and politicization of climate change within the domestic sphere on the one hand, and the international pressure to commit to more ambitious targets on the other? Most importantly, in democracies, politicians will be closely monitored by opponents seeking to mobilize voters and held accountable for either inaction on climate change or for potentially distributive policy consequences. To avoid the political cost of more stringent climate policies, it is imperative to know how to increase and sustain support for climate policy. A possibility voiced in the literature is that specific framing can help to convince the public of more rigorous climate policy (Aklin & Urpelainen, 2013). Here, the assumption is that how politicians and governments frame climate change may both affect policy responses and the likelihood of effective action (Keohane, 2015).

From the public communication literature, we know that in general frames matter for public engagement with the topic of climate change (Nisbet, 2009). Potential candidates to test the effects of framing on climate change attitudes have been security, environmental or human rights issues as well as health – and other localized impacts of climate change.

One stream of the literature tests whether local or global impacts increase the salience of climate change. Wiest et al. (2015) find that local impacts of climate change increase concerns about climate change. Politically, cities have been able to establish themselves as core players within the transnational politics of climate change by reframing climate change as a localized problem they are best placed to respond to (Betsill & Bulkeley, 2007; Schaffer, 2011).

Aklin and Urpelainen (2013) conclude that framing climate change differently cannot be regarded as a silver bullet for eliciting support for climate change. In their experimental study, they do not find strong effects from their frames with respect to clean energy support (Aklin & Urpelainen, 2013). Bayer and Ovodenko (2019), however, report substantive effects of framing, especially if congruent with prior beliefs. Similarly, Lockwood (2011) concludes that framing mattered for support levels when framed in terms of renewable energy expansion.

Bernauer and McGrath (2016) also find no support suggesting that a shift in governments' framing from stressing the potential risks of climate change to emphasizing either the technological opportunities or the reduction of health risks increases support for mitigation policies. Moreover, Singh and Swanson (2017) test three different frames of climate change (security risk, human rights risk and standard environmental consequences) on people's stated absolute and relative importance of climate change vis-à-vis other issues. They do not find significant differences between these frames. Based on these mixed results, the jury is still out whether and how to reframe climate change to increase public support for more stringent – but also costly and distributive – policies.

To this end, in our contribution, we are interested in establishing if an individual's acceptance of national climate change targets depends on whether regulatory action is attributed to the national government or to international obligations. In the following section, we consider three sources of variation in people's support for and evaluation of emission targets in climate change policy: the general role of information about the relevance of emission targets, their framing as either a national or international commitment and how personal factors such as ideology, climate concern or age may condition the relationship.

Information effects on the support and evaluation of emission targets

There is a large amount of uncertainty associated with climate change in general, and the effectiveness and cost of current policy measures. In our attempt to disentangle the sources of people's preferences regarding climate policy, we start with the assumption that the workings of the international politics of climate change are complex. In our context, this means that people are not necessarily aware of their countries' GHG emission target under the Paris Agreement nor what this target means for their country or household. Moreover, people may have difficulty connecting abstract long-term targets with implemented climate policies on the ground. Behavioral research has shown that the workings and individual consequences of climate policy instruments like carbon taxes and subsidies remain poorly understood by citizens (Drews & Van den Bergh, 2016).

Due to this general uncertainty about what purpose specific targets serve, we proceed from the assumption that any explanation that provides more detail about emission targets will help individual judgement. More precisely, our first expectation with respect to the individual evaluation of GHG emission targets would be the following: the more information people are given about the *reasons for a national emission target*, the more likely they are to support the target. Moreover, this increase in support should manifest irrespective of whether the information mentions a national or international target. While this general inquiry into the importance of information in climate policy can serve as a starting point, we are especially interested in the effect of framing (internationally) pledged (national) emissions targets as national or international commitments.

Framing effects on the support and evaluation of emission targets

In the context of the Paris Agreement, national governments transpose voluntary international pledges into domestic policies to honor their international commitments. In implementing policy to reach the Paris goals, policymakers have discretion over how much they frame a policy as an *international* commitment or brand a policy bundle as a *national* policy endeavor inspired by international cooperation. Indeed, empirically, we often see national policy mixes or bundles combined within a longer-term roadmap or strategy tailored to the specific country. Recent examples include Portugal's Roadmap for Carbon Neutrality 2050, the Austrian Long-Term Strategy 2050 and the Swiss Energy Strategy 2050 (IEA, 2022). These policy bundles differ in the extent to which they explicitly mention the countries' international commitment under the Paris Agreement vis-à-vis relevant domestic goals (e.g., decarbonization of the Swiss energy system) and

also in how these goals are communicated in the public sphere. Such differences are also apparent within the NDCs documents, where Leinaweaver and Thomson (2021, p. 16) find large variation in how countries stress domestic policies compared to issues pertaining to international themes in global climate governance.

Overall, we propose that it may prove valuable for policy-makers to know whether the general public is responsive to how a particular policy target is framed to increase public support.⁴ But, what kind of differences would we expect from framing a reduction target as a *national* or *international* obligation?

There is evidence to suggest that people are inclined to evaluate international agreements more positively than national obligations. In a recent contribution, Tingley and Tomz (2020) show experimentally that respondents presented with a scenario that the U.S. will rejoin the international Paris Agreement were significantly more likely to support policies targeting emission reductions than those who were informed that the U.S. would remain outside the (voluntary) global effort. It thus seems that people value international agreements and fulfill their pledges if bound into an international agreement. Moreover, international efforts that have group-contingent benefits and individual costs may evoke a sense of belonging to a 'community of fate' (Mildenberger et al., 2017). This shared commitment to a solution may lead individuals to support an international target more.

Second, we may expect individuals to evaluate a national target more appropriate or perceive a national target comparatively more favorably than an international one. We argue that the politicization of climate change politics (McCright & Dunlap, 2011) together with the rise of nationalism and populist parties (Lockwood, 2018; Schaffer & Lüth, 2021) within the context of a more pronounced disintegration from the institutions of the liberal world order (Walter, 2020) have led individuals to increasingly (re)turn to the nation state. The popular desire to see national governments 'take back control' was a principal demand within both the Brexit campaign in 2016 (Gamble, 2018) and in the 2020 Swiss campaign to end the free movement of people with the EU (SVP, 2020). Moreover, issues of legitimacy may also play a role in people's evaluation (Hurrelmann et al., 2007). National targets decided within the national political arena suggest a more direct link between voters and decision-makers, whereas international agreements suffer from legitimacy problems (Hooghe et al., 2019). From this perspective, we would expect respondents to prefer a target stemming from a national obligation.

We have provided two plausible arguments for expecting a relative effect for either the national or international framing. A third possibility, however, is that there is no observable framing effect. As presented within the literature review, null effects on framing experiments are commonplace in the

experimental literature on climate change (McGrath, 2021). Moreover, in our part on framing, we deliberately want to test the impact of framing net of information (which our first part covers), thereby only varying the information that a target is a *national* or *international* obligation. In this context, it is important that mentioning a given target and relating it to a national decision or an international agreement neither changes the substantive target nor the measures needed and – most importantly – the costs occurred to achieve the target.⁵ Hence, deviations from this baseline rational behavior – as there is no difference in cost, the national or international framing should theoretically not change an individual's evaluation of or support for a concrete emission target – provide us with an interesting potential avenue on 'how to reframe issues of climate change in ways that make political action feasible' (Keohane, 2015, p. 24) especially in light of increasingly ambitious climate policy towards the 2°C goal.

To summarise, we generally expect more information as well as differences in framing to have an effect on people's support for and their evaluation of emission targets.

Conditional effects of individual characteristics

As argued above, we assume that there are individual characteristics that influence how a national or international framing of a target affects the support and evaluation of the emission target. In reference to the literature on public opinion on climate change, we concentrate on political ideology, individual climate concern and the respondent's age.

With respect to ideology, research on public opinion towards climate change (Ansolabehere & Konisky, 2014; Dunlap et al., 2016; McCright & Dunlap, 2011) or renewable energy (Feldman & Hart, 2018; Hazboun et al., 2019; Stokes & Warshaw, 2017) in the U.S. have consistently found framing effects to differ according to political ideology. While polarization on climate change is not as pronounced in Europe, one may nevertheless expect that there is a difference in how frames might affect support for a particular target for people on the right of the political spectrum compared to those on the left. For example, right-leaning individuals see the nation state as the most important actor and represents their primary allegiance, and may thus view the international frame comparatively less favorably. Hence, we may expect right-leaning individual's support and evaluation of the target to be higher if presented with the national frame. Using data from five European countries, Schaffer and Lüth (2021) show that over time, the political right has consistently established climate policy as a salient issue to compete on and have positioned themselves against most mainstream and green parties. As right-wing and populist parties focus on the nation as their reference frame, an international frame would presumably

be less popular with right leaning voters. Overall, we would expect that depending on an individual's political ideology, the effect of framing the emission target differs.

In explaining public support or acceptance of climate policies and instruments, an individual's level of concern or worry about climate change⁶ has been shown to be an important predictor (Drews & Van den Bergh, 2016; Lee et al., 2015; Smith & Leiserowitz, 2014; Steg et al., 2005). Research on the link between worldviews and behavior (Shi et al., 2015; Steg et al., 2005) or policy attitudes (Bouman et al., 2020; Drews & Van den Bergh, 2016; Smith & Leiserowitz, 2014) has found that overall, people that are more worried about the climate crisis are generally more supportive of climate policy. In a recent study, Bouman et al. (2020, p. 102061) find a 'unique, direct and positive relationship between worry about climate change and climate policy support across most countries'. Moreover, people that are more knowledgeable about climate change and have higher education levels are more likely to worry about climate change (Lewis et al., 2019). We argue that people that are more concerned (and by extension more knowledgeable) about climate change, are less susceptible to our framing (Druckman, 2004). Hence, we do not expect a differentiated treatment effect for those respondents that already exhibit a high level of climate worry. However, we submit that respondents that are largely unconcerned about climate change, will exhibit a larger framing effect.

Recently, the impact of age on attitude towards environmental protection and climate change has been widely studied (Corner et al., 2015; de Moor et al., 2020; Geys et al., 2021; Hamilton et al., 2019; Poortinga et al., 2019). Young people are found to exhibit higher interest and concern for the issue of climate change (Corner et al., 2015; Poortinga et al., 2019). In explaining the influence of age on attitudes, studies have found cohort effects with respect to environmentalism or climate change do not play a major role (Clark et al., 2020; Johnson & Schwadel, 2019) compared to life-cycle (Geys et al., 2021) and period effects (Poortinga et al., 2019). In our context, however, we are not concerned with disentangling these different reasons, but build our argument regarding the different susceptibility to national or international framing with reference to important period effects. In this context, we assume that due to the transnational youth climate activism started by Greta Thunberg and the Fridays for Future movement (de Moor et al., 2020) young people are more concerned about climate change as a global problem and believe that effective action ideally needs to be coordinated on the global level. Overall, due to the higher level of concern among young people triggered in part by transnational activism, we expect that providing people with information about the international obligation of a given emission target leads to higher levels of support for the targets compared to our national framing. Accordingly, we submit that young people, driven by

the emergence of transnational youth movements (such as Fridays for future), react more decisively to the priming of an international obligation compared to older respondents (Andor et al., 2018). We thus expect framing effects to differ according to a person's age.

The next sections introduce our data and how we empirically test our propositions.

Data and design

Our analysis is based on data from an online survey experiment, conducted in September 2019 in Switzerland. After a series of questions on demographics (gender, birth year, education and income) and attitudes (worries about climate change, interest in politics, left-right self placement), respondents were randomly assigned to one of three versions of a vignette about Switzerland's target for reductions in greenhouse gas emissions. The survey then continued with our outcome measures and other questions for a separate study. The English version of the related part of the survey is provided in the Appendix.

Switzerland is an interesting case to study framing effects and general support for climate targets for the following reasons. First, in terms of the effect of the government's decision to frame legislation in one or the other way. As Switzerland's direct democratic instruments give people the power to directly confirm or reject (veto power) implemented policies or even the right to initiate proposals, public opinion matters for policy choices. Thus, we operate in a context where citizens are used to selecting between proposed policies *and* the government needs to communicate and 'sell' policies most clearly to the electorate. Hence, Switzerland can be regarded as a likely case where framing serves as an important tool for policy-makers to convince people of stricter climate policies. However, Switzerland also constitutes a hard test to find framing effects, as its population has been well-informed about climate change, from a history of decisions on climate and energy policies (Schaffer & Levis, 2022).

Second, from an internationally comparative standpoint, Switzerland compares well with respect to other countries' overall (initial) level of climate ambition, which is our outcome measure. This means that Switzerland has comparable targets to other industrialized democracies and is neither overly ambitious nor lagging behind, thus results from the Swiss context can be relevant for other countries as well. Its emission target in 2019 was neither too low nor too high: a 50 per cent reduction in greenhouse gases from 1990s levels by 2030. This 50 per cent target is comparable to those of other industrialized countries – positioned between Norway's 40 per cent reduction but lower than Germany's pledged 55 per cent cut over the

same time period.⁷ Hence, Switzerland aligns well with other industrialized countries in terms of its initial target.⁸

Third, for our substantive interest on framing a target as contributing to an international or a national effort, Switzerland provides a good case as the Swiss emission target could be framed as both a goal of the national *Energy Strategy 2050*, which is the national decarbonization strategy that was adopted in a 2017 referendum, and an international obligation pledged for the Paris Agreement. Following the 2017 referendum on the national *Energy Strategy 2050*, the emission target was announced by the Federal Council, and then ultimately pledged for the Paris Agreement. As mentioned above, it is a common practice to implement climate policy via policy packages such as the *Energy Strategy 2050*, that then highlight their relevance to the country's goal within the Paris Agreement or frame this as a larger national program of its own without prominent reference to the Paris agreement.

Finally, another reason for investigating the Swiss context, is that published work on similar questions pitting the international vs. the national commitment against one another covers larger countries such as the U.S. (Tingley & Tomz, 2020). In terms of actual CO₂ contribution, the U.S. ranks second behind China and leads the world in per capita terms, consequently U.S. efforts alone can arguably make a difference. However, we know comparatively little about how people in smaller countries (with smaller relative contribution to global CO₂ levels) such as Switzerland evaluate their national vs. international commitments. Thus, Switzerland as a small and neutral country within the international system adds to knowledge on the public acceptance of emission targets in new ways.

For our study, we recruited 4151 respondents, all residents in Switzerland, from the survey company *respondi*. Detailed comparisons between this sample and the Swiss voting-age population are available in the Appendix. These comparisons show that our sample lines up well with demographics – in terms of age, gender and region. Also in the Appendix are the descriptive statistics (Table A1) and a randomization check (Table A7). The latter suggests that the random assignment of subjects to control and experimental groups worked well; regressing assignment outcome on our control variables, we find no significant correlations at conventional levels.

Below we provide the experimental components in the survey. To be able to test our different theoretical expectations about the importance of available information and the impact of framing for the support of national emission targets, we will use a vignette with two versions – a national frame and an international frame – and a control group that is informed about the emission target of Switzerland but does not receive any ancillary information on the background of this target. Following a random assignment of respondents to groups, the control group read only the first sentence while the

treatment groups read an additional sentence, with either the national (sentences 1 and 2) or the international frame (1 and 3). We are aware that the amount of information we vary is small, but we believe that it provides important additional information for people to contextualize why this reduction target is in place and why it is relevant.

[1] Switzerland is trying to reduce its greenhouse gas emissions by 50 per cent in the period up to 2030, compared with 1990 levels.

[2] This reduction target is a national commitment, which is pledged for the Energy Strategy 2050 in Switzerland.

[3] This reduction target is an international commitment, which is pledged for the Paris Agreement among countries.

We measured the outcomes with two questions that followed the vignette. One asked 'Do you think that Switzerland's 50 per cent reduction target by 2030 is too high or too low?', with the answer categories ranging from 'Much too high' (coded as 1) to 'Much too low' (5). The other asked 'Do you support or oppose Switzerland's 50 per cent reduction target by 2030?', with the answer categories ranging from 'Strongly oppose' (1) to 'Strongly support' (5). These questions appeared one after another, in a randomized order. While the question on the support or opposition gives us a general indication of the acceptance of the emission target, the other question asks respondents to further evaluate the numerical target and provides us with an indication whether the person considers this target to be too high or too low.

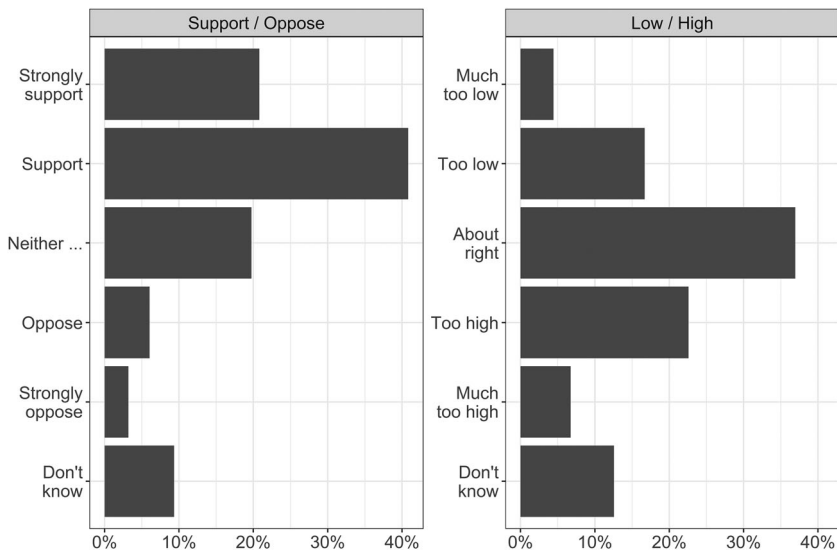


Figure 1. Distribution of the outcome measures.

Results

To start with the analysis, [Figure 1](#) plots the distribution of our outcome measures. We find that the majority of the respondents supported or strongly supported the reduction target. However, when we consider our second outcome measure we see that for the evaluation of the target, the mode of the distribution lies at the statement that the 50 per cent target is ‘about right’, with a slightly larger proportion of persons evaluating the target as ‘too high’ or ‘much too high’ compared to those stating that the target was ‘too low’ or ‘much too low’

[Figure 2](#) plots the average outcomes for the experimental and control groups. It shows that the averages between the control group and national treatment group for the two outcome variables are very close to each other. The international treatment group returns somewhat different averages than the first two groups.

[Table 1](#) presents a summary of the main regression results, where we calculate the effects of the groups receiving the national and those receiving the international treatment relative to the control group. To facilitate interpretation, here in the main text we use ordinary least square regression models to estimate average treatment effects and do not show the coefficients of control variables. Above, we assumed that due to the relatively high

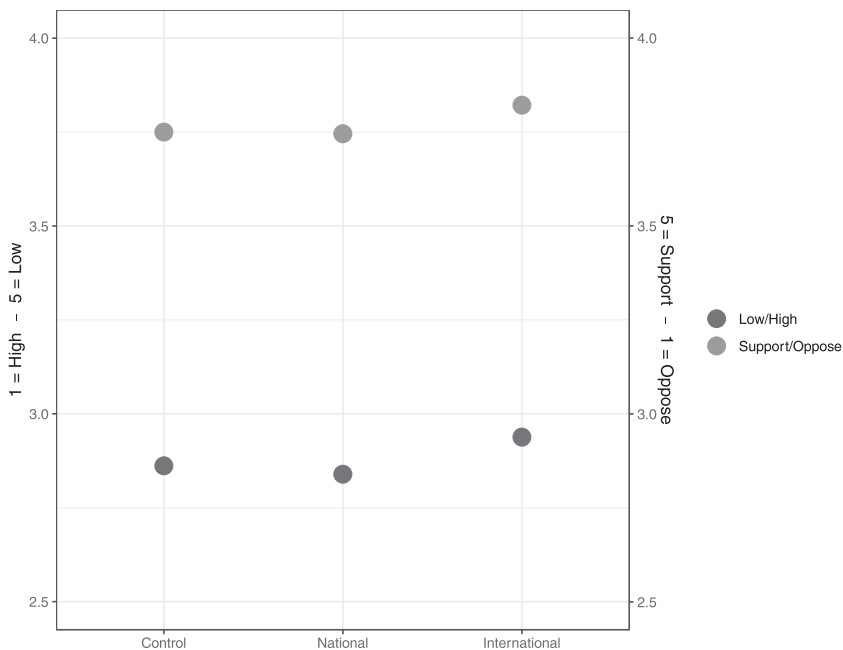


Figure 2. Average outcomes by experimental group.

Table 1. Ordinary least squares regressions – summary results (full Table A2 in the Appendix)

	Oppose/Support		High/Low	
	(1)	(2)	(3)	(4)
National	–0.00 (–0.11)	0.01 (0.30)	–0.02 (–0.56)	0.01 (0.33)
International	0.07* (1.81)	0.05 (1.49)	0.08* (1.93)	0.07* (1.87)
Constant	3.75*** (134.24)	2.04*** (18.91)	2.86*** (102.20)	2.05*** (17.53)
Observations	3763	3159	3629	3065
Controls	No	Yes	No	Yes

t statistics in parentheses.

* $p < .10$, ** $p < .05$, *** $p < .01$.

uncertainty surrounding climate policies and the difficulties citizens face when gauging what a numerical emission target entails, providing ancillary information on the reason or specific obligation for the target was predicted to lead to a different evaluation. Overall, the results from the comparison of our two treatment groups (additional information on national obligation or international obligation) with the control group confirm what is already visible in Figure 2. In general, providing additional information on whether reduction targets are needed due to international or national commitments are not found to have a meaningful effect on the public's support for reduction targets or their evaluation of these targets. In all four of our models, for example, the coefficient on the national frame compared to the control group is substantively small and statistically insignificant. Part of the reason why providing additional information on the national commitment shows complete null findings compared to the control group might be that the *national* frame serves as respondent's default reference frame anyway (similar to those in the control group) and thus the small amount of extra information about the national commitment does not alter people's support or evaluation of the target.

When we look at the group that received the additional information that the emission target is an international commitment pledged among countries in the Paris Agreement in Table 1 and compare it to the control group, the findings are similar. Although our results show a borderline significant difference indicating both higher support and an evaluation that current targets are rather too low for the treatment group learning that the Swiss target is an *international* commitment, the substantive effects are very small.⁹ The inclusion of further relevant covariates (age, gender, education, income, political interest, climate worry and left-right placement) does not change the substantive results. To summarize, providing the additional information that a given emission reduction target (control group) is a national commitment and part of a national action plan (national treatment) neither

changes support nor the evaluation of the respective target. Exposing people to the ancillary information that the reduction target is part of an international commitment is associated with greater support for and a more ambitious evaluation of the reduction target. However, this result is very weak and substantively small.

Thus, from the evidence above, we cannot conclusively argue that additional information *generally* leads to changes in individuals' attitudes towards emission targets. Although the effect sizes of the international treatment are very small, learning that a concrete emission target is needed to fulfill an international commitment among nations nevertheless seems to have a marginally positive effect on the assessment that the reduction target is about right or possibly too low. These observations regarding international commitments are in line with recent findings by Tingley and Tomz (2020) who showed that participants were more likely to support national climate policy when the U.S. was portrayed as a part of the international Paris agreement than otherwise.

When we now look more closely into our framing effects and directly contrast our two versions of framing of the national emission targets in Figure 3,¹⁰ we observe that if respondents receive the international frame they are more likely to support the target. Again, this effect is significant and more pronounced if they consider the target as rather too low.

A cautious take-away message from our evidence on framing is that if people are primed to consider emission targets as an international obligation,

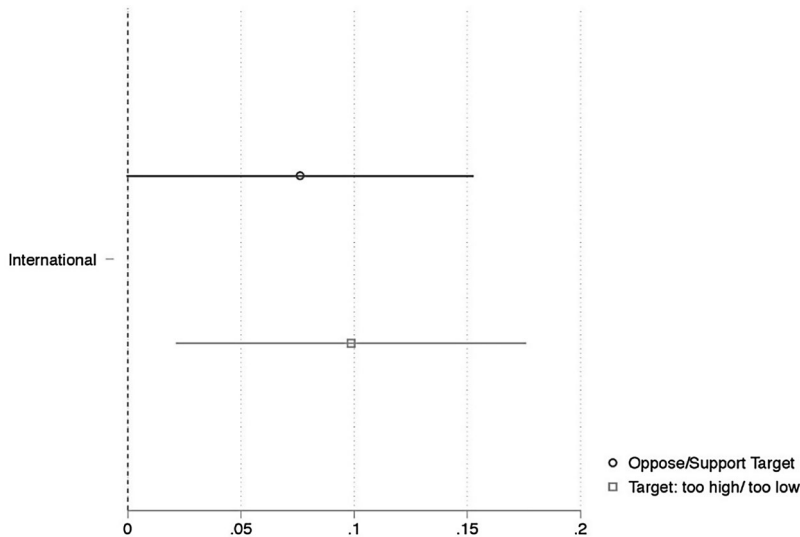


Figure 3. Framing effects: difference in evaluation between *international* framing compared to *national* framing (baseline), c.f. full Table A3 in the Appendix.

they evaluate such targets significantly more appropriate or even too low compared with the exact same target presented as a national commitment. While the effect sizes are small, we are not able to confidently reject that framing targets as international commitment has no effect. As one principle mechanism of the Paris agreement involves national climate plans to ratchet up the efforts to achieve carbon neutrality, our results suggest that policy-makers should at least not shy away from communicating the international collaborative effort on combating climate change. Compared to marketing national climate programs *without* explicitly mentioning their international importance to fulfill pledges made to the international community, this seems to be a better strategy for sustaining support for climate policy.¹¹

Conditional effects

From our main results, we neither have sufficient evidence to confidently report clear framing effects nor can we completely reject the null hypothesis of no framing effects in light of our significant findings for the international framing and the evaluation of the reduction target. Thus, although the *general* effect of framing is weak, in the theoretical section we have argued that a framing effect may vary along different values of respondents' ideology, climate concern and age. Accordingly, in this section, we test whether

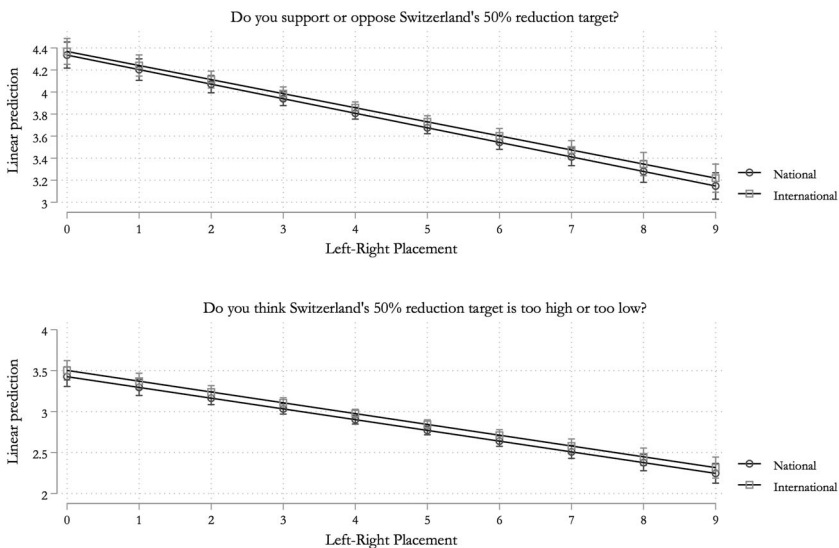


Figure 4. Linear Prediction for (a) support for the reduction target (upper panel) and (b) evaluation whether the target is too high – too low (lower panel), according to treatment group and ideology (left-right placement).

certain groups are more or less susceptible to our framing of a given target as an international or a national obligation.

With respect to ideology we predicted that people on the right of the political spectrum might view the international frame less favorably and that their support and evaluation of the target may be higher if presented with the national frame. However, [Figure 4](#) clearly shows that while respondents who self-identify as left are significantly more supportive of the reduction target compared to those on the right (in line with what the literature has both argued and empirically found, e.g., [Drews and Van den Bergh \(2016\)](#), [Huber et al. \(2020\)](#), and [Lockwood \(2018\)](#)), there is no difference regarding the treatment group (international or national frame) they belong to. Thus, irrespective of framing, people on the right are less supportive of the reduction target and they consider the emission target as too high.

Recent literature shows that climate worry is correlated with knowledge on climate change ([Lewis et al., 2019](#)) and is associated with a higher climate policy support ([Bouman et al., 2020](#)). In our theoretical section we argued that people who are more knowledgeable about and – by extension – also more worried about climate change would be less susceptible to our framing treatments. Thus we expected framing effects to be more pronounced for those with lower levels of climate concern.

[Figure 5](#) shows mean support for Switzerland's emission reduction target amongst respondents claiming to be not very (2) or not at all (1) worried

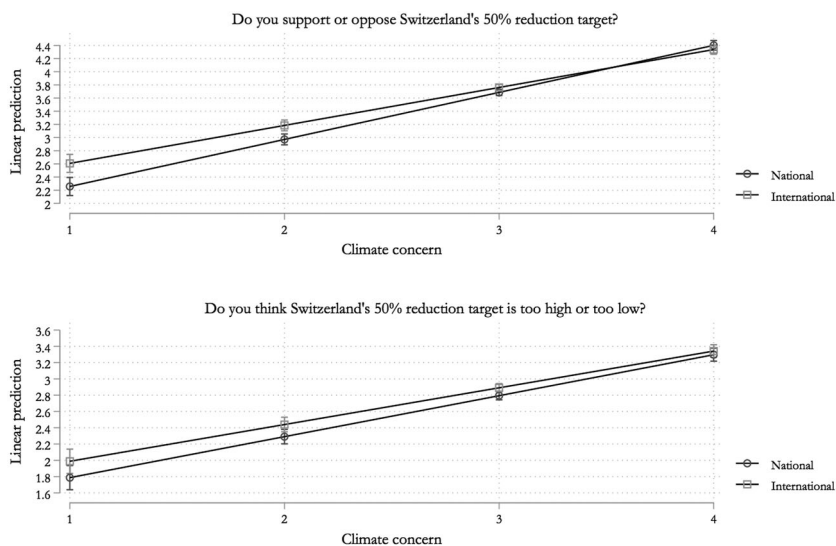


Figure 5. Linear Prediction for (a) support for the reduction target (upper panel) and (b) evaluation whether the target is too high – too low (lower panel), according to treatment group and climate worry.

about climate change was significantly higher (2.6) than for those provided with the international frame than the national obligation one (2.3). In terms of the evaluation of the target as too high or too low, we also see that on average evaluations of the target are more positive (moving more towards the 'about right' value 3) when respondents were presented with an international obligation frame. It hence seems that our international framing is more effective in terms of significantly enhancing support for those that generally do not worry much about climate change, whereas it matters less for the evaluation of the target. Moreover, administering the international treatment does not alter support for those already quite concerned about climate change.

Recently scholars have also underscored the importance of age – as well as cohort effects when it comes to evaluating climate policy or the general importance of climate action (Andor et al., 2018; Corner et al., 2015; de Moor et al., 2020; Geys et al., 2021; Poortinga et al., 2019). To this end, figure Figure 6 shows us two things. First, we can see that for our general outcome question regarding the support or opposition concerning the emission target that there is a generally negative and significant effect of age on support (young people are more likely to be supportive of the emission target). Counter to our expectation above, again, this effect of age is independent of the treatment the person receives (but on average higher for the international treatment throughout all groups). Unlike our climate concern

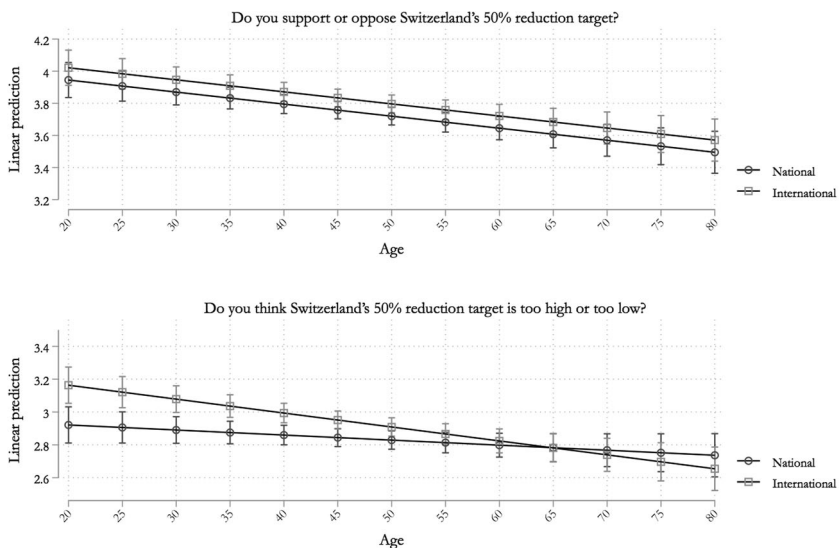


Figure 6. Linear Prediction for (a) support for the reduction target (upper panel) and (b) evaluation whether the target is too high – too low (lower panel), according to treatment group and age.

observations, we find quite a large difference in reactions towards the two treatments for our *second* outcome variable. For younger and middle-aged adults (up until their mid-40s) we observe a significantly higher average evaluation of the target when respondents read about the reduction target as an international commitment. The effect is also substantively relevant in improving average evaluation from below the 'about right' (3) category in the group receiving the national treatment (2.9) toward a tendency to consider the target being too low (3.2). Considering older cohorts, there is again no significant difference between national and international frames. This is an interesting finding that corroborates other recent studies that have found younger people to be more likely to support climate policy or allocate public resources for environmental benefits (Andor et al., 2018). These results can be cautiously interpreted as good news for the continued progression of national climate policy under the Paris Agreement. Young people as future leaders, but also as the generation that will have to curtail their behavior in a low carbon future, are significantly more likely to consider current targets as about right or even too low and by extension want to see Switzerland contribute more to the global effort.

Conclusion

Can framing climate policy targets as national obligations increase support and evaluation of these targets amongst the general public? From our study with 4000 individuals in Switzerland, the answer is: probably not.

In our experiment, we first wanted to find out whether 'information matters'. Our results show that providing respondents with additional information on the relevance of a specific emission target does not generally increase support. However, explaining that this GHG target stems from an international commitment as opposed to only stating the target (control condition) slightly increases support for the target. This borderline significant effect on international framing, however, is substantively small. Conversely, providing information that the target is part of a national commitment does not change support towards the target compared to the control group. Arguably, the amount of *additional* information provided within our experiment was very small and future studies should inquire whether more contextual information on the necessity of reduction targets leads to more substantively important changes in the outcome variables.

Second, in comparing our two different frames – national and international – more closely, we do not find conclusive evidence that the international framing leads to greater support for a pledged target. However, participants presented with the international framing significantly differ in that they are more likely to evaluate the target as appropriate or rather too low. The cautious take-away message from our results on framing is that if

people are pointed towards emissions targets as an international collective effort, they evaluate such targets as being 'just right' or even 'too low' significantly more often compared with the exact same target presented as a national commitment. This is per se a relevant finding considering two factors: First, in our two framing treatments, the costs of reaching the reduction target remain exactly the same.¹² Eliciting costs for climate policy has proven to be an important moderator for people's climate policy support (Bechtel & Scheve, 2013; Tingley & Tomz, 2020) and future research might add cost from national or international action as an additional dimension to consider in a similar set-up. Second, we administered our framing experiment to a population that is well-informed about climate change and has already voted on climate and energy policies multiple times. Such an informationally saturated context can be regarded as a hard test for framing effects. Future research may find different results on framing treatments within other country contexts.

Hence, despite our main treatment effects being substantively small, we would nevertheless argue that every little bit of more support for climate policy is important in combating the climate crisis and might make a difference in the aggregate (e.g., in the context of a referendum on climate policy). As one principle mechanism of the Paris agreement involves national climate plans to ratchet up the efforts to achieve carbon neutrality, our results suggest that policy-makers should at least not shy away from communicating the international collaborative effort on combating climate change. Indeed, compared to marketing national climate programs *without* explicitly mentioning their international importance to fulfill pledges made to the international community, this seems to be a better strategy to sustain support for climate policy.

Finally, we presented arguments explaining why we expected certain groups to be more or less susceptible to our framing and thus how framing the reduction target as an international or national obligation does not *generally* lead to higher support and a better evaluation. While we find no indication that our framing was perceived differently depending on whether people placed themselves on the political left or right, we find a significant difference in how people react to our national and international framing depending on their level of climate concern. As expected, there was no treatment effect for people that were already worried about climate change. However, respondents who specified that they were not or not at all worried about climate change, were significantly more likely to support the reduction target when presented with the international obligation framing. Moreover, the above-mentioned (small) differences in evaluating the target as too low when the international framing was administered seem to be driven by younger people who significantly evaluate a national target as being just right or even too low more often when presented with

the international treatment compared to the national framing. We do not see this effect from the age of 40 onward. We argue that the fact that young people are most responsive to the international framing and thus sensitive to the international dimension of the climate crisis is good news. These individuals are gradually accessing key positions in society in the future and will ultimately be responsible for the sustained acceptance and acceleration of climate policy.

Our study argues that the specific constellation provides policymakers with a certain leeway in framing and communicating climate change legislation to either market it as a national obligation because of a decision to decarbonize the economy (and become independent of rogue nations sitting on fossil resources) or as a collective obligation between states. And our point in this study is to ask which framing can help sustain or increase public support, because – again – becoming carbon-neutral due to a national energy strategy or an international commitment pledged for Paris in essence does not change the substantive costs or policies needed.

While our study has shed more light on the public's stance towards national emission reduction targets and how framing those targets as part of an international effort to combat climate change has a larger effect on some groups rather than the general population, there are – of course – remaining questions and limitations of our study. One is clearly how our (non-)results on the impact of additional information and framing of reduction targets as international or national obligations from our representative study within a small country with a well-educated population (that regularly has a direct say in policy-making) travel to other contexts. Also having provided little additional information might have led to our weak findings and future studies might look into the effect of additional information in more detail.

In general, future comparative research may also take a more fine-grained look at how national climate targets and the respective implementations are framed and communicated and whether there exists variation as to whether a long-term strategy is framed as a national policy without a reference to the international commitment or whether the explicit international commitment is offensively flagged and communicated by the government. Recent developments in text-as-data methods may help to code large amounts of countries' NDCs, and, more importantly, how policies are discussed in the domestic arena to find differences in the comparative framing of national climate policies.

Notes

1. A remarkable recent study by Tingley and Tomz (2020) looks at how the American public evaluates international voluntary commitments (pledges).

2. With our efforts to consider the difference in framing climate change mitigation targets to be resultant of either an international commitment (pledge) or a national endeavour, we also link to this literature.
3. One of the first executive orders signed by the new President Joe Biden on his first day in office dealt with the U.S. re-joining the Paris Agreement.
4. Both for expected increases in climate policy contestation (Colgan et al., 2021) as well as for policymakers seeking political benefits from acting on climate change (Hale, 2020).
5. Eliciting public or personal costs from climate policy usually significantly dampens support for the climate policy/instrument/agreement (Bakaki & Bernauer, 2017; Bechtel & Scheve, 2013; Schaffer, 2021; Tingley & Tomz, 2020).
6. Although there are discussions within the literature on the differences between 'concern' about climate change and 'worry' about climate change (Bouman et al., 2020), we use the two terms interchangeably for the remainder of this paper.
7. But as Rowan (2019) and Leinaweaver and Thomson (2021) argue, caution has to be put into the comparisons of national pledges.
8. In terms of the goal to increase ambition, Switzerland - according to Germanwatch's Climate Change Performance Index - is beyond only nine countries in that have not increased their ambition (Burck et al., 2022).
9. With respect to the support this relates to an increase in the mean predictive value for international group (3.82, on the 1–5 scale) compared to the control group not receiving additional information (3.75, on the 1–5 scale)
10. i.e., testing whether responses from the group receiving our national framing are different from those presented with the international one.
11. In the Appendix, we report a number of robustness checks on the modeling strategy above. Specifically, we re-estimate the effects with (1) multi-level linear regressions (reflecting that our data has two levels, where respondents are nested within cantons; Table A8) and (2) ordinal logistic regressions (assuming our dependent variables are not continuous but ordinal; Table A9). Our conclusions remain unchanged.
12. Although our framing treatments may implicitly communicate different distributional cost or benefits for some constituencies (a point which we cannot test within our setting), we believe that our short and very precise treatment texts vary only on the international/national obligation dimension.

Acknowledgements

The authors thank the three anonymous reviewers, Elin Lerum Boasson, Michaël Tatham, Adrian Rinscheid, and the participants of the workshop for the Special Issue for their valuable comments which greatly improved the paper.

Disclosure statement

No potential conflict of interest was reported by the author(s).

Funding

This article is part of the project 'Beyond Policy Adoption: Implications of Energy Policy on Parties, Publics, and Individuals', funded by the Swiss National Science Foundation (PYAPP1–173642/1).

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Data Availability Statement

The data that support the findings of this study are openly available at the Harvard Dataverse (<https://doi.org/10.7910/DVN/41CVZE>).

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Appendix

Appendix to ‘Public Support for National vs. International Climate Change Obligations’

Descriptive statistics

Table A1 provides descriptive statistics for the variables used for the analyses in the main text. For more information on these variables, all measured with an online survey, see also the questionnaire below.

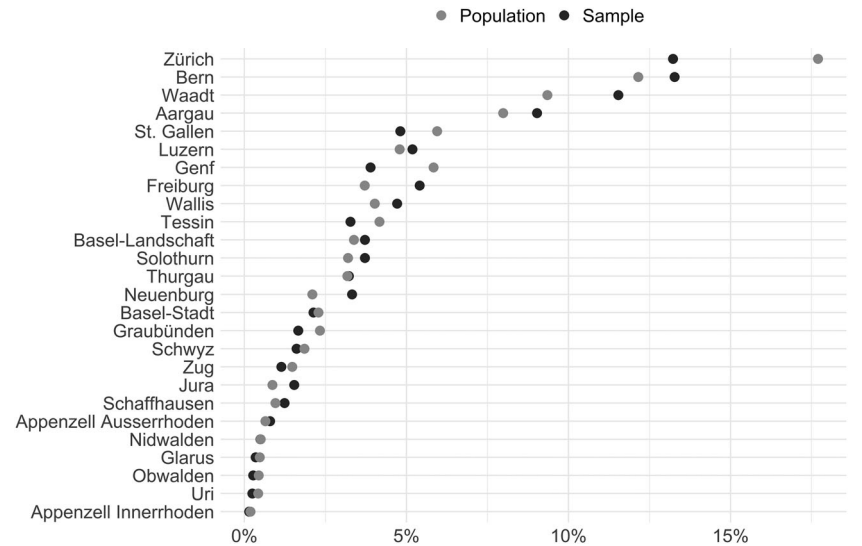


Figure A1. Population and survey respondents, by cantons.

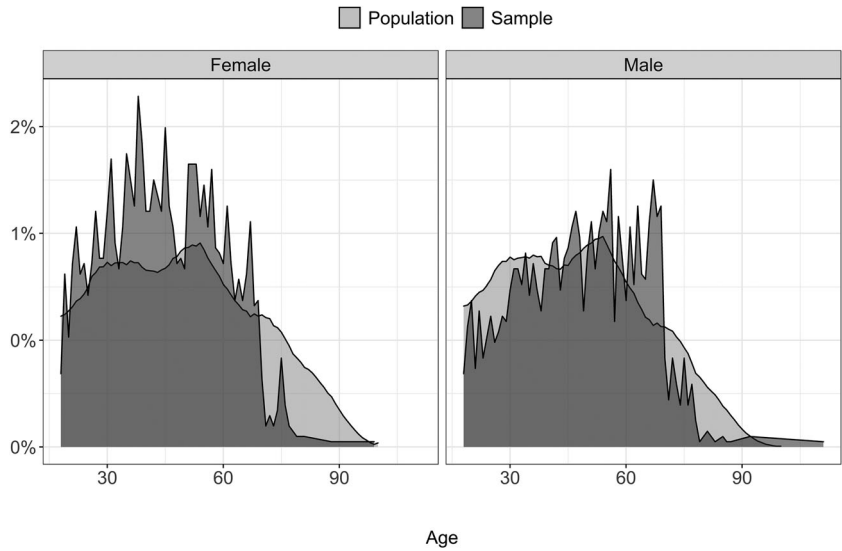


Figure A2. Population and survey respondents, by gender and age.

Table A1. Descriptive statistics

Statistic	N	Mean	St. Dev.	Min	Max
Oppose/support*	3763	3.8	1.0	1.0	5.0
High/low*	3629	2.9	1.0	1.0	5.0
Age	3960	46.5	15.1	18.0	111.0
Female	3960	0.5	0.5	0.0	1.0
Education	3948	6.1	2.0	1.0	10.0
Climate worry	3912	3.1	0.8	1.0	4.0
Income	3321	4.6	2.5	1.0	10.0
Political interest	3963	2.7	0.9	1.0	4.0
Left-Right	3960	4.4	2.1	0.0	9.0

Note: * indicates dependent variables.

Population – sample comparisons

In this section, we visualize summary statistics about our sample, in comparison with the Swiss *voting-age* population. The data for the latter come from the population statistics in 2018, as published on the Swiss Federal Statistical Office website – www.bfs.admin.ch. Figure A1 shows that the share of respondents from each of 26 Swiss cantons was close to the share of population in these cantons. Zurich is perhaps the only exception, which is relatively under-sampled in the survey.

Figure A2 plots the distributions of the Swiss population and our survey respondents, by age and gender. It shows that there is a considerable match between the two, although our sample was slightly younger (46 years, in comparison with 49) and it had a higher share of females than in the population (54% versus 51%).

Complete tables

In the main text, we reported a summary of the regression results with Table 1 for reasons of space. Here we provide the complete results with Table A2. Similarly, Table A3 below provides the complete results on which Figure 3 is based.

Table A2. Information effects – OLS regressions – complete results.

	Oppose/Support		High/Low	
	(1)	(2)	(3)	(4)
National	−0.00 (−0.11)	0.01 (0.30)	−0.02 (−0.56)	0.01 (0.33)
International	0.07* (1.81)	0.05 (1.49)	0.08* (1.93)	0.07* (1.87)
Age		−0.01*** (−5.14)		−0.00*** (−4.21)
Education		0.05*** (6.33)		0.04*** (4.45)
Female		0.12*** (3.99)		−0.04 (−1.16)
Income		0.01 (1.39)		−0.00 (−0.23)
Political Interest		0.00 (0.16)		−0.05** (−2.26)
Climate Worry		0.61*** (30.11)		0.43*** (19.78)
Left-Right		−0.08*** (−10.82)		−0.09*** (−11.89)
Constant	3.75*** (134.24)	2.04*** (18.91)	2.86*** (102.20)	2.05*** (17.53)
Observations	3763	3159	3629	3065
S.E. of estimate	0.99	0.82	0.97	0.87

t statistics in parentheses.

* $p < .10$, ** $p < .05$, *** $p < .01$.

Table A3. Framing effects – OLS regressions – complete results.

	Oppose/Support		High/Low	
	(1)	(2)	(3)	(4)
International	0.08* (1.94)	0.04 (1.27)	0.10** (2.50)	0.06 (1.58)
Age		−0.01*** (−4.47)		−0.00*** (−3.08)
Education		0.05*** (4.70)		0.04*** (3.47)
Female		0.12*** (3.15)		−0.05 (−1.19)
Political Interest		0.03 (1.55)		−0.04 (−1.47)
Income		0.01 (1.22)		−0.00 (−0.15)
Climate Worry		0.58*** (23.98)		0.42*** (15.77)
Left-Right		−0.07*** (−8.32)		−0.09*** (−9.28)
Constant	3.75*** (135.89)	2.06*** (15.86)	2.84*** (101.81)	2.05*** (14.35)
Observations	2507	2107	2423	2046
S.E. of estimate	0.98	0.81	0.97	0.87

t statistics in parentheses.

* $p < .10$, ** $p < .05$, *** $p < .01$.

Interaction models

We provide the underlying regression models for [Figures 4–6](#) in [Tables A4–A6](#).

Table A4. Models with interaction effects for [Figure 4](#).

	Oppose/Support		High/Low	
	(1)	(2)	(3)	(4)
International	0.03 (0.39)	0.03 (0.35)	0.08 (0.89)	0.08 (0.92)
Left-Right	−0.13*** (−10.86)	−0.07*** (−6.37)	−0.13*** (−10.72)	−0.09*** (−6.72)
International × Left-Right	0.00 (0.24)	0.00 (0.25)	−0.00 (−0.04)	−0.00 (−0.23)
Education		0.05*** (4.75)		0.04*** (3.50)
Female		0.13*** (3.53)		−0.04 (−0.91)
Climate Worry		0.59*** (23.92)		0.42*** (15.80)
Political Interest		0.01 (0.55)		−0.05** (−2.22)
Income		0.02** (2.03)		0.00 (0.41)
Constant	4.34*** (71.80)	1.83*** (14.71)	3.43*** (56.27)	1.86*** (13.59)
Observations	2507	2107	2423	2046
S.E. of estimate	0.94	0.81	0.93	0.88

t statistics in parentheses.

* $p < .10$, ** $p < .05$, *** $p < .01$.

Table A5. Models with interaction effects for [Figure 5](#).

	Oppose/Support		High/Low	
	(1)	(2)	(3)	(4)
International	0.49*** (3.46)	0.37** (2.51)	0.25* (1.65)	0.18 (1.15)
Climate Worry	0.72*** (22.68)	0.64*** (18.96)	0.50*** (14.76)	0.44*** (11.98)
International × Climate Worry	−0.14*** (−3.13)	−0.10** (−2.27)	−0.05 (−1.09)	−0.04 (−0.78)
Education		0.05*** (4.78)		0.04*** (3.50)
Female		0.13*** (3.55)		−0.04 (−0.90)
Left-Right		−0.07*** (−8.38)		−0.09*** (−9.33)
Political Interest		0.01 (0.54)		−0.05** (−2.23)
Income		0.02** (2.08)		0.00 (0.45)
Constant	1.54*** (15.37)	1.66*** (11.85)	1.28*** (11.84)	1.81*** (11.79)
Observations	2489	2107	2405	2046
s.e. of estimate	0.84	0.81	0.90	0.88

t statistics in parentheses.

* $p < .10$, ** $p < .05$, *** $p < .01$.

Table A6. Models with interaction effects for Figure 6.

	Oppose/Support		High/Low	
	(1)	(2)	(3)	(4)
International	0.08 (0.61)	0.09 (0.80)	0.35*** (2.75)	0.33*** (2.58)
Age	−0.01*** (−4.12)	−0.01*** (−3.10)	−0.00* (−1.68)	−0.00 (−0.89)
International × Age	−0.00 (−0.00)	−0.00 (−0.36)	−0.01** (−2.08)	−0.01** (−2.14)
Education		0.06*** (5.71)		0.05*** (4.71)
Female		0.14*** (3.62)		−0.02 (−0.55)
Climate Worry		0.64*** (26.66)		0.48*** (18.37)
Political Interest		0.02 (0.85)		−0.05** (−2.12)
Income		0.00 (0.61)		−0.01 (−0.85)
Constant	4.09*** (45.99)	1.56*** (12.00)	2.98*** (33.22)	1.33*** (9.26)
Observations	2507	2107	2423	2046
S.E. of estimate	0.97	0.82	0.97	0.89

t statistics in parentheses.

* $p < .10$, ** $p < .05$, *** $p < .01$.

Randomization check

Table A7 provides the results from multinomial logistic regression models, predicting assignments to each treatment group (in comparison with assignment to the control group) as a function of seven co-variables.

Table A7. Multinomial logistic regression models as randomization check.

	National (1)	International (2)
Age	−0.0004 (0.003)	−0.0001 (0.003)
Female	0.13 (0.09)	0.10 (0.09)
Education	0.04* (0.02)	−0.01 (0.02)
Income	−0.03 (0.02)	−0.001 (0.02)
Climate Worries	0.08 (0.06)	0.05 (0.06)
Political Interest	−0.003 (0.05)	−0.003 (0.05)
Left-Right	0.02 (0.02)	0.04* (0.02)
Constant	−0.52* (0.31)	−0.29 (0.31)

Note: * $p < .10$, ** $p < .05$, *** $p < .01$.

Robustness checks

In this section, we report two robustness checks on the results reported in the main text. In these checks, we apply alternative modeling strategies to the data. We find that none of these alternatives return results that would require updating our substantive conclusions.

Multilevel linear models. Given that our respondents come from 26 cantons, multi-level linear regression models are an alternative that can address the fact that respondents are nested within cantons. These models are reported in [Table A8](#).

Table A8. Multilevel linear regression models.

	Oppose/Support		High/Low	
	(1)	(2)	(3)	(4)
National	−0.01 (−0.19)	0.01 (0.30)	−0.02 (−0.56)	0.01 (0.33)
International	0.07* (1.72)	0.05 (1.37)	0.08* (1.93)	0.07* (1.86)
Age		−0.01*** (−5.61)		−0.00*** (−4.26)
Education		0.05*** (6.25)		0.04*** (4.47)
Female		0.13*** (4.20)		−0.04 (−1.12)
Income		0.01* (1.68)		−0.00 (−0.17)
Political Interest		0.02 (0.91)		−0.04** (−2.19)
Climate Worry		0.60*** (30.04)		0.43*** (19.78)
Left-Right		−0.08*** (−11.01)		−0.09*** (−11.93)
Constant	3.74*** (101.91)	2.03*** (18.56)	2.86*** (102.22)	2.05*** (17.52)
sd(canton)	0.10*** (−8.97)	0.10*** (−10.22)	0.00 (−1.19)	0.03*** (−2.76)
sd(_cons)	0.98 (−1.36)	0.81*** (−17.02)	0.97** (−2.43)	0.87*** (−11.25)
Observations	3763	3159	3629	3065

t statistics in parentheses.

* $p < .10$, ** $p < .05$, *** $p < .01$.

Ordinal logistic regression models. To facilitate interpretation, we reported results from ordinary least squares regression models in the main text, assuming that our dependent variables are continuous. However, these are technically ordinal rather than continuous variables. Would our results change if we treated our dependent variables as ordinal, and therefore estimate the results with ordinal logistic regression models? We report these models in [Table A9](#). Our results do not change.

Table A9. Ordered logistic regression models.

	Support/Oppose		High/Low	
	(1)	(2)	(3)	(4)
National	−0.01 (−0.16)	−0.00 (−0.01)	−0.04 (−0.51)	0.03 (0.31)
International	0.11 (1.48)	0.13 (1.54)	0.15* (1.96)	0.16** (1.97)
Age		−0.01*** (−5.85)		−0.01*** (−4.57)
Education		0.14*** (7.19)		0.08*** (4.35)
Female		0.24*** (3.28)		−0.08 (−1.15)
Income		0.02 (1.24)		−0.00 (−0.28)
Political Interest		0.07 (1.51)		−0.10** (−2.29)
Climate Worry		1.43*** (26.62)		0.97*** (19.06)
Left-Right		−0.19*** (−10.77)		−0.20*** (−11.95)
cut1	−3.28*** (−33.48)	0.08 (0.29)	−2.45*** (−32.48)	−1.04*** (−4.02)
cut2	−2.14*** (−31.33)	1.43*** (5.56)	−0.65*** (−11.70)	1.01*** (3.96)
cut3	−0.72*** (−13.16)	3.21*** (12.31)	1.18*** (20.32)	3.19*** (12.23)
cut4	1.24*** (21.54)	5.81*** (21.06)	2.97*** (34.00)	5.14*** (18.80)
Observations	3763	3159	3629	3065

t statistics in parentheses.

* $p < .10$, ** $p < .05$, *** $p < .01$.

Questionnaire

- Which canton and commune do you live in?
 - Aargau [1] – Zürich [26] • Aarau [1] – Zürich [2212]
- Please indicate your gender.
 - Male [1]
 - Female [2]
 - Other [3]
- Please indicate your year of birth.
 - 1908 [111] – 2001 [18]
- What is the highest level of education that you have already completed?
 - Incomplete compulsory school/primary school [1]
 - Compulsory school [2]
 - Transitional educational program [3]
 - General training without maturity [4]
 - Elementary vocational training or apprenticeship [5]
 - Maturity or teacher training school [6]
 - Post-secondary education, non tertiary [7]
 - Vocational high school with federal or master certificate [8]
 - University of applied science, university, ETH [9]

- Doctorate, habilitation [10]
 - Don't know [9999]
5. How worried are you about climate change?
 - Very worried [4]
 - Somewhat worried [3]
 - Not very worried [2]
 - Not at all worried [1]
 - Don't know [9999]
 6. How interested are you in politics?
 - Very interested [4]
 - Somewhat interested [3]
 - Not very interested [2]
 - Not at all interested [1]
 - Don't know [9999]
 7. In politics people sometimes talk of 'left' and 'right'. Where would you place yourself on the scale below, where 0 means the left and 10 means the right?
 - 0 [0] – 10 [10]

[Additional questions for a separate study]

- 1 [1] Switzerland is trying to reduce its greenhouse gas emissions by 50 per cent in the period up to 2030, compared with 1990 levels.
 - [2] This reduction target is a national commitment, which is pledged for the Energy Strategy 2050 in Switzerland.
 - [3] This reduction target is an international commitment, which is pledged for the Paris Agreement among countries.
1. Do you think that the Switzerland's 50 per cent reduction target by 2030 is too high or too low?
 - Much too high [1]
 - Too high [2]
 - About right [3]
 - Too low [4]
 - Much too low [5]
 - Don't know [9999]
2. Do you support or oppose Switzerland's 50 per cent reduction target by 2030?
 - Strongly support [5]
 - Support [4]
 - Neither support nor oppose [3]
 - Oppose [2]
 - Strongly oppose [1]
 - Don't know [9999]

[Additional questions for a separate study]

1. What is the gross annual income of your household? Please include all income of all persons who contribute to the maintenance. Count not only wages, but also any other income.
 - Less than CHF 33,000 [1]
 - CHF 33,000 – CHF 48,999 [2]
 - CHF 49,000 – CHF 61,999 [3]
 - CHF 62,000 – CHF 74,999 [4]
 - CHF 75,000 – CHF 87,999 [5]
 - CHF 88,000 – CHF 103,999 [6]
 - CHF 104,000 – CHF 121,999 [7]
 - CHF 122,000 – CHF 145,999 [8]
 - CHF 146,000 – CHF 186,999 [9]
 - CHF 187,000 or more [10]
 - Don't know [9999]