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DISCUSSION PAPER

Political framing for climate policy support

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Abstract

Effective climate mitigation requires policy interventions such as pricing greenhouse gas emissions. Yet, public resistance, especially toward tax-based measures, limits political action. While prior research highlights factors shaping climate-policy support, it often overlooks systematic differences across ideological groups. This study investigates how political ideology and partisan framing influence support for climate policies in Sweden. Using a survey experiment with frames derived from real political debates and party manifestos, we test whether ideologically congruent messaging increases support for policy packages or specific design features. We find ideological differences in baseline support, with left-leaning voters more supportive overall. However, congruent frames do not raise support; instead, a left-green framing reduces support of left leaning voters relative to a neutral frame, suggesting reactance or backlash. Left-leaning voters also adjust their preferences for policy design features in response to framing, whereas right-leaning voters remain largely unaffected. These findings underscore that framing can inadvertently repel key voter segments, with important implications for climate-policy communication and design.

1. Introduction

There is close to complete scientific consensus that mitigation of climate change is one of the most urgent issues facing humanity and that significant political action is required (IPCC, 2023). A widespread and academically accepted policy solution to this grand challenge involves putting a price on greenhouse gas emissions (World Bank Group, 2019, Hassler et al., 2020). The idea is that this would disincentivize emissions at all levels of the economy, and therefore effectively and cost efficiently reduce emissions and mitigate climate change. However, despite the widespread realization that climate action is urgently needed, and knowledge about effective solutions, relatively little is actually happening in terms of policy implementation (van Renssen, 2018). One reason for this is that most citizens appear to have little appetite for costly policies and in particular for new taxes that increase their overall tax burden (Carattini et al., 2019).

There is today a substantial body of empirical research devoted to shedding light on why certain policy proposals, including carbon tax proposals, receive more or less public support (Bergquist et al., 2022). While this literature has yielded important insights into how variations in policy design can foster support and acceptability for climate policies (e.g., Beiser-Mcgrath and Bernauer, 2019; Nowlin et al., 2020; see also Section 2 for more details), it often reports average effects that risk obscuring systematic differences across voter groups.

Citizens are not homogeneous in how they perceive or evaluate climate policy proposals; rather, preferences are shaped by beliefs, values, and ideology (Drews and van den Bergh, 2016). A more complete understanding of political feasibility therefore requires explicit attention to such heterogeneities in policy support.

In this paper, we focus on the role of political ideology and responses to political framing. That is how an ideologically grounded presentation or justification of policy proposals may influence support among different voter groups. Political parties almost always frame policy issues in ways that align with their ideological positions, and voters may respond differently depending on who communicates a message and how it is framed.

There are several studies demonstrating such effects, i.e., that framing effects may depend on the political ideology of the respondents (see e.g., Wiest et al. (2015), Singh and Swanson (2017), Feldman and Hart (2018), Rinscheid et al. (2020), Gillis et al. (2021), see also Section 2 for more details). We build on this literature and focus on Sweden as a case. Its political system is different from the two-party systems studied in prior work (mainly from the US), hence our study can provide broader insights into how partisan framing can influence the political acceptability of climate policy, where the political landscape consists of several parties grouped into two main blocks: a governing coalition and an opposition. Moreover, we also advance the existing literature by collecting the content for the ideological frames from political debates and party manifestos, thus building treatments that are very similar to the discourse of real-world political debates, maximizing the experimental realism. Third, by complementing our main empirical analysis and hypotheses-testing with an analysis of how framing influences the impact of specific variations in policy design on policy support we allow for a more detailed account of how issue framing might influence individuals' attitudes.

2. Previous research and theoretical expectations

Over the last decades, the scholarly attention dedicated to investigating the acceptability, acceptance and support of climate policies has drastically increased. Previous studies have looked at the relationship between public support and a large amount of individual level variables such as values (e.g., Dietz et al., 2007), norms (e.g., Harring and Jagers, 2013) and ideology (e.g., Severson and Coleman, 2015). Given that such individual-level factors tend to be stable over time and, therefore, are hard to change (Ejelöv & Nilsson, 2020), recent scholarship on climate policy attitudes has turned towards the investigations of how variations in policy design might foster support and acceptability for climate policies. Among other things, studies have shown that the support for carbon pricing schemes can increase using so-called tax-and-dividend-policies, where the income from the tax is redistributed across the population (e.g., Beiser-Mcgrath and Bernauer, 2019; Nowlin et al., 2020). Moreover, studies also show that the support for carbon taxes increase when revenues are used for other desirable purposes, such as financing public programs for supporting vulnerable households (Dechezleprêtre et al., 2025), green investment (Baranzini and Carattini, 2016; Dolšak et al., 2020) and tax cuts (Fremstad et al., 2022; Jagers et al., 2021; Jagers et al., 2019).

Based on these findings, scholars have drawn the conclusion that we, by carefully designing policies that respond to certain preferences in the electorate, should be able to increase support for such policies. Looking at two very recent contributions to this literature, however, there might be reason to believe that this connection is less straight forward than one might think at first sight. As in several other studies, Fremstad et al. (2022) find that the inclusion of such lump-sum payments substantially increases the support for carbon taxes, even for very high tax rates (230 USD/ton). However, conversely to previous studies, Fremstad et al. (2022) also exposes one part of their sample to a politicized framing, consisting of a short text accounting for the arguments for and against such a policy, together with information of some examples of actors that support each side of the argument. When introduced to this politicized framing, the otherwise strong and significant effects disappear. Similarly, the only study that, to our knowledge, investigated the public opinion across the actual implementation of a carbon tax with dividends, did not find any effects similar to those from the previously mentioned experimental literature – rather, they find support of the opposite. Using panel data with five measurements across the implementation of such a tax in several Canadian provinces (also including an embedded experiment), Mildenberger et al. (2022) only found a positive significant effect for those who already favored a carbon tax from the beginning. Contrary to the results found in previous experimental studies, there was no significant effect for conservative voters.

These findings indicating that politics sometimes triumph over personal financial gains echoes a vast literature in both political science and political psychology that emphasizes the importance of partisanship and ideology in shaping individuals' policy preferences and political behavior (e.g., Bartels, 2002; Bisgaard, 2019; Zaller, 1992). Individuals often lack the time, knowledge, and resources necessary to rationally consider all aspects relevant to political proposals. Thus, individuals use information-signals of various types as heuristics (i.e., cognitive shortcuts) to make attitude-formation less cognitively effortful (Kahneman, 2011). There is a large literature that investigates the effect of cues from political parties, so-called party-cues, showing that individuals tend to be more supportive of political proposals when they come from parties that one sympathizes with.

Similarly, issue framing, i.e., when an individual's attitude-formation is influenced by someone emphasizing "a subset of potentially relevant considerations" (Druckman, 2004, p. 672) - can also function as such a heuristic (Singh and Swanson, 2017). By now, there is a large literature that investigates the prospects for improving climate policy support by using various issue framings. The basic idea is that the support for climate policies should increase when framed in a way that is congruent with individuals' values and/or ideology. For example, Wolsko et al., (2016) showed that conservatives express more environmentally friendly attitudes when exposed to a framing that emphasize conservative values (e.g., authority and patriotism). In the context of climate policy support, Feldman and Hart (2018), examined how different message frames influenced support for four low-carbon energy policies among U.S. partisans. They found that Republicans reacted negatively to a climate-change frame, expressing lower support compared to when the same policies were framed in terms of pollution reduction or energy security. By contrast, Democrats and Independents showed no measurable framing effects. Similarly, Rinscheid et al. (2020) found that climate

policy support was not affected by norm messages. Instead, policy endorsement by political parties influenced support, although this effect was mediated by citizens' trust in those parties. Gillis et al. (2021) report that U.S. conservatives and moderates were more supportive of climate-change mitigation when exposed to information about private-sector mitigation efforts compared to public-sector efforts.

Other studies document more nuanced relationships between ideology and framing. Wiest et al. (2015) found that local frames increased perceptions of severity and support for localized policies across partisan lines, while also shifting behavioral intentions among Republicans and Independents. Singh and Swanson (2017) likewise found evidence that the effect of issue frames varies across ideological and partisan groups. Most notably, frames emphasizing national security, human rights, or environmental importance could lead Republicans and individuals on the political right to view climate-change policy as less important.

Contrary to these findings, however, some studies report null findings. Fesenfeld and collegues (2024) for example, find that emphasizing economic and health outcomes of climate policies has a limited effect on support. Bernauer and McGrath, (2016) compare different justifications for climate policies and find that reframing alone does not substantially increase support, especially when costs are salient. Thus, there is, currently, no definitive answer to the question of how issue framing influences climate policy support.

This article takes as its theoretical starting point two separate arguments. First, given that individuals have limited time, knowledge, and resources to evaluate details of any given climate policy agenda, they search their political environment for cues, helping them to make sense of information and, ultimately, form attitudes that align with their ideology and values. Second, the way in which the climate policy agenda is framed, reflecting variations in what societal goals and values it helps to achieve, constitutes such a cue, meaning that variations in the framing of any given climate policy agenda can influence individuals' climate policy attitudes. More specifically, we argue that individuals' exposure to issue framings that emphasize concepts that align with their ideology should function as an information-signal (i.e., a cue), making the connection between the climate policies and their broader values salient. This will inform our overarching hypothesis: *when exposed to a climate policy agenda framing that is (not) congruent with one's political ideology and values, support for climate policies is higher (lower).*

Moreover, as has been shown in the growing research on carbon taxes, the effects of variations in specific components of public policy influence left-leaning and right-leaning individuals differently (Jagers et al., 2019). This is not surprising, given that many such features are clearly more proximate to the general policy preferences of certain ideologies than others. However, beyond the fact that different design features should resonate differently with people depending on their ideologies, we will also explore if we can find the same pattern for ideological framings. Indeed, we argue that there are good reasons to believe that certain framings make certain features of policies, and by extension specific variations in policy design, more attractive. For example, considering a left-leaning ideological framing that emphasizes the importance of a just transition. Beyond any potential general positive

effects from people being sympathetic to left-leaning messages, it seems intuitive for recipients of such a frame to be more receptive to design features that explicitly target measures that would make the transition more socially just. Beyond our tests of the main hypothesis above, we will also do a set of exploratory analyses, testing if there are interaction effects between our set of framings and the features of policy designed that are varied in the conjoint experiment.

3. Sweden as a case

Our research focuses on Swedish citizens' support for policy packages aiming to reduce fossil fuel emissions from transportation. As part of the EU Fit for 55 package Sweden will need to implement interventions that can reduce its GHG emissions from transport by 50 % by 2030, compared to 2005 levels. According to the Swedish Climate Act (2017:72) by 2045 it stipulates no net emissions of greenhouse gases to the atmosphere and after 2045, and that domestic emissions should be reduced by at least 85% by 2045 compared with 1990 levels. This is a challenge considering that about 30 percent of all greenhouse gas emission comes from domestic road transportation (the main part from private vehicles) (The Swedish EPA, 2025).

Already operating under a comprehensive framework of environmental policies, it is reasonable to assume that the respondents in this study are generally familiar with the kinds of policy interventions being examined. Moreover, the high institutional ranking (Kaufmann and Kraay, 2024) likely minimizes the risk that survey responses are influenced by concerns about the state's ability to implement or manage the policies in question, which could skew respondents' evaluations of the policy measures included in the study. For these reasons Sweden and attitudes of Swedish citizens make an interesting case.

4. Methodological approach

To elicit attitudes towards policy interventions we use a survey-based approach, where a framing (or vignette) experiment is used to investigate the role of a policy agenda frame for climate policy support. The framing motivates the need for policy interventions. Through this survey we also collect data on socio-economic background variables, political party preferences, and attitudes to different policy packages.

We used a Swedish web panel provided by the survey company Lysio Research (former Enkätfabriken) to recruit survey participants. These panel members are in turn recruited by phone from a random sample of the Swedish population. The survey period was the beginning of 2023. The representativeness of the sample was ensured by distributing the survey randomly to participants in the panel stratified by gender, education and age to resemble the Swedish population until around 4500 survey responses had been collected. In total 4520 responses were gathered. Before going live, the survey went through an ethical review from the Swedish Ethical Review Board (#2022-02734-01).

4.1 Designing the policy agenda framings

We investigate if a motivation for policy packages implemented with the purpose to reduce carbon emissions (mainly from transportation) can influence support for the policy packages if framed differently. We use political party orientation to frame the motivation of the policy packages.

Our investigation takes place in the context of the Swedish political landscape. There are eight political parties in the Swedish Parliament: The Left Party (V), the Social Democratic Party (S), the Green Party (MP), the Centre Party (C), the Liberals (L), the Christian Democrats (KD), the Moderate Party (M) and the Sweden Democrats (SD).

To identify suitable policy agenda frames to match this landscape, we first studied the eight political parties' information leaflets and webpages about their environmental and climate politics and identified key words they use to introduce and motivate their climate policy strategy. To validate the original list with respect to spoken party politics and to identify potential additional keywords we did a text analysis of parliamentary debates and searched for keywords used in combination with the word climate* to identify keywords were used more often by representatives from the eight parties. See Appendix A in supplementary material for more details.

To validate our list of keywords among Swedish citizens and potential voters we constructed 10 statements (see list of all statements in Appendix A in the supplementary material) based on the list of keywords and expressions representing the different parties (where some statement could match several parties). We then tested these statements in a pilot by letting 200 respondents answer to what extent they agreed with the statements on a scale from 1-5. Two examples of statements used is below.

> *"It is important that Sweden is at the forefront and strives to be the world's first fossil free welfare state",*
>
> *"To reach our set climate targets it is important that we look for the most cost effective solutions"*

The political parties in Sweden are currently divided into two blocks, where one block consisting of four parties are in opposition and four parties constitute the base for government. One of the blocks constitute more left-oriented parties advocating for more state interventions in the economy and/or are environment-oriented advocating for environmental interventions (V, S, MP, C). The other block entails parties that are more right-oriented, liberal and/or conservative parties advocating for less state interventions in the economy and for the environment (L, M, KD, SD). This was also reflected in the preferences of voters in the pilot study. The answers to the statements in the pilot 'clustered' into the two blocks: a left- green and a right-liberal block (details on test in Appendix A in the supplementary material) so we decided to use two framings, matching the two separate blocks, and one control more neutral motivation.

Based on the statements we constructed the two policy agenda frames and used a bit more key words and expressions from the bigger party in the block (the one designated to be in governmental position should the block in question have parliamentary majority). The policy agenda frames and the control/neutral are provided in Table 1 below. Highlighted text is the different text for the different framings. The control uses text that is not emphasized.

Table 1: Climate policy agenda frames

Left- green	We would like to know what you think about different climate policy interventions in the transportation sector. If Sweden wants to be at the forefront and be the first fossil free welfare state, we need interventions that ensure we can reach targets as specified in the climate law. We need interventions that promote more sustainable lifestyles but at the same time it is important that they can ensure a just transformation. Interventions can be designed in different ways and how they are designed can have significant impact on you, other Swedish citizens, and Sweden. We ask you to read the following text carefully about how interventions can differ.
Right-liberal	We would like to know what you think about different climate policy interventions in the transportation sector. Because economic growth is a condition for solving the climate issue, interventions that promote technical innovations will be important. It is also important to focus on interventions that provide the most climate benefits globally, meaning that they give the most climate benefit per invested crown. Interventions can be designed in different ways and how they are designed can have significant impact on you, other Swedish citizens, and Sweden. We ask you to read the following text carefully about how interventions can differ.
Neutral	We would like to know what you think about different climate policy interventions in the transportation sector. Interventions can be designed in different ways and how they are designed can have significant impact on you, other Swedish citizens, and Sweden. We ask you to read the following text carefully about how interventions can differ.

4.2 Policy proposals

In the survey we used the policy agenda frames to introduce policy intervention proposals with the aim to reduce emissions from traffic.

Climate policy interventions in the transportation sector in Sweden are mainly in the form of fuel taxes and carbon taxes, and a regulation about the percentage use of fossil fuels in transportation fuels (called 'reduction duty'). We decided to use both these options as potential types of policy interventions that could be changed (made more stringent), both types though implying a specific increase in the price of fuel. We also made a choice of compensatory measures and investments that could be used along-side one of these two options. We included different geographical coverage and different implementation times as policy package alternatives. The choice of these design features and additional compensatory measures and investments was based on previous literature and based on current political discussions. Table 2 presents the different policy package design elements used in the survey.

Table 2: Policy package design elements used in the survey

Design elements	Alternatives used (variable name)
Type of intervention	• Tax on fuel (tax) • Stricter regulation on % biofuel in fuelmix (reduction duty)
Price increase levels (1SEK =0.091 Euro)	• 20 SEK (high) • 10 SEK (medium) • 5 SEK (low)
Compensatory investments	• Development of renewable energy sources, electrification, energy efficiency (renew.) • Support to car dependent remote areas (car) • Development of nuclear energy (nuclear) • Investments in public activities, school, health care, elderly care, employment (public)
Geographical coverage	• Sweden (Swe) • EU (EU) • EU, China, USA, Russia, India, Australia (EU+) • Global (Global)
Timing aspect	• Immediately (Imm.) • Over a 3-year period (3year) • Over a 5-year period (5year)

Each respondent faced twelve different policy proposals (in pairs of two) in total and was asked to indicate their support (or lack of support) for each of the proposals on a Likert scale from 1-5 where 1 represents no support and 5 full support. They were also asked to indicate which of the two proposals they preferred. The exact proposals and the order of the proposals were randomly chosen for each participant. For the OLS regression analysis (see below) we calculated the average acceptance for each individual and used it as the dependent variable. For the logistic regression we used the choice (between the two policy packages) as a dependent variable.

4.3 Political preferences

In the beginning of the survey, before introducing the policy proposals we asked the respondents to indicate their political preferences by placing themselves politically on a scale from 1 to 7 where 1 indicates complete leaning to the left and 7 complete leanings towards the right. For the regression analysis we rescaled the leaning scale to a centred leaning scale so that the 4 (representing a neutral voter) is given the value of 0. Values 1, 2 and 3 (leanings towards the left) are then instead rescaled to negative values -3, -2, and -1 respectively, and values 5, 6, 7 (leanings towards the right) rescaled to 1, 2, 3 respectively. We also asked them to indicate their preferences for each political party by grading them on a scale from 1 (lowest grade possible) to 10 (highest grade possible).

4.4 Sample representativeness

To make sure we have a representative sample across the treatments we also asked about income, education, age, gender, and type of residential area (bigger city, smaller city, or rural area). Compared to the Swedish population our sample is slightly older and more educated, but with a slightly lower income compared to the average (see table below).

Table 3: Representativeness of the survey sample

	Survey Sample	Swedish population
Population	4520	10,54 millions
Mean age	Mean age 49	Mean age 42
Gender	49.0% is female	49.7% is female
Income	76% is in the middle- or high-income bracket	80% of Swedish population is in the middle- or high-income bracket
Education	52% has higher education	30% has higher education

Source: Statistical database, Official Statistics of Sweden (www.statistikdatabasen.scb.se).

4.5 Empirical strategy and analysis

We want to investigate to what extent average acceptance is influenced by ideologically based policy agenda frames of climate policies and if these effects differ across individuals depending on their ideology. We thus want to investigate if there is an interaction effect between political party preferences and framing, that is: are individuals more responsive (positively) to their 'own' ideological and potentially repelled by another framing? To this end we set up the following operationalizable hypotheses:

Hypothesis 1: Average support of left leaning voters when being confronted with a left-green framing is higher compared to when being confronted with a right-liberal framing or a neutral framing

Hypothesis 2: Average support of right leaning voters being confronted with a right-liberal framing is higher compared to when being confronted with a left–green framing or a neutral framing.

We test these hypotheses through a regression analysis controlling for effects of framing without considering interaction effects, as well as controlling for interaction effects between framing and political preferences. We use a standard OLS with clustered standard errors (at the individual level) with average support as the dependent variable. This average (one observation per survey respondent) is based on the average support of all policy proposals the respondent is confronted with. We use political leanings (on 7-point left to right scale) to indicate political preferences. We also explore if preferences for design features of the policy packages depend on framing and ideology. To this end, we use logistic regressions. We use StataSE 18 for the statistical analysis.

5. Results

5.1 Hypothesis testing

We first test for systematic differences between the three treatments with respect to socio-economic background variables but detected no such differences; the randomization worked (see Appendix C in the supplementary material for more details).

We then perform regression analyses to test our two hypotheses. Table 4 shows the results we obtain when we run standard OLS regressions with average support as the dependent variable. The average for an individual is based on all policy packages he/she was exposed to. We control for political leaning and the two framings (main effects model) and also for their interactions (full interaction model). Based on our hypotheses we expect a positive and significant coefficient of the interaction between political leaning and the right-liberal framing (RL*Leaning) and a negative and significant coefficient between political leaning and the left-green framing (LG*Leaning).

Based on the results of the regression model with interactions effects summarized in Table 4, we cannot find support for our two hypotheses. There are no significant interaction effects - framing does not have the hypothesized effect ($p = 0.174$; $p = 0.548$). These results also hold in a sensitivity analysis, where we have run the same regression models but without supporters of the only political party who did not vote for the climate law in parliament (Sweden Democrats). We ran this sensitivity analysis to detect if results are driven by this voter group, as one might expect protest answers among these voters (see Appendix D in the supplementary material).

Table 4: Results from OLS regression, average support as dependent variable (clustered standard errors).

	Model with main effects		**Full interaction model**	
	Coefficient std. Error	P-value	Coefficient std. Error	p-value
Right-liberal framing (RL)	-0.0463 0.0260	0.075	-0.5090 0.0262	0.052
Left-green framing (LG)	-0.0605 0.0262	0.021	-0.0628 0.0266	0.018
Leaning (left-to right)	-0.0643 0.0063	0.000	-0.0746 0.0111	0.000
Constant	2.8364 0.0185	0.000	2.8389 0.0186	0.000
RL*Leaning	-	-	0.0211 0.0155	0.174
LG*Leaning	-	-	0.0094 0.0157	0.548
Model Fit	36.07	0.000	22.02	0.000
Adj R square	0.0250		0.0254	
N	4,225		4,225	

Result 1: Being exposed to a climate policy agenda framing that is congruent with one's political ideology does not increase support.

Turn instead to the main effects model in Table 4 (since we can disregard interaction effects): while left leaning voters are more supportive on average (p = 0.000), the left- green framing seems to repel voters on average compared to a neutral framing (p = 0.021) (note that these results also hold in the full interaction model).

Result 2: There are differences in average support across political preferences where left-leaning voters are more supportive on average.

Result 3: The left-green framing seems to repel voters on average compared to a neutral framing.

These results are also confirmed by Table 5 where we show average support across treatments/framings (rows) and political leaning (columns). Because we can reject normality on all continuous variables (see Appendix B in the supplementary material) we use non-parametric Kruskall-Wallis tests for detecting statistical differences between the treatments and groups. Regardless of treatment, left-leaning voters are on average more supportive, which is also significant (p=0.001 for all three treatments). Also, the left-green framing is consistently associated with a lower support compared to the neutral framing (control) - this is especially so among left-leaning voters (compare 2.98 with 2.9) and neutral voters (compare 2.84 with 2.76). A pairwise nonparametric Wilcoxon rank sum test confirms that for left-leaning voters (left column) the difference in average support between the control and the left-green framing is statistically significant (z =-2.047, p= 0.0406). For neutral voters the difference is significant only at the 10 percent level (z = -1.716, p= 0.0862)

Table 5: Average support across treatments and political preferences, p-values of equal distributions (Kruskal-Wallis)

	Left-leaning (leanings scale 1,2,3)	**Neutral (leaning scale 4)**	**Right-leaning (leaning scale 5,6,7)**	**p-value**
Control	2.98	2.84	2.67	0.001
Right liberal framing	2.88	2.82	2.68	0.001
Left green framing	2.90	2.76	2.64	0.001
p-value	0.0725	0.2131	0.8472	

5.1 Explorative analysis

We then proceed to analyse how policy package preferences depend on the different design features of the policy and if there are differences depending on framing and the political preferences of the voter. To this end we used logistic regressions with the choice of policy packages as dependent variable (a 0/1 variable where 1 indicates that the package (with a certain set of features) where chosen. Figure 1 illustrates these results as average marginal effects on the probability that a policy package is chosen with a specific design feature with a 95% confidence interval (the full regression results can also be found in Appendix E in the supplementary material). The design features listed are price levels (low, medium) compensatory measures (renewables, nuclear energy, car dependent households), geographical coverage (EU, EU+ and global), type of intervention (reduction duty), and timing of intervention (over 3 years, over 5 years). The default reference variables are: a high price level, compensation to renewable energy, Swedish coverage, a tax, and immediately.

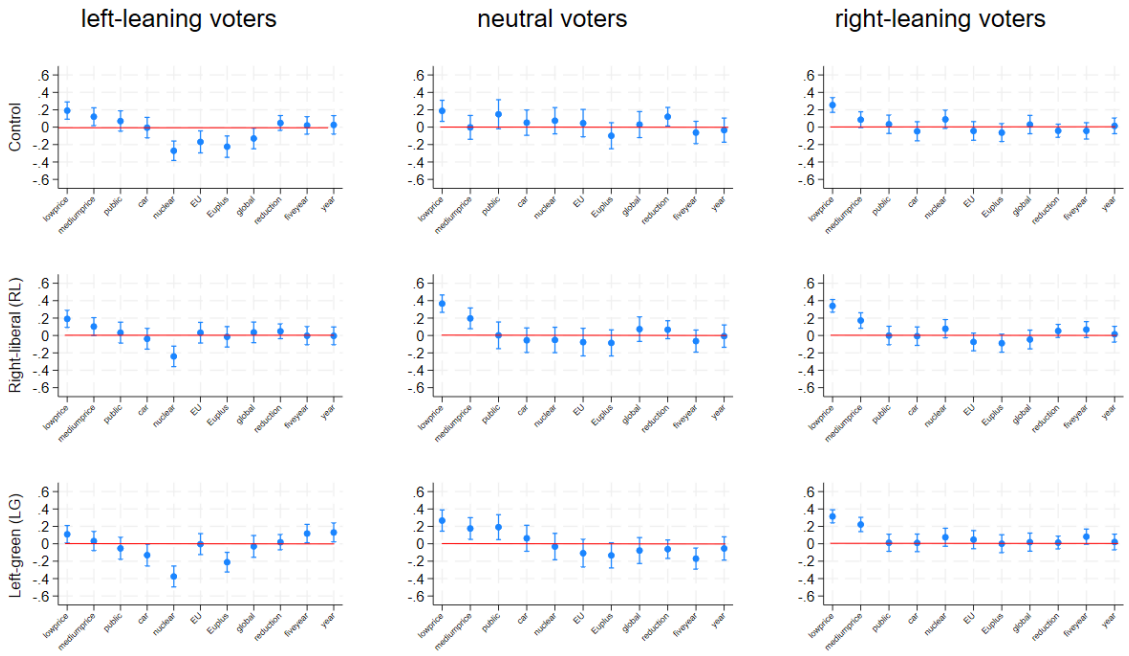

Figure 1: Preferences for design features (expressed as changes in probability that the package will be chosen if the design feature is present). Separated for different voter groups and for different framings

Figure illustrates that references for specific design features depend on framing for left-leaning voters. On the one hand, the left-green framing seems to trigger a preference for more stringent policy package compared to the neutral framing (control); a lower price level ("low", "medium") is not as significant as in the other framings, compensating households that are car dependent ("car") is negative and significant and the scope of the policy does not seem to be as important. On the other hand, a preference for a slightly delayed policy is present under the left-green framing ("5year", "3year"). In the right-liberal framing there are fewer significant variables: to invest in nuclear energy is still significant however, as is the lower price level.

Contrasting, right-leaning voters care about the price levels and framing does not change this. For right-leaning voters support increases with a low and medium price level and there is no real difference between the framings.

Result 4: While left-leaning voters are sensitive to the policy agenda frame when it comes to preferences for specific policy design features, right-leaning voters are not.

6. Discussion and Conclusions

In accordance with prior literature, we find strong ideological differences in baseline support for climate policy interventions, with left-leaning individuals expressing substantially stronger acceptance than right-leaning individuals. This finding serves to confirm existing literature indicating that political identity, values, and belief systems remain key fundamental drivers of climate policy preference (Drews & van den Bergh, 2016; Bergquist et al., 2022;

Kallbekken & Sælen, 2011). From this perspective, our results largely confirm established findings and thus provide a useful benchmark to interpret and understand framing effects on support levels by way of communication approaches.

A central finding of the study is that ideologically congruent framing does not increase support and may instead reduce acceptance among left-leaning voters. In particular, a left-green framing lowers support relative to a neutral frame among voters who are otherwise most supportive of climate policy. This result contrasts with earlier studies suggesting that value- or ideology-congruent frames can enhance persuasion and highlights the limits of framing in highly politicized policy domains.

One explanation is that left-leaning voters already display high baseline acceptance, leaving limited scope for positive framing effects. For these voters, additional ideological cues may be redundant and may instead trigger negative reactions. Moreover, left-leaning voters are not a homogeneous group: while many are strongly supportive, others hold more conditional or ambivalent preferences for climate policy interventions. For these individuals, explicit ideological framing may induce reactance, leading to reduced support. A similar, though weaker, pattern exists among politically neutral voters. For right-leaning voters, who exhibit lower baseline support, framing has little effect. When the information is congruent with their ideological beliefs, they fail to accept it, and this suggests that framing by itself is not an effective method of overcoming strong ideologically based opposition.

The observed repel effects are consistent with evidence from environmental psychology and behavioural economics on backlash and reactance. Studies show that individuals may resist policies or messages perceived as moralizing, or autonomy-threatening (Brehm, 1966; Li and Shi, 2025). In the context of climate policy, where debates are highly polarized, voters may also experience framing fatigue or aversion to politicized narratives. In addition, frames derived from party rhetoric may signal political or normative bias, potentially undermining perceived neutrality and credibility that one would expect from researchers. These mechanisms provide plausible explanations for why ideologically aligned framing can backfire rather than persuade.

Beyond overall acceptance, we find that framing affects how voters evaluate specific policy design features, with clear ideological differences. Right-leaning voters exhibit relatively stable preferences across frames. Their support is primarily driven by price-related attributes, and framing has little effect on their evaluation of other design features. This suggests a comparatively homogeneous group with well-defined preferences that are less sensitive to symbolic or ideological cues.

Left-leaning voters, in contrast, are more sensitive to framing. While they are more supportive on average, both ideological framings reduce acceptance relative to a neutral frame. At the same time, framing appears to alter which design features are perceived as attractive, indicating that framing reshapes internal trade-offs within this group. Thus, even when framing does not raise overall support, it can influence how voters prioritize elements such as compensation, investment, or complementary measures. This finding underscores that acceptability is multidimensional and context-dependent.

The implications for climate-related framing around policies are significant. Climate policymakers ought to be extremely cautious about relying upon framing by ideological commitments to mobilize supportive groups. The framing may actually alienate swing voters, including some groups of voters who might largely support action on climate. Acceptability is not fixed, even within supportive groups. Though the study is centered on framing effects rather than policy assessments, the package of policies included, covering the aspects of price, compensation, energy efficiency, and investment, essentially encompasses the essential aspects under ongoing climate change policies.

The current study highlights several directions for further research. First, there is a need to explore framing preferences and study the population who is more susceptible to the consequences of reactance or framing-related backlash. Second, further research should explore how these dynamics vary across political contexts and over time. Sweden provides an informative case due to its high institutional trust and long history of climate policy, but generalizability to other contexts remains an open question.

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Supplementary material

Appendix A: Constructing policy agenda frames

Methodology

Our approach to the left- green and right-liberal framing was based on both a subjective reading of party programs and a textual analysis of parliamentary debates. More specifically we proceeded in the following steps.

1) All party programs were studied and keywords/phrases that related to the topic (climate and energy policy) were collected (Table A1).
2) Based on text analyses, the frequency of occurrence of these keywords/phrases in all the political debates taking place in the Swedish parliament during the years 2019 and 2020 were recorded (Table A1).
3) A search was done to also record the frequencies for all word variations starting with word 'klimat' (climate) (Table A2).[1] This search was used to complement the list of keywords.
4) These three first steps resulted in a list of potential keywords to use (Table A3) when constructing the framings. Based on these keywords a list of statements was put together (Table A4).
5) The statements were tested for reliability in a pilot (n=200). The test checked if people tended to agree with left-green statements or right-liberal statements, i.e. if observations tended to

[1] In Swedish, closed compound words are common. For example, climate policy is "klimatpolitik".

cluster in two distinct blocks. Correlation tests were also used to check if agreement with statements belonging to a block/party also correlated significantly with political party orientation (Table A5).

6) The statements (and keywords and phrases used in these statements) were then used to construct the framings used in the main experiment.

Searching for keywords and phrases

Table A1: Frequency counts in the parliamentary debate (all parties) for climate related words/phrases found in each respective party's political program (in Swedish).

	S	**MP**	**V**	**C**	**L**	**M**	**KD**	**SD**
Words/phrases found in program of Socialdemokraterna S (Social democrates)								
Fossilfria välfärdsland	**21**	**4**	1	1	1	0	0	0
Klimatomställning	**41**	**8**	**6**	3	2	3	2	1
Grön omställning	**9**	**7**	**16**	3	0	2	0	0
Föregångsland	**15**	0	3	4	3	1	5	2
Klimatvänliga innovationer	0	0	0	0	0	0	0	0
Framtidens jobb	4	1	0	1	0	0	0	0
Klimatinvesteringar	3	7	2	0	3	2	1	2
Förnybart	9	12	10	5	3	21	2	11
Reduktionsplikt	**6**	**3**	0	0	3	0	0	1
Hållbar och circulär ekonomi	0	0	0	0	0	0	0	0
FNs globala fond	0	0	0	0	0	0	0	0
Industriklivet	**15**	**15**	0	2	0	2	1	0
Klimatsmart teknik	0	0	0	0	1	0	2	0
Biogasproduktion	0	1	0	0	1	0	0	0
FN klimatmöte 2022	0	0	0	0	0	0	0	0
Lokala och regionala satsningar	0	0	0	0	0	0	0	0
Words/phrases found in program of Miljöpartiet MP (Environmental party)								
Minskad konsumtion	1	1	1	0	0	0	0	0
Hållbar livsstil	0	**2**	0	0	0	0	0	0
Kraftfulla styrmedel	1	1	0	0	0	0	0	0
Klimaträttvisa	0	2	4	0	0	0	0	0
Omställning	**132**	**69**	**50**	30	16	45	18	10
Försiktighetsprincip	3	1	2	0	0	0	0	2
Jämlikhet	**28**	9	**55**	4	3	5	5	5
Words/phrases found in program of Vänsterpartiet V (Left Party)								
Klimatkris	**7**	**18**	**14**	2	0	3	0	0
Jämlikhet	**28**	9	**55**	4	3	5	5	5
Föregångsland	15	0	3	4	3	1	5	2
Klimatomställning	**41**	8	6	3	2	3	2	1
Rättviseperspektiv	0	0	1	0	0	0	0	0
Words/phrases found in program of Moderaterna M (Moderates)								
Grön tillväxt	1	0	0	1	2	0	0	0
Fossilfri fordonsflotta	2	0	0	0	1	3	0	3
Klimatavdrag	1	0	0	0	0	2	0	0
Marknadslösningar, PPP	0	0	0	0	0	0	0	0

Teknikutveckling	6	5	1	**10**	**11**	4	3	6
Klimatkompensation	0	2	3	0	0	0	0	0
Grönt föregångsland	0	0	0	1	0	0	0	0
Internationella investeringar	0	1	0	1	0	0	0	0
Öka klimatbistånd	0	0	0	0	0	0	0	0
Kostnadseffektivitet	8	3	0	0	3	2	2	1
Internationella överenskommelser	3	1	1	0	0	4	0	0
Miljöbilspremium	0	0	0	0	0	0	0	0
Biobränsle produktion	0	0	0	0	0	0	0	0
CCS	1	6	0	0	1	3	4	0
EU-ETS	0	0	0	0	0	0	0	0
Globala utsläppsminskningar	0	0	0	0	0	**2**	0	0
Flexibla mekanismer	0	0	0	0	0	0	0	0
Phrases found in program of Kristdemokraterna (KD) (Christ democates)								
Exportera ideer	0	0	0	0	0	0	0	0
Satsa på el och vätgas	0	0	0	0	0	0	0	0
CCS	1	6	0	0	1	3	4	0
Phrases found in program of Liberalerna L (Liberals)								
Förorenaren betalar	1	4	1	0	0	2	0	1
Koldioxidskatt	4	7	0	0	3	2	2	1
Marknadslösningar	1	0	0	0	0	0	0	0
Skatteväxling	3	8	0	13	5	5	1	6
Klimatinvesteringar	3	**7**	2	0	3	2	1	2
Phrases found in program of Centern C (Center)								
Hållbart samhälle	**12**	**10**	4	6	3	0	0	1
Teknisk utveckling och innovation	0	0	0	0	0	0	0	0
Tillväxt	113	18	14	40	43	**163**	24	32
Globala lösningar	0	0	0	0	1	0	0	0
Styrmedel	**23**	**31**	**10**	**9**	**6**	**11**	**6**	**6**
Klimathot	1	0	0	0	3	0	0	0
CCS	1	6	0	0	1	3	4	0
Föregångsland	**15**	0	3	4	3	1	5	2
Föregångskontinent	0	0	0	0	0	0	0	0
Phrases found in program of Sverigedemokraterna SD (Sweden democrats)								
Forskning utveckling	0	0	0	0	0	0	0	0
Kostnadseffektivitet	**8**	**3**	0	0	**3**	**2**	**2**	**1**
Minska oljeberoende	0	0	0	0	0	0	0	0
Kärnkraft	51	44	13	21	20	**77**	22	30
El och vätgas	0	0	0	0	0	0	0	0
Internationella åtgärder	0	0	0	0	0	0	0	0

The table A2 below shows the 10 most common variations of the words starting with ‘klimat’ for each party and how frequent they are spoken by the other parties. Of all variations only ‘klimat’ appeared among all parties.

Table A2: Frequency of different words starting with ‘klimat’ per political party

	S	MP	V	C	L	M	KD	SD
Number of sentences	727	840	454	222	277	445	153	128
Per mil of all sentences	12	39,3	22	14	20,7	11,9	7,6	5,3

Klimat	1	1	2	1	3	3	2	4
Klimatet			1	2	1	1	1	1
%omställning	2		9					
%omställningen		5	5	5	7			
%förändringarna	3	3	3				6	
%förändringar	10		8	9	9			
%smart	4			10		7	9	
%smarta	7				8			
%påverkan	5	4		3	5		5	
%politik	6		10	6	4	2	4	2
%politiken		6				4		3
%neutralt	8							
%utmaningen	9							
%utmaningarna					6		8	
%mål						5		
%målen		2	7			6	3	5
%kris			4					
%krisen					10			
%arbetet		8						10
%lagen		**7**						
%lag		**9**						
%handlingsplan		10						
%krav			6					
%frågan				4	2	8		
%biståndet				7				
%ministern						9		
%minister						10		8
%toppmöte							10	
%nytta							**7**	**7**
%nyttan								**6**
%vänlig								9

A list was put together with candidates for keywords and phrases to be used in a general framing/motivation to policy interventions (hence excluding mentioning specific policy interventions). This list was constructed based on the relative frequency of occurrence of a phrase linked to a specific party and political block. For example, based on table A2, ‘klimatlag’ (climate act) is a typical left/green word while ‘klimatnytta’ (climate benefit) is a typical right/liberal word and is added to the list as none of these was mentioned in the party program. If a candidate keyword was used by several parties in a debate, we chose to list it under the party where it was found on their webpage/mentioned in their policy program. This was for example the case with styrmedel (C) and kostnadseffektiv (SD).

Table A3: Candidates for keywords and phrases to be used in the frames

Left-green candidates		**Right-liberal candidates**	
Swedish (original)	**English (translated)**	**Swedish (original)**	**English (translated)**

Fossilfritt välfärdsland/föregångsland	Fossil-free welfare state/frontrunner country	Teknik utveckling/ lösningar	Technology/technological development/solutions
Grön/klimat omställning	Green/climate transition	Globala utlsäppsminskningar	Global emission reductions
Jämlikhet	Equality	Tillväxt	Growth
Hållbart samhälle/livsstilar	Sustainable society/lifestyles	Klimatnytta	Climate benefit
Klimatlagen	Climate Act	Kostnadseffektiv	Cost-effective
Klimatkris	Climate crises		
Styrmedel	Policy instruments		

Statements constructed

Based on the identified keywords the following statements were constructed (point 4) and tested in the pilot. The criteria for selecting a phrase to a specific framing was that the phrase should be common for parties included in that framing group and uncommon for the other parties.

Table A4: Statements constructed

Swedish (original)	**English (translated)**	**Left-green (LG) or Right-liberal (RL)**
Det är bra att Sverige visar vägen och strävar efter att bli världens första fossilfria välfärdsland	It is good that Sweden is leading the way and striving to become the world's first fossil-free welfare state.	Left-green
För att kunna uppnå våra uppsatta klimatmål behöver vi kraftfulla styrmedel	To achieve our established climate targets, we need powerful policy instruments.	Left-green
För att kunna uppnå våra uppsatta klimatmål behöver vi satsa på de mest kostnadseffektiva lösningarna	To achieve our established climate targets, we need to invest in the most cost-effective solutions.	Right-liberal
Jag tycker att klimatförändringarna ska likställas en kris	think climate change should be regarded as a crisis.	Left-green
För att kunna uppnå våra uppsatta klimatmål behöver vi satsa på marknadsbaserade lösningar	To achieve our established climate targets, we need to invest in market-based solutions.	Right-liberal
För att kunna uppnå våra uppsatta klimatmål behöver vi minska vår konsumtion	To achieve our established climate targets, we need to reduce our consumption.	Left-green
Vi bör införa åtgärder där de ger mest klimatnytta per spenderad krona	We should implement measures where they deliver the most climate benefit per krona spent.	Right-liberal
Vi behöver framför allt teknisk utveckling och innovation/forskning för att lösa klimatfrågan	Above all, we need technological development and innovation/research to solve the climate issue.	Right-liberal
Tillväxt är en förutsättning för att vi ska kunna lösa klimatfrågan	Growth is a prerequisite for solving the climate issue.	Right-liberal
För att kunna uppnå våra uppsatta klimatmål behövs en mer hållbar livsstil än vi har idag	To achieve our established climate targets, we need a more sustainable lifestyle than we have today.	Left-green
Vi behöver eftersträva jämlikhet i en klimatomställning	We need to strive for equality in a climate transition.	Left-green
Vi bör införa åtgärder som kan säkerställa att vi når de uppsatta målen enligt klimatlagen	We should introduce measures that can ensure we reach the targets set out in the Climate Act.	Left-green

För att klara av klimatutmaningen behöver vi fokusera på de utsläppsminskningar som ger mest klimatnytta på global nivå	To meet the climate challenge, we need to focus on emission reductions that deliver the greatest climate benefit at the global level.	Right-liberal
För att kunna nå våra uppsatta klimatmål behövs en omfattande livsstilsförändring	To reach our established climate targets, an extensive lifestyle change is needed.	Left-green
En klimatomställning behöver vara rättvis för att lyckas	A climate transition needs to be fair in order to succeed.	Left-green

Evaluation of statements (n=200)

We asked each survey participant in the pilot to answer the following. Below is a list of statements. We want you to indicate to what extent you agree with these statements on a scale from 1 to 7, where 7 indicates that you completely agree and 1 that you completely disagree with the statement.

First Cronbach's alpha was used to get a measure of internal consistency, meaning how well the set of statements measure the same underlying construct (attitudes and beliefs). The Cronbach's alpha associated with the left-green coded statements was 0.935 (excellent) and for the right-liberal coded statements it was 0.873 (very good).

We then proceeded to calculate two composite values for each individual based on the answers to these statements. The composite value is an average value for each individual based on agreements with the left-green statements and similarly based on the agreements with the right-liberal statements. We checked how these values correlated with political party preferences which in turned are based on ratings each survey participant gave to each of the parties (scale: 1-10). Correlation results below.

Table A5: Correlation between statement agreements and political preferences.

	Composite value left-green		Composite value right-liberal	
	Correlation coefficient	P-value	Correlation coefficient	P-value
V	0.429	0.000	0.019	0.741
S	0.457	0.000	0.124	0.035
MP	0.606	0.000	0.173	0.003
C	0.481	0.000	0.245	0.000
L	0.137	0.020	0.285	0.000
KD	-0.204	0.005	0.119	0.042
M	-0.168	0.004	0.215	0.000
SD	-0.407	0.000	-0.060	0.307

Table A5 shows that those who give a higher rate to the parties in government (L, KD, M, SD), i.e. the right-liberal block, tend to agree more with a right-liberal framing compared to a left-green framing and vice versa. Thus, based on the keywords and phrases used in the statements, the two framed political agenda vignettes (and one neutral) were formulated.

Appendix B: Normality tests

Table A6: Shapiro Wilk's test for normality

	Control treatment			Right-liberal treatment			Left green treatment		
	#obs	W	p-value	#obs	W	P-value	#obs	W	p-value
Age	1509	0.962	0.000	1506	0.962	0.000	1505	0.961	0.000
City type	1509	0.988	0.000	1506	0.987	0.000	1505	0.988	0.000
Leanings	1407	0.991	0.000	1424	0.990	0.000	1394	0.993	0.000
Income range	1509	0.449	0.000	1506	0.446	0.000	1505	0.447	0.000
Education level	1509	0.992	0.000	1506	0.992	0.000	1505	0.993	0.000

Appendix C: Testing for systematic differences across treatments

We use non-parametric Kruskall-Wallis test for analysing differences between the treatments and control groups, except when testing for proportions (gender) where we use a Pearson's chi-square test. The randomization seems to have worked we detect no significant difference (on a 5% significance level) for the socioeconomic variables across the three treatments.

Table A7: Descriptive statistics across treatments

	Control treatment	**Right-liberal treatment**	**Left-green treatment**	
	Average (Std. dev.)	Average (Std. dev.)	Average (Std. dev.)	p-value
Leanings (left-right)	4.2429 (1.680)	4.1618 (1.6937)	4.3296 (1.6754)	0.0704
Income range	5.3077 (2.1049)	5.2500 (2.1216)	5.2464 (2.0826)	0.7063
Type of city (big city-rural)	3.4314 (1.7870)	3.5105 (1.7992)	3.4286 (1.8106)	0.2893
Age	50.9864 (77.4714)	47.75 (17.7111)	47.8466 (17.6938)	0.9479
Gender (1=man, 2=woman)	1.4796 (0.5028)	1.4804 (0.5043)	1.4974 (0.5062)	0.291
Education level	3.4774 (0.6282)	3.4834 (0.6377)	3.4860 (0.6488)	0.7428

Appendix D: Sensitivity analysis

	Full interaction model		Main effects model	
	Coefficient std. Error	P-value	Coefficient std. Error	p-value
Right-liberal framing (RL)	-0.1503 (0.071)	0.034	-0.0536 0.0270	0.047
Left-green framing (LG)	-0.0534 0.0730	0.464	-0.0825 0.0272	0.002
Leaning (left-to right)	-0.0534 0.0118	0.000	-0.472 0.0069	0.000
Constant	3.1000 (0.0507)	0.000	3.0752 (0.0333)	0.000
RL*Leaning	0.0247 (0.0166)	0.138	-	-
LG*Leaning	-0.0071 (0.0169)	0.675	-	-
Model Fit	26.18	0.000	24.479	0.000
Adj R square	0.016		0.0162	
N	3,489		3,489	

Appendix E: Results from logistic regression

	Left-leaning voters		Neutral voters		Right-leaning voters	
Neutral framing	Odds ratio (st. Err)	p-value	Odds ratio (st. Err)	p-value	Odds ratio (st. Err)	p-value
Low price	2.385 (0.579)	0.000	2.258 (0.640)	0.004	2.997 (0.611)	0.000
Med price	1.726 (0.420)	0.025	0.990 (0.300)	0.974	1.449 (0.292)	0.066
Public	1.378 (0.378)	0.242	1.905 (0.718)	0.087	1.154 (0.268)	0.538
Car	0.975 (0.267)	0.928	1.251 (0.404)	0.488	0.816 (0.197)	0.400
Nuclear	0.291 (0.082)	0.000	1.380 (0.463)	0.338	1.473 (0.342)	0.095

EU	0.463 (0.139)	0.011	1.222 (0.427)	0.566	0.830 (0.196)	0.430
EU+	0.361 (0.108)	0.001	0.652 (0.218)	0.202	0.764 (0.174)	0.238
Global	0.554 (0.155)	0.035	1.137 (0.377)	0.697	1.138 (0.264)	0.577
Reduction	1.245 (0.248)	0.271	1.686 (0.411)	0.032	0.838 (0.140)	0.288
5-year	1.094 (0.255)	0.700	0.765 (0.219)	0.350	0.832 (0.173)	0.377
3-year	1.126 (0.279)	0.632	0.863 (0.265)	0.631	1.065 (0.210)	0.748
Constant	1.293	0.450	0.544 (0.220)	0.132	0.773 (0.207)	0.338
LR chi2	60.4	0.000	24.47	0.011	44.83	0.000
#obs	476		303		628	
Right liberal framing	Odds ratio (st. Err)	p-value	Odds ratio (st. Err)	p-value	Odds ratio (st. Err)	p-value
Low price	2.309 (0.535)	0.000	5.422 (1.614)	0.000	4.619 (0.953)	0.000
Med price	1.568 (0.366)	0.054	2.481 (0.739)	0.002	2.619 (0.463)	0.000
Public	1.153 (0.312)	0.598	1.008 (0.364)	0.982	0.995 (0.243)	0.985
Car	0.846 (0.226)	0.530	0.777 (0.259)	0.450	0.964 (0.235)	0.881
Nuclear	0.348 (0.097)	0.000	0.788 (0.272)	0.489	0.416 (0.343)	0.151
EU	1.150 (0.307)	0.600	0.702 (0.264)	0.346	0.716 (0.169)	0.156
EU+	0.935 (0.247)	0.799	0.673 (0.239)	0.266	0.671 (0.161)	0.097
Global	1.169 (0.312)	0.577	1.397 (0.467)	0.317	0.812 (0.201)	0.401
Reduction	1.235 (0.236)	0.269	1.358 (0.333)	0.212	1.264 (0.218)	0.174
5-year	0.987 (0.231)	0.955	0.742 (0.223)	0.321	1.355 (0.288)	0.152
3-year	0.980 (0.225)	0.929	0.967 (0.292)	0.910	1.065 (0.221)	0.762
Constant	0.910 (0.286)	0.763	0.566 (0.225)	0.153	0.515 (0.141)	0.015
LR chi2	40.23	0.000	44.38	0.000	67.03	0.000
#obs	491		319		614	
Left green framing	Odds ratio (st. Err)	p-value	Odds ratio (st. Err)	p-value	Odds ratio (st. Err)	p-value
Low price	1.664 (0.407)	0.038	3.352 (1.046)	0.000	4.069 (0.825)	0.000
Med price	1.156 (0.303)	0.582	2.213 (0.668)	0.009	2.688 (0.541)	0.000
Public	0.781 (0.237)	0.416	2.378 (0.818)	0.012	1.051 (0.235)	0.825
Car	0.543 (0.165)	0.045	1.332 (0.463)	0.410	1.048 (0.240)	0.838
Nuclear	0.172 (0.057)	0.000	0.865 (0.303)	0.678	1.397 (0.331)	0.157
EU	0.983 (0.282)	0.952	0.612 (0.228)	0.187	1.236 (0.293)	0.372
EU+	0.372 (0.106)	0.001	0.547 (0.186)	0.077	1.003 (0.235)	0.990
Global	0.869 (0.256)	0.639	0.703 (0.244)	0.309	1.087 (0.257)	0.724
Reduction	1.089 (0.229)	0.685	0.755 (0.187)	0.255	1.064 (0.177)	0.709
5-year	1.734 (0.446)	0.032	0.462 (0.135)	0.008	1.440 (0.288)	0.068
3-year	1.837 (0.487)	0.022	0.784 (0.243)	0.433	1.094 (0.224)	0.660
Constant	1.492 (0.544)	0.272	1.110 (0.457)	0.800	0.401 (0.114)	0.001
LR chi2	65.88	0.000	35.38	0.000	61.54	0.000
#obs	436		305		652	

Appendix F: Survey, translated from Swedish

With this survey, we aim to investigate attitudes toward different policy measures in the climate and transport sectors. In addition to answering questions about specific measures, you will also be asked a number of general attitude and background questions.

1. Assign 0–10 points to each of the following political parties according to how much you support them. Note that you may add a party that is not listed on the last line if you wish.

Left Party (Vänsterpartiet)
Social Democrats (Socialdemokraterna)
Environmental Party (Miljöpartiet)

Centre Party (Centerpartiet)
Liberals (Liberalerna)
Christian Democrats (Kristdemokraterna)
Moderates (Moderaterna)
Sweden Democrats (Sverigedemokraterna)
Other party – specify

2. Where would you place yourself ideologically on a left–right scale?

Very left – Somewhat left – Centre – Somewhat right – Very right. Scale: 1 2 3 4 5 6 7

Don't know ____ Prefer not to answer ____

3. Please indicate your agreement with the following statement on a scale from 1 to 7, where 7 means you fully agree and 1 means you do not agree at all.

Political parties' climate policies largely determine how much I support them.

1 = Do not agree at all … 7 = Fully agree

[Framing vignette here]

Price Increase Levels: Measures may have different impacts on fuel prices. This may involve price increases of SEK 5, SEK 10, or SEK 20 per litre.

Compensation Measures: A measure that leads to higher fuel prices (petrol or diesel) can be complemented by compensation measures. These can partly be financed by revenues from fuel taxes. Current revenues from fuel taxes are approximately SEK 20 billion.

Tax revenues and additional funds may for example be used for:

- Compensating people living in rural areas who are more car-dependent (with current revenues of SEK 20 billion, this would correspond to approx. SEK 13,000 per person per year)
- Investments in schools, healthcare, and social care, or job creation
- Facilitating the expansion of nuclear power in Sweden (e.g. through investments, research, or subsidies)
- Energy efficiency, development of renewable energy, and electrification of the transport sector

Geographic Coverage: Swedish climate policy could be designed as part of an international cooperation. This would mean that more countries introduce similar measures as in Sweden, reducing the risk of emissions being relocated to other countries. It also means that Swedish companies would not be more burdened than companies from countries with less strict climate policies.

Measures could for example be introduced:

- in the entire EU
- in the EU plus major emitting countries such as the USA, China, Russia, India, and Australia
- globally

The measures would lead to fuel price increases corresponding to those in Sweden.

Choice of Policy Instrument: There are different ways to increase fuel prices. One is to raise taxes on fossil fuels. Another is to impose blending requirements for renewable fuels (fuel blending mandate / reduction obligation).

Time Horizon: A measure may be implemented more or less immediately:

- with immediate effect
- gradually over a 3-year period
- gradually over a 5-year period

[Table summarizing the attributes here]

4. You will be asked to evaluate different policy packages presented side-by-side. They differ in terms of the attributes above (price increase, compensation, geographic scope, policy instrument, time horizon). For each pair, indicate which you prefer and how strongly you would support each proposal on a 5-point scale, where 1 means "do not support at all" and 5 means "fully support".

Policy 1A vs Policy 1B

Policy 2A vs Policy 2B

Etc..

5. How did you reason when making your choices? How do you motivate your decisions?
6. Statements on Climate Policy. (Scale 1–7: 1 = Do not agree at all, 7 = Fully agree)

    - It is good that Sweden leads the way and strives to become the world's first fossil-free welfare state.
    - To achieve our climate targets, we need to invest in the most cost-effective solutions.
    - We should introduce measures that provide the greatest climate benefit per krona spent.
    - We primarily need technological development and innovation/research to solve the climate challenge.
    - Economic growth is a prerequisite for solving the climate challenge.
    - Achieving our climate targets requires a more sustainable lifestyle than today.
    - We need to strive for equality in the climate transition.
    - We should introduce measures that ensure we reach the targets set out in the Climate Act.
    - To meet the climate challenge, we must focus on emission reductions that provide the greatest global climate benefit.

7. General Attitude Questions (Scale 1–7: 1 = Do not agree at all, 7 = Fully agree)

    - I often worry about climate change and believe it will have major negative impacts in Sweden.
    - I believe climate change is an important issue that politics should prioritize.
    - I believe Sweden has an important role in solving the climate crisis.

8. Acceptability of Fuel Price Increases (Scale 1–7: 1 = Do not agree at all, 7 = Fully agree)

    - It is unacceptable for fuel prices to increase in order to better reflect the social costs (climate damages) of fuel use.
    - It is unacceptable for fuel prices to increase in order to reduce fossil emissions and meet climate targets.
    - It is unacceptable for fuel prices to increase because oil producers restrict production to obtain higher compensation.

- It is unacceptable for fuel prices to increase due to political import restrictions on oil from countries violating international agreements (e.g. human rights).

9. Responsibility and Cost Allocation (Scale 1–7: 1 = Do not agree at all, 7 = Fully agree)

- Those who can afford to bear the costs of reduced emissions should primarily do so.
- Those who are responsible for a larger share of emissions should bear the costs of reduction.
- Those who benefit most from reduced emissions should bear the costs.
- Those who are most negatively affected by emissions should bear the costs of reduction.

10. Social Norms (Scale 1–7: 1 = Do not agree at all, 7 = Fully agree)

- People around me (friends, colleagues, family) try to reduce their climate impact.
- People around me talk about reducing their climate impact.
- People around me drive less today than five years ago.

11. Perceived Acceptance (Scale 1–7: 1 = Do not agree at all, 7 = Fully agree)

- Most people around me would not accept stricter climate policies.
- Most people in Sweden would not accept stricter climate policies.
- My family and close friends would not accept stricter climate policies.
- People similar to me would not accept stricter climate policies.
-

12. Responsibility of Actors (Scale 1–7: 1 = Do not agree at all, 7 = Fully agree)

- More people in Sweden should try to reduce their climate impact.
- Private actors should take greater responsibility for reducing climate impacts.
- Public and state actors should take greater responsibility for reducing Sweden's climate impact.
- Public and state actors have sufficient mandate and tools to implement their proposed climate policies.

13. Personal Acceptance (Scale 1–7: 1 = Do not agree at all, 7 = Fully agree)

- I feel that I should accept stricter climate laws and regulations.
- I feel that I should accept stricter climate taxes and fees.

Background Information

14. Average distance driven in a normal work week: ____ km

15. If fuel prices increased by SEK 10 per litre, I would most likely:

- Continue driving the same amount (and pay more)
- Drive less / commute less (e.g. work from home, move)
- Change car (more fuel-efficient)
- Change transport mode (public transport, walking, cycling)
- Weekly driving distance (normal work week): ____ km

16. Type of car:

- Do not drive a car
- Petrol (average consumption per km ____ / don't know ____)
- Diesel (average consumption per km ____ / don't know ____)

- Hybrid
- Electric vehicle

17. Monthly income before tax:

- ≤ 10,000 SEK
- 10,001–15,000 SEK
- 15,001–20,000 SEK
- 20,001–25,000 SEK
- 25,001–30,000 SEK
- 30,001–35,000 SEK
- 35,001–45,000 SEK
- 45,000 SEK
- Prefer not to answer

Type of area:

- Central metropolitan area
- Suburb of large city
- Central medium-sized city
- Suburb of medium-sized city
- Small town
- Rural area

18. Age: ____

19. Gender: Male ____ Female ____ Other ____

20. Highest level of education:

- Incomplete primary education
- Primary education
- Upper secondary education
- Higher education
- Doctoral education

21. Household composition:

- Number of adults: ____
- Number of children (<18): ____