






Populism and support of onshore wind energy: Explaining different perspectives from the left and right

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ARTICLE INFO

Keywords:

Political orientation
Acceptability
Wind energy
Solar energy
Climate policy
Trust in government

ABSTRACT

This study examines the relationship between political orientation and support of onshore wind energy, using demographically representative surveys of the population in France. Our micro-econometric analysis focuses on individuals with left- or right-wing populist views and highlights the importance of accounting for trust in government when estimating this relationship. Support for onshore wind energy tends to be lower on the right side of the political spectrum—especially on the far right—than on the left and center. The difference in support between voters of populist and traditional parties (on either side of the political spectrum) becomes more pronounced when trust in government is excluded from the econometric specification. Thus, studies omitting trust in government may lead to biased estimates of the relation between populist party affiliation and opposition to climate policies. Moreover, the relation between political orientation and support of onshore wind energy appears to be sensitive to the scale used to measure political orientation. Finally, we find no evidence that political orientation relates to support of solar energy, suggesting that the role of political orientation in public support differs across renewable energies.

1. Introduction

The increase in political polarization in many parts of the world alongside progressing climate change has spurred research examining the interplay between political orientation, belief in climate change, and support of climate policies (e.g., Guber, 2013; Gustafson et al., 2020, 2022; Mayer and Smith, 2023; Motta, 2018; Sokolowski et al., 2018; Sparkman et al., 2022; Stokes and Warshaw, 2017).¹ Many studies have examined the relationship between political ideology and climate change beliefs (e.g., Caldwell et al., 2024; Carlsson et al., 2021; Hornsey and Lewandowsky, 2022; Kulin et al., 2021; Mayer and Smith, 2023; Smith and Mayer, 2019; Poortinga et al., 2019). This relationship varies by country, being stronger in Anglophone countries than in other countries (e.g., Smith and Mayer, 2019; Ziegler, 2017), where mainstream parties generally endorse scientific consensus, unlike in the

United States (US) (Hornsey and Lewandowsky, 2022). Caldwell et al. (2024) find an increase in partisan polarization of climate policy-relevant attitudes over time in the US, other Anglophone countries and much of Western Europe.

Differences in political parties' stances towards climate change and climate policy may explain the large differences observed in climate policy acceptability across countries (Dechezleprêtre et al., 2025). Most studies refer to the US and consistently find a strong correlation between individual party affiliation and support of climate policies, with higher support among Democrats than among Republicans (e.g., Gustafson et al., 2020; Smith and Mayer, 2019; Sintov et al., 2020, Smith et al., 2024; see Crowe (2020) for an exception). The role of political orientation for climate policy support in countries beyond the US has only recently gained academic interest (e.g., Carlsson et al., 2021; Douenne and Fabre, 2020, 2022; Harring et al., 2019; Knollenborg and Sommer,

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¹ We refer to Guriev and Papaioannou (2022) for an overview of the literature analyzing the relation between populism and various economic issues such as globalization, financial and economic crises, trade, and migration.

2023; Spektor et al., 2023). Studying acceptability of climate policy after the ‘Yellow Vest’ movement in France,² Douenne and Fabre (2020, 2022) find that survey respondents who oppose the Yellow Vest movement, or who define themselves as left or center, are more approving of a carbon tax scheme with redistribution, ceteris paribus. According to Carlsson et al. (2021), in Sweden, individual willingness to pay to mitigate climate change is lower among right-wing voters than among left-wing and centrist voters. For Germany, Yan et al. (2021) conclude that supporters of right-wing parties are more critical of climate policy than supporters of any other party. Also for Germany, Knollenborg and Sommer (2023) find that the backing of climate policies such as a carbon tax, expansion of renewables, and a phase-out of coal is lower among supporters of the extreme right party AfD (*Alternative für Deutschland* - Alternative for Germany) than among supporters of other political parties. Similarly, employing European Social Survey data, Kulin et al. (2021) find that individuals with nationalist attitudes are less supportive of climate policies such as carbon taxes. Sælen and Aasen (2023), however, conclude that right-wing voters in Norway are more supportive of onshore wind energy than non-right-wing voters. For Sweden, Lindvall et al. (2025) find that a right-wing political ideology is positively associated with support of nuclear energy, while they find no statistically significant relationship between political ideology and support of wind energy.³

In this paper, we empirically investigate the relationship between political orientation and support of renewable energies. We focus on support of onshore wind energy, while the analysis of solar energy provides a complementary perspective. To this end, we conduct demographically representative surveys among the adult population in France. We employ descriptive statistics and multivariate econometric analyses to estimate the relation between individual acceptability of wind and solar energy and political orientation, socio-demographic characteristics, beliefs in climate change, and trust in institutions.

Our study contributes to the literature in several ways. It adds to the emerging literature studying the role of political orientation in support of climate policies in countries characterized by a non-bipolar political party system. Unlike previous studies, relying on data from France allows us to distinguish the effects of political orientation for both extremes of the political spectrum, i.e. the extreme right and the extreme left. In the context of beliefs in climate change, Hornsey and Lewandowsky (2022) suggest that previous studies may have overly focused on right-wing populism proposing that any populist orientation could be influential.

Considering both left-wing and right-wing populism appears to be justified, not least since in many countries, the share of votes for both political extremes has increased over the last two decades. For example, Funke et al. (2023) analyzes ruling parties in 60 countries, representing over 95 % of global GDP, and find that the share of populist parties in power quadrupled since the turn of the century to about 26 % by 2018, with nearly equal proportions of left- and right-wing populists. Further, populist parties on both the left and right often drive the politicization of climate issues, suggesting that voters at either end of the political spectrum may be particularly sensitive to climate policy-related topics such as the development of wind energy (Farstad, 2018).

Populist extreme left parties such as *La France Insoumise (LFI)* (*France Unbowed*) in France, *Podemos* in Spain, and the *Five Star Movement* in

Italy typically support renewable energies due to their emphasis on environmental sustainability, social justice, and opposition to large corporations that dominate fossil fuel industries (e.g., Chazel and Dain, 2023; Huber et al., 2022). However, these parties have also criticized certain renewable energy projects, particularly onshore wind farms, citing their local negative externalities. Some populist left-wing parties further argue that environmental policies imposed by the elite unfairly burden ordinary people, while benefiting the wealthy and multinational corporations (Chazel and Dain, 2023; Huber et al., 2022). Indeed, in France, citizens tend to perceive climate policies as regressive (Douenne and Fabre, 2022), and large corporations such as Engie Green, EDF Renouvelables, Boralex, and TotalEnergies dominate wind farm operations.⁴

Expanding on the political spectrum considered in previous studies, we also look at individuals with no strong political orientation. In European countries, party membership rates fell from about 15 % in the 1960s to 10 % in 1980, and under 5 % in 2008 (van Biezen et al., 2012). France exhibits a similar trend, with only 2 % of eligible voters belonging to a political party (EVS, 2022). Additionally, 17 % of voters identified as ‘undecided’ when asked which party they would support in the 2024 parliamentary elections.⁵

The existing literature studying the relationship between political orientation and acceptability of climate policies often refers to a carbon tax or a bundle of heterogeneous climate policies (including a carbon tax and support of renewables, among others), or renewables in general. That is, except for Sælen and Aasen (2023), Lindvall et al. (2025) and Crowe (2020), previous studies cannot identify the relation between political orientation and support of a particular technology, which is important for policy-making. Indeed, previous research indicates heterogeneity in individual preferences for various renewable electricity technologies, with rooftop solar photovoltaic (PV) plants generally emerging as the most favored option in France and other countries (e.g., Xexakis and Trutnevyte, 2021). Support of PV is also less polarized across party lines than support of other renewable energy technologies, particularly wind turbines (Mildenberger et al., 2019). For example, support of solar power in the US is higher than that of wind power for both Democrats and Republicans (Pew Research Center, 2023). Support of wind energy seems much more subjected to diverse factors that do not directly relate to energy (Urbatsch and Wang., 2021; Winter et al., 2022). For comparison, we also examine the relationship between political orientation and individual support of solar energy.

Finally, our empirical analysis includes trust in institutions (in the form of trust in government), a factor often overlooked in previous studies exploring the relationship between political orientation and support of climate policies. We argue that multivariate analysis failing to account for trust in government may lead to biased estimates of the parameter of interest. Indeed, several studies have examined the relationship between trust in government and support of climate policy, typically finding a positive correlation (e.g., Dechezleprêtre et al., 2025; Ewald et al., 2022; Fairbrother et al., 2019; Faure et al., 2022; Hammar and Jagers, 2006; Kitt et al., 2021). Likewise, political orientation has long been linked to trust in government (e.g., Miller, 1974). Neglecting trust in government may thus lead to an omitted variable bias—an overestimation or underestimation of the relation between political orientation and support of climate policies—although whether trust in government affects this relation is not yet well established. For instance, Douenne and Fabre (2020) speculate that distrust in government might explain the negative relation between ‘Yellow Vests’ and the acceptability of a carbon tax, although they lack a measure of trust in their analysis to test for it. Knollenborg and Sommer (2023) do consider trust

² The Yellow Vest movement began in late 2018 as a protest against a proposed increase in the national fuel tax aimed at combating climate change. It evolved into a broader movement encompassing various grievances, including high living costs, income inequality, and dissatisfaction with the government’s policies at large. Respondents could be recognized by their yellow safety vests worn while protesting.

³ Taking a different perspective, Otteni and Weisskircher (2022) conclude that the construction of wind turbines enhances the electoral success of both Green and populist right-wing parties in Germany.

⁴ <https://www.france-renouvelables.fr/wp-content/uploads/2024/11/ObserveEolien-ENG-prefinal.pdf> (Last accessed on 22/04/2025).

⁵ <https://www.ipsos.com/fr-fr/legislatives-2024/legislatives-2024-intention-de-vote-et-chiffres-cles>. (Last accessed on 22/04/2024).

in government but find no evidence that it moderates the relation between being a member of the extreme right party in Germany (AfD) and support of climate policies, possibly due to low statistical power.

Our study focuses on France, because France has long offered a broad spectrum of political parties, ranging from the extreme left to the extreme right. This allows us to distinguish between populism on the right and populism on the left. Further, the acceptability of climate policy is lower in France than in all other countries considered in Dechezleprêtre et al. (2025). Meanwhile, France is falling short of its national targets for increasing onshore wind capacity. Therefore, gaining a better understanding of the factors related with acceptability of onshore wind power is particularly important.

We organize the remainder of this paper as follows. In Section 2, we provide background information on the development of onshore wind energy in France and the positions of the main political parties towards the development of wind power, focusing on the positions of the populist parties on the extreme left and extreme right. In Section 3 we describe the methodology including the surveys, the variables and the econometric models employed. In Section 4, we present the results. In the concluding Section 5, we discuss the main findings, point to limitations of our study, and derive implications for future research.

2. Background

France generates almost all of its electricity from low-carbon sources, with nuclear energy providing 67 % of total electricity production, wind power almost 9 % and solar power nearly 5 % (RTE, 2024). By the end of 2024, total wind power capacity had reached 24 GW, of which 23 GW were onshore. About half the current onshore wind capacity is concentrated in the North (Hauts-de-France) and East (Grand Est) regions of France. As part of its energy transition, France aims to increase the share of renewables in total energy consumption from 22 % in 2023 to 33 % by 2030,⁶ with onshore wind playing a major role. To achieve the 2028 target of approximately 34 GW, an annual installation of around 2.5 GW is needed—about 1 GW more than the average added each year over the past decade. Looking further ahead, France aims to achieve 40–45 GW of onshore wind capacity by 2035. According to the results of the most recent national call for tenders, approximately a quarter of the new onshore wind capacity will be installed in both the North and the East, respectively, reinforcing the concentration of onshore wind power in these regions.⁷

Public opposition remains a major challenge to wind energy expansion in France. The deployment of wind energy is highly contested, with strong resistance often driven by media narratives and public discourse emphasizing perceived shortcomings, such as noise, negative impact on the landscape and on local biodiversity, and loss in real estate value (Bally and Sebi, 2025; Desvallées & de Sartre, 2023). This resistance, along with institutional barriers, has significantly hindered the expansion of wind energy (Feurtey et al., 2016). Since 2017, as part of the permitting procedure, onshore wind projects must undergo a public inquiry, allowing citizens to provide feedback.

Support of onshore wind energy, and renewable energy more broadly, varies across political parties.⁸ The political party spectrum includes a populist party on the extreme left, i.e., *La France Insoumise* (*France Unbowed*), other left-wing parties, *Le Parti Communiste Français*

⁶ <https://www.statistiques.developpement-durable.gouv.fr/edition-numerique/chiffres-cles-energies-renouvelables-2024/donnees-cles> (Last accessed on 22/04/2025).

⁷ Own calculations based on <https://www.ecologie.gouv.fr/sites/default/files/documents/Liste%20des%20laur%C3%A9ats%20AO%20PPE%20%C3%A9olien%209P.pdf> (Last accessed on 22/04/2025).

⁸ The political party platforms for the 2022 presidential elections are available at <https://www.interieur.gouv.fr/archives/actualites>. (Last accessed on 22/04/2025).

(*French Communist Party*), *Parti Socialiste* (*Socialist Party*), *Europe Écologie - Les Verts* (*Europe Ecology - The Greens*), in the middle the *Renaissance* (*Renaissance Party*) of current president Emmanuel Macron, a right-wing party, i.e., *Les Républicains* (*Republicans Party*), and the *Rassemblement National* (*National Rally*), a populist party on the extreme right.

Of those parties, only the *Socialist Party* and *The Greens* are clearly in favor of developing onshore wind. Except for the *National Rally*, all other parties are in favor of implementing new offshore wind and solar power. While proposing to fully decarbonize the energy sector and to at least double the installation of wind turbines by 2050, *France Unbowed* also shows some reluctance to fully endorse onshore wind power due to public opposition and aesthetic concerns and seems to prioritize investments in offshore wind power.⁹ The *National Rally* generally supports the expansion of renewable energy but specifically opposes the installation of wind turbines, particularly onshore. During the 2022 presidential campaign, the *National Rally* called for a moratorium on new wind turbines and proposed dismantling existing ones, citing high costs, intermittency of power generation, and degradation of the landscape as key concerns (Bally and Sebi, 2025; Hess & Renner, 2019).

Regarding the energy transition, *France Unbowed* is very much aligned with the scientific consensus on climate change, and advocates for transforming the economy and society to meet ambitious climate goals, with a particular emphasis on ensuring social justice (Chazel and Dain, 2023). In comparison, *National Rally* has been more skeptical about climate change and opposes policies perceived as imposed by left-wing middle-class urban elites and by EU governance.

Interestingly, both *France Unbowed* and *National Rally* supported the Yellow Vest movement, with both parties considering this movement as a legitimate expression of popular discontent against President Emmanuel Macron's proposal to raise the carbon tax. *France Unbowed* emphasized the anti-capitalist dimensions and the fight against social inequality. In contrast, the *National Rally* portrayed the proposed raise in the carbon tax as a technocratic imposition, arguing it would disproportionately harm the purchasing power of low-income and rural households.

3. Method

3.1. Survey

To examine the relationship between political orientation and support of wind energy, we conducted two nationwide online surveys of the adult population in France using existing household panels of professional market research institutes. Study 1, which focused on support of wind energy, was fielded in November 2023 via the survey institute Norstat. Because we wanted to compare our findings for support of wind energy to support of other renewable energies, we conducted a second study which included items on support of solar energy. To account for potential effects arising from the different timing of the studies, we again included items on support of wind energy. Study 2 was fielded in April 2024 via the survey institute Dynata. Both surveys applied quotas to be representative in terms of gender, age, income, and regional dispersion. They were part of a larger project about acceptability of the energy transition in France and were structured in a similar way. The surveys started with the screening items on the quota criteria, followed by items on acceptability of onshore wind energy (and solar energy in Study 2), political orientation, climate change beliefs, trust in government, and proximity of residence to an existing wind farm. The final items referred to socio-demographic characteristics.

Following common guidelines of survey design (Haaland et al.,

⁹ <https://www.lesechos.fr/industrie-services/energie-environnement/nucleaire-ecoliennes-edf-factures-ce-quen-disent-les-candidats-a-lelysee-1399159> (last accessed 22/04/2025).

2023), we included two attention checks, one at the middle and one towards the end of the surveys, to identify respondents not paying attention.¹⁰ We excluded respondents who failed at least one of the attention checks. As compensation for their participation, respondents received points that they may exchange for prizes. A total of 2367 respondents completed Study 1 and 1504 completed Study 2.¹¹ The total sample size is therefore 3871. Median completion time was about 11 min for Study 1 and about 12 min for Study 2. As documented in Supplementary Material Table S1, both samples are representative of the adult population in France for the required criteria.

3.2. Variables

In this section, we briefly describe the items used in the analyses and document in Supplementary Material the exact wording translated from the original French language. Table 1 and Table 2 report the descriptive statistics of the dependent variables and of the covariates used in our main analyses.

First, we turn to our key dependent variable, i.e., individuals' support of wind energy. To this end, the survey included two items: (i) support of the general development of wind energy in France (*general support*), and, to test the robustness of our findings, (ii) acceptability of the development of wind farms nearby respondents' residence (*local acceptability*). While closely related, these items capture distinct facets of support of onshore wind energy. For instance, individuals may support the deployment of onshore wind energy in principle because they consider it beneficial for society (e.g., to save natural resources and to protect the climate). Yet, they may oppose the construction of wind turbines nearby their own homes because they fear negative effects for themselves (e.g., noise, visual impairments, and lower property value), reflecting a Not-In-My-Backyard (NIMBY) attitude.¹² The variable *general support of solar energy* is defined the same way as *general support of wind energy*.

We now turn to the covariates used in the multivariate analysis. In particular, we measure individuals' political orientation through two items.¹³ First, we consider party affiliation. Respondents chose from a list of the main political parties, which also includes the options 'none' and 'other'. Second, we consider a standard item on *left-right leaning*,

¹⁰ We used the same attention checks in both surveys. The first attention check was: "In surveys like ours, it sometimes happens that respondents do not read the questions carefully and simply answer quickly without thinking. This means there are many random responses that compromise the results of research studies. To show that you are reading our questions carefully, please answer *blue* to the following question: What is your favorite color?"; answers were: (i) blue; (ii) yellow; (iii) red; (iv) other, presented in random order. The second attention check was embedded within a matrix question: "Here is a control question that aims to verify that you are paying attention while answering to the survey. Please respond with *Strongly disagree*."

¹¹ We do not have information regarding the total number of individuals contacted by the survey institutes. However, we know how many respondents started and completed the survey. In Study 1, 4289 respondents clicked on the survey link. Of these, 35 % did not complete the survey, either because they did not answer all questions, or they were screened out for not being eligible or because the quotas corresponding to their individual characteristics had already been met. In addition, 1 % and 8 % of respondents who clicked on the survey link failed the first and second attention checks, respectively. This resulted in an overall completion rate of 55 %. In Study 2, 2458 respondents clicked on the survey link. Of these, 19 % did not complete the survey because they did not meet the quota or because they did not answer all questions; 4 % and 15 % failed the first and second attention checks, respectively, leading to an overall completion rate of 61 %.

¹² A NIMBY attitude would be captured as the difference between support of wind energy in general and at the local level. Because in our case, the response scales are not comparable we could not have properly examined NIMBY attitudes.

¹³ Fig. A1 reports the relation between affiliation and left-right leaning.

Table 1

Description and descriptive statistics of dependent variables.

Variable name	Description	N	Mean
<i>General support</i>	Score reflecting respondent support of the development of onshore wind energy in France. Response categories:	3871	
	Not in favor at all		0.120
	Not in favor		0.225
	In favor		0.530
	Very much in favor		0.125
<i>Local acceptability</i> [†]	Respondent acceptability to live near an onshore wind farm (i.e., within a 3 km radius from main residence). Response categories ^a :	3387	
	Yes		0.437
	No		0.563
<i>General support of solar energy</i> ^{††}	Score reflecting respondent support of the development of solar energy in France. Response categories:	1504	
	Not in favor at all		0.033
	Not in favor		0.063
	In favor		0.559
	Very much in favor		0.346

[†] Used in robustness checks.

^{††} Included in Survey 2 only.

^a The response categories slightly differ between surveys. In Survey 1, respondents could also indicate "not applicable (there are only buildings within 3 km radius of my residence)". This option is treated as missing value in the analysis. This difference, however, does not appear to affect the results as the share of yes/no answers is almost identical in both surveys.

which also includes 'no leaning' as an option. In our multivariate analysis, we use the *Renaissance Party* and the *center* as the baseline categories.¹⁴

We further include standard items reflecting sociodemographic characteristics and whether individuals believe that climate change is already happening (*cc_happening*).¹⁵ In particular, we consider trust in the government (*trust_gvt*) (items adapted from *Kettle and Dow (2016)* and *Kim et al. (2013)*). The covariate *windfarm nearby* accounts for the proximity of respondents' homes to existing wind farms, as exposure to wind farms may affect acceptability (e.g., *Devine-Wright, 2005; Dugstad et al., 2020*). Finally, we include a dummy variable (*Study 2*) indicating whether respondents participated in Study 2 rather than in Study 1.

3.3. Econometric models

In addition to descriptive statistics, we employ multivariate analyses to estimate the partial effects of political orientation on *general support* of wind and solar energy and on *local acceptability*. We relate the outcome variables *general support* and *local acceptability* (Y_i) to respondents' political orientation (P_i), a vector of socio-demographic characteristics and other covariates (X_i) and the error term (ε_i):

$$Y_i = f(P_i, X_i, \varepsilon_i; \theta) \quad (1)$$

¹⁴ For the remainder of the paper, we generally use the term 'voters' to describe respondents affiliated with a particular party or a particular political leaning. Of course, actual voting behavior may differ from stated party affiliation and political leaning.

¹⁵ According to Table 2, about 85 % of respondents believe that climate change is already happening. Note that only 5 % declare to believe that climate change will not happen at all. These results align with previous studies conducted in France. The 2016 European Social Survey (ESS, 2016) found that 63 % of respondents from France believe climate is definitely changing, 33 % believe it is probably changing, and 4 % believe it is not changing. Relatedly, according to a 2023 Eurobarometer survey, 85 % of respondents from France consider climate change to be a very serious problem at this moment, 11 % see it as a fairly serious problem, and 4 % do not view it as a serious problem (*European Commission, 2023*).

Table 2
Description and descriptive statistics of covariates.

Variable name	Description	N	Mean
Party affiliation	Respondent party affiliation. Response categories (transformed into 0/1 dummies for analysis):	3871	
<i>France Unbowed</i>	La France Insoumise		0.061
<i>Communist Party</i>	Le Parti Communiste Français		0.017
<i>Socialist Party</i>	Parti Socialiste		0.092
<i>The Greens</i>	Europe Écologie Les Verts		0.051
<i>Renaissance Party</i>	Renaissance (baseline category)		0.093
<i>Republican Party</i>	Les Républicains		0.085
<i>National Rally</i>	Le Rassemblement National		0.198
<i>Other</i>	Other		0.045
<i>No affiliation</i>	No affiliation with a political party		0.358
Left-right leaning	Respondent position on the political spectrum. Response categories (transformed into 0/1 dummies for analysis):	3871	
<i>Extreme left</i>	Extreme left		0.024
<i>Left</i>	Left		0.143
<i>Center-left</i>	Center-left		0.077
<i>Center</i>	Center(baseline category)		0.098
<i>Center-right</i>	Center-right		0.066
<i>Right</i>	Right		0.165
<i>Extreme right</i>	Extreme right		0.104
<i>No leaning</i>	No leaning		0.323
<i>Female</i>	Dummy = 1 if respondent indicated to be female.	3871	0.507
Age	Respondent age. Response categories (transformed into 0/1 dummies for analysis):	3871	
<i>Age_cat_1</i>	18 to 34 (baseline category)		0.263
<i>Age_cat_2</i>	35 to 54		0.335
<i>Age_cat_3</i>	≥ 55		0.403
Income	Household monthly income after taxes. Response categories (transformed into 0/1 dummies for analysis):	3871	
<i>Low_income</i>	< 2000 euros (baseline category)		0.400
<i>Middle_income</i>	2000 to 3999 euros		0.395
<i>High_income</i>	≥ 4000 euros		0.205
<i>Graduate</i>	Dummy = 1 if respondent has a higher education degree.	3871	0.426
<i>Children</i>	Dummy = 1 if respondent has children.	3871	0.302
<i>Urban</i>	Dummy = 1 if respondent lives in an urban area.	3871	0.348
<i>Owner</i>	Dummy = 1 if respondent owns primary residence.	3871	0.566
<i>Windfarm_nearby</i>	Dummy = 1 if respondent lives within 10 km of a wind farm.	3871	0.191
<i>CC_happening</i>	Dummy = 1 if respondent believes that climate change is already happening.	3871	0.849
<i>Trust_gvt</i>	Score reflecting respondent agreement with the following statements: "In general, I trust the government"; "The government takes various opinions into account when making a decision."; "The government provides all available information to the public when making a decision."; "The government is influenced by industry and private interests when making a decision." (Reversed). Answers were given on a 5-point Likert scale ranging from 'completely disagree' (1) to 'completely agree' (5) (transformed for analysis into average score of the four items). ^a	3871	2.262
<i>Study 2</i>	Dummy = 1 if respondent participated in Study 2.	3871	0.389

^a Cronbach's α is equal to 0.7062, suggesting acceptable internal consistency of the items. The variable *trust_gov* is calculated as the average score of the responses to the five items and hence reanges from 1 to 5.

Depending on the nature of Y_i , we employ different functional forms for $f(\cdot)$ to estimate the parameter vector θ . In our preferred specification, we code the variable *general support* as dichotomous which takes on the value of 1 if respondents indicated that they were 'in favor' or 'very much in favor' of wind energy (solar energy) and estimate a binary response model via maximum likelihood methods. In this case, $f(\cdot)$ reflects a standard logit model.¹⁶ If the dependent variable is *local acceptability*, which is dichotomous, we also employed a logit model. In the base model, X_i includes all covariates, i.e. *female*, *income*, *graduate*, *children*, *area of residence*, *owner*, *windfarm_nearby*, *cc_happening*, and *trust_gvt*. We report the findings for these models in Section 4.2 for wind energy and in Section 4.3 for solar energy.

We also examine the relationship between respondents' characteristics and their political orientation, with a particular focus on respondents at the extremes of the political spectrum and those with no political orientation. In this analysis, the dependent variable is categorical and comprises the distinct party affiliations and left-right leanings, respectively. Therefore, we let $f(\cdot)$ reflect a multinomial response model, which we estimate via maximum likelihood methods. The vector includes all covariates listed above, except for *windfarm_nearby*. We present the estimation results in Section 4.4.

Finally, to explore whether controlling for trust in government in the econometric analysis affects the relation between political orientation and support of wind energy, we estimate models where *trust_gvt* is excluded. We then examine whether omitting this variable affects the coefficients associated with political orientation compared to the base model specification, which may signal an omitted variable bias when trust in government is not controlled for. We report the findings in Section 4.5.

4. Results

4.1. Descriptive results

Figs. 1 and 2 show—by party affiliation and left-right leaning—the shares of respondents who expressed support or strong support of wind energy in general (*general support*) and who indicated that they would accept to live within 3 km of an onshore wind farm (*local acceptability*).¹⁷ For *general support* and *local acceptability* these shares are generally higher for voters of the left-wing parties than of the right-wing parties *National Rally* and *Republication Party*, as well as with *no affiliation*. The highest support is found among voters of *The Greens*, the *Communist Party*, the *Socialist Party* and the *Renaissance Party*. Within the left-wing spectrum, *general support* and *local acceptability* are lowest for voters of *France Unbowed*. Based on pairwise standard z-tests,¹⁸ we find that the difference in *general support* between *France Unbowed* and *The Greens* is statistically significant ($p < 0.01$). For *local acceptability*, the p -value corresponding to the difference between *France Unbowed* and *The Greens* is 0.13, and 0.23 for the difference between *France Unbowed* and the *Communist Party*. Among the right-wing parties, voters of the *National Rally* exhibit lower *general support* and *local acceptability* than voters of the *Republican Party* at $p < 0.01$ and $p < 0.1$, respectively.

Using left-right leaning to capture political orientation, we find similar patterns of *general support* and *local acceptability*. While the differences between the *extreme right* and *right* in Fig. 2 qualitatively reflect those seen among right-wing parties in Fig. 1, the variations among left-

¹⁶ To account for the ordinal nature of the original response scale, we also estimated ordered logit models as robustness checks (see Section 4.6).

¹⁷ The tetrachoric correlation of 0.7474 suggests that the preferences underlying *general support* and *local acceptability* are very strongly related.

¹⁸ The large sample size allows us to use z-tests to test for differences in the shares between observations for respondents with different political leanings. It is worth noting that z-tests are less restrictive than t-tests, as they do not require the variables to follow a normal distribution.

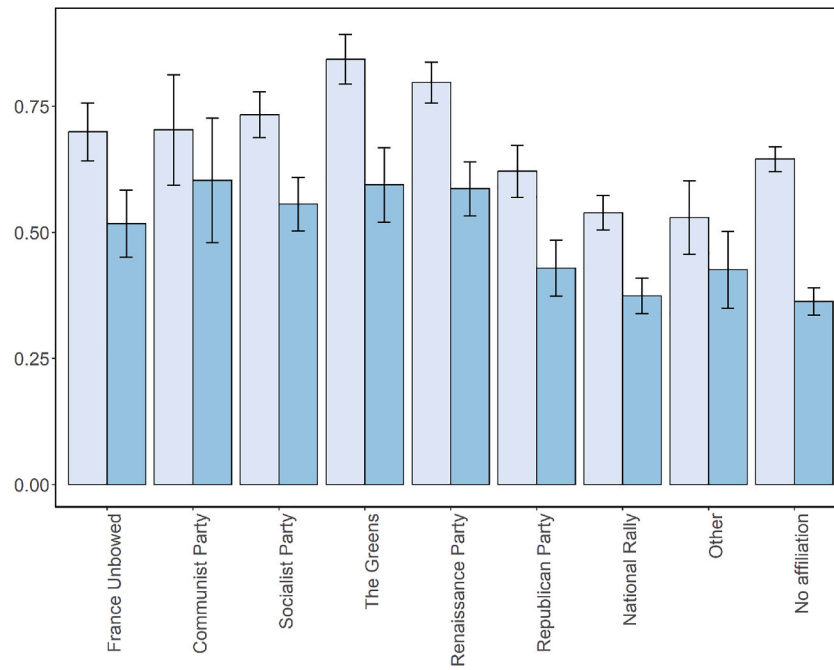


Fig. 1. Shares of general support and of local acceptability of wind energy by party affiliation. Vertical bars represent 95 % confidence intervals.

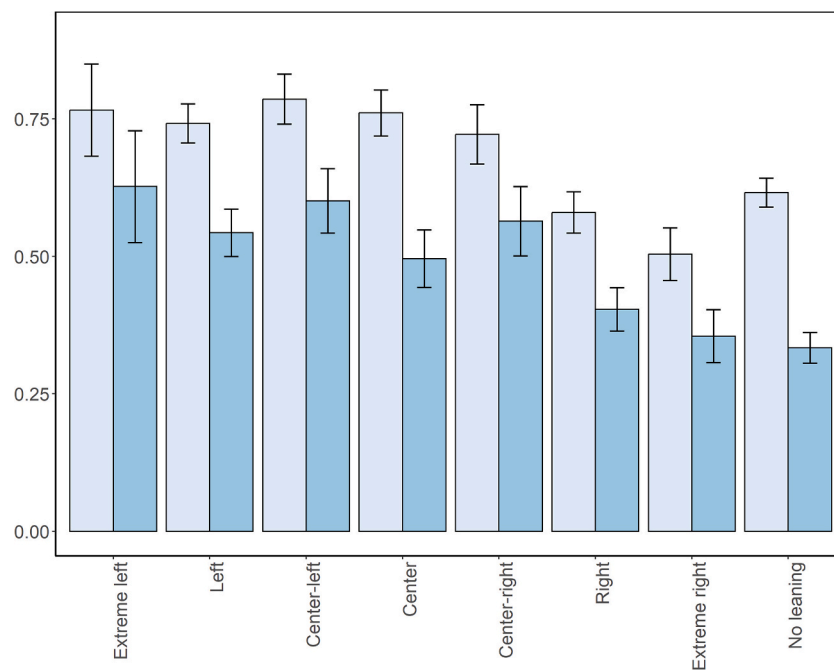


Fig. 2. Shares of general support and of local acceptability of wind energy by left-right political leaning. Vertical bars represent 95 % confidence intervals.

wing parties in Fig. 1 are not exactly mirrored by the patterns observed for left-wing political leanings in Fig. 2, arguably because *The Greens* does not align well with the left-right political leaning scale.

4.2. Political orientation and general support of wind energy

In this section, we present the results from estimating the logit models for *general support* (base model), focusing on the findings on political orientation. We thereby consider both measures of political orientation. In Section 4.6 we examine whether the findings of the base

model specification are robust to using *local acceptability* as the outcome variable.

For the logit models, Table A1 and Table A2 present the discrete probability effects for all covariates, i.e. the changes in the probability that respondents support wind energy in response to a one-unit change in a covariate. We note that all covariates are either dummy variables or categorical variables. In Fig. 3, we display the discrete probability effects for the covariates capturing political orientation.

Fig. 3, Panel A shows a strong correlation between party affiliation and general support of wind energy development in France (using the

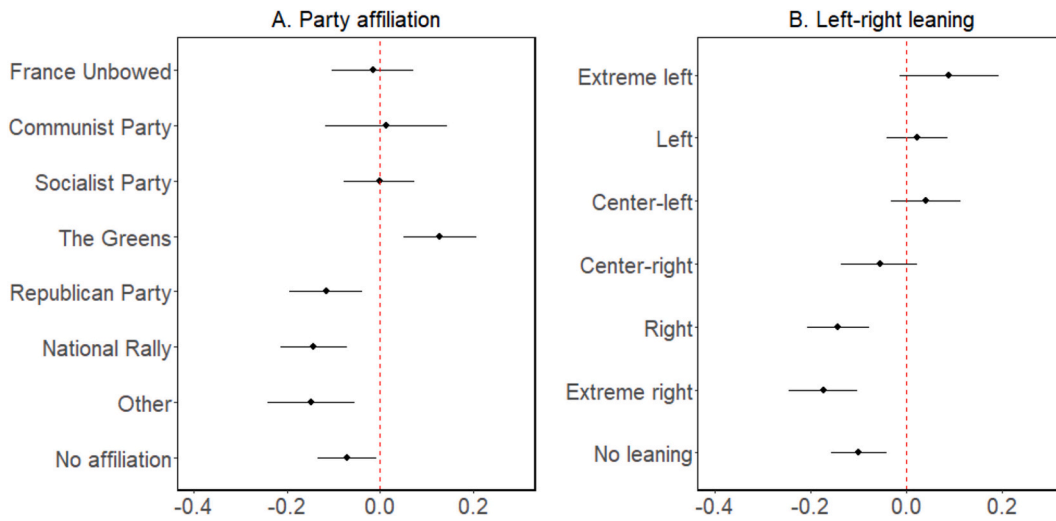


Fig. 3. Average discrete probability effects of political orientation on general support of wind energy compared to baseline category using party affiliation (Panel A) and left-right leaning (Panel B).[†]

[†] Horizontal bars represent 95 % confidence intervals. Baseline category: *Renaissance Party* in Panel A and *center* in Panel B.

Renaissance Party as the baseline category), consistent with the descriptive statistics. In particular, voters on the left side of the political spectrum show similar levels of support to those of the *Renaissance Party*, with the highest support observed among voters of *The Greens*. In comparison, voters on the right side of the spectrum and respondents with no affiliation exhibit lower support than those of the *Renaissance Party*. We performed pairwise Wald tests to determine whether the levels of support of wind energy in France differ significantly among political parties and present the corresponding *p*-values in Fig. 4, Panel A. Voters of *The Greens* show the highest level of support, which is statistically significantly higher than that of all other parties. Voters of the *National Rally* exhibit lower support of wind energy than voters of all other parties, except for voters of the *Republican Party*. Voters of the *Republican Party* show significantly lower support than voters of all other parties, except for respondents with no party affiliation. Respondents with no party affiliation exhibit lower support than those voting for traditional left-wing and center parties, such as the *Socialist Party*, *The Greens*, and the *Renaissance Party*. Finally, we find no evidence that voters of *France Unbowed* differ from voters of the other parties on the left side of the

political spectrum, except for *The Greens*.

Fig. 3, Panel B provides further evidence for the strong relationship between left-right leaning and general support of wind energy (using *center* as the baseline category). Like the findings for party affiliation discussed above, respondents leaning towards the left side of the spectrum exhibit support levels similar to those at the *center*, while those leaning towards the right show lower support, with the gap widening when moving towards the extreme. Thus, for the right side of the political spectrum, using left-right leaning to capture political orientation leads to similar findings as using party affiliation.

Again, the pairwise comparisons of the coefficients for left-right leaning highlight some differences across the political spectrum (Fig. 4, Panel B). Support is lowest for voters of the *extreme right*, with significant differences with all other leanings except for the *right*. Moreover, we observe that support of wind energy is typically lower for those leaning towards the *center-right*, and in particular towards the *right* than those leaning towards the *center-left* and *left*. Support of wind energy is even lower for respondents with *no leaning*, who have similar preference towards wind as those on the right side of the political

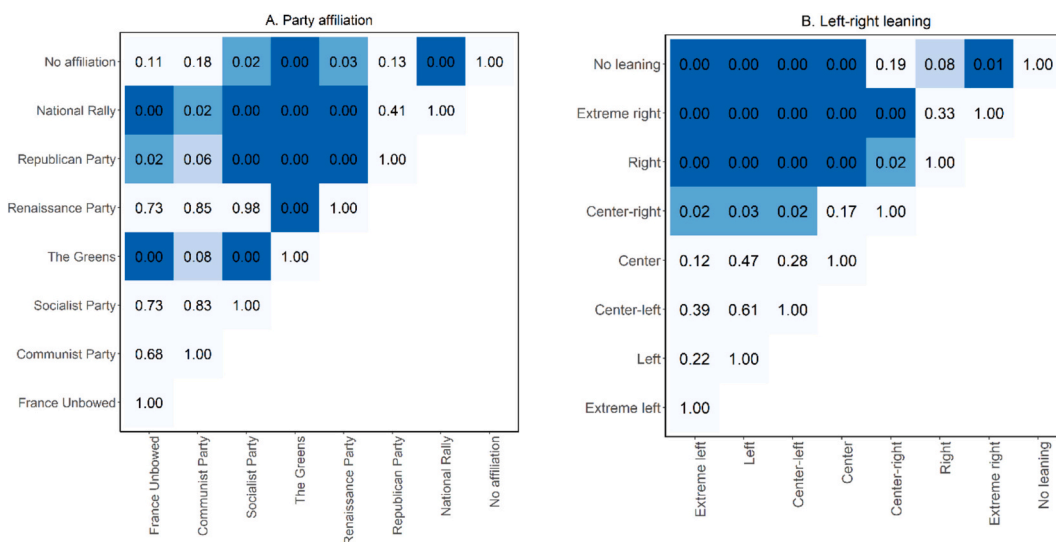


Fig. 4. *P*-values for pairwise comparisons of the coefficients associated with party affiliation (Panel A) and left-right leaning (Panel B).[†]

[†] *p*-values from Wald tests.

spectrum. Respondents leaning towards the *extreme left* exhibit higher acceptability than respondents on the right spectrum of the political orientation, and with *no orientation*. We find no difference in support between *extreme left* leaning and *left* and *center-left* leanings. Using the left-right leaning does not pick up the difference in the general support of wind energy between parties on the left spectrum (*France Unbowed*, *Communist Party* and *Socialist Party* versus *The Greens*) observed in Panel A.

Finally, turning to the results for the remaining covariates in [Table A1](#) and [Table A2](#), general support of wind energy tends to be higher among women, younger respondents, residents of suburban or rural areas, individuals who believe climate change is already occurring, and those with high trust in the government, all else being equal. It is noteworthy that the effect sizes associated with *cc_happening* and *trust_gvt* of approximately 10 %-points and 13 %-points respectively, are quite large. Finally, general support of wind energy is slightly higher in Study 2 than in Study 1.

4.3. Political orientation and general support of solar energy

To assess whether the relationship between support of wind energy and political orientation extends to other renewable energy technologies, we estimate Eq. (1) using general support of solar energy as the dependent variable. As illustrated in [Fig. 5](#), we find no evidence that political orientation, whether measured by party affiliation or left-right leaning, relates to support of solar energy.¹⁹ Similarly, trust in government does not play a statistically significant role, while belief in climate change is positively associated with support of solar energy. Unlike for wind energy, we find no evidence that political orientation and trust in government relate to support of solar energy.

Possibly, these ‘no results’ are due to lower statistical power. Because general support of solar energy was elicited in Study 2 only, the sample size studying general support of solar energy is lower than studying general support of wind energy. We therefore estimated the logit model for general support of wind energy for the samples of the two surveys separately. For both samples, the findings (reported in [Tables S5](#) and [S6](#), respectively) are very similar to those reported in [Table A1](#). Thus, the difference in findings between general support of wind energy and of solar energy is unlikely to be due to differences in statistical power, and differences in political orientation appear to be relevant for support of wind energy only.

4.4. Factors related to political orientation

To gain insights into the factors related to political orientation, we estimate a standard multinomial response model using party affiliation as the outcome categories.²⁰ The findings allow evaluating whether political orientation can be predicted from observable characteristics, providing insights for future policy targeting. In addition, the results indicate whether trust in government may affect both political orientation and support of wind energy, which would imply that omitting *trust_gvt* from the set of covariates in Eq. (1) may lead to biased estimates of the coefficients associated with political orientation. We explore this in [Section 4.5](#).

We report the results in [Table 3](#) and [Table 4](#) as the changes in the probabilities of respondents being affiliated with the various political parties (and left-right leanings) in response to a discrete change in the

¹⁹ Full model results appear in [Table S2](#). The coefficient of *Communist Party* cannot be estimated because all respondents affiliated with this party are in favor or very much in favor of solar energy.

²⁰ Multinomial logit models were estimated using the *mlogit* commands in *Stata 17*, which assumes no correlation among the stochastic components of the choice alternatives. We note that results are virtually the same if we estimate multinomial probit models via *mprobit*.

categorical and dichotomous variables. Therefore, for each covariate, the probability effects reported in the tables add up to zero. We note that the findings using party affiliation ([Table 3](#)) and left-right leaning ([Table 4](#)) are quite similar.²¹

Given the focus of our study, highlight similarities and differences between respondents affiliated with the extreme ends of the political spectrum, i.e. *France Unbowed/extreme left* on the extreme-left end and the *National Rally/ extreme right* on the extreme-right end. We then contextualize the results for respondents with *no political orientation*—the largest group in our sample, accounting for about one-third of the respondents.

Respondents affiliated with the extreme ends of the political spectrum distrust the government and are less likely to be female, *ceteris paribus*. Major differences pertain to beliefs in whether climate change will ever happen (extreme-right end: no), wealth-related factors such as income and residence ownership (extreme-right end: more wealthy), education level (extreme-right end: no graduate degree), and the community of residency (extreme-left end: urban; extreme-right end: non-urban). Our results further suggest that being female, younger, less wealthy, less educated, and distrusting the government, increases respondent propensity to have no political orientation, *ceteris paribus*. Hence, they share some of the characteristics of respondents affiliated with the extreme ends of the political spectrum, in particular, a low level of trust in the government.

4.5. The role of trust in the government

In this section, we explore whether the findings presented in [Section 4.2](#) change when we exclude *trust_gvt* from the set of covariates. For our sample, the findings of [Section 4.2](#) and [Section 4.4](#) suggest that trust in the government is indeed related to both general support of wind energy and political orientation. Hence, failure to include *trust_gvt* as a covariate in Eq. (1) may result in biased estimates of the relation between support of wind energy and political orientation. We show the results of estimating such a model in [Fig. 6](#). To ease comparison, [Fig. 6](#) also reports the estimated marginal effects from the specification with trust in government (presented in [Section 4.2](#)). Full model results are documented in [Table A2](#).

Testing for the joint significance of the differences in the coefficients associated with political orientation across models suggests that the coefficients differ (using party affiliation: $\chi^2(8) = 96.62, p < 0.001$; using left-right leaning: $\chi^2(7) = 91.35, p < 0.01$). Thus, trust in the government appears to affect the relation between political orientation and support of wind energy. Comparing the size and statistical significance of the marginal effects in [Fig. 6](#) across models, we find that excluding trust from the model tends to overestimate the relationship between party affiliation and support of wind energy on both ends of the political spectrum—both in terms of statistical significance and effect size. Although the exclusion of trust in government also affects the relation between party affiliation and support of wind energy in other parts of the political spectrum, the direction of this effect is less clear.

Specifically, the results of Wald tests for each pairwise comparison of the coefficients related to party affiliation reveal several differences when compared to the base model (see [Fig. 7](#), Panel A). The differences between *France Unbowed* and the *Renaissance Party*, and between the *Socialist Party* and the *Renaissance Party* now become statistically significant. At the same time, the differences between *France Unbowed* and the *Republican Party*, between the *Communist Party* and the *Republican Party* and between *The Greens* and the *Renaissance Party* are no longer statistically significant. Finally, the difference between the *Republican Party* and *National Rally* becomes statistically significant when trust in

²¹ Because few respondents ($n = 64$) affiliated with the *Communist Party*, we excluded these from the analysis. To save space, we do not show the results for respondents who indicated ‘other’ when asked about their party affiliation.

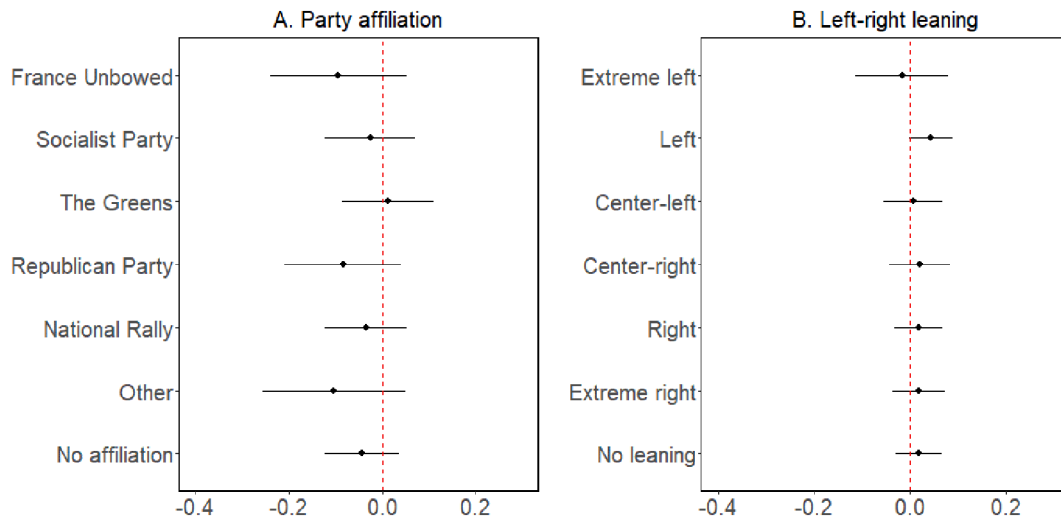


Fig. 5. Average discrete probability effects of political orientation on general support of solar energy compared to baseline category using party affiliation (Panel A) and left-right leaning (Panel B).[†]

[†] Horizontal bars represent 95 % confidence intervals. Baseline category: *Renaissance Party* in Panel A and *center* in Panel B.

Table 3
Average discrete probability effects of factors related to party affiliation.[†]

	France unbowed	Socialist party	The greens	Renaissance party	Republican party	National Rally	No affiliation
<i>Female</i>	-0.011 (0.008)	-0.011 (0.009)	0.019*** (0.007)	-0.015* (0.009)	-0.031*** (0.009)	-0.036*** (0.013)	0.107*** (0.015)
<i>Age_cat_2</i>	-0.038*** (0.011)	0.028** (0.011)	0.000 (0.009)	0.028** (0.011)	0.000 (0.010)	-0.001 (0.017)	-0.022 (0.021)
<i>Age_cat_3</i>	-0.045*** (0.012)	0.042*** (0.013)	0.007 (0.010)	0.045*** (0.012)	0.065*** (0.013)	-0.020 (0.018)	-0.101*** (0.021)
<i>Middle income</i>	-0.007 (0.010)	0.002 (0.011)	-0.014 (0.009)	0.024** (0.010)	0.025** (0.010)	0.044*** (0.015)	-0.046** (0.018)
<i>High income</i>	-0.021* (0.012)	0.018 (0.015)	-0.005 (0.011)	0.061*** (0.013)	0.042*** (0.013)	0.029 (0.019)	-0.110*** (0.023)
<i>Graduate</i>	0.012 (0.009)	-0.002 (0.011)	0.035*** (0.008)	0.019** (0.009)	0.048*** (0.010)	-0.086*** (0.014)	-0.034** (0.017)
<i>Children</i>	0.016* (0.009)	0.008 (0.012)	0.005 (0.009)	-0.030*** (0.011)	0.027** (0.013)	0.009 (0.016)	-0.037** (0.018)
<i>Urban</i>	0.026*** (0.009)	0.024** (0.011)	0.000 (0.008)	0.005 (0.010)	0.024** (0.010)	-0.055*** (0.014)	-0.018 (0.016)
<i>Owner</i>	-0.017* (0.009)	0.011 (0.010)	0.010 (0.008)	0.003 (0.010)	0.008 (0.010)	0.008 (0.014)	-0.057*** (0.017)
<i>CC_happening</i>	0.006 (0.010)	0.015 (0.013)	0.024*** (0.008)	0.039*** (0.011)	0.005 (0.013)	-0.093*** (0.020)	0.016 (0.021)
<i>Trust_gov</i>	-0.019*** (0.005)	0.019*** (0.005)	0.001 (0.004)	0.106*** (0.006)	0.016*** (0.005)	-0.072*** (0.008)	-0.033*** (0.009)
<i>Study_2</i>	-0.005 (0.008)	0.025** (0.010)	0.001 (0.007)	-0.019** (0.009)	0.003 (0.009)	0.029** (0.013)	-0.032** (0.016)
N	3807						

[†] Communist Party excluded. Robust standard errors appear in parentheses.

* $p < 0.10$.

** $p < 0.05$.

*** $p < 0.01$.

government is omitted. This suggests that the variation in the general support of wind energy within the right-wing spectrum is at least partly explained by differences in trust in government, and these differences disappear when trust is accounted for in the multivariate analysis.

Consequently, failing to control for trust in government may lead to an omitted variable bias. Trust in government is related to both political orientation and support of wind energy, and omitting it may lead to biased estimates of the relationship between the two, especially at the ends of the political spectrum. While we cannot test whether trust in government affects political orientation or whether the causal link runs in the opposite direction, we build on previous studies suggesting that trust in institutions is a stable, non-cognitive trait (e.g., Guiso et al.,

2008), which influences political orientation (e.g., Miller, 1974). In contrast, political orientation is a more malleable construct, shaped by contingent factors such as party representatives.

Finally, using left-right leaning to capture political orientation, we find small differences in the results of Wald tests for each pairwise comparison of the coefficients (reported in Fig. 7, Panel B) compared to the base model. The only notable difference pertains to respondents on the *extreme-right* and *right*, which is now statistically significant. This indicates that omitting trust in government is important, but to a lesser extent, when using left-right leaning as measure of political orientation. However, omitting trust in government still leads to an overestimation of the difference between voters within the right-wing spectrum.

Table 4
Average discrete probability effects of factors related to political leaning.

	Extreme left	Left	Center left	Center	Centre right	Right	Extreme right	No leaning
<i>Female</i>	-0.019*** (0.005)	-0.004 (0.011)	-0.018** (0.008)	-0.027*** (0.009)	-0.026*** (0.008)	-0.018 (0.012)	-0.040*** (0.009)	0.152*** (0.014)
<i>Age_cat_2</i>	-0.010 (0.006)	0.002 (0.015)	-0.007 (0.010)	-0.005 (0.012)	0.007 (0.010)	0.001 (0.015)	-0.011 (0.015)	0.023 (0.020)
<i>Age_cat_3</i>	-0.010 (0.008)	0.013 (0.016)	0.023* (0.012)	-0.008 (0.013)	0.009 (0.011)	0.058*** (0.017)	-0.038*** (0.015)	-0.047** (0.020)
<i>Middle income</i>	-0.011* (0.006)	-0.005 (0.013)	0.009 (0.010)	0.004 (0.011)	0.018** (0.009)	0.034** (0.014)	0.018 (0.011)	-0.067*** (0.017)
<i>High income</i>	-0.014* (0.007)	-0.009 (0.017)	0.033** (0.014)	0.007 (0.014)	0.047*** (0.012)	0.084*** (0.019)	0.020 (0.015)	-0.167*** (0.021)
<i>Graduate</i>	0.004 (0.006)	0.032** (0.013)	0.035*** (0.010)	0.025** (0.010)	0.020** (0.009)	0.032** (0.013)	-0.039*** (0.011)	-0.110*** (0.015)
<i>Children</i>	0.014** (0.007)	-0.002 (0.014)	-0.000 (0.011)	0.008 (0.011)	-0.024*** (0.009)	0.006 (0.015)	-0.013 (0.011)	0.013 (0.018)
<i>Urban</i>	0.019*** (0.006)	0.011 (0.013)	0.007 (0.010)	0.038*** (0.011)	0.003 (0.009)	-0.010 (0.013)	-0.034*** (0.010)	-0.035** (0.016)
<i>Owner</i>	-0.007 (0.005)	-0.017 (0.012)	0.007 (0.010)	0.006 (0.011)	0.015* (0.009)	0.023* (0.013)	0.025** (0.011)	-0.052*** (0.016)
<i>CC_happening</i>	-0.001 (0.006)	0.045*** (0.014)	0.004 (0.012)	0.006 (0.013)	0.029*** (0.010)	0.008 (0.017)	-0.062*** (0.016)	-0.029 (0.020)
<i>Trust_gov</i>	-0.019*** (0.004)	-0.018*** (0.006)	0.027*** (0.004)	0.047*** (0.005)	0.038*** (0.005)	-0.000 (0.007)	-0.044*** (0.006)	-0.031*** (0.008)
<i>Study 2</i>	0.009 (0.005)	-0.003 (0.012)	0.003 (0.009)	0.005 (0.010)	-0.006 (0.008)	-0.002 (0.012)	0.023** (0.010)	-0.028* (0.015)
<i>N</i>	3871							

Robust standard errors appear in parentheses.

- * p < 0.10.
- ** p < 0.05.
- *** p < 0.01.

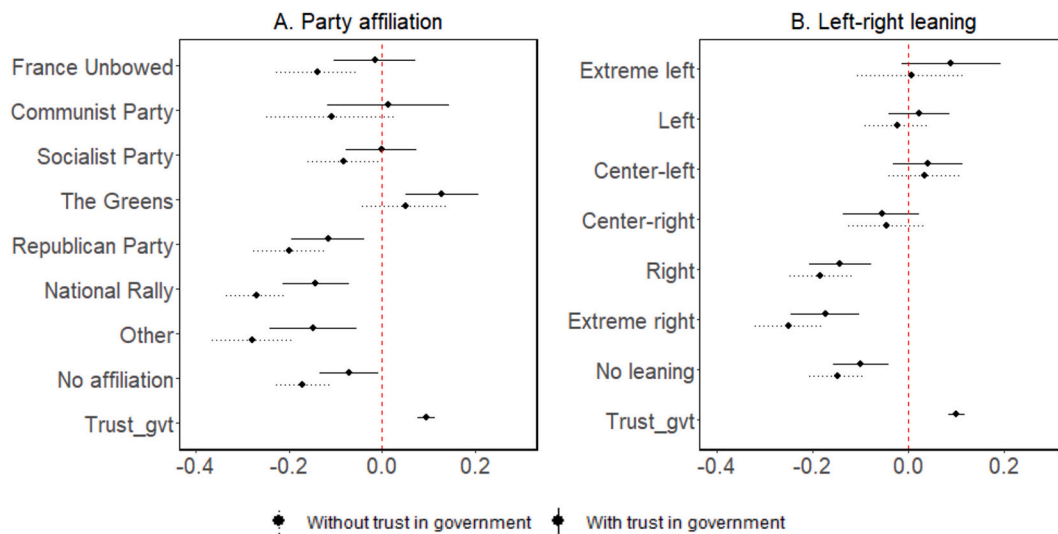


Fig. 6. Average discrete probability effects of political orientation on general support of wind energy compared to baseline category using party affiliation (Panel A) and left-right leaning (Panel B) - with and without trust in government as a covariate.[†]

[†] Horizontal bars represent 95 % confidence intervals. Baseline category: *National Rally* in Panel A and *Center* in Panel B.

Hence, the results from both measures of political orientation suggest that previous studies which omit trust in government but find that individuals on the far right are less supportive of climate policies, may overstate the strength of this relationship.

4.6. Robustness checks

To examine the robustness of the results presented in Section 4.2 and Section 4.4, we conducted several robustness checks. Instead of *general support* of wind energy, we use *local acceptability* as the outcome variable. Results for the base model appear in Table S3 for both measures of political orientation. Based on pairwise Wald tests on the differences in

local acceptability between voters of different parties, we find no qualitative differences compared to using descriptive statistics in Section 4.2. When using left-right leaning to capture political orientation, we observe few differences only compared to using descriptive statistics. In the multivariate analysis, the differences between *extreme left* and *center-right* and between *left* and *center* become statistically significant when we use *local acceptability* rather than *general support* of wind energy as the outcome variable. The results of all other pairwise comparisons are qualitatively the same as in Section 4.2. Similar to our findings when using *general support* as the outcome variable, excluding *trust_gov* from the set of covariates affects the estimated relationships between political orientation and *local acceptability* (using party affiliation: $\chi^2(8) = 34.17$,

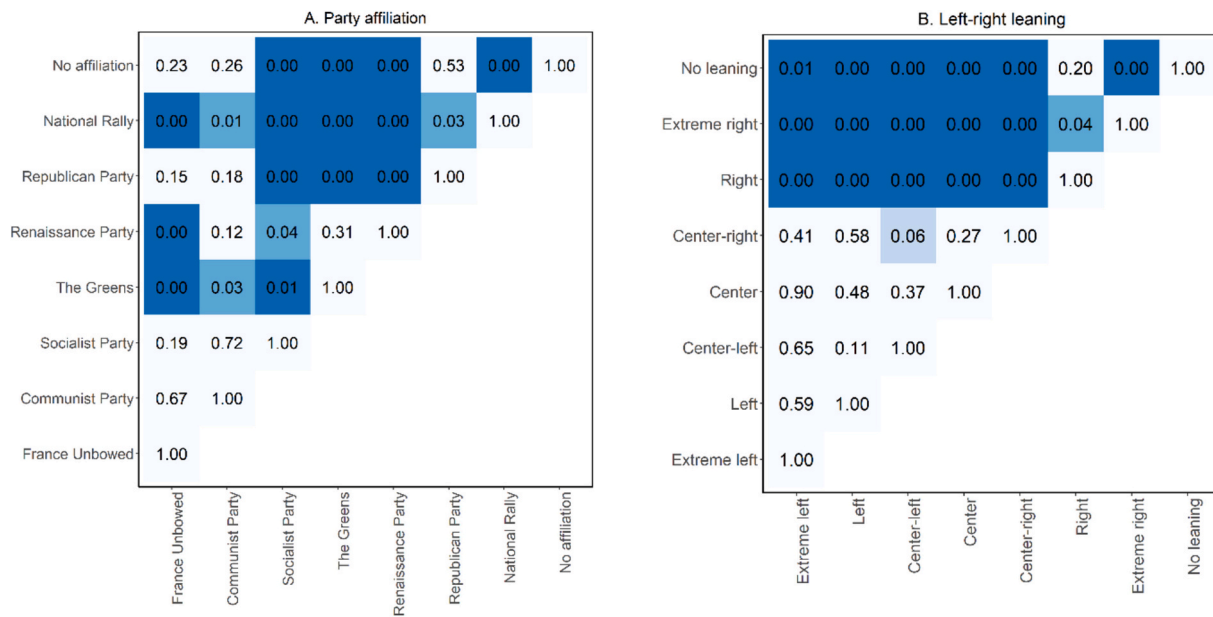


Fig. 7. P-values for pairwise comparisons of the coefficients associated with party affiliation (Panel A) and left-right leaning (Panel B) - without trust in government as a covariate.[†]

[†] p-values from Wald tests.

$p < 0.001$; using left-right leaning: $\chi^2(7) = 39.42$; $p < 0.001$). Further, we find a negative and statistically significant relationship between being female and local acceptability across both measures of political orientation. In contrast, being female is positively associated with general support, and this relationship is statistically significant when using the left-right political orientation measure. Further, windfarm nearby is positively associated with local acceptability, whereas we find no statistically significant relationship between general support and proximity to a wind turbine.

Since our outcome variable relies on stated rather than observed behavior, our findings may suffer from a social desirability bias. To control for a potential social desirability bias, we included the five-item version of the Marlowe-Crowne social desirability scale in Study 2 (Strahan and Gerbasi, 1972). We created an index of social desirability by adding up individual responses to the five items, after reverse coding of the second and third item. A higher score indicates a greater likelihood of individuals displaying socially desirable responses. Including this score as an additional covariate when estimating general support of wind energy and local acceptability of wind has virtually no effect on the findings (see Table S7).

Furthermore, it is possible that political orientation is a ‘bad control’ when regressing support of wind energy on political orientation and other factors, particularly if political orientation is itself an outcome variable (Angrist and Pischke, 2009, p. 64). After all, Table 3 and Table 4 suggest that political orientation is associated with several of the covariates in Table A1. To examine whether political orientation is a bad control when estimating Eq. (1), we estimated our main specification without the variables reflecting political orientation. By comparing the results of this model, shown in Table S8, with the findings in Table A1, we find no evidence that the variables capturing political orientation are ‘bad’ controls when estimating the factors related to support of wind energy, because the coefficients of these other factors remain largely unaffected when the variables reflecting political orientation are

excluded.

Finally, to account for the ordinal nature of the outcome variable general support of wind energy, we estimated generalized ordered logit models of our baseline specification and for both party affiliation and left-right leaning to reflect political orientation.²² In Tables S9 and S10, we report the average discrete probability effects, i.e. the average change in the probability that the ordinal outcome variable general support takes on a particular outcome category in response to a one-unit change in the covariates. The results of the generalized ordered logit models are consistent with those from logit models. For example, Table S9 indicates that the probability that a respondent is ‘very much in favor’ (‘not in favor at all’) of the development of onshore wind energy in France is 6.7 %-points lower (6.1 %-points higher) for voters of the National Rally than voters of the Renaissance Party (i.e., the baseline category of party affiliation).

5. Discussion and conclusion

In this section, we relate the findings to our main research questions and to the literature. We also point to limitations of our study and provide guidance for future research.

5.1. Political orientation and support of onshore wind and solar energy

The results of our descriptive analyses indicate that voters of the National Rally, i.e., the populist party on the extreme right, show the most opposition to wind energy. Multivariate analyses reveal that these voters have the lowest support for wind energy, except when compared to voters of the more traditional right-wing party, the Republican Party. We do not find any evidence for a symmetric effect on the left side of the political spectrum, with preferences being indistinguishable across the left-wing parties France Unbowed (populistic), the Communist Party and the Socialist Party, all of which show lower support than the left-wing

²² We estimated generalized ordered logit models instead of regular ordered logit models because Brant tests suggest that the so-called parallel lines assumption is violated, i.e. the effect of (some) covariates on moving from one outcome category to the next is not the same across outcome categories.

party *The Greens*. Thus, our findings suggest that identification with populist views appears relevant on the right side of the political spectrum only. Finally, we find that respondents with no party affiliation (representing about one-third of the sample) exhibit a similar (low) level of support of wind energy as traditional right-wing parties.

More broadly, our findings on the relationship between political orientation and support of wind energy in France align with studies exploring the relationship between political orientation and climate policy support in general (e.g., Drews & van den Bergh, 2016). Our results differ, however, from Sælen and Aasen (2023), who find that right-wing voters in Norway are more supportive of onshore wind energy than the others. Thus, findings on the link between political orientation and support of a particular policy observed in a particular country may not hold in another country.

Likewise, our null result regarding the relationship between political orientation and support of solar energy suggests that the link between political orientation and support of wind energy may not extend to other renewable technologies, specific climate policy instruments, or climate policy more broadly. Therefore, future research should be cautious in evaluating the acceptability of climate policies in general, as the factors driving public support may differ across individual policies. Relatedly, political context also influences the degree to which different climate policies or technologies become politicized—see Witajewska-Baltvilka et al. (2024) for a recent example. Following Hutter and Kriesi (2019), the greater the ideological divide among the relevant parties, the more likely particular climate policies and technologies will be politicized.

5.2. The role of trust in the government

Our analysis adds to the evidence in the literature (e.g., Dechezleprêtre et al., 2025; Fairbrother et al., 2019; Faure et al., 2022; Hammar and Jagers, 2006; Kitt et al., 2021) that trust in government relates to support of climate policies, i.e. development of wind energy in our study. However, we also show that trust in government relates to political orientation, with voters of populist parties having lower trust in institutions than voters of traditional parties (e.g., McCright et al., 2016; Philipp-Muller et al., 2022). Failing to control for trust in the government may lead to biased estimates of the relation between political orientation and support of wind energy.

Our results confirm this potential bias. When trust in government is omitted from the multivariate analysis, voters of the *National Rally* (populist right-wing party) are significantly less supportive of wind energy than voters of the *Republican Party* (traditional right-wing party). However, when we include trust in government in the specification, this difference is no longer statistically significant. Therefore, differences in support of wind energy within the right-wing political spectrum appear mainly driven by differences in trust in government. Likewise, the difference between *France Unbowed* (populist left-wing party) and the *Renaissance Party* is statistically significant only when trust in government is omitted from the multivariate analysis. Thus, studies that omit trust in government may be subject to an omitted variable bias, potentially overstating the relation between populist party affiliation (on both sides of the political spectrum) and opposition to climate policies.

However, we acknowledge that our results are correlational, and we cannot rule out the possibility that the causal relationship runs in the opposite direction. If political orientation affected trust in government (rather than the opposite), our findings would suggest that trust in government partially mediates the relationship between political orientation and support of wind energy. In either case, our analysis points to trust in government as a factor contributing to the differences in support of wind energy across the political spectrum.

5.3. Measures of political orientation

While most findings remain robust whether political orientation is measured by party affiliation or a standard left-right political scale,

some differences do emerge between the two measures. These differences across measures can be partly explained by the relatively low, but positive, correlation between political party affiliation and left-right leaning (see Fig. A1). This illustrates that the unidimensional left-right scale of the political spectrum only partially mirrors party affiliation. In particular, affiliation with *The Greens* does not align well with the traditional left-right political leaning. Similar to using party affiliation to capture political orientation, we find that neglecting to account for trust in government may lead to an omitted variable bias when using left-right leaning, yet this bias appears to be less pronounced.

Moreover, individuals may hesitate to associate themselves with the extreme ends of the left-right political spectrum because the term ‘extreme’ typically employed in the response scale is loaded and may evoke a strong negative reaction. In addition, responses for the left-right leaning scale may suffer from a ‘central tendency bias’, i.e. they avoid selecting extreme options on a Likert-type scale and instead choose middle options because they want to appear moderate, or are reluctant to express strong opinions (e.g., Croasmun and Ostrom, 2011). Indeed, in our sample 2.4 % and 10.4 % of the respondents identify with *extreme left* and *extreme right* leaning respectively, while 6.1 % are affiliated with *France Unbowed* and 19.8 % with *National Rally*.

Therefore, future studies may consider using party affiliation to measure political orientation, rather than (only) a unidimensional left-right scale. These insights align with recent research in political science, suggesting that party affiliation may be a more effective indicator of political orientation than a unidimensional left-right scale. For example, Giebler et al. (2019) find that individuals map parties’ left-right positions based on perceived party positions on various sub-dimensions such as economic and cultural issues. Kulin et al. (2021) provide evidence that party affiliation may be a better predictor of individuals’ attitudes towards climate change and climate policies than traditional left-right political ideology.

5.4. Limitations

While our study provides new insights into the relation between political orientation and support of renewable energies, it also has limitations that should be considered when interpreting the findings. Consistent with other research in related contexts, our analysis relies on self-reported rather than observed measures of political orientation and support of renewable energies. Arguably, this bias may be larger for stated affiliation with extreme right political orientations than with other political orientations, resulting in inflated shares of respondents stating no political orientation. Because actual voting behavior may differ from stated party affiliation, the findings on the relation between party affiliation and support of wind energy may differ if data on actual voting behavior was used. Likewise, even though our robustness checks did not find any evidence that social desirability bias may affect our key findings, we cannot exclude that they suffer from biases related to the hypothetical nature of our outcome variables. Finally, factors beyond trust in government, such as fairness views (Andor et al., 2022; Fanghella et al., 2023), could affect the relationship between political orientation and support of climate-friendly technologies and policies. If these factors are omitted from the multivariate analysis, the estimate of this relationship may be biased.

In conclusion, our study provides new insights into how political orientation relates to support for wind energy in France, highlighting particularly low support among right-wing populist voters. We show that trust in government plays a mediating role in this relationship. These patterns do not extend to another renewable energy technology—solar PV. Future research could explore these relationships in other countries, across various technologies, and, where possible, using observed voting behavior and revealed preferences for technology.

Declaration of generative AI in scientific writing

The authors used ChatGPT to enhance the wording during the preparation of this work. Following its use, the authors carefully reviewed and edited the content as necessary and take full responsibility for the final version of the publication.

CRediT authorship contribution statement

Valeria Fanghella: Writing – review & editing, Writing – original draft, Validation, Methodology, Investigation, Formal analysis, Data curation, Conceptualization. **Joachim Schleich:** Writing – review & editing, Writing – original draft, Validation, Methodology, Investigation,

Formal analysis, Conceptualization. **Carine Sebi:** Writing – review & editing, Writing – original draft, Validation, Project administration, Funding acquisition.

Declaration of competing interest

The authors declare no competing interests.

Acknowledgements

This research was funded by ‘The Energy for Society Chair’ of the Grenoble Ecole de Management. We sincerely appreciate the insightful comments provided by two anonymous reviewers.

Appendix A

Table A1

Average discrete probability effects of all covariates on general support of wind energy using party affiliation (Panel A) and left-right leaning (Panel B).

Party affiliation	General support of wind energy	Left-right leaning	General support of wind energy
<i>France Unbowed</i>	-0.015 (0.045)	<i>Extreme left</i>	0.090* (0.053)
<i>Communist Party</i>	0.013 (0.067)	<i>Left</i>	0.024 (0.033)
<i>Socialist Party</i>	-0.001 (0.039)	<i>Centre-left</i>	0.041 (0.037)
<i>The Greens</i>	0.129*** (0.040)	<i>Centre-right</i>	-0.055 (0.041)
<i>Republican Party</i>	-0.116*** (0.040)	<i>Right</i>	-0.142*** (0.033)
<i>National Rally</i>	-0.143*** (0.036)	<i>Extreme right</i>	-0.173*** (0.037)
<i>No party affiliation</i>	-0.070** (0.032)	<i>No orientation</i>	-0.099*** (0.030)
<i>Other party affiliation</i>	-0.147*** (0.048)		
<i>Female</i>	0.015 (0.015)	<i>Female</i>	0.027* (0.015)
<i>Age_cat_2</i>	-0.031 (0.019)	<i>Age_cat_2</i>	-0.029 (0.019)
<i>Age_cat_3</i>	-0.088*** (0.021)	<i>Age_cat_3</i>	-0.088*** (0.021)
<i>Middle income</i>	0.016 (0.017)	<i>Middle income</i>	0.016 (0.017)
<i>High income</i>	0.010 (0.022)	<i>High income</i>	0.012 (0.022)
<i>Graduate</i>	0.010 (0.016)	<i>Graduate</i>	0.007 (0.016)
<i>Children</i>	0.014 (0.018)	<i>Children</i>	0.010 (0.018)
<i>Urban</i>	-0.034** (0.017)	<i>Urban</i>	-0.041** (0.017)
<i>Owner</i>	-0.026 (0.016)	<i>Owner</i>	-0.023 (0.016)
<i>Windfarm_nearby</i>	-0.011 (0.019)	<i>Windfarm_nearby</i>	-0.010 (0.019)
<i>CC_happening</i>	0.140*** (0.022)	<i>CC_happening</i>	0.144*** (0.022)
<i>Trust_gov</i>	0.096*** (0.009)	<i>Trust_gov</i>	0.101*** (0.009)
<i>Study 2</i>	0.027* (0.015)	<i>Study 2</i>	0.025* (0.015)
N	3871	N	3871

Robust standard errors appear in parentheses.

- * p < 0.10.
- ** p < 0.05.
- *** p < 0.01.

Table A2

Average discrete probability effects of all covariates on general support of wind energy using party affiliation (Panel A) and left-right leaning (Panel B) – without trust in government as a covariate.

Party affiliation	General support of wind energy	Left-right leaning	General support of wind energy
<i>France Unbowed</i>	-0.138** (0.045)	<i>Extreme left</i>	0.007 (0.059)
<i>Communist Party</i>	-0.108 (0.072)	<i>Left</i>	-0.023 (0.034)
<i>Socialist Party</i>	-0.081** (0.040)	<i>Centre-left</i>	0.035 (0.038)
<i>The Greens</i>	0.051 (0.048)	<i>Centre-right</i>	-0.044 (0.041)
<i>Republican Party</i>	-0.199*** (0.040)	<i>Right</i>	-0.183*** (0.033)
<i>National Rally</i>	-0.269*** (0.033)	<i>Extreme right</i>	-0.249*** (0.036)
<i>No party affiliation</i>	-0.170*** (0.030)	<i>No orientation</i>	-0.148*** (0.030)
<i>Other party affiliation</i>	-0.278*** (0.044)		
<i>Female</i>	0.014 (0.015)	<i>Female</i>	0.027* (0.015)
<i>Age_cat_2</i>	-0.047** (0.019)	<i>Age_cat_2</i>	-0.042** (0.019)
<i>Age_cat_3</i>	-0.102*** (0.021)	<i>Age_cat_3</i>	-0.096*** (0.021)
<i>Middle income</i>	0.015 (0.018)	<i>Middle income</i>	0.016 (0.018)
<i>High income</i>	0.011 (0.022)	<i>High income</i>	0.016 (0.023)
<i>Graduate</i>	0.014 (0.016)	<i>Graduate</i>	0.012 (0.016)
<i>Children</i>	0.020 (0.019)	<i>Children</i>	0.016 (0.019)
<i>Urban</i>	-0.025 (0.017)	<i>Urban</i>	-0.029* (0.017)
<i>Owner</i>	-0.023 (0.016)	<i>Owner</i>	-0.022 (0.016)
<i>Windfarm_nearby</i>	0.002 (0.019)	<i>Windfarm_nearby</i>	0.004 (0.019)
<i>CC_happening</i>	0.144*** (0.022)	<i>CC_happening</i>	0.152*** (0.022)
<i>Study 2</i>	0.038** (0.015)	<i>Study 2</i>	0.038** (0.015)
N	3871	N	3871

Robust standard errors appear in parentheses.

* p < 0.10.

** p < 0.05.

*** p < 0.01.

Extreme left	19.1	10.9	2.0	1.5	0.0	0.3	1.0	8.6	0.6
Left	51.7	62.5	57.9	32.8	3.6	2.1	1.9	7.5	5.3
Center-left	11.9	9.4	26.1	23.7	10.0	2.7	1.0	5.2	4.5
Center	5.1	7.8	5.1	15.7	29.7	9.1	4.6	16.7	8.2
Center-right	0.8	3.1	1.7	3.0	28.9	16.4	2.5	7.5	3.5
Right	3.4	0.0	1.4	2.5	23.1	63.3	28.9	21.8	4.9
Extreme right	0.8	1.6	1.4	1.0	0.6	1.5	47.0	9.2	0.5
No leaning	7.2	4.7	4.5	19.7	4.2	4.5	13.0	23.6	72.5
	France Unbowled	Communist Party	Socialist Party	The Greens	Renaissance Party	Republican Party	National Rally	Other	No affiliation

Fig. A1. Relation between party affiliation and left-right leaning (in %).[†]

[†] Note: column totals are 100 %.

Appendix B. Supplementary data

Supplementary data to this article can be found online at <https://doi.org/10.1016/j.ecolecon.2025.108714>.

Data availability

Data and code can be found in the Supplementary Material.

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