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Article

Overcoming the Trade-Off Effect: Environmental or Economic Prioritization and the Propensity for Green Voting

Giacomo Salvarani, Matteo Zavalloni, Elena Viganò, and Fabio Bordignon

Department of Economics, Society, Politics, University of Urbino Carlo Bo, Urbino, Italy

All correspondence concerning this article should be addressed to Giacomo Salvarani, PhD, Department of Economics, Society, Politics, University of Urbino Carlo Bo, Piazza Gherardi 4, Urbino, Italy. E-mail: giacomo.salvarani@uniurb.it

Abstract

Despite growing environmental awareness, many hesitate to act pro-environmentally. A reason for this is the perceived economic cost of a pro-environmental choice. Such trade-off between environmental and economic prioritization happens through two distinct channels: a pocketbook—sustainability versus personal finances—or a macro-level one—sustainability versus economic growth. Can this trade-off negative effect on pro-environmental behavior be overcome? Facing an electoral choice, when are voters still inclined to opt for a party championing environmental sustainability, even if they are unwilling to prioritize ecological concerns over economic ones? Using survey data representative of the Italian population, we adopt a Propensity for Green Voting measure to assess the likelihood of voting for an environmentally focused party. We find that serious concerns about natural disasters effectively mitigate the trade-off's negative effect on Propensity for Green Voting (PGV), leading voters holding economic concerns to intend to cast a green vote nonetheless. The same applies to those living with children or having a left-leaning political orientation. However, children in households move the electorate toward a pro-environmental vote only for trade-off evaluations at the macro-level. In contrast, pocketbook evaluations do not hinder voting green for those with a left-leaning orientation.

Policies aligned with pro-environmental goals can coexist with or even promote economic growth (Jänicke, 2007; Mol & Spaargaren, 2018; Schofer & Granados, 2006). However, people can still perceive these policies as barriers to their country's economic progress. In addition to this evaluation, individuals may also hesitate to sacrifice personal finances for the environment when daily green-friendly choices have higher costs than unfriendly ones. These trade-offs can follow voters to the voting booths, with current scholarship indicating that citizens prioritize the economy over the environment during times of economic distress. In line with this view, the environment is a "normal," "pro-cyclical," or "luxury" good (Abou-Chadi & Kayser, 2017; Conroy & Emerson, 2014; Kayser & Grafström, 2016; Kenny, 2020). Starting from this premise, we investigate what we term a negative "trade-off effect," which occurs when the prioritization of the economy over the environment leads to a diminished propensity to cast a "green" vote.

Given the extensive evidence on these trade-offs, we ask whether the latter's effect on electoral behavior can be overcome. Specifically, *could voters still be inclined to vote for a party championing environmental sustainability, even when unwilling to prioritize environmental concerns over economic ones*? If so, *under which conditions*? Our hypotheses revolve around three different conditions that could moderate the negative effect of being unwilling to sacrifice the economy on green voting: (H1) serious concerns about being a victim of natural disasters; (H2) the presence of children in the household; and (H3) a left-wing political orientation. This latter positioning, along with concerns for their safety in front of potential extreme weather conditions and with concerns for the environment inherited by the next generations, could make voters supersede the reluctancy to make economic sacrifices—both individually ("pocketbook evaluations") and for the country ("macro-level evaluations")—and cast a pro-environmental vote.

Current scholarship on pro-environmental voting mainly focuses on established "Green parties" identified as such or on the "greenness" of the parties in the studied electoral landscape(s) (Abou-Chadi & Kayser, 2017; Hilbig & Riaz, 2024; Hoffmann, Muttarak, Peisker, & Stanig, 2022; Kronborg, Hedegaard, Klindt, & Vandeweerdt, 2024). These studies have the key advantage of providing clear information on the current configuration of environmental issues in the political landscape. However, when analyzing the demand side, this approach risks being biased from non-green issues that parties focus on. With this study, we explore the individual green voting propensity unhindered from the constraints of the current electoral offer. To this end, drawing from survey data representative of the Italian population and without referring to any specific party given the current electoral offer, we determine the individual likelihood to vote for a party with environmental protection and sustainability at the core of its agenda. This measure, on a 0–10 scale and named Propensity

for Green Voting (PGV), specifically aims to go beyond context-specific electoral dynamics, potentially confounding the precise environmental demand.

With this study, we also aim to contribute to other research strands. The Chapel Hill Expert Survey (CHES) has collected data since 2010 about the parties' position on the trade-off between the economy and the environment (Jolly et al., 2022). This trade-off survey question is ubiquitous in literature (Nadeau, Lachapelle, & Bergeron, 2022) and a reliable predictor of pro-environmental (in)action (Korfiatis, Hovardas, & Pantis, 2003), with survey data from as early as the 1970s investigating it from the individuals' point of view. Such surveys emerged with literature on post-materialism, which frames environmentalism and other "non-material issues" as a cultural and political orientation more likely to be adopted once material needs are met, especially in wealthy countries (Inglehart, 1971). To this day, the scholarship finds that post-materialism has significant and positive effects on several types of environmental behavior (Taniguchi & Marshall, 2018).

Attempting to move beyond these findings, we concentrate on the trade-off's evaluations, hypothesizing that *voters are still inclined to vote green under certain conditions, even if unwilling to sacrifice the economy*. As we test this overarching hypothesis considering different moderating factors, we contribute two ways to the literature on post-materialism. First, rather than considering the impact of a strong (weak) economy (Kayser & Grafström, 2016) or a positive (negative) perception of the economy (Abou-Chadi & Kayser, 2017; Bornstein & Thalmann, 2008), we specifically take into consideration the individual (un)willingness to sacrifice the economy. Focusing on individual perception and using this explanatory trade-off attitude allows us to encompass the whole spectrum of those unwilling to sacrifice the economy, not only those under economic hardship. Second, we note how extant research has questioned the positive link between wealth and environmentalism (Fairbrother, 2013). We do not enter this debate challenging the positive link between green attitudes or behavior and a strong (weak) economy or a positive (negative) perception of the personal or country's economic situation. However, we contribute by questioning the validity of a negative trade-off effect for the entire electorate.

Another contribution to the literature lies in testing specific moderation effects between trade-offs and PGV. While existing scholarship demonstrates the trade-offs' impact on behavior, a gap remains on the conditions that might neutralize or mitigate the influence of this trade-off. Namely, we offer new insights into the circumstances under which voters might align a high propensity for green voting with their reluctance to prioritize the environment when facing economic costs. Through this, we aim to contribute to the debate on environmental politics from the demand side, focusing on the role of individual evaluations between ecological responsibility and economic concerns in shaping electoral choices.

To test the moderating effect of the trade-off on PGV, we measure macro-level evaluations through a straight trade-off question: whether individuals primarily favor policies prioritizing environmental protection and sustainability at the expense of their country's economic growth. From the perspective of the trade-off between the environment and personal finances, we adopt the social dilemma of self- versus collective-interested as a course of choice in the context of a pro-environmental behavioral intention regarding food consumption. Precisely, we measure pocketbook evaluations through the individual likelihood of buying green-friendly products when these latter have higher costs than unfriendly ones.

In the following section, we will summarize the scientific literature. We will inform our hypotheses starting from the economy–environment trade-offs and post-materialism literature, focusing on the research behind the studied *conditions*, and motivating the choice of the context in which we test the hypotheses. In the third section, we delineate our research design, with the results of the empirical analysis presented and discussed in the fourth section. The conclusive section summarizes our contribution, acknowledging its limitations, and presenting final remarks.

Theoretical Background and Hypotheses

Individual prioritizations vary according to material conditions and the perception of these latter. Kayser and Grafström (2016) show that short-term benefits are prioritized over post-material or long-term benefits, such as environmental protection, during economic downturns. Individuals with a positive perception of the economy are more likely to support environmental bills (Bornstein & Thalmann, 2008) and a growing economy positively affects the Green parties' electoral results (Gourley & Khamis, 2023). Pro-environmental attitudes can increase in tandem with a nation's wealth, on top of individuals' socioeconomic status (Franzen & Meyer, 2010), while inequality decreases democracies' environmental performance (Bakaki, Böhmelt, & Ward, 2022).

Kenny (2020, 2021) contributes to this debate by finding that an increase in unemployment during the Great Recession negatively affected environmental protection prioritization. Meyer (2022) finds that labor market conditions significantly affect climate policy support among those in the labor force—who arguably have the most to lose in the short term—and adverse economic shocks correlate positively with climate skepticism; in contrast, economic trends do not impact other categories, such as homemakers and students. Extent research also shows that environmental concern and support for climate change policies are lower in poorer areas, with unemployment being a negative predictor (Arndt, Halikiopoulou, & Vrakopoulos, 2023; Duijndam & Van Beukering, 2021). While confirming the more likely prioritization of the economy over pro-environmental policies (when the trade-off assumes the form of a macro-level evaluation) in less industrialized areas, Running (2015) finds an even higher willingness to sacrifice personal finances for the environment in these countries than richer ones.

Some do not find convincing evidence regarding the role of the economy–environment trade-offs (Fairbrother, 2013; Mildenberger & Leiserowitz, 2017), while others, on the one hand, find evidence about the trade-off yet argue that the relationship between the environment and the economy in public opinion is becoming weaker (Hartmann & Preisendörfer, 2024). The trade-off effects should then be continually evaluated over time, across different spaces, and the question remains open on when such effects can be mitigated. We contribute to this debate by focusing on individual perceptions and economic evaluations rather than on material economic conditions, in this way directly addressing the channel through which the economy impacts green attitudes and behavior, that is, prioritizing one over the other.

Why does a weak economy or economic scarcity influence environmental priorities? An answer can be found already at the premises of the literature on post-materialism. As in the words of Inglehart (1971, p. 991):

> *My basic hypothesis is that given individuals pursue various goals in hierarchical order—giving maximum attention to the things they sense to be the most important unsatisfied needs at a given time. A man lost in a desert, for example, may be obsessed by his need for water, devoting virtually all his attention to the search for it. When a supply of water is readily available but food is scarce, he may take the former need for granted […] and may devote himself to gathering food.*

In this metaphor, prioritizing food or water is equivalent to prioritizing the economy or the environment. However, outside this metaphorical image, we cannot dismiss the cases in which, even under satisfying economic circumstances, one could still not want to sacrifice the economy, and in which, not under satisfying economic circumstances, one might still recognize the environment as a priority. The focus on perceptions rather than on the state of the economy or the state of individual economic conditions permits us to integrate this latter aspect in the analysis of the trade-off. In all these cases and following the trade-off framework, a certain pro-environmental action ultimately depends on the willingness to sacrifice the economy for it. Can such unwillingness be aligned with a pro-environmental behavioral intention?

In addressing how economic priorities can align with the propensity for green voting, we develop three hypotheses. Despite varying perspectives, individual attitudes are often highlighted as a primary predictor of pro-environmental behavior, as shown by Li, Zhao, Ma, Shao, and Zhang (2019), who also note that while social norms and demographic factors can be influential, attitudes remain the most significant studied determinant.

In this vein, our first hypothesis centers on the feeling of personal safety in the face of environmental disasters. We hypothesize that these concerns might mitigate the adverse effects of the perceived economy–environment trade-off on the propensity for green voting. A flourishing strand of research has been exploring the influence of natural disasters on individual attitudes and behaviors, yielding mixed results. Lohmann and Kontoleon (2023) report no significant impact of floods and heatwaves on climate change concerns or pro-environmental behavior. In contrast, others find that natural disasters positively affect climate change beliefs and concerns as well as pro-environmental attitudes, although not necessarily pro-environmental civic behavior (Kalatzi Pantera, Böhmelt, & Bakaki, 2023; Rüttenauer, 2023; Spence, Poortinga, Butler, & Pidgeon, 2011). Hoffmann et al. (2022) suggest that environmental concerns, heightened by direct experiences such as exposure to extreme climates, can positively influence the voting share for green parties. Others find that, after experiencing natural disasters and climate-change-related events, the vote-share supporting pro-climate policies or environmental public spending rises (Baccini & Leemann, 2021; Papp, 2022; Soni & Mistur, 2022). A potential mechanism sees individuals re-evaluating their beliefs and trade-off evaluations under new information after facing these events (Sloggy, Suter, Rad, Manning, & Goemans, 2021), being concerned by new (and already experienced) costs of dealing with climate change consequences instead of preventing them. Beyond this potential mechanism, we posit that a heightened and more proximate sense of fear and personal risk from natural disasters might encourage the vote for a party championing environmental sustainability, even when individuals remain reluctant to prioritize environmental concerns over economic ones. This suggests that a stronger perception of personal risk could lead voters to either re-prioritize or simultaneously prioritize environmental issues, thereby diminishing the negative impact of the economy–environment trade-off on PGV. Based on this, we test the following hypothesis:

> H1. When reluctant to prioritize the environment over the economy, serious concern about being personally affected by natural disasters (such as earthquakes, landslides, or floods) mitigates the effect of the perceived economy–environment trade-off on the propensity for green voting.

Consistent with this hypothesis on "personal risk awareness," studies first highlight the importance of belief in climate change as a determinant of willingness to support climate change policies (Carlsson et al., 2012; Kotchen, Boyle, & Leiserowitz, 2013). Casaló and Escario (2018) argue that only *strong* environmental attitudes, which emerge when individuals believe in protecting the environment regardless of the associated costs, are reliable predictors of pro-environmental behavior across various contexts. While real or perceived economic costs often hinder pro-environmental participation, these costs might be more readily overlooked with an increased awareness of the risks associated with a changing climate.

This sense of risk could also be projected from our personal safety to the safety or well-being of those close to us. From this perspective, our following hypothesis centers on individuals' household composition, specifically regarding the possibility of living or not with children. Individuals living with children might generally prioritize economic considerations due to the responsibility of child-rearing and concerns about the state of the economy their children will inherit. However, a sense of moral obligation towards their children or a commitment to intergenerational equity for a sustainable future could lead to a higher PGV, thereby balancing the economic-environment trade-off. Aguilar-Luzón, Carmona, Calvo-Salguero, and Castillo Valdivieso (2020) indeed suggest that green voters often exhibit strong socio-altruistic values. In line with this view, they might integrate these values into their considerations of both the state's short-term economic welfare and the environment's long-term welfare. These considerations lead us to our second hypothesis on "family-risk evaluation":

> H2. When reluctant to prioritize the environment over the economy, living in households with children mitigates the effect of the perceived economy–environment trade-off on the propensity for green voting.

Therefore, we anticipate that individuals living with children may still lean towards voting green while prioritizing short-term economic considerations due to future-oriented concerns and perceived long-term environmental risks.

With an intended behavior referring to an electoral choice as the outcome variable, individual political attitudes might also play a role in moderating the studied trade-off negative effect. Extent research notes that, greater trust in government is associated with more willingness to make individual economic sacrifices for the environment (Taniguchi &

Marshall, 2018). On top of that, across Europe, non-voters exhibit less concern for climate change than voters, underscoring the importance of political interest in predicting pro-environmental behavior (Fisher, Kenny, Poortinga, Böhm, & Steg, 2022; Torgler & García-Valiñas, 2007). Holding specific political orientations, which partially entail also an interest in politics, seems to play a role, as right-leaning partisans tend to show greater skepticism and more unstable beliefs about climate change than their left-leaning counterparts (Jenkins-Smith et al., 2020; Levi, 2021). Studies underline how holding a liberal orientation or left partisanship can be positively linked with climate policy, with citizens' environmental attitudes and behaviors, with their willingness to pay "green" taxes and a higher propensity to prioritize the environment over the economy (Bornstein & Thalmann, 2008; Conroy & Emerson, 2014; Franklin & Rüdig, 1992; Franzen & Vogl, 2013; Neumayer, 2004; Schulze, 2021; Soni & Mistur, 2022; Taniguchi & Marshall, 2018).

Even if environmentalism comes to be regarded as an independent dimension of political preferences (Kenny & Langsæther, 2022), disparities across ideological and party lines underscore the increased polarization of climate change issues, likely to remain unnoticed in the electorate. For these reasons, we develop our last hypothesis on "leftist political orientation." We expect that, inside the ballot box, such ideological predisposition—perhaps more likely to be aligned with environmental goals in the eyes of the electorate—might supersede economic considerations inside the voting booths. Those unwilling to sacrifice the economy could then still cast a pro-environmental vote, since they recognize it to be associated with their political preferences and put this latter before their trade-off evaluations.

> H3. When reluctant to prioritize the environment over the economy, holding a left-leaning political orientation mitigates the effect of the perceived economy–environment trade-off on the propensity for green voting.

These hypotheses, grounded in the presented theoretical insights, aim to test the interplay of factors driving green electoral behavior in the context of contrasting voter priorities. Linked to a general trade-off between the economy and the environment, the hypotheses will be tested by considering two types of economic evaluations: pocketbook and macro-level. A third assessment integrates these two dimensions.

The Italian case is particularly suitable and relevant to test the presented hypotheses. This is because, despite still being among the wealthiest countries and strongest economies worldwide, its economy is characterized by prolonged stagnation and rising inequalities (Bloise, Chironi, della Porta, & Pianta, 2023). This economic situation might create concerns about financial issues penalizing environmental ones (Conroy & Emerson, 2014; Kenny, 2020). Further, while having a comparatively very high percentage of people believing in climate change, Italy is also characterized by historical latency of environmental issues in public debate (Biancalana & Ladini, 2022; De Blasio & Sorice, 2013), and the absence of an issue-owner green party.[1] Answering our research question in this electoral context permits us to shed light on the green electoral demand, where the economy particularly matters for electoral choices, and where could note the absence of an electorally relevant and explicitly green choice on the ballot, the presence of which could confound the individual likelihood of endorsing a pro-environmental electoral side.

Research Design

We use survey data representative of the Italian adult population for our empirical analysis. These data were collected as part of the project "Sustainability and Food (In)security" led by the Department of Economics, Society and Politics—University of Urbino Carlo Bo. The survey, conducted between January 18 and 26, 2021, by an Italian-based polling institute, employed a mixed-mode approach, with ca. half of the respondents via telephone—CATI (32.47% of respondents), CAMI (17.83%)—and the other half via web—CAWI (49.7%). The sample of 1,004 respondents mirrors the socio-demographic composition and geographical distribution of the Italian population aged 18 and above.

The cornerstone of our research design is the PGV measure. It gauges the individual likelihood of voting for a party prioritizing sustainability and environmental protection on a scale from 0 to 10. Precisely, the question recites: "In general, how likely is it that you would vote in the future for a party that places sustainability and environmental protection at the core of its agenda? Use a scale from 0 to 10, where 0 means *not at all likely* and 10 *very likely*."[2] Opting for a scale of propensity rather than a binary variable of voting intention (i) enhances the precision of our measurement and (ii) helps mitigate the influence of social desirability bias, which can skew this type of response in survey-based research. The PGV scale is based upon the analytical strategy of the Propensity to Vote (PTV) measure for political parties (Maggini & Vezzoni, 2022; van der Eijk, van der Brug, Kroh, & Franklin, 2006). In the questionnaire, the PGV question immediately follows a PTV battery, suggesting the same response mechanism. Prior to this contribution, a (similar) PGV question was employed only once (Bordignon, Salvarani, Viganò, & Zavalloni, 2023) to analyze the green electoral demand in the Italian political space, empirically exhibiting its fragmentation.

Employing the same framework and methodological approach as PTVs, PGV enables the study of the utility of a potential green vote option. As a form of pro-environmental behavior, green voting usually relies on the specific political context considered and, consequently, on individual attitudes toward specific parties that can go beyond considerations related to the environment. The PGV measure captures

[1] In the current Italian electoral landscape, the only green party explicitly championing green issues is Europa Verde (*Green Europe*, EV), combining a pro-environmental agenda with clear pro-EU stances. While running as a joint electoral list in the 2019 European elections, without reaching the threshold to have a political representation at the European level, EV did not become a formal political party until July 2021, namely a few months after our data collection, that took place in January 2021. Europa Verde then ran in the 2022 National elections in collaboration with the Sinistra Italiana (*Italian Left*, SI) and other minor parties under a joint electoral list. The alliance, called Alleanza Verdi e Sinistra (*Greens and Left Alliance*, AVS), obtained ~3.6% of valid votes, translating into 14 parliamentary seats out of 600 (source: Ministero dell'Interno, *Eligendo*). While AVS reached an important result in the 2024 European elections, obtaining ~6.8% of valid votes, we believe it is still hard to disentangle the "green" component from a more traditional leftist voters' orientation, characterizing the SI party. Furthermore, as mentioned, the electoral landscape was different at the time of data collection, and it saw no explicit "Green" representation in the Italian parliament.

[2] The full sentence in the original Italian: "In generale, quanto è probabile che lei possa votare in futuro un partito che metta al centro del proprio programma i temi della sostenibilità e della difesa dell'ambiente? Utilizzi una scala da 0 a 10, dove 0 è uguale a 'per niente probabile' e 10 è uguale a 'molto probabile'."

individuals' intentions independent of the current electoral offerings by focusing on intended future actions. This approach also circumvents the potential limitation of individual knowledge of parties' agenda and the association of the propensity to vote with solely a specific "Green party" label. Instead, it measures their inclination towards any party, or a new party, emphasizing environmental sustainability and protection. This distinction is crucial, as not all environmentally conscious individuals align with specific political parties or even with the traditional cleavages recalling the political spectrums' left versus right axis configuration (Kenny & Langsæther, 2022).

The primary objective of our study is to verify under what conditions citizens might choose to vote for environmentally focused parties, even when, outside the ballot box, they are reluctant to prioritize environmental protection and sustainability over pocketbook and macro-level economic concerns. To this end, our survey incorporates a trade-off question designed to directly assess respondents' preferences between environmental protection and economic growth. Respondents are asked: "Which of the following statements about the environment and the economy would you most agree with?" The response options are: "Environmental protection should be prioritized, even at the cost of slowing down economic growth" (N. obs. = 737) and "Economic growth should be prioritized, even if the environment is somewhat affected" (N. obs., with non-responses included = 267).

To categorize respondents based on their willingness to incur personal costs for environmental protection, we employ a question related to their readiness to pay higher prices for sustainable food. We chose this pro-environmental behavior because (i) we recognized it as a clear trade-off between the economy and the environment, which recalls the willingness to pay literature (WTP); and (ii) because, contrary to other behavioral categories, it is encapsulated in a daily action, that of buying food, potentially encompassing the overall population of reference. Respondents are asked: "How much would you be willing to pay extra for more sustainable food products (e.g., organic, local, recyclable packaging)?"[3] In the data analysis phase, we recoded the six categories representing different response options—from no premium to a premium of 50% or more—into two distinct dichotomous variables with two different thresholds. The first dichotomous variable sees one group that includes those unwilling to pay any premium (N. obs., with non-responses included = 133), and another consists of those willing to pay a premium of 10% or more (N. obs. = 871). The second dichotomous variable sees one group that includes those unwilling to pay any premium together with those unwilling to pay more than a 10% premium (N. obs., with non-responses included = 418), and another consists of those willing to pay a premium of 20% or more (N. obs. = 586).[4]

Table 1 reports the descriptive statistics for each category of the studied moderating factors,[5] with percentages of how many are unwilling to sacrifice the economy. For these categories, we also present the mean of PGV. To assess the impact on PGV of the economy–environment trade-offs, operationalized as described above, we conduct a two-sample *t*-test with equal variance. The results in Table 2 show a statistically significant difference between the two groups (those willing and those reluctant to sacrifice the economy for environmental reasons) regarding their PGV.

In the following phase of our analysis, to test our hypotheses we employ three series of Ordinary Least Squares (OLS) regression models, with PGV as the dependent variable. The first model series examines the interaction of the variables of interest with the reluctance to sacrifice the country's economy for environmental concerns (macro-level evaluations). The second series of models explore these variables in the context of personal financial sacrifices (pocketbook evaluations), with the two different thresholds jointly analyzed. The third series integrates both dimensions, macro-level and pocketbook, categorizing respondents as follows: Those willing to sacrifice both the country's economy and personal finances for the environment (1), those willing to sacrifice one but not the other (2), and those unwilling to sacrifice either (3). The categories of the studied interaction effects are always included in the models.

The regression equations for the first two series of models, with the interaction term between the dichotomous variable capturing the individual unwillingness to sacrifice the economy and a dichotomous variable moderating the impact of the economic evaluation on PGV, have the following form:

$$\begin{aligned} Y = \alpha &+ \beta_1 * \textit{unwillingness to sacrif ice the economy} \\ &+ \beta_2 * \textit{moderating factor} + \beta_3 * (\textit{unwillingness to sacrif ice} \\ &\textit{the economy} * \textit{moderating factor} + \beta_i * \sum x_i + \epsilon \end{aligned} \quad (1)$$

where Y is the dependent variable PGV (0–10), α is the intercept, and β_1 is the main effect of the dichotomous variable related to the individual unwillingness to sacrifice the economy for environmental reasons (0 = *willing* and 1 = *unwilling*), being that either a macro-level evaluation (first series of models) or a pocketbook evaluation (second series of models). β_2 is the main effect of the moderating factor (e.g., having children in the household), and β_3 is the interaction coefficient between this latter and the trade-off evaluation. β_i refers to the control variables, and $\epsilon\epsilon$ is the error term.

The regression equation for the third series of models presents the following form:

$$\begin{aligned} Y = \alpha &+ \beta_1 * \textit{unwillingness to sacrif ice the economyy}_1 \\ &+ \beta_2 * \textit{unwillingness to sacrif ice the economyy}_2 + \beta_3 * \textit{moderating factor} \\ &+ \beta_4 * (\textit{unwillingness to sacrif ice the economyy}_1 * \textit{moderating factor}) \\ &+ \beta_5 * (\textit{unwillingness to sacrif ice the economyy}_2 * \textit{moderating factor}) \\ &+ \beta_i * \sum x_i + \epsilon \end{aligned} \quad (2)$$

[3] While the question explicitly refers to *more sustainable food products*, we acknowledge that the actual sustainability of consumption choices related to the examples we provide in parenthesis is debated (Meemken & Qaim, 2018). However, as current literature underlines how consumers evaluate both organic (Lamonaca, Cafarelli, Calculli, & Tricase, 2022) and Km-0 (Stampa & Zander, 2022) products to be "greener" than alternatives, we considered it useful to add these examples to the wording *more sustainable food products*, since we could not expect all the respondents to have a clear definition of sustainability in mind. This choice was taken given our aim of measuring respondents' environmental versus economic prioritization rather than the actual sustainability of their consumption choices, which would have required a more detailed characterization of the products at the cost of potentially grasping other considerations outside the trade-off evaluation in interviewees' responses."

[4] This was not an open-ended question and the possible answers to the question are six fixed categories: 1 (*No premium*); 2 (*10% premium*); 3 (*20% premium*); 4 (*30% premium*); 5 (*40% premium*); and 6 (*50% premium or higher*), which we grouped into two distinct categories. Those who answered "I don't know" or gave no answer were considered fitting the subgroup of those reluctant to sacrifice the economy. This inclusion assumes that indecision or hesitancy to respond is likely consistent with a lack of commitment to environmental priorities, especially concerning personal financial trade-offs.

[5] We report the descriptive statistics of the covariates in Supplementary Table 1A.

Table 1. Descriptive Statistics: Percentage of Those Reluctant to Sacrifice the Economy for the Environment for Each Category of the Moderating Factors

	Macro-level evaluations (%)	Pocketbook evaluations (%)	Pocketbook evaluations (%)	Macro + pocketbook evaluations (%)		PGV	
Reluctant to sacrifice	Country economy[a]	Personal finances[b] (no premium)	Personal finances[b] (premium! > 10%)	One of the two[c]	Both[d]	Mean	*SD*
Concern natural disasters							
Never	34.0	20.2	45.4	38.4	7.9	6.3	2.8
Seldom	27.5	13.0	47.4	32.9	3.8	6.8	2.4
Sometimes	27.9	14.2	42.0	35.2	3.4	6.5	2.5
Often	32.5	12.2	40.2	35.7	4.5	7.2	2.7
Household with children							
No	32.3	14.4	44.6	38.7	4.0	6.6	2.8
Yes	28.0	14.1	42.0	32.3	4.9	6.9	2.5
Political orientation							
Left	18.8	17.5	42.6	33.5	1.4	7.8	2.1
Left, Center-Left	17.2	12.9	39.2	28.7	0.7	7.4	2.1
Center	21.1	8.4	49.7	20.4	4.5	7.1	2.5
Center, Center-Right	37.6	10.0	43.5	39.0	4.3	6.9	2.5
Right	36.4	11.3	38.2	38.9	4.4	6.9	2.5
External	35.3	18.0	47.4	38.1	7.6	6.1	2.9

Notes. PGV mean for each category. *N* = 1,004. Survey representative of the Italian adult population (field: January 2021). Weights applied for the main sociodemographics and the geographical area. PGV = Propensity for Green Voting.
[a]Dichotomous variable: 0 = Prioritize the environment over the country's economic growth; 1 = Reluctant to sacrifice the environment over the country's economic growth (% exhibited).
[b]Dichotomous variable: 0 = Prioritize the environment over the personal finances; 1 = Reluctant to sacrifice the environment over the personal finances (% exhibited).
[c]Three-level discrete variable: 0 = Prioritize the environment over the country's economic growth and personal finances; 1 = Reluctant to prioritize either the environment *either* over the country's economic growth *or* personal finances or personal finance (zero premium, % exhibited); 2 = Reluctant to prioritize the environment *both* over the country's economic growth and personal finances or personal finance.
[d]Three-level discrete variable: 0 = Prioritize the environment over the country's economic growth and personal finances; 1 = Reluctant to prioritize the environment *either* over the country's economic growth *or* personal finances or personal finance; 2 = Reluctant to prioritize the environment *both* over the country's economic growth and personal finances or personal finance (zero premium, % exhibited).

where *Y* is the dependent variable PGV (0–10), α is the intercept, β_1 is the main effect of the first category of the three-level variable about the economy versus environment trade-off (macro-level and pocketbook evaluations together). β_2 is the main effect of the second category of the same variable, and β_3 is the coefficient of the third category. In this type of linear regression with interaction effects, the number of resulting interaction coefficients increases in parallel to the categories of the moderating factor considered.

The regression models' interaction coefficients between different trade-off evaluations—with the last two representing a joint evaluation, pocketbook and macro-level—and the moderating factors are presented in Table 3. These variables are coded as follows: *concern about natural disasters (earthquakes, landslides, floods)* ranged from 1 (*Never*) to 4 (*Often*) 4[6]; *household with children* categorized as 1 (*No*) and 2 (*Yes*)[7]; and *self-declared political orientation*, for which we use two different codings. The first sees the original six categories distinct from each other: 1 (*Left*), 2 (*Center-Left*), 3 (*Center*), 4 (*Center-Right*), 5 (*Right*), and 6 (*No Political Orientation*). The second sees a recoding, that entails four categories after grouping *Left* with *Center-Left* and *Right* with *Center-Right*, that is, 1 (*Left* and *Center-Left*), 2 (*Center*), 3 (*Center* and *Center-Right*), and 4 (*No Political Orientation*). In both cases, *Center* is the reference category in the regression models.

Each regression series is structured in three steps, progressively incorporating control variables. Model 1 tests the bivariate relationship plus the sociodemographic controls: gender; education level; age class; degree of urbanization of respondents' place of residence; and macro-geographical zone of residence (*North-East*, *North-West*, *Center-North*, *Center-South*, *South and islands*). Model 2 introduces socioeconomic controls to Model 1, accounting for the sociopro-fessional category (*worker*; *office worker*, *technician*, *teacher*; *self-employed*, *business owner*, *artist*, *entrepreneur*; *student*; *homemaker*; *unemployed*; *retired*); household income categorized as 1 (below €2,000/month), 2 (€2,000–€3,000/month), and 3 (over €3,000/month); and satisfaction with household income ranging from 1 (*Not at all satisfied*) to 10 (*Extremely satisfied*). Model 3 incorporates political controls into Model 2, including political interest (1 = *None* to 4 = *High*) and satisfaction with the state of the country's democracy ranging from 1 (*Not at all satisfied*) to 10 (*Extremely satisfied*).

The regression models aimed to test the interaction coefficient between the trade-off variables and political orientation are divided into (a) and (b). In Models 1a, 2a, and 3a, we keep the variable about political orientation in the original

[6] Missing values (*N* = 4) are recoded into the baseline category "Never" (=0).

[7] The original seven categories have been recoded so that: "Living alone," "Couple without children," and "Other" (*N* = 23) have been grouped and considered as the reference category (=1). The other four options (i.e., "Couple with one child," "[…] with two children," "[…] with three or more children," and "Single with children") are grouped in the second category (=2).

Table 2. PGV Mean (0–10) Comparison Test Between Those Willing to Sacrifice the Economy for the Environment and Those Unwilling to Do So

Group	Obs.	Mean	*SE*	*SD*
Macro-level evaluation[a]				
(1) Willing to sacrifice the country's economy	737	7.188	0.085	2.315
(2) Reluctant to sacrifice country's economy	267	5.561	0.175	2.873
Diff. = mean 1 – mean 2		1.626	0.176	
$t(1002) = 9.20$, $p < .001$				
Pocketbook evaluation: No premium[b]				
(1) Willing to sacrifice personal finances	871	6.889	0.084	2.484
(2) Reluctant to sacrifice personal finances	133	5.879	0.258	2.977
Diff. = mean 1 – mean 2		1.010	0.237	
$t(1002) = 4.24$, $p < .001$				
Pocketbook evaluation: No premium or a 10% premium[c]				
(1) Willing to sacrifice personal finances	586	7.075	0.100	2.444
(2) Reluctant to sacrifice personal finances	418	6.308	0.131	2.691
Diff. = mean 1 – mean 2		0.766	0.163	
$t(1002) = 4.69$, $p < .001$				
Combined (Groups 1 + 2)	1,004	6.755	0.081	2.576

Notes. $N = 1{,}004$. Survey representative of the Italian adult population (field: January 2021). PGV = Propensity for Green Voting.
[a]Question: "Which of the following statements about the environment and the economy would you most agree with?" The response options are: "Environmental protection should be prioritized, even at the cost of slowing down economic growth" (Group 1) and "Economic growth should be prioritized, even if the environment is somewhat affected" (Group 2).
[b]Question: "How much would you be willing to pay extra for more sustainable food products?" Group 1 includes those unwilling to pay any premium and those willing to pay a 10% premium; Group 2 includes those willing to pay a premium of 20% or more.
[c]Question: "How much would you be willing to pay extra for more sustainable food products?" Group 1 includes those unwilling to pay any premium; Group 2 includes those willing to pay a premium of 10% or more.

form of a discrete six-category variable, interacting economic evaluations with a leftist political orientation. In Models 1b, 2b, and 3b, we code the variable about political orientation as a four-category variable, grouping *Left* with *Center-Left* and *Right* with *Center-Right* and interacting economic evaluations with a leftist and center-leftist orientation.

Results and Discussion

Drawing from the presented background literature, we know that trade-off considerations follow the voter to the voting booth. In it, voters may face contrasting priorities and the dilemma of whether to vote green even if they do not prioritize the environment over economic considerations. We started from the assumption that such perceived trade-offs between the environment and the economy influence the propensity for green voting: those reluctant to prioritize the former over the latter are expected to be less likely to choose a green-focused electoral option. The results from the two-sample *t*-tests (Table 2) align with such expectation: the perceived trade-off between economic interests and environmental concerns is associated with statistically significant differences in terms of green voting propensities. While all comparisons showed significant differences between groups, the reported *t* values suggest that macro-level evaluations, that is, the hesitancy to sacrifice the country's economic growth for the environment, have a higher negative impact on PGV than the hesitancy to sacrifice personal finances, regardless of the considered threshold for this latter.

Despite this, a segment of the electorate is inclined to vote for a party that prioritizes environmental protection and sustainability, even if reluctant to compromise on economic considerations. This observation displays contrasting attitudes behind the propensity to vote, indicating that an individual preference for the economy over the environment does not necessarily translate into a low PGV. What emerges from this is a segmented picture of the electorate, where economic and environmental priorities live in tension but are not always mutually exclusive. This happens under what conditions?

In our regression model analysis, we test specific conditions under which voters might lean towards an environmentally focused party, even when hesitant to compromise personal finances or the country's economic growth for the environment. We examine the coefficients of interest (Table 3) and the linear predictions of PGV's margins in the post-estimation analysis (Figures 1–3) of Model 3 (Equation 2) in the third series of models,[8] with a reference line added at the PGV predicted level for those unwilling to sacrifice both economic dimensions and in the category hypothesized to hold a significant moderating effect.

At first, in Table 3, we can observe that serious concerns about natural disasters significantly influence green voting propensities when hesitant in front of having to sacrifice personal finances for the environment's sustainability, that is, in the case of pocketbook evaluations. The coefficients are positive and significant for the interaction between being often concerned about natural disasters and the hesitancy to sacrifice both the country's economy and personal finances. Note that even if macro-level evaluations alone also positively affect PGV, the strength of this latter effect appears lower than when only personal finances are considered. However,

[8] In Figures 1–3, we exhibit the predicted margins of PGV taking into consideration both dimensions of the trade-off, macro-level and pocketbook, with a maximum of 10% threshold for the individual reluctance to sacrifice personal finances. We report the full regression models behind the predicted margins in Supplementary Tables 2A, 3A, and 4A.

Table 3. OLS Regression Models

Dependent variable: Propensity for Green Voting (PGV, 0–10)	Macro-level evaluations	Pocketbook evaluations	Pocketbook evaluations	Macro + pocketbook evaluations (no premium)		Macro + pocketbook evaluations (premium! > 10%)	
Reluctant to sacrifice	Country economy[a]	Personal finances[b] (no premium)	Personal finances[b] (premium! > 10%)	One[c]	Both[d]	One[c]	Both[d]
Concern natural disasters (ref. cat. "Never")							
Model 1: Often*Economic evaluation	1.272* (0.562)	2.430** (0.772)	1.648** (0.536)	0.598 (0.550)	4.632*** (1.257)	0.869 (0.560)	2.332** (0.804)
Model 2: Often*Economic evaluation	1.103† (0.561)	2.548** (0.771)	1.674** (0.536)	0.489 (0.550)	4.660*** (1.254)	0.852 (0.562)	2.317** (0.808)
Model 3: Often*Economic evaluation	1.186* (0.544)	2.354** (0.747)	1.584** (0.517)	0.518 (0.532)	4.854*** (1.213)	0.996† (0.545)	2.324** (0.779)
Household with children (ref. cat. "No")							
Model 1: Yes*Economic evaluation	0.963** (0.349)	0.471 (0.473)	0.400 (0.323)	0.840* (0.338)	1.274† (0.736)	0.861** (0.329)	1.025* (0.495)
Model 2: Yes*Economic evaluation	0.983** (0.347)	0.545 (0.474)	0.435 (0.324)	0.839* (0.338)	1.435† (0.737)	0.838* (0.330)	1.126* (0.496)
Model 3: Yes*Economic evaluation	0.910** (0.335)	0.624 (0.457)	0.562† (0.312)	0.796* (0.327)	1.446* (0.710)	0.911** (0.319)	1.154* (0.477)
Political orientation (ref. cat. "Center")							
Model 1a: Left*Economic evaluation	0.930 (0.793)	1.907† (0.994)	2.160** (0.690)	0.432 (0.763)	3.333* (1.568)	1.086 (.715)	3.565** (1.083)
Model 1b: Left + Center-Left* Economic evaluation	1.167 (0.727)	1.769† (0.944)	2.111** (0.636)	0.541 (0.712)	3.600* (1.563)	1.259† (0.660)	3.655*** (0.996)
Model 2a: Left*Economic evaluation	1.011 (0.791)	2.073* (0.996)	2.259** (0.691)	0.635 (0.768)	3.256* (1.567)	1.315† (0.721)	3.552** (1.084)
Model 2b: Left + Center-Left*Economic evaluation	1.304† (0.726)	1.873* (0.946)	2.200** (0.637)	0.747 (0.716)	3.528* (1.563)	1.479* (0.667)	3.703*** (0.997)
Model 3a: Left*Economic evaluation	1.027 (0.774)	2.196* (0.973)	2.168** (0.675)	0.697 (0.749)	3.212* (1.529)	1.419* (0.704)	3.376** (1.057)
Model 3b: Left + Center-Left*Economic evaluation	1.347† (0.711)	2.024* (0.924)	2.127** (0.622)	0.812 (0.699)	3.496* (1.525)	1.576* (0.651)	3.593*** (0.972)

Notes. Dependent variable: PGV (0–10). Interaction coefficients displayed. N = 1,004. Survey representative of the Italian adult population (field: January 2021). Regression coefficient exhibited, *SE* in parentheses. Model 1: sociodemographic controls: gender, level of education, age class, degree of residence's urbanization, and geographical area of residence. Model 2: Model 1 + socioeconomic controls: socioprofessional category, household income, and satisfaction with household income. Model 3: Model 2 + political attitudes controls: satisfaction with how democracy works in the country and political interest. Model 1/2/3a: political orientation as a discrete six-category variable: Left, Center-Left, Center, Center-Right, Right, and External. Model 1/2/3b: political orientation recoded as a discrete four-category variable: Left + Center-Left, Center, Center-Right + Right, and External. OLS = Ordinary Least Squares; PGV = Propensity for Green Voting.
p-Values: †$p < .1$; *$p < .05$; **$p < .01$; ***$p < .001$.

when the two assessments are jointly considered, we can see how the linear prediction of PGV, for those unwilling to sacrifice neither economic dimension for the environment, is significantly higher among those holding serious concerns about natural disasters (Figure 1).

Even if we focus on a specific population segment, such results seem to align with the findings of Baccini and Leemann (2021), Hoffmann et al. (2022), and Soni and Mistur (2022). They suggest that a heightened fear and personal risk perception about natural disasters can lead individuals to reconcile the hesitancy to pay economic costs for the environment with green voting preferences. This expectation shows the most robust empirical relationship among the hypotheses tested, with the highest PGV predicted among those reluctant to sacrifice the economy in interaction with the studied moderating factors. Figure 1 illustrates the linear predictions of PGV, showing that those who frequently worry about natural disasters exhibit a level of PGV inside the confidence interval

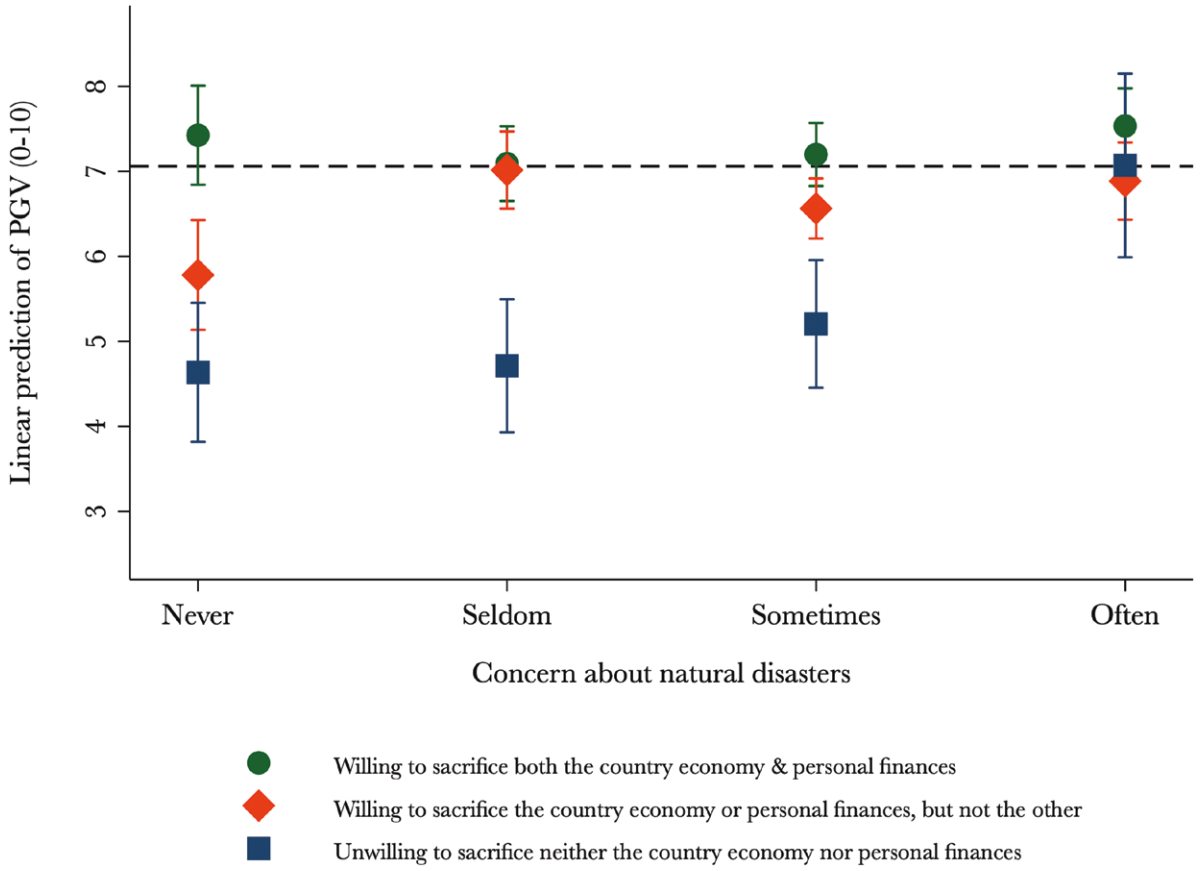

Figure 1. Linear prediction of Propensity for Green Voting (PGV) per economic evaluations at each level of concerns about natural disasters (Model 3).

to that of the electorate willing to make economic sacrifices for the environment's protection.

With serious concerns about natural disasters, the presence of children in a household emerges as a significant sociodemographic factor moderating the studied trade-off's effect. Our findings suggest that children's presence in a household can mitigate the perceived trade-off between economic and environmental concerns. As reported in the interaction coefficients in Table 3, our analysis reveals that individuals hesitant to sacrifice the economy for environmental protection can be more likely to vote green if they have children. However, as illustrated with the PGV linear prediction in Figure 2, even if living with children, individuals unwilling to sacrifice both economic dimensions (i) do not reach the PGV level of those without children in the household, and (ii) their predicted PGV sees its confidence intervals overlapping—although barely—with that of those unwilling to sacrifice both economic dimensions and not living with children. This is likely to be because the effect is being primarily driven by the willingness to overcome a macro-level economic prioritization, and—contrary to the previous case of those concerned about natural disasters—not pocketbook evaluations, which, when considered alone, do not appear to have a significant moderating effect.

These observations notwithstanding, the results underscore the role of intergenerational considerations in shaping both economic short-term-oriented and environmental future-oriented attitudes, partially supporting our hypothesis on "family-risk evaluation." This aligns with our expectation that familial responsibilities and concerns about future generations inheriting the climate change crisis can lead to a higher PGV among those typically prioritizing economic considerations. On the other hand, individuals living with children do not seem to be particularly willing to overcome pocketbook evaluations, which once again could be related to the need to provide a suitable and, in this case, economically secure environment for the children to grow in. However, looking at the linear prediction of PGV, we can conclude that those unwilling to compromise the economy, *either* through pocketbook or macro-level evaluations but not the other, fall inside the confidence interval of those willing to sacrifice both economic dimensions.

Our results also indicate that a left-leaning political orientation plays a role in mitigating the effect of the economy–environment trade-off on PGV. This finding is consistent with the broader literature, which suggests that left-leaning voters are more inclined towards environmental concerns. We contribute to this literature by exhibiting how, instead of only directly affecting a green ballot choice, a leftist political orientation brings voters to cast a pro-environmental ballot even when faced with economic trade-offs and evaluating economic matters over environmental ones. This result is robust in considering (i) only those who position themselves in the strictest terms on the *Left* of the political spectrum and (ii) those on the *Left* together with those in the *Center-Left*. While the presence of a significant positive association between countries' environmental performance and left-wing governments in office could be questioned (Böhmelt, 2021), the ideological alignment appears to influence voting behavior at the ballot box, as left-leaning individuals are more likely to support a

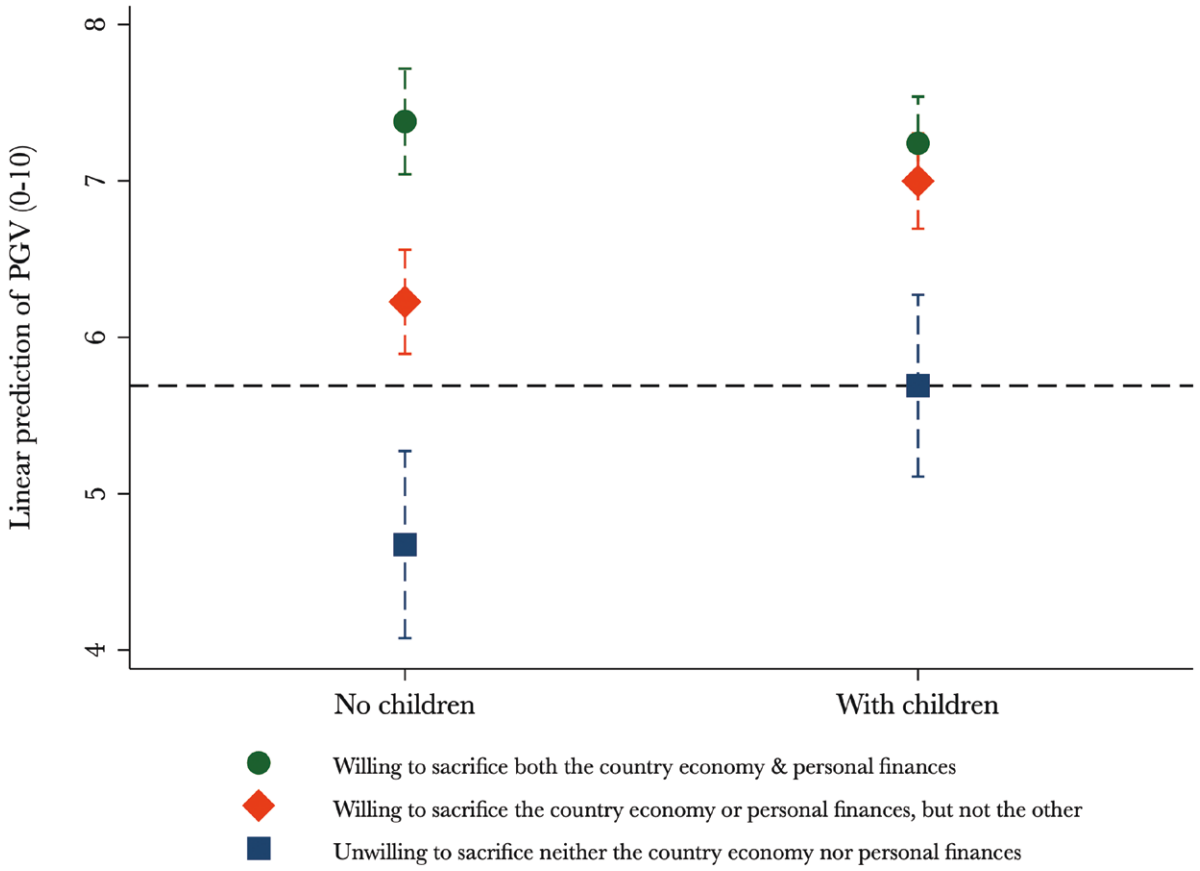

Figure 2. Linear prediction of Propensity for Green Voting (PGV) per economic evaluations for those with and without children in household (Model 3).

party championing environmental sustainability, regardless of the trade-off evaluations. However, the moderating effect seems driven mainly by overcoming macro-level evaluations. This result aligns this subgroup with those concerned with natural disasters and depicts a notable difference with those living in households with children. Still, Figure 3 illustrates the general pattern, highlighting that left-leaning voters are significantly more likely to vote green among those reluctant to sacrifice both economic dimensions than those with other political orientations or do not align with the traditional left-right dichotomy.

Conclusions

At least since the advent of Ronald Inglehart's postmaterialist theory (Inglehart, 1971), researchers have dealt with the trade-offs between environmental protection and the economy. In this study, we considered the interaction between economic, environmental, and electoral considerations across different priorities and risk evaluations. The primary object of our research has been a specific electorate, one for which the hesitancy to sacrifice the country's economic growth (macro-level evaluations) and personal finances (pocketbook evaluations) for the environment coexist with the propensity for green voting. We did so through survey data representative of the adult population in Italy.

At first, we empirically corroborate our initial expectation that the perceived trade-offs between the economy and the environment play a role when facing a pro-environmental choice at the ballot box. However, a segment of those reluctant to sacrifice the economy for the environment declares to be inclined to vote for a green-focused party, nonetheless. This happens *under what conditions*?

The most substantial moderating effect of the trade-off's impact on green electoral behavior is the risk awareness about natural disasters. The perception of individual risks associated with environmental threats decisively influences the propensity for green voting among those reluctant to make economic sacrifices after pocketbook evaluations. Additionally, our research highlights the role of familial and intergenerational considerations in shaping pro-environmental intended behavior: the presence of children in a household appears as a key factor in mitigating the perceived trade-off between economic macro-level evaluations and environmental concerns. This finding suggests a growing recognition of the long-term implications of environmental issues. The influence of political orientation as a moderating factor is also part of our findings. Left-leaning voters can support environmentally focused parties despite the hesitancy to pay the costs associated with the trade-off. Leftist voters are not only generally inclined to support environmental policies but recognize them as a partisan issue and identify them with a left-leaning party, which they are open to supporting even if unwilling to sacrifice the economy for it.

On top of these findings, it is essential to note that, as in the case of serious concerns for natural disasters, prioritizing personal finances over the environment (i.e., pocketbook evaluations) does not seem to hinder the propensity to vote green for those with a left-leaning political orientation. On the contrary, living with children makes it likely to vote

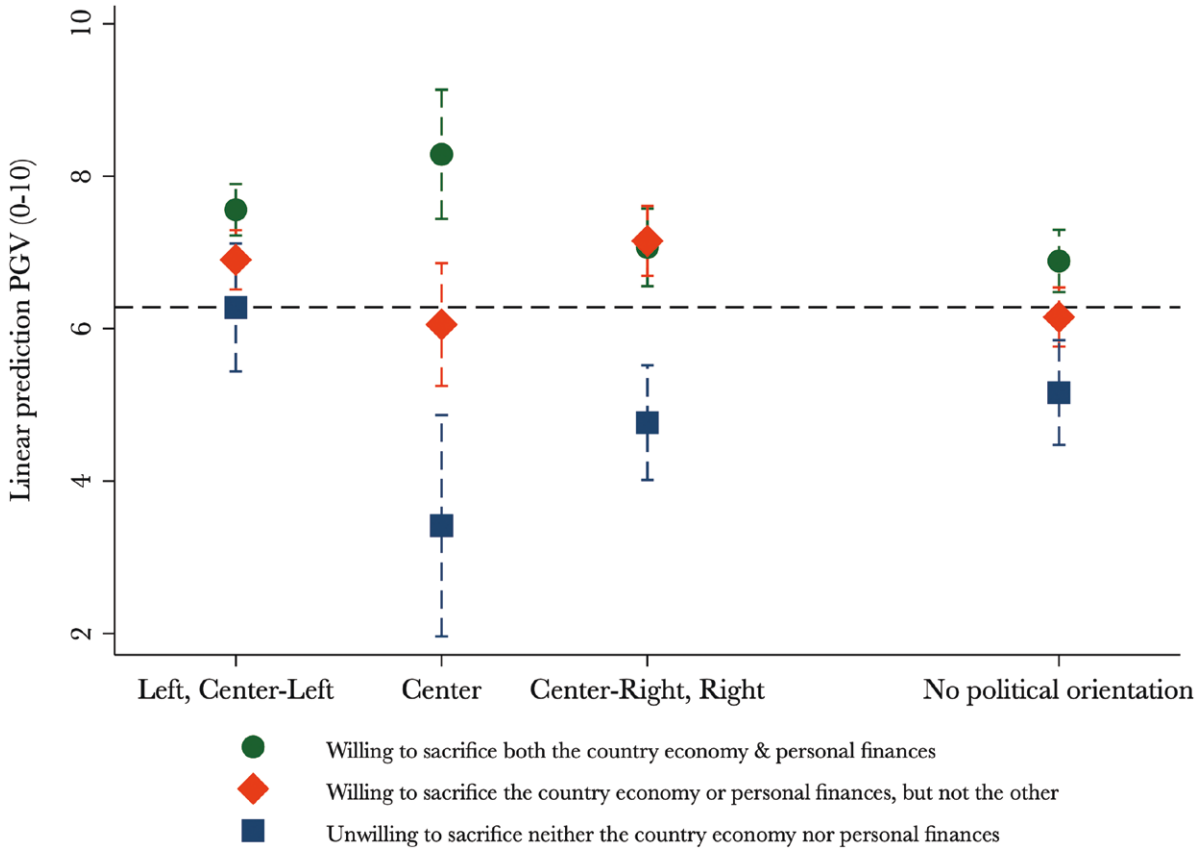

Figure 3. Linear prediction of Propensity for Green Voting (PGV) per economic evaluations for self-placement on the Left-Right scale (Model 3).

green when hesitant to prioritize the environment over the country's economic growth (i.e., macro-level evaluations). In both cases, voters show a future-oriented outlook. This result underscores how different conditions make it more (or less) likely to overcome different economic concerns.

We acknowledge that our research presents some limitations. We cannot infer that the intended behavior beyond the existing electoral landscape—on which we focused to evaluate a green electoral option net of contextual elements—will translate into an actual choice inside a ballot box. This latter is, in fact, always dependent on other factors, which nevertheless were likely to confound our studied effect. This represents an inescapable trade-off, which can potentially be resolved only by combining research on PGV with that on established Green-labeled parties. Another limitation lies in the operationalization of macro-level evaluations, namely in the question in which respondents are asked whether they want to prioritize the environment over the economy or the opposite. Respondents are forced to think about such a trade-off, even if they might not consider it in place. Regarding the variable referring to pocketbook evaluations, i.e., the availability to bear individual costs for the environment, it must be noted that it measures such a propensity regarding food consumption. Results should then be tested against other costs that individuals might have to sustain for environmental protection and sustainability.

Nevertheless, while acknowledging the research design's constraint, our study provides a novel perspective into electoral demand that sees a still-to-be-resolved trade-off considering challenges from the two studied domains, the environment and the economy. As the electoral demand is intrinsically tied to the electoral offer, which highly differs from country to country and from one election to the other, our PGV measure might be a valuable tool for cross-country and across-time comparative studies. Finally, while we can only hope that the studied trade-off will be less relevant in the future, both in citizens' perception and in real terms, our research could lay the groundwork for future studies centered on these contrasting priorities and how to overcome them.

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Conflict of Interest

The authors declare no conflict of interest.

Biographical Notes

Giacomo Salvarani is Postdoctoral Researcher at the University of Urbino Carlo Bo and a member of LaPolis – Laboratory of Political and Social Studies. He obtained his PhD in 2023 with a dissertation on political disengagement in Central and Eastern Europe. His research focuses on electoral studies, political engagement and disengagement, public opinion, and environmental politics.

Matteo Zavalloni (PhD) is Senior Assistant Professor in Agricultural Economics and Rural Appraisal at the University of Urbino Carlo Bo. His research has focused on the design of agri-environmental policies, economics of protected areas,

and the formation of environmentally friendly behaviors. He is the coordinator of the project EXURBIA (financed by the PRIN program). He is Associate Editor of the journal *Bio-based and Applied Economics (BAE)*.

Elena Viganò (PhD) is Full Professor in Agricultural Economics and Rural Appraisal and Vice-Rector of Sustainability and Valuing Differences at the University of Urbino Carlo Bo. Her current research interests include the analysis of strategies and politics for sustainable agri-food systems, with specific topics regarding the impacts of agricultural production, value distribution in supply chains, quality and food safety/security, organic farming, and ethical/fair trade.

Fabio Bordignon is Associate Professor in Political Science at the University of Urbino Carlo Bo, where he is the director of the Electoral Observatory at LaPolis. He is a member of ITANES (Italian National Election Study) and serves on the Scientific Board of SISE (Italian Society of Electoral Studies). He is Associate Editor for Communications of the journal *South European Society and Politics* and a member of the Editorial Board of ComPol - Comunicazione Politica. His main areas of research are political participation and electoral behavior, personalization of politics, and transformations of democracy and populism.

Supplementary Data

Supplementary materials are available at *International Journal of Public Opinion Research* online.

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