

# Endogenous green preferences

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## Abstract

Low public support has been an obstacle to the enactment of stronger environmental policies. Yet if policies are enacted, preferences for them may change. Using surveys covering 38 countries around the world, we study the dynamics of environmental policies and individual preferences over twenty years. Exploiting within-country, across birth-cohort variation in exposure to environmental policy stringency, we document that cohorts exposed to more stringent policies in the past are more supportive of environmental policies at the time of the survey, with the effect largely driven by exposure during a period of early adulthood known as the formative age window. Therefore, environmental policy preferences are endogenous on a societal level.

**Keywords:** Endogenous preferences; Environmental policy; Environmental preferences; Formative age; Policy support

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# 1 Introduction

Environmental externalities can be effectively addressed through sufficiently stringent policies. However, stringent environmental policies, like carbon taxes, have been obstructed by low public support (Douenne & Fabre, 2022). While public support naturally influences policy outcomes, it is traditionally modelled as fixed (Stigler & Becker, 1977), invariant to influence from experience with policies. But if causal relationships run in both directions, i.e., public preferences influence subsequent policy outcomes and policy outcomes influence public preferences, then the resulting endogenous relationship affects the evolution of policy.<sup>1</sup> Understanding how green policy preferences evolve is essential, particularly in light of the increasing urgency to address environmental challenges (Dechezleprêtre et al., 2022). Recent theoretical models allow for individuals’ consumption preferences to evolve endogenously, enriching the analysis on the dynamics of various environmental behaviors (Besley & Persson, 2023; Konc et al., 2021; Mattauch et al., 2022). Empirically, however, it remains an open question whether individuals’ preferences for green policies evolve differently in response to exposure to stringent policies compared to more lenient ones.

If voter preferences are exogenous and information perfect, personal experience with policies would not shape an individual’s views. However, voters could update their view of the normative appropriateness and impacts of policies, once exposed to them. Using global survey data from the Integrated Value Surveys (IVS) and a country-specific and internationally comparable measure of Environmental Policy Stringency (EPS) (Kruse et al., 2022), we test this hypothesis in 38 countries over more than 20 years. We exploit within-country, cross-cohort variation in individual exposure to environmental policy stringency to determine whether birth cohorts exposed to more stringent environmental policies are more supportive of environmental policies at

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<sup>1</sup>Theoretical and empirical analyses model how bidirectional causation between preferences and policy outcomes complicate the evolution of policies (Alesina & Giuliano, 2015; Alesina & Rodrik, 1994; Gerber & Jackson, 1993). Fuchs-Schündeln and Schündeln (2015) examine endogenous preferences over policy options showing that support for democracy increases with the length of time under the system, resulting in endogenous political preferences.

the time of the survey. We account for potential confounds, such as experience with environmental quality, macroeconomic conditions, country-specific shocks at the time of the survey, generational variations, and country-specific age-specific factors.

We find that individual experience with more stringent environmental policies increases current policy preferences, implying endogeneity of preferences. As experience with policy reshapes familiarity and norms, even societies with tepid initial support for stringent policy find themselves increasingly supportive over time. Increasing exposure to environmental policy stringency by 1 standard deviation increases individual support for government intervention to reduce pollution by 0.18 of a standard deviation. The effect is evident even on specific policy instruments. We document a strong, positive, and statistically significant effect of tax stringency exposure, and in particular CO<sub>2</sub> and fuel tax, on subsequent preferences for environmental taxes. Importantly, tax exposure does not shape subsequent preferences for non-tax intervention.

The salience of environmental policies has been previously documented, however, all past exposure to policy is not equal in its effect.<sup>2</sup> We find strong evidence that policy exposure during the formative age window of 18-25 has outsize impact, in line with a growing literature.<sup>3</sup> On the contrary, policy stringency in any other age windows does not meaningfully alter individual preferences at the time of the interview. When we compare formative age policy exposure to contemporaneous exposure at the time of the interview, we document an asymmetry of reference points (De Neve et al., 2018), finding that the demand for government in pollution reduction is most pronounced among individuals who experienced a reduction in stringency since their formative age window. Finally, we examine the heterogeneous effect of policy exposure by past experience of environmental quality (as measured by levels of fine particulate matter and household air pollution) and document a larger effect conditional on poor environmental quality

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<sup>2</sup>Several studies consider the high salience of environmental policies, particularly those regulating air pollution (Eshbaugh-Soha, 2006). Policies are salient in the business community (Noailly et al., 2021) and among consumers (Rivers & Schaufele, 2015). The salience of environmental quality has also been well-documented (Brasington & Hite, 2005; Michael et al., 2000; Yuan et al., 2018).

<sup>3</sup>The “formative age” or “impressionable years” hypothesis, first studied in Krosnick and Alwin (1989), states that values are formed during early adulthood and do not substantially change afterward.

during the formative age window.

Armed with the estimated effects of policy stringency exposure on environmental preferences, we produce a simple counterfactual exercise. We select three countries with historically different environmental policy levels (Brazil, US, Sweden) and study hypothetical preferences if birth-cohorts had been exposed to each of these three policy counterfactuals. We document stark differences in public support under each counterfactual, ranging from 85% of the countries in the sample with lower green preferences than historically observed, had individuals been exposed to Brazil’s history of policy stringency, to 77% of countries with higher preferences under Sweden’s history of environmental policies.

Our results suggest that strong opposition to certain environmental policies may not reflect lasting preferences, but how preferences evolve will depend on what policy outcomes are realized.<sup>4</sup> Among the possible explanations are that media framing (Beattie, 2020) and inaccurate perceptions about policies (Douenne & Fabre, 2022) can only be challenged with new evidence if the policy is passed into law. Moreover, introducing more stringent policies may not be acceptable, while a counterfactual exercise in which a stringent policy were to be reversed may also be unacceptable.<sup>5</sup> If a society’s familiarity and norms can change, we would expect differences in support between an ex ante proposal and an ex post review of a policy.<sup>6</sup>

Rising interest in the co-dynamics of climate policy stringency and public support has spurred recent work on modeling endogenous preferences over consumption choices in the economics of climate change (Konc et al., 2021; Mattauch et al., 2022). There is

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<sup>4</sup>Low support has been directly expressed through referenda in Washington State (Anderson et al., 2023), Switzerland (Bornstein & Lanz, 2008; Carattini et al., 2017), and California (Burkhardt & Chan, 2017; Holian & Kahn, 2015; Kahn & Matsusaka, 1997), and social protests in France (Douenne & Fabre, 2020, 2022).

<sup>5</sup>Misperceptions are evident in climate policies. For example, citizens tend to ignore that pricing pollution reduces pollution (Kallbekken et al., 2011) and they wrongly think that a carbon tax with equal per capita rebates would be regressive (Douenne & Fabre, 2022).

<sup>6</sup>Experience could foster comfort with policy settings that are familiar (Furnham & Boo, 2011; Tversky & Kahneman, 1974), and rules and other instruments can influence cultural norms for which individuals assign intrinsic value (Bezin, 2015; Bisin & Verdier, 2001, 2011; Schumacher, 2015).

country-specific suggestive evidence of endogenously evolving support for green policies. In British Columbia, initially tepid support for a carbon tax policy that became law grew substantially in the subsequent years (Murray & Rivers, 2015). Vice versa, in France, after a carbon tax failed amid widespread social protest, the popularity of such policies appears to have declined further.<sup>7</sup> But these individual cases make it difficult to draw a comprehensive picture. To the best of our knowledge, our paper is the first cross-national attempt to study endogenous environmental preferences over policy options and estimate the causal effect of experience with policy in a quasi-experimental setting. A politician or party could naturally seek to discover how popular a pollution regulation is by simply asking. Our results suggest that a static approach that assumes preferences to remain constant could naively underestimate the public’s subjective value for the policy over time. The movement of preferences with experience has implications for estimates of the long-term welfare effects of policies.

## 2 Data

### 2.1 Environmental preferences

Our analysis uses individual survey data from the Integrated Value Surveys (IVS), which harmonize the European Values Study (EVS) and the World Value Survey (WVS). The EVS and the WVS are two large-scale repeated cross-national surveys, which contain, among others, socio-political and environmental attitudes and preferences of individuals and their socio-demographic characteristics (Aghion et al., 2023).

We focus on three measures of environmental preferences. First and foremost, we consider the level of agreement of the respondent with the statement “Government should reduce environmental pollution”, stated in a 4-point Likert scale where options are: Strongly disagree, Disagree, Agree, Strongly agree. To exploit all the variation in survey responses, we use the 4-point Likert scale as the main outcome, where higher

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<sup>7</sup>In Douenne and Fabre (2020), support in France for a carbon tax and rebate was 38% in early 2019. In Dechezleprêtre et al. (2022), 29% of French respondents supported the policy in May 2021.

values are associated stronger agreement.<sup>8</sup> This question is most appropriate because it corresponds to a norm, an individual’s notion of the role of the government in matters of environmental quality as measured by pollution. The other two environmental preferences are constructed from the agreement with i) “Increase in taxes if used to prevent environmental pollution” and ii) “Would give part of my income for the environment”.

We additionally use information on a range of respondents’ personal characteristics: gender, employment status, education (lower, medium, and upper), and ten income decile dummies which individuals report they belong to. Most importantly, we use the year of birth and year of interview to construct cohort-specific exposure measures.

## 2.2 Environmental Policy Stringency exposure

Our measure of environmental policy exposure comes from the OECD Environmental Policy Stringency Index (EPS), which is a country-specific and internationally-comparable measure of the stringency of environmental policy. Stringency is defined as the degree to which environmental policies put an explicit or implicit price on polluting or environmentally harmful behavior (Kruse et al., 2022).

The index is constructed by scoring policies’ stringency on a scale from zero to six and subsequently aggregating the scores into an index, where higher levels are associated with more stringent policies. In particular, the EPS comprises three sub-indices with equal weight that, in turn, are composed of several policies. The three sub-indices respectively include market-based instruments (MBI), Non-Market Based instruments (NMBI), and Technology Support (TS).<sup>9</sup> Our main variable *policy exposure<sub>bct</sub>* for an individual born in year  $b$  in country  $c$  interviewed in year  $t$  is defined as:

$$policy\ exposure_{bct} = \frac{1}{t - (b + 18)} \sum_{\tau=b+18}^t policy\ stringency_{c,\tau} \quad (1)$$

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<sup>8</sup>We test for the robustness of the results by constructing two binary versions equal to one if the respondent chooses either “Agree” or “Strongly agree”, and zero otherwise, and a more conservative binary variable that takes value one only if the respondent chooses “Strongly agree”.

<sup>9</sup>Additional details can be found in the Appendix Section A.1. Figure A1 displays the aggregation structure. For additional information on the index, we refer the reader to Kruse et al. (2022).

In other words, an individual’s *policy exposure*<sub>bct</sub> is the average environmental policy stringency in their country between age 18 and the year of interview. Environmental policy preferences are recorded from 1990 to 2010, with certain gaps. Respondents interviewed in the same year and country can have different treatment exposure because of variation in their year of birth.<sup>10</sup> Appendix Figure A3 shows the average EPS exposure across birth cohorts by country in the final sample. Since most countries exhibit a positive trend over time (Appendix Figure A4), we also construct alternative measures of country-specific policy exposure, demeaned by the annual cross-sectional average and detrending each value by a country-specific linear trend (Appendix Figure A5).

To test for the “formative age” hypothesis, we construct the average exposure to environmental policy stringency when the respondent was aged 18 to 25 (Appendix Figure A6). We define additional window age categories starting from the range of the impressionable years and then each category is an 8-year age window.<sup>11</sup>

## 2.3 Environmental Quality exposure

We use the Environmental Performance Index (EPI) (Wolf et al., 2022) to measure environmental quality around the world. Using 40 performance indicators across 11 issue categories, the index provides a cross-country measure of climate change performance, environmental health, and ecosystem vitality.

As a proxy for environmental quality, we consider PM2.5 exposure and Household Air Pollution from solid fuels (HAP).<sup>12</sup> Both measures represent the number of age-standardized disability-adjusted life-years lost per 100,000 people, respectively due to exposure to fine air particulate matter smaller than 2.5 micrometers, and exposure to

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<sup>10</sup>Figure A2 shows the density distribution of EPS exposure in the final estimation sample. The average stringency level across cohorts and countries is close to one, with the distribution right-skewed.

<sup>11</sup>In most cases,  $N = 8$ . For the subset of individuals who are either too young or too old, we use all available years over the 8-year formative age window. Results are robust to dropping these individuals and to using alternative definitions of impressionable years (Appendix Table A19).

<sup>12</sup>These two indicators belong to the Air Quality issue category, which includes five more indicators (ozone exposure, NOx exposure, SO2 exposure, CO exposure, VOC exposure) and that, together with Sanitation & Drinking Water; Heavy Metals; Waste Management, compose the Environmental Health policy objective and account for 20% of the EPI.

household air pollution from the use of household solid fuels. We recode the measures such that higher values are associated with better environmental conditions and construct a measure of environmental quality exposure symmetric to the policy exposure.

### 3 Research Design

To test whether experience with policies feeds back into preferences for policies, we offer an empirical framework that isolates the role of policy exposure from many important confounds. In essence, our approach exploits within-country, across-birth-cohort variation and removes confounds such as local economic, political, and environmental conditions at the time of interview. We also control for environmental quality and economic shocks experienced by respondents since reaching adulthood.

#### 3.1 Empirical Approach

We exploit birth-cohort level variation in environmental policy stringency and quality, while controlling for confounding factors, to estimate the effect on environmental preferences. Our baseline econometric specification is written as

$$Y_i = \beta_1 \text{policy exposure}_{bct} + X_i' \gamma + Z_{bct}' \delta + \mu_{ct} + \kappa_b + \alpha_w + \theta_c \times \text{age} + \varepsilon_{iwbct} \quad (2)$$

where  $Y_i$  is the answer to one survey question by individual  $i$ , born in year  $b$  interviewed in year  $t$  in country  $c$  in survey source  $w$ . Our main coefficient of interest is associated with the continuous measure of exposure to environmental policy stringency, *policy exposure*, which varies across countries, years of birth, and years of interview constructed as explained in Section 2.2. We control for a set of individual covariates  $X_i'$ , capturing socio-economic characteristics (gender, education, employment status, income class) at the year of interview  $t$ . Most importantly, there could be other past experiences of an individual that are correlated with environmental policy stringency



and influence environmental preferences. To capture these exposures, we control for a vector of country-cohort specific covariates  $Z'_{bct}$ , in particular, economic recessions and environmental quality. Economic recessions represent the average number of years during an individual’s lifetime in which GDP growth contracted by at least 10% (Barro & Ursúa, 2008). We account for environmental quality, using exposure to average outdoor (PM2.5) and household (HAP) air pollution.

The most conservative specification accounts for birth-cohort, country-year of interview, survey (EVS or WVS) fixed effects and country-specific age trends. Below, we motivate the rationale behind these fixed effects and the residual variation used to identify the causal effect of policy stringency exposure on environmental preferences.

All regressions are estimated using OLS for ease of interpretation, but similar results are obtained and reported in the Appendix with ordered probit and probit models in the case of likert and binary outcomes. We allow for the error term to be correlated among individuals within the same country and within the same year of interview, and cluster standard errors at the country-year-of-interview level. We use sample weights provided by IVS to make the data representative at the country level and limit our sample to individuals born in the same country in which they were interviewed.

**Identification Strategy.** There are several potential threats to the identification of a causal effect of policy exposure on environmental preferences, which would imply endogeneity of preferences. Spurious correlations may arise due to reverse causality (i.e., countries have more stringent policies because citizens have strong environmental values), or unobserved confounders, such as historic events or economic conditions that could co-determine individuals’ preferences and policy levels in place.

Here, we exploit within-country variation at the birth-cohort level in exposure to environmental policy stringency to establish a plausibly causal impact of experience with environmental policies on green preferences, and thus contribute to a better understanding of the endogeneity of environmental preferences. Below, we detail how the empirical specification addresses a number of potential threats to identify such effect.

First, age-specific factors could matter if different birth cohorts are exposed to

different policies with different probabilities. The global positive trend in the stringency of environmental policies (Appendix Figure A4) may suggest that younger generations are more likely to experience more stringent policies. We address this concern by including year of birth  $\kappa_b$  fixed effects that account for cohort-specific attitudes so as to compare the individuals only within the same birth cohort. Since environmental policy can be coordinated at a higher level than the national one, any common effect of a supra-national wave of environmentalism in the form of policies on a specific cohort will be absorbed by these cohort-specific dummies. As an additional robustness check, we also perform our analysis on alternative measures of policy stringency de-measured by the cross-sectional average and de-trended from a country-specific linear time trend.

Second, contemporaneous levels of environmental policy and quality and any other unobserved national and global economic and political conditions may drive differences in preferences. We account for any contemporaneous country-specific characteristics with country-year-of-interview  $\mu_{ct}$  fixed effects. This approach removes the scope for any confounds attributable to variations in time or country. Therefore, the treatment only compares individuals within the same country and survey year, ensuring that these individuals face the same political institutions and environmental quality conditions. This mitigates concerns that the results are driven by other structural differences between countries and strengthen the hypothesis that observed differences in attitudes towards environmental policies constitute a change in intrinsic preferences due to differences in the stringency of environmental policy exposure.

Third, there could be heterogeneous generational trends in environmental preferences across countries. Countries could lie on differential trends in the evolution of individual values and beliefs which can lead to larger differences across generations. To rule out such a possibility, we include country-specific age trends in our specification.

Finally, we also account for the source of the survey  $w$  fixed effects, either the World Value Survey or the European Value Study, to account for different sampling methodologies and other differences across the two survey sources.

The set of fixed effects ensures that the identifying variation comes from changes

in exposure to environmental policy stringency across birth cohorts within a country interviewed in a given year, and from changes in exposure to environmental policy stringency for a given birth cohort within a country interviewed in different years.

Although we fully saturate our specifications with fixed effects, there could still be confounding past exposures correlated with environmental policies, which we address by controlling for economic conditions and environmental quality factors.

To emphasize the role of the high-dimensional fixed effects, Appendix Figure A9 shows the raw correlation between the stated answers to “Government should reduce pollution” and environmental policy stringency exposure using a binned scatter plot (Panel a). The relationship between the two variables is negative and statistically significant at the 95% level. In Panel (b), we replicate the same exercise, reporting the relationship between the residualized outcome and the residualized policy exposure, accounting for our set of fixed effects. The relationship between the two variables is strongly positive and statistically significant.

## 4 Environmental Policy Stringency and Preferences

### 4.1 Main Results

In this section, we present the baseline estimates from Equation (2). We start with our baseline OLS models and document the robustness of our results to more demanding specifications, to the inclusion of additional controls, and to a range of placebo exercises. Table 1 reports the estimates from our baseline specification of the coefficients associated with environmental policy stringency (EPS) exposure, recession exposure, and environmental quality exposure.

The coefficient on EPS exposure is positive and statistically significant. In our preferred and most conservative specification that accounts for exposure to economic recessions and environmental quality (column 4), increasing exposure to environmental policy stringency by 1 standard deviation increases individual support for government to reduce pollution by 0.18 of a standard deviation. In other words, an increase in policy

stringency from the U.S. level (2.91) to Sweden’s level (3.61) in 2019 corresponds to a 5.7% increase in the Likert support for government to reduce pollution.

To have a sense of the magnitude of the effect, we also compare it to the coefficients on other socio-demographic characteristics in the model. Appendix Table A2 replicates Table 1 reporting all coefficients. The marginal effect of a unit increase in policy exposure is comparable in magnitude (97%) to the largest of the socio-demographic effects, changing the education of an individual from the basic to the upper level.

Appendix Table A3 shows the OLS results when we use recoded binary outcomes that take value one respectively if the individual agrees or strongly agrees with the statement that government should reduce pollution (Panel A) or only strongly agrees (Panel B). Results are similar; in our preferred specification (column 4), increasing stringency exposure from the US level to Sweden’s level in 2019 increases the probability of agreeing with the government’s role in reducing pollution by 5 percentage points (7.5% at the mean) and of strongly agreeing by 9.4 percentage points (31%).

**Robustness.** We conduct several tests to probe the robustness of our results. The EPS measure is positively trended for most of the countries in the sample (Figure A4) and younger generations are on average exposed to more stringent levels of environmental policies across countries (Figure A3). Although this phenomenon does not pose concerns for the identifying assumptions, we construct two alternative measures of policy stringency. First, we construct a demeaned version of the level of environmental policy stringency by using the country’s deviations from the annual cross-sectional average of environmental policy stringency levels. This procedure also accounts for policies implemented at supra-national levels which would contemporaneously make more stringent several countries (e.g., the EU Emissions Trading System). Second, we construct a de-trended version of the policy stringency measure, corresponding to the annual deviation in EPS from a country-specific trend for the thirty years in the sample. We replicate our baseline results using these variables and find coefficients quantitatively very similar and statistically significant (Appendix Table A4).

We also check the extent to which the starting age of the exposure matters from

Table 1: Environmental Policy Stringency (EPS) exposure during adult years

	Government should reduce pollution (Likert)			
	(1)	(2)	(3)	(4)
Environmental Policy Stringency (EPS) exposure	0.225** (0.110)	0.219** (0.107)	0.228** (0.109)	0.236** (0.111)
Recession exposure	-0.515 (0.381)	-0.528 (0.406)	-0.534 (0.378)	-0.518 (0.392)
PM2.5 exposure		0.0144 (0.281)		0.217 (0.291)
HAP exposure			-0.305 (0.298)	-0.377 (0.307)
Individual controls	✓	✓	✓	✓
Survey FE	✓	✓	✓	✓
Year of birth FE	✓	✓	✓	✓
Country $\times$ Year of interview FE	✓	✓	✓	✓
Country-age linear trends	✓	✓	✓	✓
Mean outcome	2.909	2.909	2.909	2.909
SD Outcome	0.896	0.896	0.896	0.896
$N$	16889	16889	16889	16889
adj. $R^2$	0.1324	0.1323	0.1324	0.1323

*Notes:* The outcome variable ranges from 1 to 4 (with higher values reflecting stronger agreement with the statement “Government should reduce environmental pollution”). All regressions control for male dummy, unemployment dummy, 3-category education (Lower, Middle, Upper), 10-class subjective income decile scale. Recession exposure is a dummy variable that takes value one if during her adult years the individual has experienced at least one year in which the real GDP per capita growth rate of its country is at least 10% below the previous year’s growth rate. PM2.5 and HAP exposure are respectively the adult years average of age-standardized disability-adjusted life-years lost per 100,000 people due to exposure to fine air particulate matter smaller than 2.5 micrometers (PM2.5) and due to exposure to household air pollution (HAP) from the use of household solid fuels (PM2.5 and HAP exposure variables are inverted such that higher values imply higher quality and divided by 1000 to improve readability of coefficients). All regressions also include year of birth, country-by-year of interview, survey fixed effects, and country-by-age linear trends. Observations are weighted using survey weights. Standard errors are clustered by country-year of interview. Significance levels: \*  $p < 0.1$ , \*\*  $p < 0.05$ , \*\*\*  $p < 0.01$ .

early adolescence (14 years old), and we find that for any of our exposure measures to environmental policy stringency, including demeaned and detrended, the effect appears more robust from age 16 (Appendix Table A5). This is reassuring, as the channel of norm-formation that we hypothesize would require an individual to be aware of and influenced by a stringency level.<sup>13</sup> A leading framework in the socio-psychological lit-

<sup>13</sup>Differently than exposure to democratic institutions which are assumed to be understood by individuals as of age of six (Acemoglu et al., 2021), environmental policies and their effects are posited to be internalized from adult life (Aklin et al., 2013).

erature (Krosnick & Alwin, 1989), known as the formative age hypothesis, posits that early adulthood is a key window of knowledge and norm acquisition. Intuitively, children younger than 16 are less likely to be aware of policy and governance matters, and therefore less likely to form lasting preferences based on notions from those earliest years, a finding that we confirm in our analysis. We explore the formative age hypothesis more comprehensively in Section 5.1.

We conduct a robustness exercise with a different estimation method, using ordered probit for the outcome in Likert scale (Appendix Table A6) and probit for binary outcomes (Appendix Table A7) and results remain quantitatively comparable. Appendix Figure A10 verifies that our results are robust to a leave-one-country-out exercise. Results are also robust to alternative fixed effects (Appendix Table A8).

**Placebo and falsification.** A concern may be that the effect of exposure to environmental policy stringency on environmental preferences conflates the consequences of general social and political changes, that are correlated with environmental policies, generating spurious correlation in our approach. To assuage this concern, we consider a number of attitudinal questions asked in the IVS unrelated to the environment. We select questions on family relationships, societal well-being, and economic values (see Appendix Table A9 for a complete description of the questions). We use 13 variables as outcomes in the estimation of Equation (2) and find no effect that is statistically distinguishable from zero, except for one at the 5% level, consistent with sampling variation given the multiple tests carried out (Appendix Table A10).<sup>14</sup>

**Types of environmental policies.** The EPS is a composite index that aggregates different sub-indices comprising different policies (see Appendix Section A.1 for further details). Different environmental policies and instruments can have different salience for consumers. Some policies may attract more political and media attention. And some may be more noticeable in perceptions or experiences with cost burden or incidence

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<sup>14</sup>Another ideal placebo exercise would test the cross-cohort parallel trends underlying assumption (Acemoglu et al., 2021) by regressing pre-birth “exposure” to environmental policy stringency. Unfortunately, the short time series of EPS data starting in 1990 does not allow us to characterize pre-birth exposure in our estimation sample.

(Huse & Koptug, 2022; Rivers & Schaufele, 2015).

To explore the differential effects of the varieties of environmental policies, we construct similar measures of policy exposure to Equation (1) using various sub-indices of the EPS index. We first consider the average exposure to stringency in market-based instruments and non-market-based instruments and, within market-based instruments, stringency levels in taxes (CO<sub>2</sub>, NO<sub>x</sub>, SO<sub>x</sub>, Diesel Fuel) and CO<sub>2</sub> trading schemes. Overall, we find no conclusive evidence of the effect of policy stringency driven by a specific policy instrument (Appendix Figure A12).

## 4.2 Taxes and Preferences

We show changes in preferences toward the role of government in controlling pollution, without attention to preferences for specific mechanisms and policy instruments, like taxes. The survey data allow us to explore the stated level of agreement in a four-step Likert scale with the survey question on “Increase in tax to prevent pollution”.<sup>15</sup> Here, we explore the effect of exposure to environmental tax policies, using the corresponding EPS sub-indices, on subsequent attitudes toward pollution taxes.

Figure 1 displays the estimated coefficients on various dimensions of environmental policy exposure on tax preferences. Exposure to broad policy stringency (EPS) and to non-market policy stringency does not have a statistically meaningful effect on tax preferences.<sup>16</sup> Market policy instruments have a larger, but imprecisely estimated, positive effect on tax preferences. Focusing on exposure to policy stringency in the specific form of taxes as a market-based policy instrument, more stringent exposure to a broad index of taxes increases support for an increase in tax to prevent pollution. In particular, a one standard deviation increase in the exposure level to environmental tax stringency ( $\approx 79\%$  of the average exposure) is associated with a 0.12 standard

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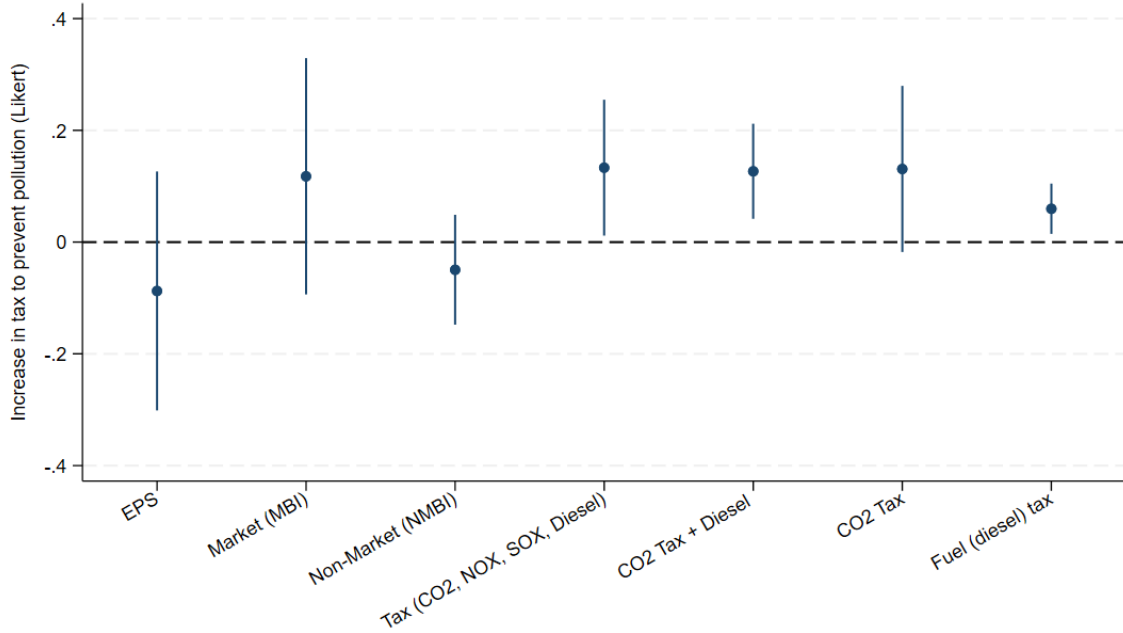
<sup>15</sup>Figure A8 shows the pooled average level of agreement with “Increase in tax to prevent pollution” and “Would give part of my income for environment”. In these questions, an important difference from our preferred survey question is that pollution reduction is framed as explicitly requiring a personal sacrifice, either voluntarily or through a tax policy.

<sup>16</sup>This result is robust to alternative binary versions of the outcome (Appendix Table A12).

deviation increase in the support for an increase in tax. Using the same real-world comparison between U.S. and Sweden policy environments in 2019, an increase from the U.S. environmental tax stringency level (0.25) to Sweden’s level (3.75) corresponds to a 18% increase in the Likert support for increase in tax to prevent pollution.

Results have more pronounced statistical significance and larger magnitude for the stringency of combined carbon and diesel taxation where a one standard deviation increase in the stringency of these two policy instruments ( $\approx 71\%$  of the average exposure) increases support for tax by around 0.17 of a standard deviation. By disentangling CO<sub>2</sub> and diesel tax exposure, we find that the effect is mostly driven by carbon tax.

Figure 1: Effect of EPS sub-indices exposure in adulthood on tax increase preferences



*Notes:* The figure shows the coefficient associated with the average level of sub-index in the x-axis during the adulthood of an individual, using as an outcome the question “Increase in tax to prevent pollution” in the Likert scale. All regressions control for male dummy, unemployment dummy, 3-category education (Lower, Middle, Upper), 10-class subjective income decile scale, recession exposure, PM<sub>2.5</sub> and HAP exposure. The regression also includes year of birth, country-by-year of interview, survey fixed effects, and country-by-age linear trends. Observations are weighted using survey weights. Standard errors are clustered at the country-year of interview level. Bins represent the 95% confidence intervals around point estimates. Tabular results are reported in Appendix Table A12



Consistent with previous findings, environmental tax policies are one of the most salient policy instruments (Dechezleprêtre et al., 2022; Douenne & Fabre, 2022). We document that past exposure to them affects preference formation. Specific policy types appear to reflect the dynamics of positive feedback that we document at the composite EPS level. Well-documented initial skepticism about taxes (Anderson et al., 2023; Douenne & Fabre, 2020) could make tax policies especially well-suited to the positive endogeneity that arises from experience. Exposure to specific policy types (as in, policy design or mechanism) might mediate the effect of experience on preferences.<sup>17</sup>

### 4.3 Heterogeneity

We summarize heterogeneous effects of exposure to more stringent environmental policies by respondents’ socio-demographic and economic characteristics (Appendix Table A13). There is no substantial heterogeneity across most of the categories explored (gender, employment status, income, political orientation) except for education: lower-educated individuals are more likely to support government intervention to reduce pollution than higher-educated ones as a result of more stringent environmental policies.

We also document that the effect of environmental policy exposure is driven by individuals less interested in politics and with less confidence in the government (Appendix Table A14)). This may be explained by the fact that individuals lacking information about politics and policies would likely be more influenced by their formative experiences than those who continue to update their views. We also document that individuals who think the government should take more responsibility are more prone to support government action to reduce pollution.

Conversely, individuals’ support for new environmental taxes or giving part of their income to the environment falls as a result of exposure to more stringent policy, the lower their interest in politics and their confidence in the government (Appendix Table

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<sup>17</sup>Unfortunately, the survey does not ask other questions about support for additional pollution policy types, so we are unable to test, for example, the effect of exposure to non-market policies on subsequent support for non-market policies. Given the limited salience and higher costs of non-market policies, the dynamics could be different.

A15). These findings also hold for exposure to tax policies in general and carbon taxes (Appendix Table A16). Among individuals who think that people should take more responsibility, exposure to broad environmental and tax policy is associated with weaker environmental preferences. This suggests that there are some individuals who, instead of developing a preference for policies, develop a distaste and this directional effect is mediated by a more primary norm about the appropriate ethical role of government.

## 5 Mechanisms

Results in Section 4 show that adult life exposure to more stringent environmental policies favors the formation of long-lasting preferences for green policies. In this section, we examine three mechanisms that provide additional findings behind our baseline results. First, we break down the exposure to environmental policy stringency by different age windows to examine whether it is exposure during certain periods of life that matters most and test the “formative age” hypothesis (Section 5.1). Second, we compare formative age exposure to contemporaneous exposure to policy stringency at the time of the interview to examine the role of policy reference points in preference formation (Section 5.2). Third, we examine the interrelationship between environmental quality and policy exposure during the formative age (Section 5.3).

### 5.1 Heterogeneous effects across age windows

Individual preferences are particularly malleable during certain years of life. An expanding literature documents how values, norms, and preferences can be shaped by exposure to conditions and events, most notably in early adulthood. The formative age (or impressionable years) hypothesis states that individual values are formed during a period of great mental plasticity in early adulthood between 18 and 25 years and remain mostly unaltered afterward (Krosnick & Alwin, 1989).<sup>18</sup>

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<sup>18</sup>Other relevant work in social psychology includes Cutler (1974), Greenstein (1965), Sears (1975), and Torney and Hess (1967). The importance of the formative age window has been subsequently borrowed by a growing strand of economic research that has empirically documented effects on atti-

We construct measures of policy stringency exposure in various eight-year age windows, starting from the 18-25 window, and use it as the main regressor in the estimation of Equation (2). Figure 2 reports the coefficients on each eight-year age window, with the formative window’s one in red. The effect of policy stringency exposure across non-formative age windows is not statistically significant and close to zero. Nevertheless, the effect of formative age exposure is positive, statistically significant, and comparable in magnitude to the effect of exposure from age 18 to the year of interview, suggesting that there is no evidence of the effect getting smaller as an individual acquires more information throughout their life. In particular, a one standard deviation increase in formative age exposure to environmental policy stringency is associated with 0.16 of a standard deviation increase in individual support for government intervention to reduce pollution. Results are robust to the use of binary versions of the outcome (Appendix Figure A11), alternative definitions of formative age (Appendix Table A19), and alternative de-meaned and detrended exposure measures (Appendix Table A20).

## 5.2 Environmental policy direction

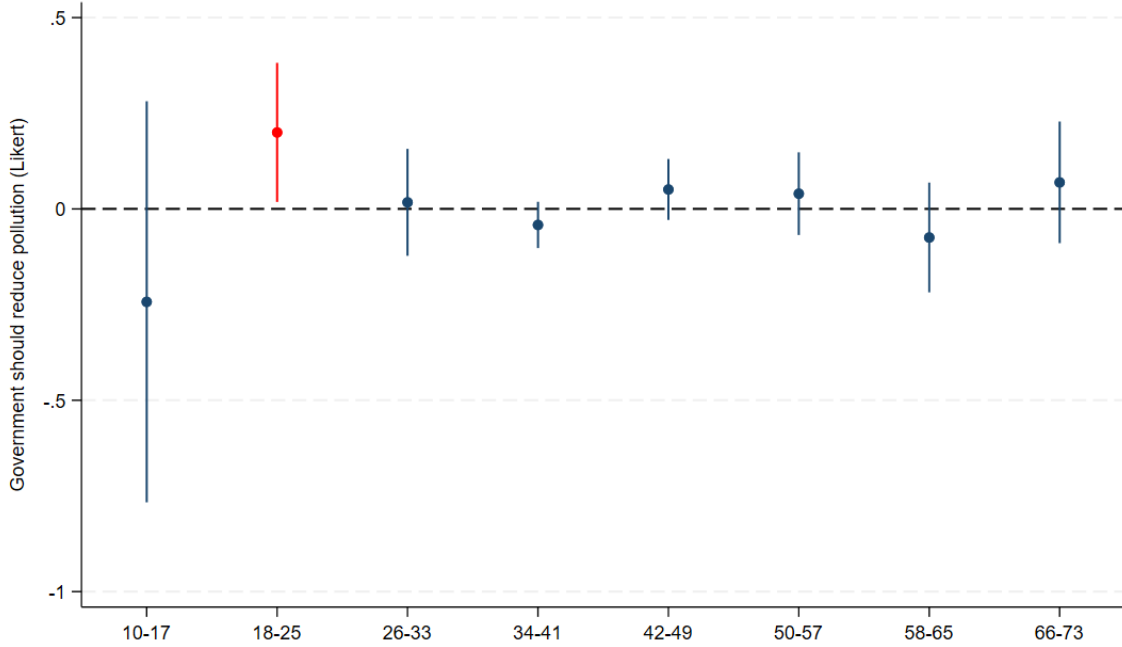
The importance of the impressionable years among the age windows of exposure indicates that distant experiences play a role in shaping preferences today. Nevertheless, policies can vary widely over longer periods of time, and a natural question arises about whether a change to higher or lower stringency than experienced during the impressionable years leads to different effects on present-day preferences. Without specifically testing for this heterogeneity, one might incorrectly assume that past exposure shapes preferences symmetrically (De Neve et al., 2018).

To test for asymmetric effects, we compare formative age exposure with the con-

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tudes towards migrants (Cotofan et al., 2022), attitudes towards democracy (Magistretti & Tabellini, 2022), confidence in political institutions and leaders (Aksoy et al., 2020), job preferences (Cotofan et al., 2023), political preferences (Barone et al., 2022), preferences for redistribution (Carreri & Teso, 2023; Roth & Wohlfart, 2018), and trust in science (Eichengreen et al., 2021). To the best of our knowledge, the only papers that explore the hypothesis in the context of environmental and climate preferences study the effect of formative age exposure to natural disasters (Falco & Corbi, 2023) and climate-induced migration (Zappalà, 2023).

Figure 2: Effect of EPS exposure on environmental preferences by age window



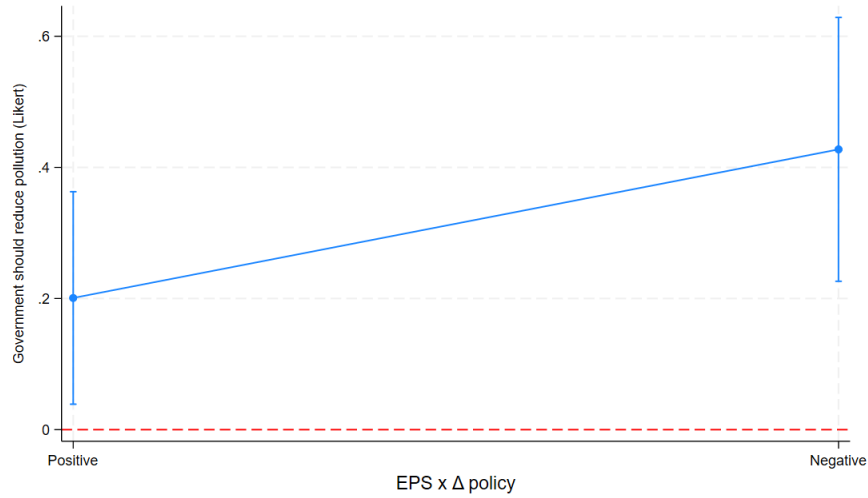
*Notes:* The figure plots the coefficients associated with the average level of EPS during each eight-year age window reported in the x-axis using the question “Government should reduce pollution” as outcome in Likert scale. The regression controls for male dummy, unemployment dummy, 3-category education (Lower, Middle, Upper), 10-class subjective income decile scale, recession exposure, PM2.5 and HAP exposure. The regression also includes year of birth, country-by-year of interview, survey fixed effects, and country-by-age linear trends. Observations are weighted using survey weights. Standard errors are clustered at the country-year of interview level. Bins represent the 95% confidence intervals around point estimates.

temporaneous level of policy stringency in a binary variable ( $\Delta policy$ ), equal to one if the contemporaneous policy level is less stringent than the formative age’s level (i.e., “Negative”). Figure 3 displays the heterogeneous marginal effects of formative-age policy exposure and shows that this asymmetry exists. The effect of formative-age stringency levels on support for government action on pollution is more pronounced among individuals exposed to a more lax policy environment during the year of interview. Consider two individuals interviewed in different years but born in the same year (and hence sharing the same “stock” of exposure to environmental policy during their formative age). Such difference drives a stronger reaction to an increase in exposure stringency in terms of a higher demand for government action against pollution for

individuals who experience a more lenient policy in the year of interview.

We recover a similar heterogeneous effect of current policy stringency levels compared with formative age and adult life exposure. Nevertheless, it may be that individuals form reference points at a different window age. To determine the age window of exposure to environmental policy that most matters for individuals, we compare exposure during any age window to the current level of policy stringency (Appendix Table A22). We fail to recover a similar effect using exposure in any other age window than the formative age, suggesting that this specific period has a prominent role as a reference point against which individuals evaluate the current state (Abel, 1990; Coppock & Green, 2016; Roth & Wohlfart, 2018).

Figure 3: EPS marginal effect on preference for government action against pollution depending on deviations from contemporaneous EPS level



*Notes:* The figure plots the marginal effect of EPS exposure in formative age evaluated when the difference between contemporaneous policy level and formative age exposure is negative and when it is positive. When the difference (i.e.,  $\Delta$  policy) is “Negative”, it means that the environmental policy stringency in the year of the interview is lower than the average stringency the individual has been exposed to during the formative age. The regression controls for male dummy, unemployment dummy, 3-category education (Lower, Middle, Upper), 10-class subjective income decile scale, recession exposure, PM2.5, and HAP exposure. The regression also includes the year of birth, country-by-year of interview, survey fixed effects, and country-by-age linear trends. Observations are weighted using survey weights. Standard errors are clustered at the country-year of interview level. Bins represent the 95% confidence intervals around point estimates. Point estimates are reported in Table A21.

It appears that people learn to appreciate policy stringency through experience to

a far greater extent than people learn to appreciate policy laxity. An individual exposed to more stringent current policies and low stringency levels during the formative age has stronger green preferences than an individual whose stringency exposure did not increase compared to their formative age.<sup>19</sup> However, for individuals on the top tercile of the policy stringency exposure distribution, who grew up in a relatively more stringent policy environment, a decline in current stringency would induce stronger green preferences than for someone for which current environmental policies have not become more lenient with respect to the formative age. Appendix Figure A13 shows that the importance in shaping lasting preferences of an increase in stringency during one’s formative age is more drastic for those who with lower current stringency than in their formative years. Although contemporaneous policy levels may be endogenous to previous policies and thus be consequential to earlier societal preferences and institutions, the asymmetric reaction documented here sheds light on the persistence of formative age exposure as a reference point to influence current preferences.

### 5.3 The role of environmental quality

As a final testable mechanism, we explore the hypothesis that the effect of more stringent environmental policies on individual support is conditional on environmental quality exposure. We conjecture that more stringent policies where environmental quality is low increase the policies’ salience and perceived value to individuals. This, in turn, increases lasting support for government action to reduce pollution.

We construct an indicator equal to one if PM2.5 or HAP exposure is below the sample median (i.e., worse environmental quality conditions). The effect of policy stringency exposure is positive and statistically significant only in the sub-sample of individuals exposed to an environmental quality level below the median (Appendix Table A23). The effect is substantial in magnitude (respectively, 17% and 15% of the sample mean) and underlines the importance of stringent policies targeting poor envi-

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<sup>19</sup>This result holds for cohorts exposed to a policy stringency level equal to at most 1.126, which is approximately around the 65<sup>th</sup> percentile of the formative age exposure distribution.

ronmental conditions to gather support for the government’s role in reducing pollution.

Figure 4 shows the heterogeneous marginal effects of EPS exposure by environmental quality in a single estimated equation. The results confirm that the role of exposure to stringent policy in predicting support for government pollution reduction is conditional on poor environmental quality. It is worth noting that, in both specifications, the uninteracted term of exposure to environmental quality below the sample median is negative and in certain cases not significant, suggesting that environmental conditions downgrade individuals’ support of the government’s role in reducing pollution and we are not identifying a “poor environmental quality effect”. Rather, we are identifying the effect of experience of both poor conditions and more stringent policies meant to address them. This combination induces support for government pollution actions throughout life.<sup>20</sup>

## 6 Counterfactual policy stringency

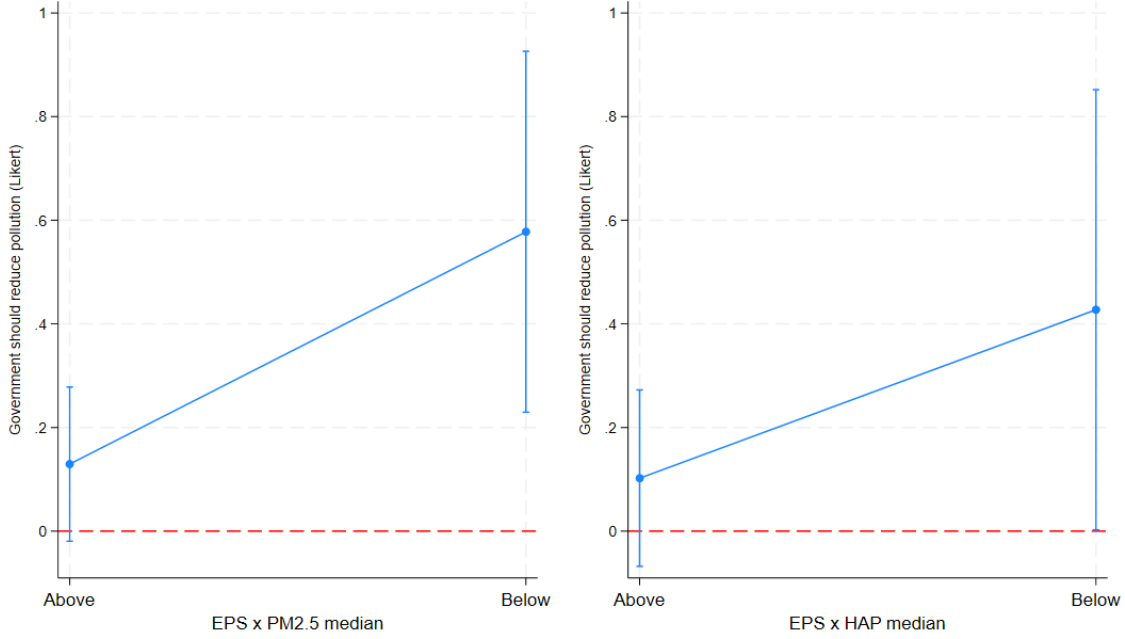
In this section, we use our reduced-form estimates to assess the importance of the uncovered mechanism on the endogeneity of preferences to policy exposure in the environmental political process. We answer the following question: if individuals in a country were exposed to another counterfactual policy stringency level, all else equal, how would the change in policy preferences predicted by our model be? We choose as counterfactuals three countries with notable historically different policy stringency levels: Brazil (average policy stringency exposure across cohorts is 0.46), United States (average policy stringency exposure 1.75, close to the cross-country average 1.74), and Sweden (average policy stringency exposure 2.57).

We predict the counterfactual change in green preferences using the difference between the observed level of policy stringency and the counterfactual policy level in each of the three countries, and the associated coefficient on EPS estimated in column 4,

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<sup>20</sup>When we limit our analysis to the exposure to environmental quality and policy stringency during the impressionable years of the respondents, we find similar sizeable effects (Appendix Figure A14).

Figure 4: Policy stringency effect on environmental preferences by environmental quality exposure during adulthood



*Notes:* The figure shows the marginal effect of EPS exposure in adulthood when exposure to environmental quality measures in the same period is above or below the median in the sample on the question “Government should reduce pollution” as outcome in Likert scale. The regression controls for male dummy, unemployment dummy, 3-category education (Lower, Middle, Upper), 10-class subjective income decile scale, recession exposure. The regression also includes year of birth, country-by-year of interview, survey fixed effects, and country-by-age linear trends. Observations are weighted using survey weights. Standard errors are clustered at the country-year of interview level. Bins represent the 95% confidence intervals around point estimates. Tabular results are reported in Table A24.

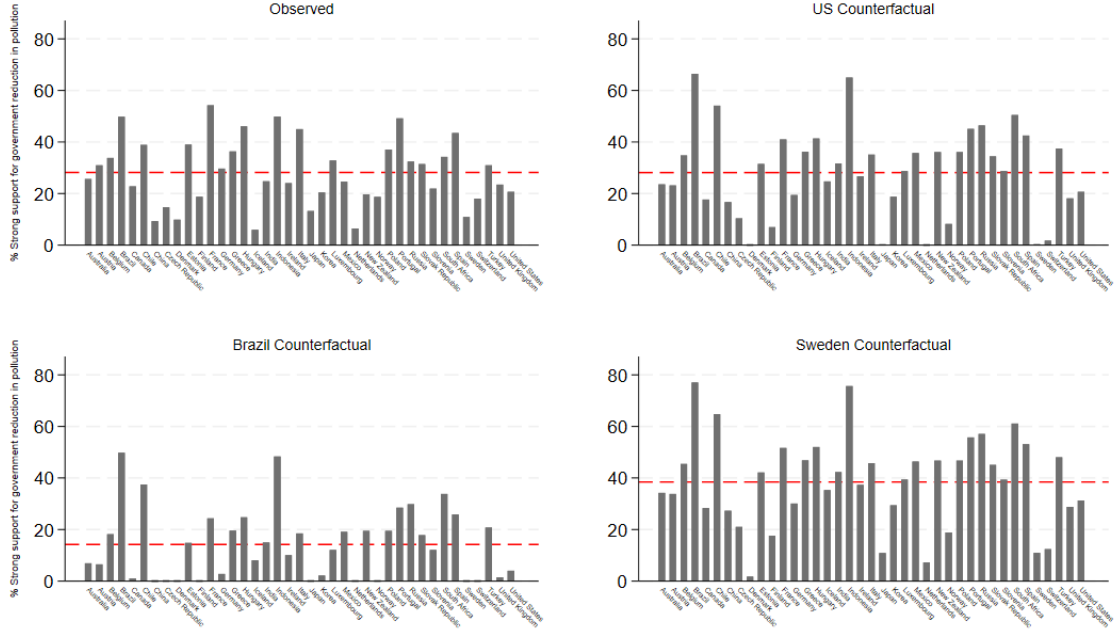
Panel B, Table A3.<sup>21</sup> Figure 5 shows the model-predicted shares of respondents with *strong* green preferences under each counterfactual. In particular, if individuals had past exposure to environmental policy as stringent as the US, the average support for green policies would be similar across countries (28.18 observed in the data vis-à-vis 28.11 under the US counterfactual). We observe stark differences in public support if birth cohorts were exposed to a stringency level equal to Brazil’s (mean is 14.2) and equal to Sweden’s (mean is 38.44). We also find that nine countries under the

<sup>21</sup>We consider the marginal effect of EPS exposure on the probability to *strongly agree* with the statement “Government should reduce pollution” to be conservative in the definition of environmental preferences and ease of interpretation of the results in shares of respondents.



Sweden counterfactual and four countries under the US counterfactual have a share of public support strictly above 50%. If we simplistically assume a one-to-one mapping between stated green preferences and revealed voting preferences in a majority voting rule system, these cases indicate countries that may pass more stringent environmental policies, setting in motion a dynamic loop of more stringent policies induced by higher support which will then feed back into higher future demand for policies.

Figure 5: Green preferences for counterfactual policy stringency



*Notes:* Each histogram reports the share of respondents that strongly agree with the statement "Government should reduce pollution" observed in the country across survey waves (top-left corner histogram) and predicted using three different counterfactual policy experiments. From the top-right corner histogram clockwise, each histogram reports the model-predicted support induced by the difference between the birth-cohort exposure in policy stringency in the country and the exposure in policy stringency experienced by the same birth cohort in the US, in Sweden, and in Brazil, using the coefficient on EPS in column 4, Panel B, Table A3. The red dashed line indicates the observed cross-country average in support and under each counterfactual. Figure A15 displays world maps for under each counterfactual policy experiment showing which countries have a predicted support for green policies that is lower, constant, or higher than observed in the data.

## 7 Conclusion

Under a traditional political economy framework, a well-informed voter would select rationally among policies to maximize a durable utility function. This utility function would represent stable preferences over a discounted stream of bundles of traditional elements like consumption goods, leisure, and environmental quality. In this case, variation in past policy exposure should not meaningfully affect how two otherwise similar individuals would express policy preferences in a given place and time. This paper documents that a traditional model does not sufficiently capture the complexity of how policy preferences are formed because past policy exposures appear to exert substantial influence. This casts doubt on the notion that policy attitudes reveal durable preferences.

We document that support for environmental policies increases significantly when individuals have been exposed to more stringent environmental policies during their adulthood and especially during their formative age window. Using over twenty years of data for environmental policy stringency and environmental policy preferences across more than thirty-five countries over the world, we compare individuals in the same birth cohort within the same country across different points in time. We additionally show evidence that higher exposure to environmental taxes increases subsequent preferences for environmental taxes, and not other environmental policy instruments. Similarly, stringent environmental policies have no impact on non-environmental policy preferences. We document that our effect is stronger among cohorts exposed to a more lenient environmental policy mix in the year of the interview relative to the policy mix during their formative window, as well as among cohorts exposed to lower environmental quality during their formative window.

This paper reveals that the relationship between environmental policy and public support is bidirectional, and thus endogenous. From a public policy perspective, these results indicate that implementing major environmental policies might be a difficult task, nevertheless, they suggest that individuals will increase their support for such policies over time. There are several important avenues for future research within this

area. First, given the urgency of climate change, it would be valuable to replicate the analysis, studying climate policy preferences, in isolation from other environmental policy, as data becomes available. This approach would exploit longitudinal data of public support for carbon taxes and other instruments (e.g., cap-and-trade, subsidies) to evaluate how policy preferences change after an increase or decrease in the stringency of a climate policy.

Second, because of the broad geographic and temporal coverage of our analysis, this paper does not directly address whether endogeneity of preferences is a result of imperfect information or a change in societal norms. Because policy counterfactuals are unobserved, public understanding of their costs and benefits may follow the pattern of endogenous learning. The quality of initial information about policies could be systematically influenced by the media or politicians. An alternative mechanism is that the arrival of a new policy can change norms and that preference for policies change to adhere to these evolving social norms. It is possible that one or both of these mechanisms drive the findings of this study, and quantifying their respective roles would be valuable.

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# A Appendix

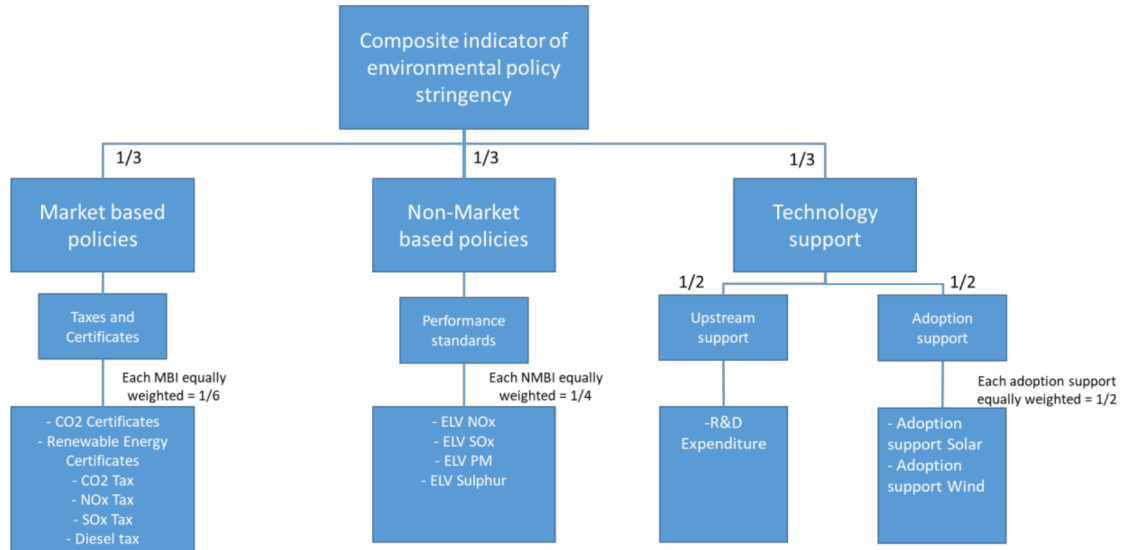
## A.1 Data Appendix

### A.1.1 Environmental Policy Stringency

The EPS comprises three sub-indices with equal weight that, in turn, are composed of several policies. The first sub-index is market-based instruments (MBI) that group policies that put a price on pollution. In particular, it accounts for CO2 Trading Schemes, Renewable Energy Trading Scheme, CO2 Taxes, Nitrogen Oxides (NOx) Tax, Sulphur Oxides (SOx) Tax, Fuel Tax (Diesel). The second sub-index includes Non-Market Based instruments (NMBI), entailing policies that mandate emission limits and standards: Emission Limit Value (ELV) for nitrogen oxides (NOx); ELV for sulphur oxides (SOx); ELV for Particulate Matter (PM); Sulphur content limit for diesel. The final sub-index, Technology Support (TS), entails that support innovation in clean technologies and their adoption, including Public research and development expenditure (R&D) and Renewable energy support for Solar and Wind. Each component of the sub-index has equal weight within each sub-index (i.e. MBI components have 1/6 weight, NMBI components have 1/4 weight and TS components have 1/2 weight).

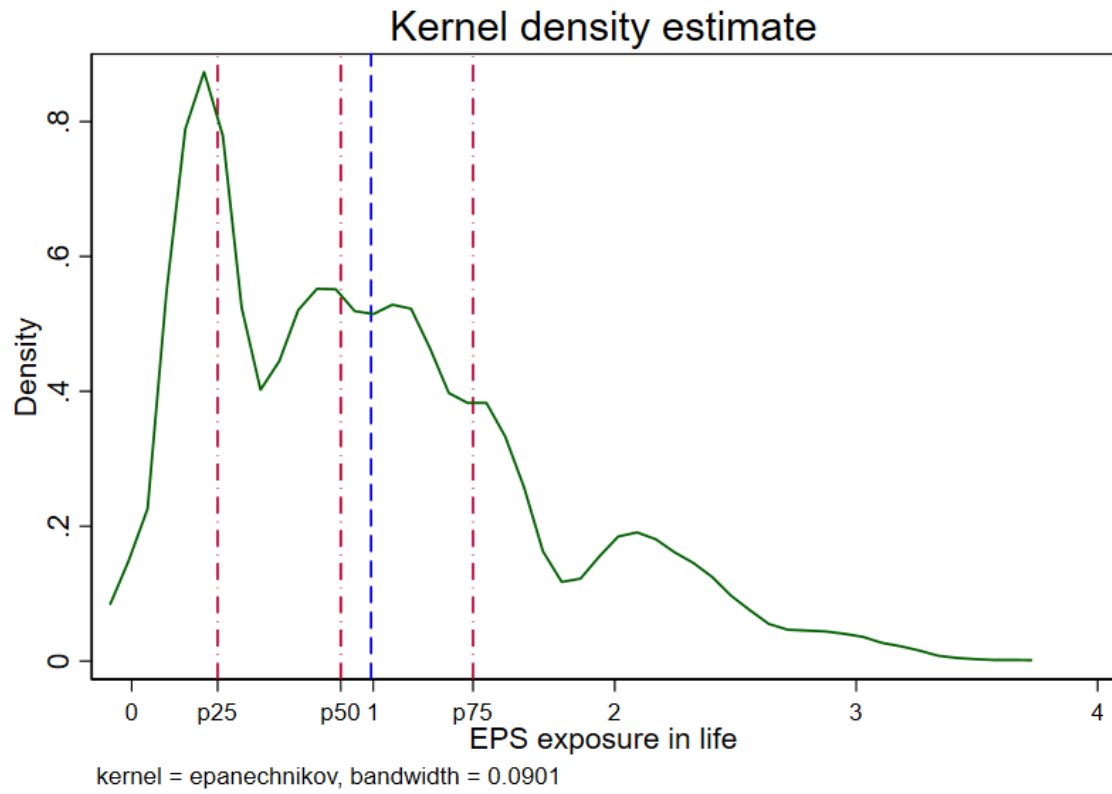
## A.2 Figures

Figure A1: Construction of Environmental Policy Stringency Index



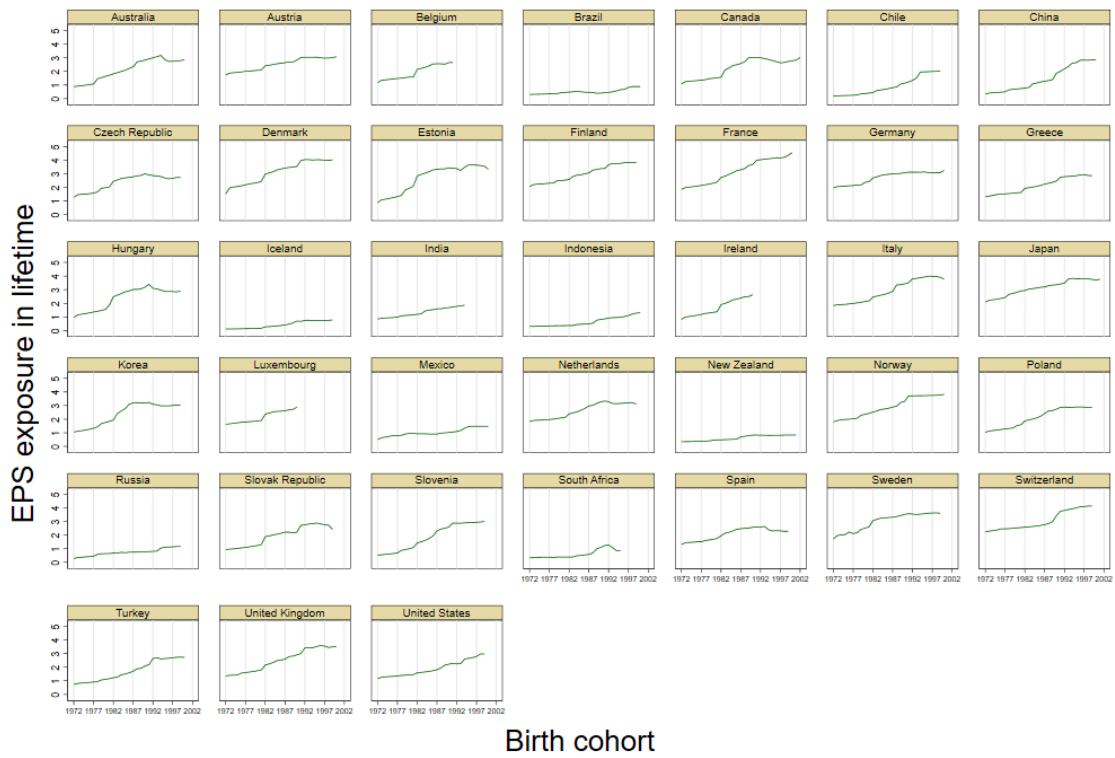
*Notes:* The figure shows the aggregation structure of the revised EPS index from Kruse et al. (2022).

Figure A2: EPS average exposure density distribution



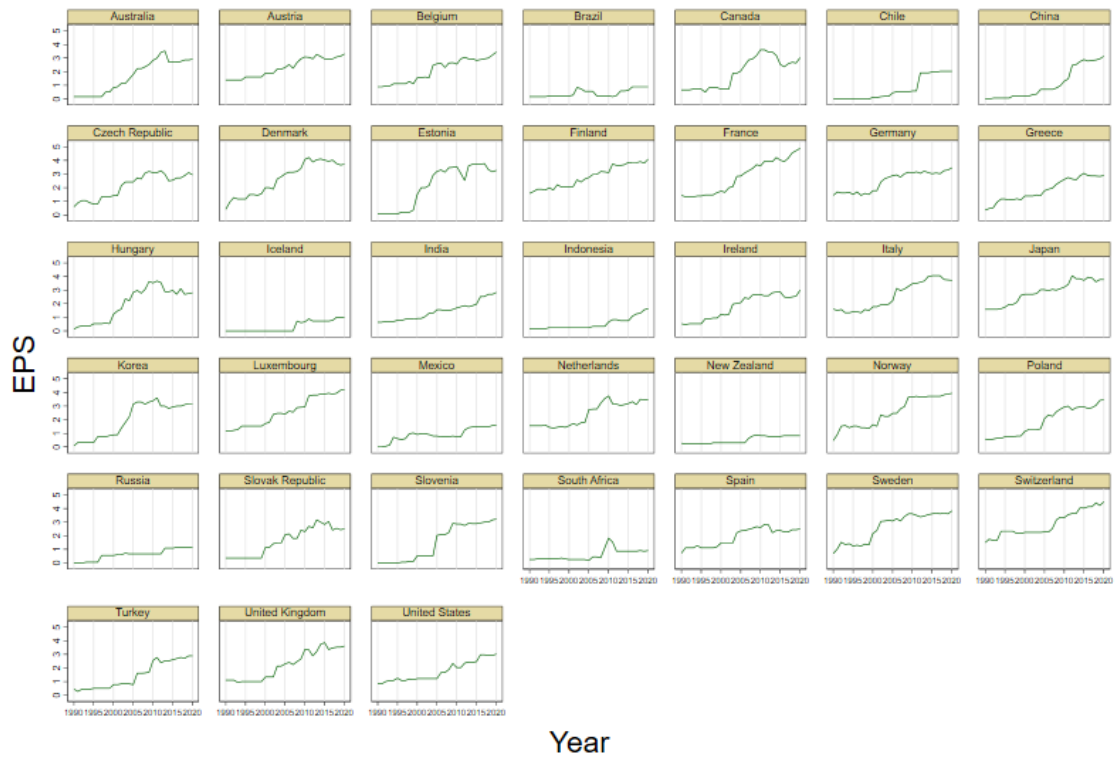
*Notes:* The figure shows the density distribution of EPS exposure during life in the final estimation sample, with red dot-dashed lines indicating the 25<sup>th</sup>, 50<sup>th</sup>, 75<sup>th</sup> percentile and the blue dashed line indicating the mean.

Figure A3: Country-specific EPS exposure by birth cohort



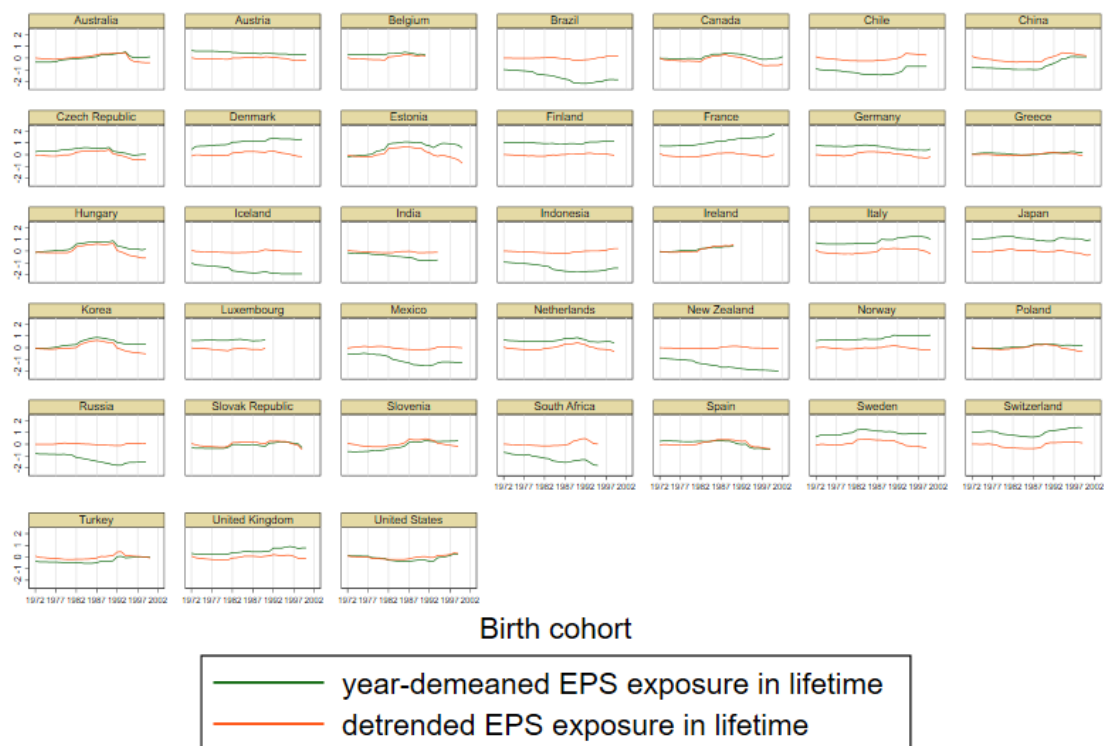
*Notes:* The figure shows the time series of adulthood mean EPS exposure by cohort for each country over the 30 years available.

Figure A4: Country-specific EPS time series



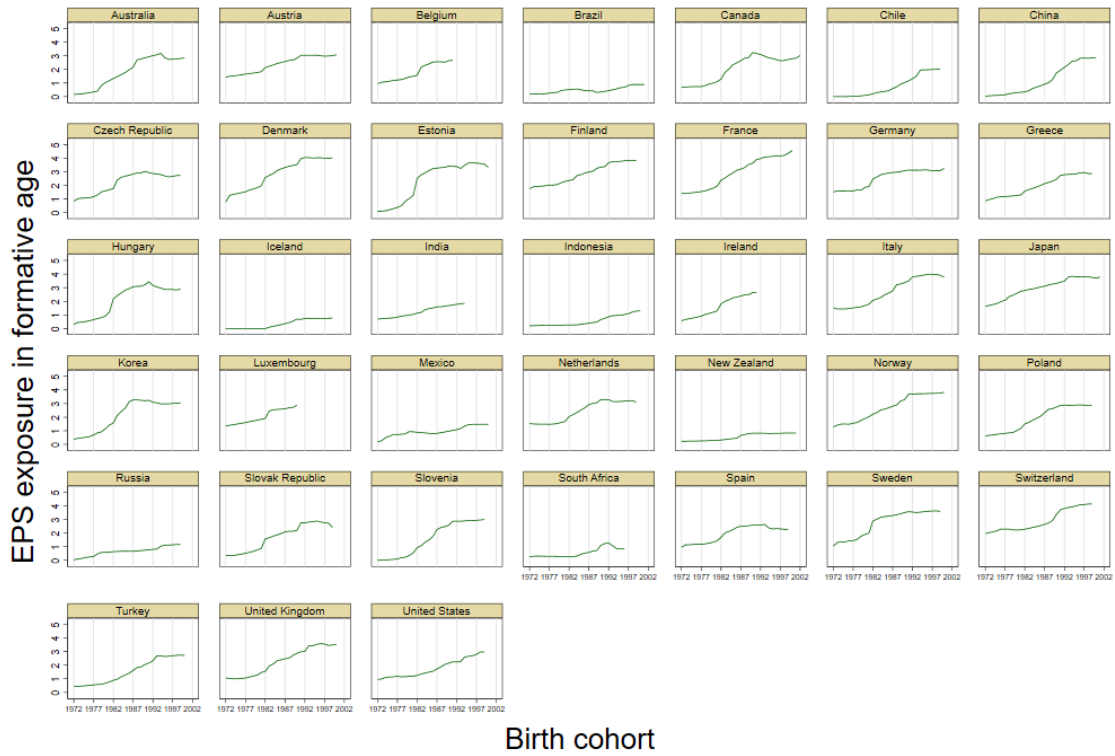
*Notes:* The figure shows the time series of EPS for each country over the 30 years available.

Figure A5: Country-specific relative EPS exposure in adult life by birth cohort



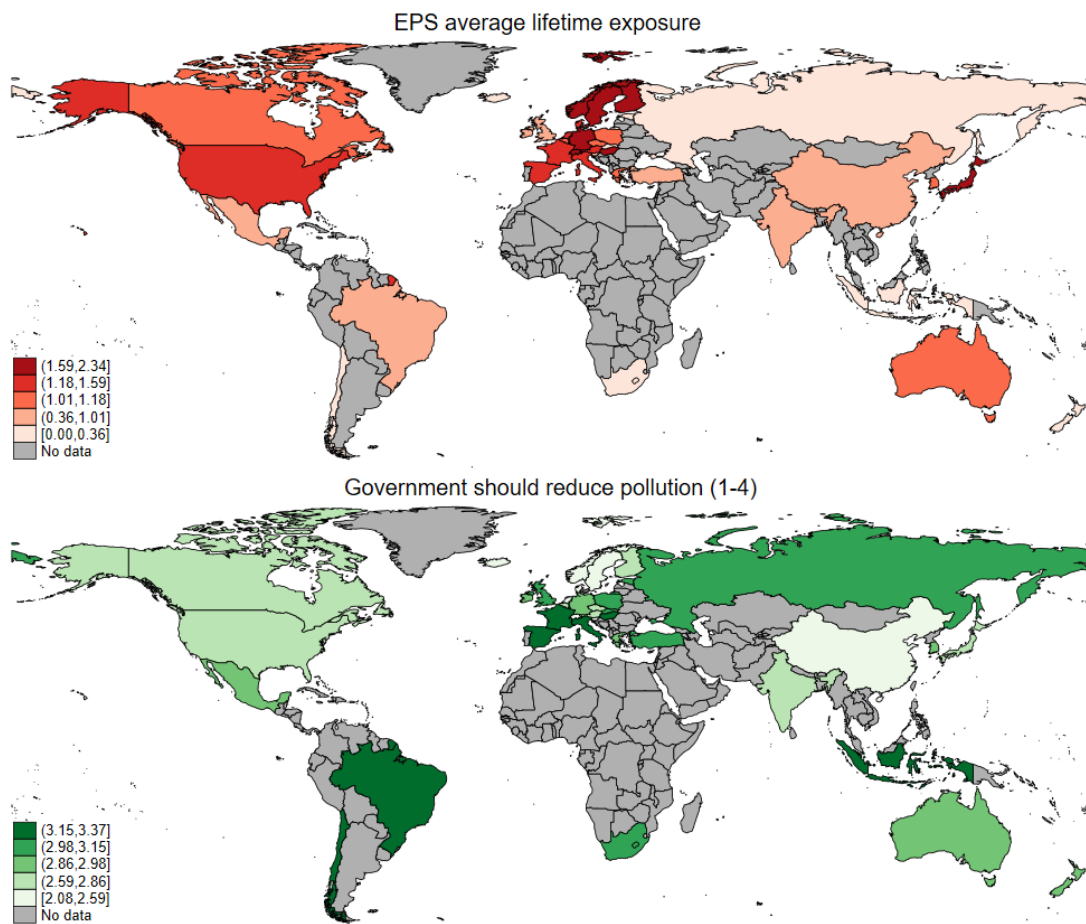
*Notes:* The figure shows the time series of adulthood mean year-demeaned (in green ) and detrended (in red) EPS exposure by cohort for each country over the 30 years available.

Figure A6: EPS exposure in formative age (18-25) by country across birth cohorts



*Notes:* The figure shows the average EPS exposure across birth cohorts in each country in the IVS sample. Since EPS data are available from 1990 onwards, the oldest birth cohort is those who were born in 1972.

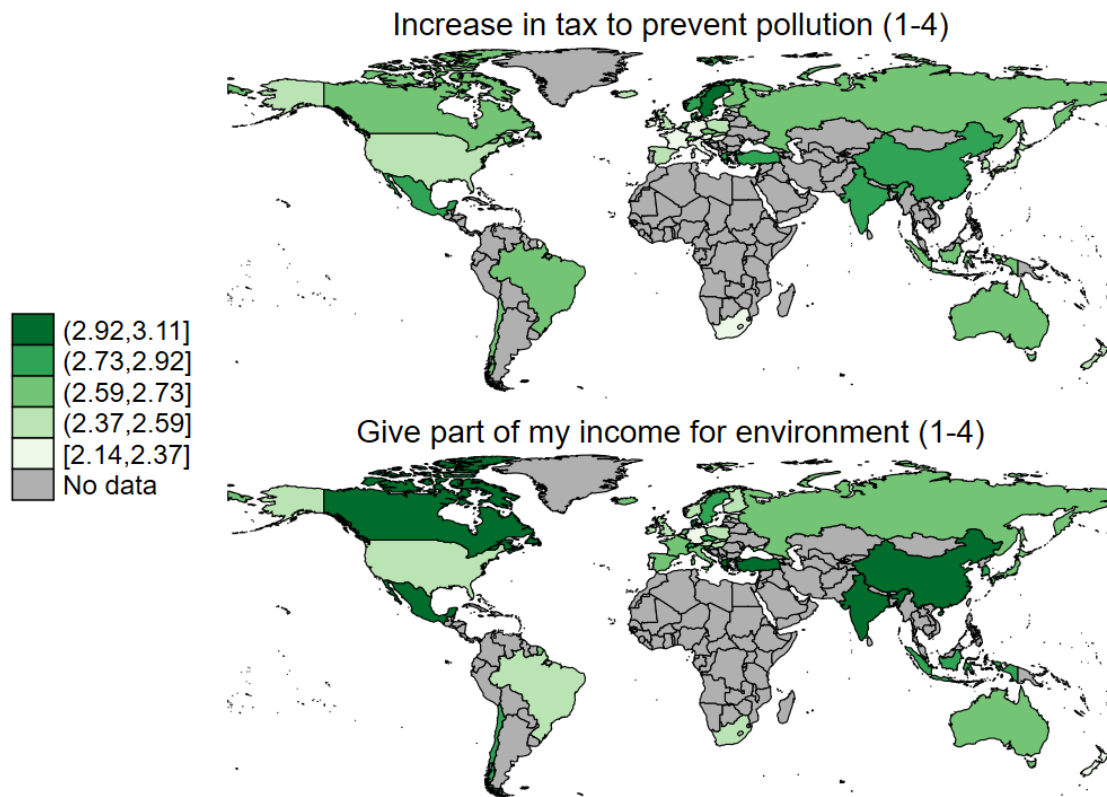
Figure A7: Country pooled average of EPS average exposure across cohorts in baseline sample



*Notes:* The world map shows the pooled country mean in the final estimation sample of EPS average exposure.



Figure A8: Country pooled averages across cohorts of other environmental preferences

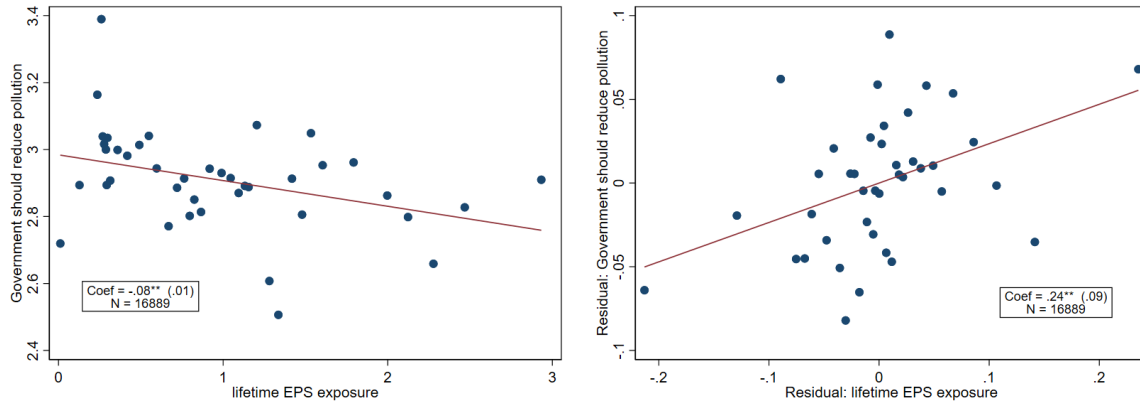


*Notes:* Each world map shows the pooled country mean in the final estimation sample of the stated answers to the Likert scale question “Increase in tax to prevent pollution” (above) and “Would give part of my income for environment” (below) where answers range from one (strongly disagree) to four (strongly agree).

Figure A9: Binned scatter plot of environmental preferences and EPS exposure

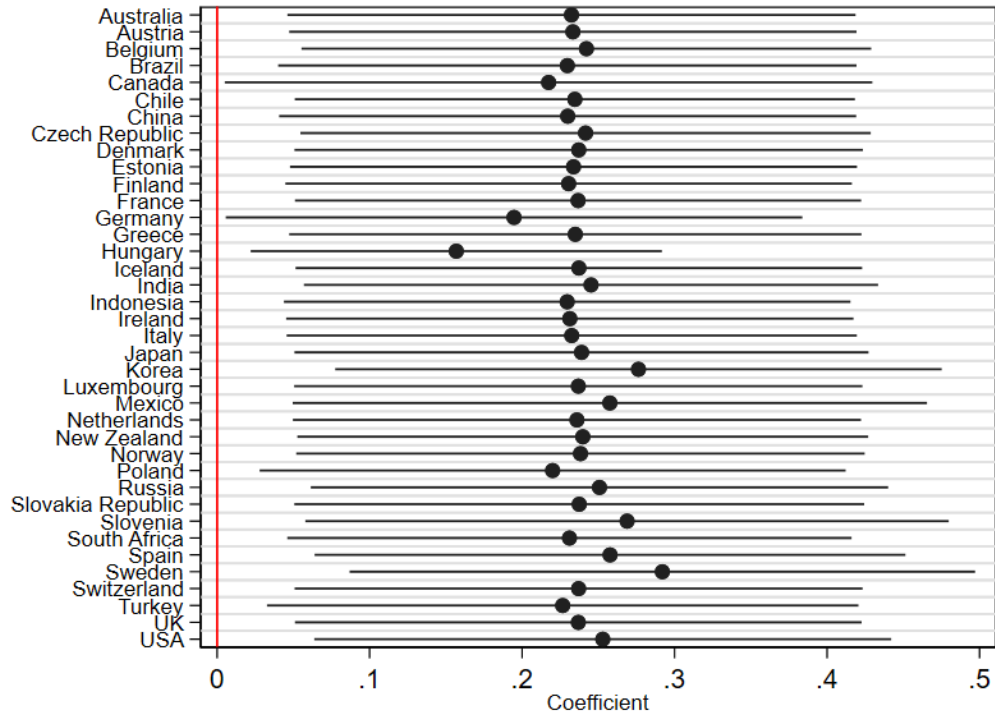
(a) Partial correlation

(b) Residualized partial correlation



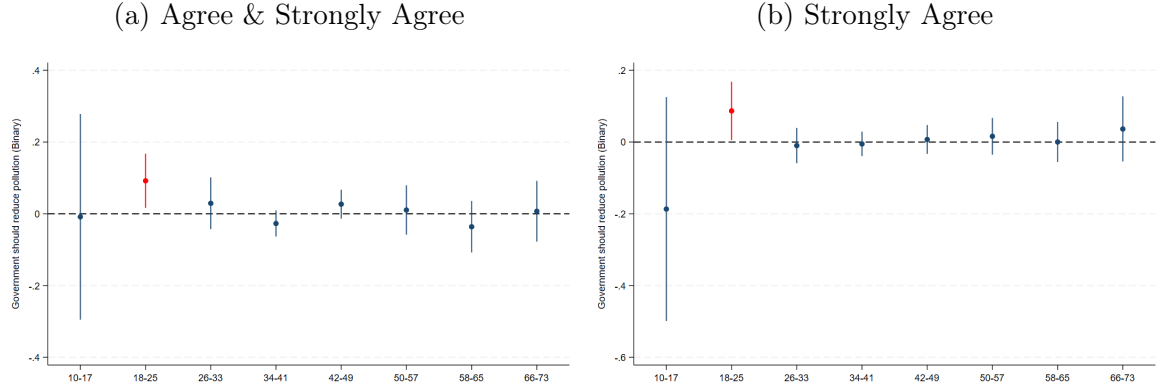
*Notes:* The baseline estimation sample is split into 40 equal-sized bins. Panel (a) shows the raw partial correlation of each mean of that bin between EPS exposure and the government's role in reducing pollution. In Panel (b) each data point shows the mean residual of that bin after controlling for year of birth, country-by-year of interview, survey fixed effects, and country-by-age linear trends. Observations are weighted by the survey weights.

Figure A10: EPS exposure - leave-one-country-out



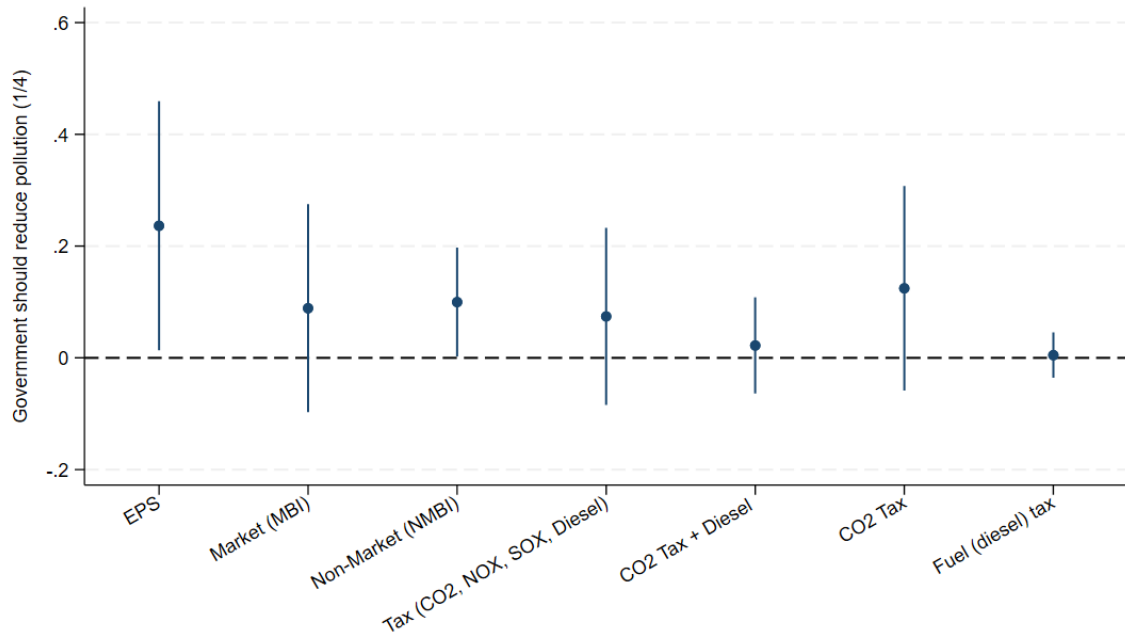
*Notes:* We plot the marginal effect of EPS exposure in adulthood in 38 different regressions where we exclude each time a different country as reported in the y-axis. The regression controls for male dummy, unemployment dummy, 3-category education (Lower, Middle, Upper), 10-class subjective income decile scale, recession exposure, PM2.5 and HAP exposure. The regression also includes year of birth, country-by-year of interview, survey fixed effects, and country-by-age linear trends. Observations are weighted using survey weights. Standard errors are clustered at the country-year of interview level. Bins represent the 90% confidence intervals around point estimates.

Figure A11: Effect of EPS exposure in other age windows using binary outcomes



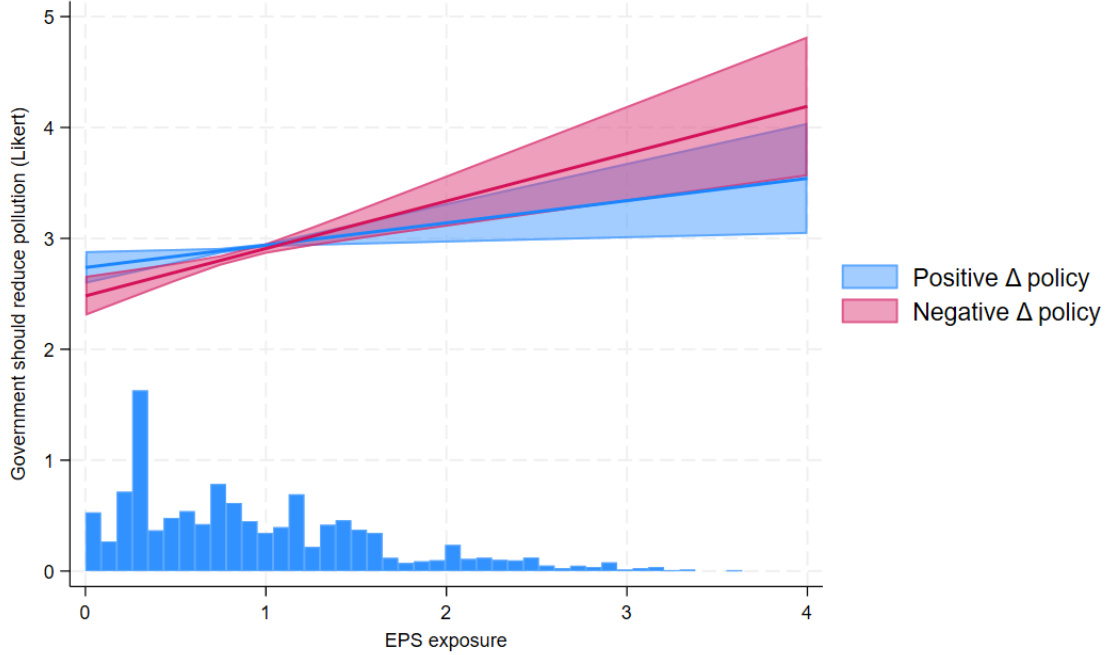
*Notes:* The figure plots the coefficients associated with the average level of EPS during each eight-year age window reported in the x-axis using the question “Government should reduce pollution” as outcome recoded in two different binary versions. In panel (a), the binary variable takes value one if respondents state either agree or strongly agree. In panel (b), the binary takes value one if respondents state strongly agree. The regression controls for male dummy, unemployment dummy, 3-category education (Lower, Middle, Upper), 10-class subjective income decile scale, recession exposure, PM2.5 and HAP exposure. The regression also includes year of birth, country-by-year of interview, survey fixed effects, and country-by-age linear trends. Observations are weighted using survey weights. Standard errors are clustered at the country-year of interview level. Bins represent the 95% confidence intervals around point estimates. Tabular results are reported in Table A18.

Figure A12: Effect of EPS sub-indices exposure in adulthood on government's role to reduce pollution



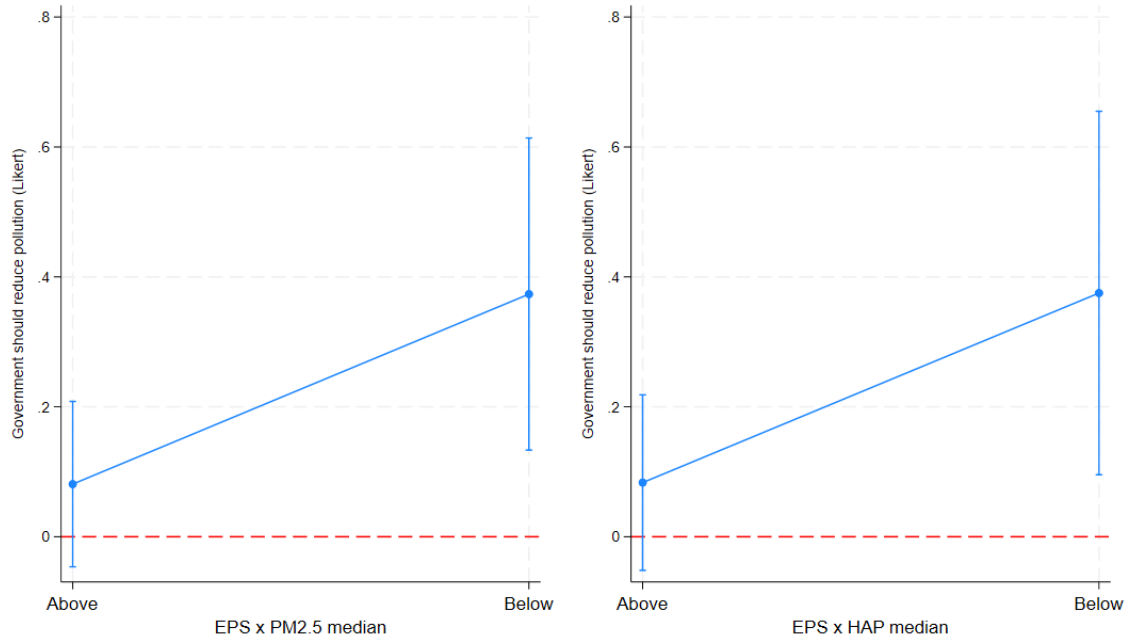
*Notes:* The figure shows the coefficient associated with the average level of sub-index in the x-axis during the adulthood of an individual, using as outcome the question “Government should reduce pollution” in the Likert scale. All regressions control for male dummy, unemployment dummy, 3-category education (Lower, Middle, Upper), 10-class subjective income decile scale, recession exposure, PM2.5 and HAP exposure. The regression also includes year of birth, country-by-year of interview, survey fixed effects, and country-by-age linear trends. Observations are weighted using survey weights. Standard errors are clustered at the country-year of interview level. Bins represent the 95% confidence intervals around point estimates. Tabular results are reported in Appendix Table A11.

Figure A13: Predicted preferences for government action against pollution for EPS exposure during formative age depending on deviations from the contemporaneous EPS level



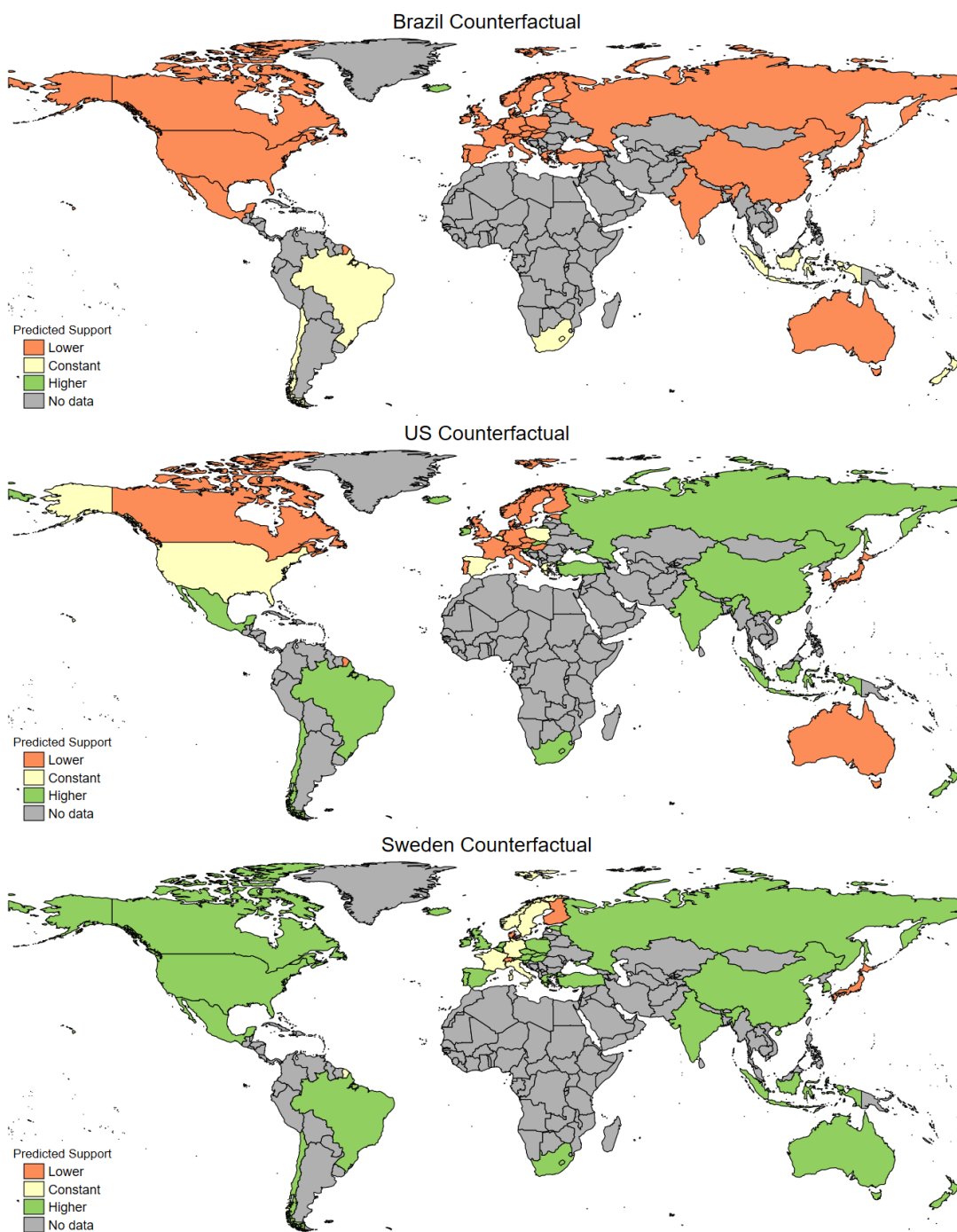
*Notes:* We plot the predicted values of preferences for government action against pollution for the support EPS exposure in formative age evaluated when the difference between contemporaneous policy level and formative age exposure is negative and when it is positive. When the  $\Delta$  policy is “Negative”, the environmental policy stringency in the year of the interview is lower than the average stringency the individual has been exposed to during the formative age. Conversely, “Positive  $\Delta$  policy” indicates that the EPS in the year of the interview is weakly larger than the average EPS exposure during the formative age. The regression controls for male dummy, unemployment dummy, 3-category education (Lower, Middle, Upper), 10-class subjective income decile scale, recession exposure, PM2.5, and HAP exposure. The regression also includes the year of birth, country-by-year of interview, survey fixed effects, and country-by-age linear trends. Observations are weighted using survey weights. Standard errors are clustered at the country-year of interview level. The shaded area represents the 95% confidence interval around predicted values (in thick solid line). The histogram below represents the density distribution of EPS exposure during formative age. Point estimates are reported in Table A21.

Figure A14: Policy stringency effect on environmental preferences by environmental quality exposure during formative age



*Notes:* The figure shows the marginal effect of EPS exposure in adulthood when exposure to environmental quality measures in the same period is above or below the median in the sample on the question “Government should reduce pollution” as outcome in Likert scale. The regression controls for male dummy, unemployment dummy, 3-category education (Lower, Middle, Upper), 10-class subjective income decile scale, recession exposure. The regression also includes year of birth, country-by-year of interview, survey fixed effects, and country-by-age linear trends. Observations are weighted using survey weights. Standard errors are clustered at the country-year of interview level. Bins represent the 95% confidence intervals around point estimates. Tabular results are reported in Table A25.

Figure A15: Predicted support for government reduction in pollution using Brazil, US, and Sweden counterfactual policy stringency exposures



*Notes:* Each map shows the predicted change in the share of respondents that strongly agree with the statement "Government should reduce pollution", using, respectively, Brazil, US and Sweden's levels of birth-cohorts exposure to past environmental policy stringency, and using the coefficient on EPS in column 4, Panel B, Table A3.



### A.3 Tables

Table A1: Summary statistics

	N	mean	SD	min	max
Government should reduce environmental pollution	16889	2.909	0.896	1.000	4.000
<i>Environmental Policy Stringency Exposure</i>					
EPS	16889	0.977	0.696	0.000	3.639
Market (MBI)	16889	0.696	0.547	0.000	4.000
Non-Market (NMBI)	16889	1.568	1.219	0.000	5.250
Tax (CO2, NOX, SOX, Diesel)	16889	1.001	0.771	0.000	4.000
CO2 Tax + Diesel Tax	16889	1.718	1.168	0.000	5.038
CO2 (Tax/Cap-and-Trade)	16889	0.238	0.655	0.000	5.000
CO2 (Tax/Cap-and-Trade) + Diesel Tax	16889	1.179	0.810	0.000	4.667
Fuel (Diesel) Tax	16889	3.060	1.862	0.000	6.000
<i>Environmental Quality Exposure</i>					
PM2.5	16889	1184.094	679.706	148.837	2302.446
HAP	16889	847.243	1419.208	0.429	7043.224
Recession exposure	16889	0.010	0.037	0.000	0.286
Number of countries	38				

*Notes:* Summary statistics are computed using the final estimation sample. Environmental Quality exposure measures are expressed in terms of the average number of age-standardized disability-adjusted life-years lost per 100 million people, and in the estimation sample the measures of environmental quality are transformed for ease of interpretation such that higher values are associated with better environmental conditions). Recession exposure takes value one if the national GDP growth rate dropped by at least 10% during the adult years of the individual (Barro & Ursúa, 2008)

Table A2: Environmental Policy Stringency (EPS) exposure during adult life

	Government should reduce pollution (Likert)			
	(1)	(2)	(3)	(4)
Environmental Policy Stringency (EPS) exposure	0.225** (0.110)	0.219** (0.107)	0.228** (0.109)	0.236** (0.111)
Recession exposure	-0.515 (0.381)	-0.528 (0.406)	-0.534 (0.378)	-0.518 (0.392)
PM2.5 exposure		0.314* (0.186)		0.354** (0.173)
HAP exposure			-0.198*** (0.0713)	-0.221** (0.0905)
Male	0.0267 (0.0183)	0.0267 (0.0183)	0.0269 (0.0183)	0.0269 (0.0183)
<i>Education: Reference category: Lower education</i>				
Middle	-0.0718** (0.0307)	-0.0718** (0.0307)	-0.0718** (0.0307)	-0.0718** (0.0307)
Upper	-0.243*** (0.0433)	-0.243*** (0.0433)	-0.243*** (0.0433)	-0.243*** (0.0433)
Unemployed	0.0661*** (0.0221)	0.0660*** (0.0221)	0.0656*** (0.0221)	0.0656*** (0.0221)
<i>Income deciles: Reference category: Bottom decile</i>				
2 <sup>nd</sup>	-0.00519 (0.0362)	-0.00521 (0.0362)	-0.00526 (0.0363)	-0.00524 (0.0363)
3 <sup>rd</sup>	-0.0443 (0.0391)	-0.0443 (0.0391)	-0.0441 (0.0392)	-0.0441 (0.0392)
4 <sup>th</sup>	-0.0779** (0.0338)	-0.0779** (0.0339)	-0.0776** (0.0339)	-0.0775** (0.0339)
5 <sup>th</sup>	-0.0281 (0.0321)	-0.0281 (0.0321)	-0.0279 (0.0322)	-0.0278 (0.0322)
6 <sup>th</sup>	-0.0418 (0.0392)	-0.0418 (0.0392)	-0.0414 (0.0393)	-0.0414 (0.0393)
7 <sup>th</sup>	-0.0857** (0.0400)	-0.0857** (0.0400)	-0.0854** (0.0401)	-0.0853** (0.0401)
8 <sup>th</sup>	-0.0671* (0.0385)	-0.0671* (0.0385)	-0.0668* (0.0386)	-0.0667* (0.0386)
9 <sup>th</sup>	-0.152*** (0.0553)	-0.152*** (0.0553)	-0.152*** (0.0554)	-0.152*** (0.0554)
10 <sup>th</sup>	-0.0990* (0.0555)	-0.0991* (0.0554)	-0.0987* (0.0555)	-0.0985* (0.0555)
Survey FE	✓	✓	✓	✓
Year of birth FE	✓	✓	✓	✓
Country × Year of interview FE	✓	✓	✓	✓
Country-age linear trends	✓	✓	✓	✓
Mean outcome	2.909	2.909	2.909	2.909
SD Outcome	0.896	0.896	0.896	0.896
N	16889	16889	16889	16889
adj. R <sup>2</sup>	0.132	0.132	0.132	0.132

*Notes:* The outcome variable ranges from 1 to 4 (with higher values reflecting stronger agreement with the statement "Government should reduce environmental pollution"). All regressions control for male dummy, unemployment dummy, 3-category education (Lower, Middle, Upper), 10-class subjective income decile scale. Recession exposure is a dummy variable that takes value one if during the formative age the individual has experienced at least one year in which the real GDP per capita growth rate of its country is at least 10% below the previous year's growth rate. PM2.5 and HAP exposure are respectively the average of age-standardized disability-adjusted life-years lost per 100,000 people due to exposure to fine air particulate matter smaller than 2.5 micrometers (PM2.5) and due to exposure to household air pollution (HAP) from the use of household solid fuels (PM2.5 and HAP exposure variables are inverted such that higher values imply higher quality and divided by 1000 to improve readability of coefficients). All regressions also include year of birth, country-by-year of interview, survey fixed effects, and country-by-age linear trends. Observations are weighted using survey weights. Standard errors are clustered by country-year. Significance levels: \*  $p < 0.1$ , \*\*  $p < 0.05$ , \*\*\*  $p < 0.01$ .

Table A3: Environmental Policy Stringency (EPS) exposure with binary outcomes. OLS estimates.

	Government should reduce pollution			
	(1)	(2)	(3)	(4)
<b>Panel A: Agree &amp; Strongly Agree</b>				
Environmental Policy Stringency (EPS) exposure	0.0862* (0.0441)	0.0634 (0.0431)	0.0895** (0.0429)	0.0718 (0.0438)
Recession exposure	0.00137 (0.0202)	-0.00180 (0.0219)	-0.000247 (0.0206)	-0.00203 (0.0217)
PM2.5 exposure		-0.355* (0.178)		-0.259 (0.173)
HAP exposure			-0.265* (0.154)	-0.179 (0.158)
Mean outcome	0.67	0.67	0.67	0.67
SD Outcome	0.47	0.47	0.47	0.47
<b>Panel B: Strongly Agree</b>				
Environmental Policy Stringency (EPS) exposure	0.113* (0.0573)	0.132** (0.0577)	0.112* (0.0584)	0.134** (0.0596)
Recession exposure	-0.00756 (0.0217)	-0.00490 (0.0208)	-0.00708 (0.0213)	-0.00493 (0.0209)
PM2.5 exposure		0.298* (0.174)		0.310 (0.193)
HAP exposure			0.0797 (0.151)	-0.0232 (0.142)
Mean outcome	0.30	0.30	0.30	0.30
SD Outcome	0.46	0.46	0.46	0.46
<i>N</i>	16889	16889	16889	16889

*Notes:* All regressions control for male dummy, unemployment dummy, 3-category education (Lower, Middle, Upper), 10-class subjective income decile scale. Recession exposure is a dummy variable that takes value one if during adulthood the individual has experienced at least one year in which the real GDP per capita growth rate of its country is at least 10% below the previous year's growth rate. PM2.5 and HAP exposure are respectively the adult years average of age-standardized disability-adjusted life-years lost per 100,000 people due to exposure to fine air particulate matter smaller than 2.5 micrometers (PM2.5) and due to exposure to household air pollution (HAP) from the use of household solid fuels (PM2.5 and HAP exposure variables are divided by 1000 to improve readability of coefficients). All regressions also control for survey, year of birth, country-by-year of interview fixed effects and country-age linear trends. Observations are weighted using survey weights. Standard errors are clustered by country-year. Significance levels: \*  $p < 0.1$ , \*\*  $p < 0.05$ , \*\*\*  $p < 0.01$ .

Table A4: EPS exposure with relative measure (starting from 18 years)

	Government should reduce pollution (Likert)			
	(1)	(2)	(3)	(4)
<b>Panel A: Year-demeaned relative exposure</b>				
EPS average exposure	0.190* (0.109)	0.182* (0.106)	0.190* (0.107)	0.194* (0.109)
<b>Panel B: Country-detrended exposure</b>				
EPS average exposure	0.220* (0.110)	0.214** (0.107)	0.224** (0.109)	0.231** (0.111)
Recession exposure	✓	✓	✓	✓
PM2.5 exposure		✓		✓
HAP exposure			✓	✓
Individual controls	✓	✓	✓	✓
Survey FE	✓	✓	✓	✓
Year of birth FE	✓	✓	✓	✓
Country × Year of interview FE	✓	✓	✓	✓
Country-age linear trends	✓	✓	✓	✓

*Notes:* The outcome variable ranges from 1 to 4 (with higher values reflecting stronger agreement with the statement “Government should reduce environmental pollution”). All regressions control for male dummy, unemployment dummy, 3-category education (Lower, Middle, Upper), 10-class subjective income decile scale. Recession exposure is a dummy variable that takes value one if during adulthood the individual has experienced at least one year in which the real GDP per capita growth rate of its country is at least 10% below the previous year’s growth rate. PM2.5 and HAP exposure are respectively the adult years average of age-standardized disability-adjusted life-years lost per 100,000 people due to exposure to fine air particulate matter smaller than 2.5 micrometers (PM2.5) and due to exposure to household air pollution (HAP) from the use of household solid fuels (PM2.5 and HAP exposure variables are divided by 1000 to improve readability of coefficients). All regressions also control for survey, year of birth, country-by-year of interview fixed effects and country-age linear trends. Observations are weighted using survey weights. Standard errors are clustered by country-year. Significance levels: \*  $p < 0.1$ , \*\*  $p < 0.05$ , \*\*\*  $p < 0.01$ .

Table A5: EPS exposure in adult life with different starting ages

	Government should reduce pollution			
	(1)	(2)	(3)	(4)
<b>Panel A: Baseline exposure measure</b>				
EPS average exposure	0.226 (0.349)	0.367 (0.240)	0.345* (0.185)	0.398*** (0.140)
<b>Panel B: Year-demeaned relative exposure</b>				
EPS average exposure	0.263 (0.324)	0.467** (0.224)	0.331* (0.187)	0.400** (0.152)
<b>Panel C: Country-detrended exposure</b>				
EPS average exposure	0.201 (0.351)	0.353 (0.241)	0.335* (0.184)	0.390*** (0.141)
Starting age	14 years	15 years	16 years	17 years
Recession exposure	✓	✓	✓	✓
EQ exposure	✓	✓	✓	✓
Individual controls	✓	✓	✓	✓
Survey FE	✓	✓	✓	✓
Year of birth FE	✓	✓	✓	✓
Country × Year of interview FE	✓	✓	✓	✓
Country-age linear trends	✓	✓	✓	✓
<i>N</i>	11730	13129	14449	15605

*Notes:* The outcome variable ranges from 1 to 4 (with higher values reflecting stronger agreement with the statement “Government should reduce environmental pollution”). All regressions control for male dummy, unemployment dummy, 3-category education (Lower, Middle, Upper), 10-class subjective income decile scale. Recession exposure is a dummy variable that takes value one if during adulthood the individual has experienced at least one year in which the real GDP per capita growth rate of its country is at least 10% below the previous year’s growth rate. PM2.5 and HAP exposure are respectively the adult years average of age-standardized disability-adjusted life-years lost per 100,000 people due to exposure to fine air particulate matter smaller than 2.5 micrometers (PM2.5) and due to exposure to household air pollution (HAP) from the use of household solid fuels (PM2.5 and HAP exposure variables are divided by 1000 to improve readability of coefficients). All regressions also control for survey, year of birth, country-by-year of interview fixed effects and country-age linear trends. Observations are weighted using survey weights. Standard errors are clustered by country-year. Significance levels: \*  $p < 0.1$ , \*\*  $p < 0.05$ , \*\*\*  $p < 0.01$ .

Table A6: Ordered Probit: EPS average exposure during adulthood

	Government should reduce pollution (Likert)			
	(1)	(2)	(3)	(4)
Environmental Policy Stringency (EPS) exposure	0.129* (0.0703)	0.130* (0.0704)	0.130* (0.0676)	0.355** (0.157)
Recession exposure	0.00229 (0.0565)	-0.00384 (0.0574)	-0.0186 (0.0557)	-0.00549 (0.0514)
PM2.5 exposure		-0.0838 (0.158)		0.564** (0.275)
HAP exposure			0.201*** (0.0494)	-0.203** (0.0942)
Individual controls	✓	✓	✓	✓
Survey FE	✓	✓	✓	✓
Year of birth FE	✓	✓	✓	✓
Country × Year of interview FE	✓	✓	✓	✓
Country-age linear trends	✓	✓	✓	✓
Mean Outcome	2.923	2.923	2.923	2.923
SD Outcome	0.90	0.90	0.90	0.90
N	16889	16889	16889	16889

*Notes:* The outcome variable ranges from 1 to 4 (with higher values reflecting stronger agreement with the statement “Government should reduce environmental pollution”). All regressions control for male dummy, unemployment dummy, 3-category education (Lower, Middle, Upper), 10-class subjective income decile scale. Recession exposure is a dummy variable that takes value one if during adulthood the individual has experienced at least one year in which the real GDP per capita growth rate of its country is at least 10% below the previous year’s growth rate. PM2.5 and HAP exposure are respectively the adult years average of age-standardized disability-adjusted life-years lost per 100,000 people due to exposure to fine air particulate matter smaller than 2.5 micrometers (PM2.5) and due to exposure to household air pollution (HAP) from the use of household solid fuels (PM2.5 and HAP exposure variables are divided by 1000 to improve readability of coefficients). All regressions also control for survey, year of birth, country-by-year of interview fixed effects and country-age linear trends. Observations are weighted using survey weights. Standard errors are clustered by country-year. Significance levels: \*  $p < 0.1$ , \*\*  $p < 0.05$ , \*\*\*  $p < 0.01$ .

Table A7: Environmental Policy Stringency (EPS) exposure with binary outcomes. Probit estimates.

	Government should reduce pollution			
	(1)	(2)	(3)	(4)
<b>Panel A: Agree &amp; Strongly Agree</b>				
EPS exposure	0.265* (0.145)	0.191 (0.141)	0.275* (0.141)	0.221 (0.143)
Recession exposure	0.000541 (0.0666)	-0.0105 (0.0728)	-0.00919 (0.0684)	-0.0142 (0.0720)
PM2.5 exposure		-1.186** (0.579)		-0.824 (0.536)
HAP exposure			-0.983* (0.524)	-0.714 (0.530)
EPS Marginal effect	0.095* (0.052)	0.068 (0.050)	0.098** (0.050)	0.079 (0.050)
Mean outcome	0.67	0.67	0.67	0.67
SD Outcome	0.47	0.47	0.47	0.47
<b>Panel B: Strongly Agree</b>				
EPS exposure	0.368** (0.181)	0.434** (0.182)	0.366** (0.184)	0.447** (0.190)
Recession exposure	-0.0316 (0.0635)	-0.0227 (0.0602)	-0.0303 (0.0621)	-0.0227 (0.0609)
PM2.5 exposure		0.990** (0.504)		1.143* (0.647)
HAP exposure			0.213 (0.452)	-0.238 (0.470)
EPS Marginal effect	0.125** (0.061)	0.147** (0.062)	0.124** (0.062)	0.152** (0.065)
Mean outcome	0.30	0.30	0.30	0.30
SD Outcome	0.46	0.46	0.46	0.46
<i>N</i>	16889	16889	16889	16889

*Notes:* All regressions are estimated using a Probit model and control for male dummy, unemployment dummy, 3-category education (Lower, Middle, Upper), 10-class subjective income decile scale. Recession exposure is a dummy variable that takes value one if during adulthood the individual has experienced at least one year in which the real GDP per capita growth rate of its country is at least 10% below the previous year's growth rate. PM2.5 and HAP exposure are respectively the adult years average of age-standardized disability-adjusted life-years lost per 100,000 people due to exposure to fine air particulate matter smaller than 2.5 micrometers (PM2.5) and due to exposure to household air pollution (HAP) from the use of household solid fuels (PM2.5 and HAP exposure variables are divided by 1000 to improve readability of coefficients). All regressions also control for survey, year of birth, country-by-year of interview fixed effects and country-age linear trends. Observations are weighted using survey weights. Standard errors are clustered by country-year. Significance levels: \*  $p < 0.1$ , \*\*  $p < 0.05$ , \*\*\*  $p < 0.01$ .

Table A8: Environmental Policy Stringency (EPS) exposure and environmental preferences. Alternative Specifications.

	Government should reduce pollution (Likert)				
	(1)	(2)	(3)	(4)	(5)
Environmental Policy Stringency (EPS) exposure	0.227** (0.108)	0.181** (0.0898)	0.175** (0.0860)	0.127** (0.0527)	0.124** (0.0521)
Recession	✓	✓	✓	✓	✓
EQ controls	✓	✓	✓	✓	✓
Individual controls	✓	✓	✓	✓	✓
Survey FE	✓	✓	✓	✓	✓
Country $\times$ Year of interview FE	✓	✓	✓	✓	✓
Year of birth FE	✓	✓	✓	✓	✓
Country-age linear trends	✓	✓	✓	✓	✓
Age FE		✓		✓	
Continent $\times$ Age FE			✓		✓
Continent-age linear trends				✓	✓
Mean Outcome	2.909	2.909	2.909	2.909	2.909
SD Outcome	0.896	0.896	0.896	0.896	0.896
$N$	16889	16889	16889	16889	16889
adj. $R^2$	0.132	0.133	0.134	0.132	0.133

*Notes:* The outcome variable ranges from 1 to 4 (with higher values reflecting stronger agreement with the statement “Government should reduce environmental pollution”). All regressions control for male dummy, unemployment dummy, 3-category education (Lower, Middle, Upper), 10-class subjective income decile scale, recession exposure and PM2.5 and HAP exposure. Observations are weighted using survey weights. Standard errors are clustered by country-year. Significance levels: \*  $p < 0.1$ , \*\*  $p < 0.05$ , \*\*\*  $p < 0.01$ .



Table A9: Description of other values used as outcomes in the falsification exercise

Variable	Description	Categories
A025	Respect and love for parents	1 = Respect if earned 2 = Neither 3 = Always respect
A026	Parents responsibilities to their children	1 = Parents have a life of their own and should not be asked to sacrifice their own well-being for the sake of their children 2 = Neither 3 = Parents' duty is to do their best for their children even at the expense of their own well-being
A048	Abortion when woman not married	0 = Disapprove 1 = Approve
A049	Abortion if not wanting more children	0 = Disapprove 1 = Approve
A165	Most people can be trusted	0 = Can't be too careful 1 = Most people can be trusted
C001	Jobs scarce: Men should have more right to a job than women	1 = Disagree 2 = Neither 3 = Agree
C002	Jobs scarce: Employers should give priority to (nation) people than immigrants	1 = Disagree 2 = Neither 3 = Agree
C036	To develop talents you need to have a job	1 = Strongly agree 2 = Agree 3 = Neither agree nor disagree 4 = Disagree 5 = Strongly disagree
C037	Humiliating to receive money without having to work for it	1 = Strongly agree 2 = Agree 3 = Neither agree nor disagree 4 = Disagree 5 = Strongly disagree
C038	People who don't work turn lazy	1 = Strongly agree 2 = Agree 3 = Neither agree nor disagree 4 = Disagree 5 = Strongly disagree
C039	Work is a duty towards society	1 = Strongly agree 2 = Agree 3 = Neither agree nor disagree 4 = Disagree 5 = Strongly disagree
D018	Child needs a home with father and mother	0 = Tend to disagree 1 = Tend to agree
E124	Respect for individual human rights nowadays	1 = There is a lot of respect for individual human rights 2 = There is some respect 3 = There is not much respect 4 = There is no respect at all

Table A10: Placebo test using other outcomes

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)
	A025	A026	A048	A049	A165	C001	C002	C036	C037	C038	C039	D018	E124
EPS exposure	0.0853 (0.107)	0.0505 (0.0977)	0.0839 (0.0805)	0.0173 (0.0712)	-0.000162 (0.0169)	0.0495** (0.0249)	0.0356 (0.0342)	-0.0455 (0.0545)	0.0602 (0.0621)	-0.0216 (0.0588)	0.000166 (0.0407)	-0.0112 (0.0273)	-0.0283 (0.0273)
Recession exposure	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
EQ exposure	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Individual controls	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Survey FE	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Year of birth FE	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Country × Year of interview FE	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Country-age linear trends	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Mean Outcome	2.404	2.451	0.569	0.550	0.325	1.616	2.332	2.204	2.714	2.384	2.368	0.797	2.294
SD Outcome	0.915	0.851	0.495	0.497	0.468	0.841	0.864	1.093	1.194	1.143	1.048	0.402	0.821
<i>N</i>	21602	21803	12514	12744	69889	71638	71332	38440	38276	50954	50862	31194	44904
adj. <i>R</i> <sup>2</sup>	0.158	0.083	0.129	0.137	0.187	0.276	0.169	0.127	0.088	0.108	0.070	0.157	0.160

Notes: All regressions control for male dummy, unemployment dummy, 3-category education (Lower, Middle, Upper), 10-class subjective income decile scale. Recession exposure is a dummy variable that takes value one if during adulthood the individual has experienced at least one year in which the real GDP per capita growth rate of its country is at least 10% below the previous year's growth rate. PM2.5 and HAP exposure are respectively the adult years average of age-standardized disability-adjusted life-years lost per 100,000 people due to exposure to fine air particulate matter smaller than 2.5 micrometers (PM2.5) and due to exposure to household air pollution (HAP) from the use of household solid fuels (PM2.5 and HAP exposure variables are inverted such that higher values imply higher quality and divided by 1000 to improve readability of coefficients). All regressions also include year of birth, country-by-year of interview, survey fixed effects, and country-by-age linear trends. Observations are weighted using survey weights. Standard errors are clustered by country-year. Significance levels: \*  $p < 0.1$ , \*\*  $p < 0.05$ , \*\*\*  $p < 0.01$ .

Table A11: Exposure to EPS sub-indices during adulthood on government intervention preferences

	Government should reduce pollution (Likert)						
	(1)	(2)	(3)	(4)	(5)	(6)	(7)
Policy exposure	0.236** (0.111)	0.0889 (0.0930)	0.0998** (0.0487)	0.0742 (0.0791)	0.125 (0.0914)	0.00492 (0.0202)	0.00889 (0.0650)
Policy	EPS	Market	Non-Market	Tax	CO2+Diesel	CO2	Diesel
Recession exposure	✓	✓	✓	✓	✓	✓	✓
Environmental Quality exposure	✓	✓	✓	✓	✓	✓	✓
Individual controls	✓	✓	✓	✓	✓	✓	✓
Survey FE	✓	✓	✓	✓	✓	✓	✓
Year of birth FE	✓	✓	✓	✓	✓	✓	✓
Country × Year of interview FE	✓	✓	✓	✓	✓	✓	✓
Country-age linear trends	✓	✓	✓	✓	✓	✓	✓
Mean Outcome	2.909	2.909	2.909	2.909	2.909	2.909	2.909
SD Outcome	0.896	0.896	0.896	0.896	0.896	0.896	0.896
Mean Exposure	0.977	0.696	1.568	1.001	1.718	0.377	3.060
SD Exposure	0.696	0.547	1.219	0.771	1.168	1.202	1.862
<i>N</i>	16889	16889	16889	16889	16889	16889	16889
adj. <i>R</i> <sup>2</sup>	0.132	0.132	0.132	0.132	0.132	0.132	0.132

*Notes:* All regressions control for male dummy, unemployment dummy, 3-category education (Lower, Middle, Upper), 10-class subjective income decile scale. Recession exposure is a dummy variable that takes value one if during adulthood the individual has experienced at least one year in which the real GDP per capita growth rate of its country is at least 10% below the previous year's growth rate. Environmental Quality exposure are PM2.5 and HAP exposure, respectively the adult years average of age-standardized disability-adjusted life-years lost per 100,000 people due to exposure to fine air particulate matter smaller than 2.5 micrometers (PM2.5) and due to exposure to household air pollution (HAP) from the use of household solid fuels. All regressions also control for survey, year of birth, country-by-year of interview fixed effects and country-age linear trends. Observations are weighted using survey weights. Standard errors are clustered by country-year. Significance levels: \*  $p < 0.1$ , \*\*  $p < 0.05$ , \*\*\*  $p < 0.01$ .

Table A12: Exposure to EPS sub-indices during adulthood on tax increase preferences

	Increase in tax if used to prevent pollution						
	(1)	(2)	(3)	(4)	(5)	(6)	(7)
<b>Panel A: Likert</b>							
Policy exposure	-0.0875 (0.107)	0.118 (0.106)	-0.0495 (0.0494)	0.133** (0.0611)	0.127*** (0.0428)	0.131* (0.0747)	0.0596** (0.0226)
Mean Outcome	2.587	2.587	2.587	2.587	2.587	2.587	2.587
SD Outcome	0.859	0.859	0.859	0.859	0.859	0.859	0.859
<b>Panel B: Binary (Agree &amp; Strongly Agree)</b>							
Policy exposure	-0.0474 (0.0520)	0.0968** (0.0482)	-0.0274 (0.0247)	0.0828** (0.0325)	0.0794*** (0.0237)	0.0904** (0.0388)	0.0368*** (0.0129)
Mean Outcome	0.581	0.581	0.581	0.581	0.581	0.581	0.581
SD Outcome	0.493	0.493	0.493	0.493	0.493	0.493	0.493
<b>Panel C: Binary (Strongly Agree)</b>							
Policy exposure	-0.00174 (0.0342)	-0.0139 (0.0453)	0.00483 (0.0154)	0.0136 (0.0278)	0.0282 (0.0187)	0.0111 (0.0387)	0.0144 (0.00995)
Mean Outcome	0.133	0.133	0.133	0.133	0.133	0.133	0.133
SD Outcome	0.339	0.339	0.339	0.339	0.339	0.339	0.339
Policy	EPS	Market	Non-Market	Tax	CO2+Diesel	CO2	Diesel
Recession exposure	✓	✓	✓	✓	✓	✓	✓
Environmental Quality exposure	✓	✓	✓	✓	✓	✓	✓
Individual controls	✓	✓	✓	✓	✓	✓	✓
Survey FE	✓	✓	✓	✓	✓	✓	✓
Year of birth FE	✓	✓	✓	✓	✓	✓	✓
Country × Year of interview FE	✓	✓	✓	✓	✓	✓	✓
Country-age linear trends	✓	✓	✓	✓	✓	✓	✓
Mean Exposure	0.914	0.671	1.443	0.971	1.683	0.374	2.991
SD Exposure	0.689	0.545	1.206	0.776	1.202	1.217	1.918
<i>N</i>	20480	20480	20480	20480	20480	20480	20480
adj. <i>R</i> <sup>2</sup>	0.090	0.090	0.090	0.090	0.090	0.090	0.090

*Notes:* All regressions control for male dummy, unemployment dummy, 3-category education (Lower, Middle, Upper), 10-class subjective income decile scale. Recession exposure is a dummy variable that takes value one if during adulthood the individual has experienced at least one year in which the real GDP per capita growth rate of its country is at least 10% below the previous year's growth rate. Environmental Quality exposure are PM2.5 and HAP exposure, respectively the adult years average of age-standardized disability-adjusted life-years lost per 100,000 people due to exposure to fine air particulate matter smaller than 2.5 micrometers (PM2.5) and due to exposure to household air pollution (HAP) from the use of household solid fuels. All regressions also control for survey, year of birth, country-by-year of interview fixed effects and country-age linear trends. Observations are weighted using survey weights. Standard errors are clustered by country-year. Significance levels: \*  $p < 0.1$ , \*\*  $p < 0.05$ , \*\*\*  $p < 0.01$ .

Table A13: Environmental Policy Stringency and Individual Preferences for Government Intervention: Heterogeneous Effects

	Government should reduce pollution (Likert)						
	(1)	(2)	(3)	(4)	(5)	(6)	(7)
EPS exposure	0.263** (0.114)	0.276** (0.116)	0.326*** (0.118)	0.274** (0.115)	0.277** (0.116)	0.225** (0.104)	0.210** (0.103)
Uninteracted Term 1	0.00127 (0.0310)	0.0625** (0.0303)	-0.0387 (0.0479)	0.0859 (0.0647)	-0.0775 (0.0761)	0.0567 (0.0443)	-0.0883 (0.0765)
Uninteracted Term 2			-0.110* (0.0634)				
Interaction Term 1	0.0260 (0.0249)	0.00406 (0.0325)		0.0111 (0.0384)	-0.0201 (0.0611)	0.00451 (0.0456)	0.0968 (0.0597)
Interaction Term 2			-0.138*** (0.0467)				
Interaction Term	Male (=1)	Unemployed (=1)	Education (Middle=1; Upper=2)	Poor (=1)	Rich (=1)	Left-wing (=1)	Right-wing (=1)
Recession exposure controls	✓	✓	✓	✓	✓	✓	✓
EQ exposure controls	✓	✓	✓	✓	✓	✓	✓
Individual controls	✓	✓	✓	✓	✓	✓	✓
Survey FE	✓	✓	✓	✓	✓	✓	✓
Year of birth FE	✓	✓	✓	✓	✓	✓	✓
Country × Year of interview FE	✓	✓	✓	✓	✓	✓	✓
Country-age linear trends	✓	✓	✓	✓	✓	✓	✓
Mean Outcome	2.922	2.922	2.922	2.922	2.922	2.915	2.915
SD Outcome	0.900	0.900	0.900	0.900	0.900	0.900	0.900
<i>N</i>	16889	16889	16889	16889	16889	13719	13719
adj. <i>R</i> <sup>2</sup>	0.132	0.132	0.133	0.132	0.132	0.121	0.121

*Notes:* The outcome variable ranges from 1 to 4 (with higher values reflecting stronger agreement with the statement “Government should reduce environmental pollution”). All regressions control for male dummy, unemployment dummy, 3-category education (Lower, Middle, Upper), 10-class subjective income decile scale. Recession exposure is a dummy variable that takes value one if during adulthood the individual has experienced at least one year in which the real GDP per capita growth rate of its country is at least 10% below the previous year’s growth rate. PM2.5 and HAP exposure are respectively the adult years average of age-standardized disability-adjusted life-years lost per 100,000 people due to exposure to fine air particulate matter smaller than 2.5 micrometers (PM2.5) and due to exposure to household air pollution (HAP) from the use of household solid fuels (PM2.5 and HAP exposure variables are inverted such that higher values imply higher quality). Poor is a dummy variable equal to one if individuals report belonging to the first two lowest deciles of the income scale, and zero otherwise. Rich is a dummy variable equal to one if individuals report belonging to the first two highest deciles of the income scale, and zero otherwise. Left-wing is a dummy variable equal to one if individuals report belonging to the first two steps in a ten-point political scale that goes from one (Left) to ten (Right). Right-wing is a dummy variable equal to one if individuals report belonging to the last two steps in a ten-point political scale that goes from one (Left) to ten (Right). All regressions also include year of birth, country-by-year of interview, survey fixed effects, and country-by-age linear trends. Observations are weighted using survey weights. Standard errors are clustered by country-year. Significance levels: \*  $p < 0.1$ , \*\*  $p < 0.05$ , \*\*\*  $p < 0.01$ .

Table A14: Environmental Policy Stringency and Individual Preferences for Government Action: Heterogeneous Effects

	Government should reduce pollution (Likert)			
	(1)	(2)	(3)	(4)
EPS exposure	-0.0126 (0.0852)	-0.00539 (0.113)	0.197* (0.113)	0.220* (0.112)
<i>Interest in politics</i>				
Somewhat interested	0.0204 (0.0519)			
Not very interested	0.0486 (0.0522)			
Not at all interested	0.0312 (0.0494)			
Somewhat interested $\times$ EPS exposure	0.0788* (0.0398)			
Not very interested $\times$ EPS exposure	0.121** (0.0465)			
Not at all interested $\times$ EPS exposure	0.220*** (0.0533)			
<i>Confidence: The Government</i> (Baseline: A great deal)				
Quite a lot		0.0440 (0.0653)		
Not very much		0.0201 (0.0724)		
None at all		0.0270 (0.0815)		
Quite a lot $\times$ EPS exposure		0.0208 (0.0605)		
Not very much $\times$ EPS exposure		0.0610 (0.0780)		
None at all $\times$ EPS exposure		0.187** (0.0761)		
Government responsibility			0.0722** (0.0347)	
Government responsibility $\times$ EPS exposure			0.0674** (0.0323)	
People responsibility				-0.0529 (0.0620)
People responsibility $\times$ EPS exposure				0.0586 (0.0501)
Recession exposure	✓	✓	✓	✓
EQ exposure	✓	✓	✓	✓
Individual controls	✓	✓	✓	✓
Survey FE	✓	✓	✓	✓
Year of birth FE	✓	✓	✓	✓
Country $\times$ Year of interview FE	✓	✓	✓	✓
Country-age linear trends	✓	✓	✓	✓
Mean Outcome	2.926	2.950	2.922	2.922
SD Outcome	0.896	0.892	0.900	0.900
<i>N</i>	15414	12102	16646	16646
adj. $R^2$	0.132	0.120	0.136	0.132

*Notes:* All regressions control for male dummy, unemployment dummy, 3-category education (Lower, Middle, Upper), 10-class subjective income decile scale. All regressions control for survey, country-year of interview, year of birth FE. Recession exposure is a dummy variable that takes value one if during adulthood the individual has experienced at least one year in which the real GDP per capita growth rate of its country is at least 10% below the previous year's growth rate. PM2.5 and HAP exposure are respectively the adult years average of age-standardized disability-adjusted life-years lost per 100,000 people due to exposure to fine air particulate matter smaller than 2.5 micrometers (PM2.5) and due to exposure to household air pollution (HAP) from the use of household solid fuels. Observations are weighted using survey weights. Standard errors are clustered by country-year. Significance levels: \*  $p < 0.1$ , \*\*  $p < 0.05$ , \*\*\*  $p < 0.01$ .

Table A15: Environmental Policy Stringency and Individual Preferences for Tax and Income: Heterogeneous Effects

	Tax increase (Likert)				Give part of income (Likert)			
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
EPS exposure	0.101 (0.108)	0.140 (0.105)	-0.0840 (0.107)	-0.0847 (0.105)	-0.0786 (0.0747)	0.0473 (0.0727)	-0.100 (0.0735)	-0.103 (0.0735)
<i>Interest in politics</i>								
Somewhat interested	-0.0168 (0.0558)				-0.138*** (0.0475)			
Not very interested	-0.0721 (0.0629)				-0.219*** (0.0457)			
Not at all interested	-0.102 (0.0773)				-0.239*** (0.0560)			
Somewhat interested × EPS exposure	-0.0837* (0.0466)				0.00826 (0.0264)			
Not very interested × EPS exposure	-0.116** (0.0563)				-0.00898 (0.0276)			
Not at all interested × EPS exposure	-0.178*** (0.0620)				-0.0760** (0.0311)			
<i>Confidence: The Government</i> (Baseline: A great deal)								
Quite a lot		-0.0601 (0.0409)				-0.0696* (0.0374)		
Not very much		-0.107* (0.0554)				-0.142*** (0.0413)		
None at all		-0.186** (0.0706)				-0.155*** (0.0468)		
Quite a lot × EPS exposure		-0.0553 (0.0464)				-0.0621** (0.0286)		
Not very much × EPS exposure		-0.0700 (0.0570)				-0.0612* (0.0343)		
None at all × EPS exposure		-0.142** (0.0653)				-0.106*** (0.0353)		
People responsibility			0.0775* (0.0434)				0.0622 (0.0445)	
People responsibility × EPS exposure			-0.108** (0.0413)				-0.0514* (0.0293)	
Government responsibility				-0.0611 (0.0404)				0.0269 (0.0308)
Government responsibility × EPS exposure				-0.0136 (0.0371)				-0.0249 (0.0310)
Recession exposure	✓	✓	✓	✓	✓	✓	✓	✓
EQ exposure	✓	✓	✓	✓	✓	✓	✓	✓
Individual controls	✓	✓	✓	✓	✓	✓	✓	✓
Survey FE	✓	✓	✓	✓	✓	✓	✓	✓
Year of birth FE	✓	✓	✓	✓	✓	✓	✓	✓
Country × Year of interview FE	✓	✓	✓	✓	✓	✓	✓	✓
Country-age linear trends	✓	✓	✓	✓	✓	✓	✓	✓
Mean Outcome	2.595	2.619	2.599	2.599	2.716	2.715	2.724	2.724
SD Outcome	0.854	0.857	0.858	0.858	0.855	0.856	0.856	0.856
<i>N</i>	18785	15445	20200	20200	23706	20190	24916	24916
adj. <i>R</i> <sup>2</sup>	0.094	0.092	0.090	0.090	0.118	0.110	0.103	0.103

*Notes:* All regressions control for male dummy, unemployment dummy, 3-category education (Lower, Middle, Upper), 10-class subjective income decile scale. All regressions control for survey, country-year of interview, year of birth FE. Recession exposure is a dummy variable that takes value one if during adulthood the individual has experienced at least one year in which the real GDP per capita growth rate of its country is at least 10% below the previous year's growth rate. PM2.5 and HAP exposure are respectively the adult years average of age-standardized disability-adjusted life-years lost per 100,000 people due to exposure to fine air particulate matter smaller than 2.5 micrometers (PM2.5) and due to exposure to household air pollution (HAP) from the use of household solid fuels. Observations are weighted using survey weights. Standard errors are clustered by country-year. Significance levels: \*  $p < 0.1$ , \*\*  $p < 0.05$ , \*\*\*  $p < 0.01$ .

Table A16: Tax and CO2 Tax exposure and Individual Preferences: Heterogeneous Effects

	Tax increase (Likert)							
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Policy exposure	0.214*** (0.0713)	0.169** (0.0834)	0.131** (0.0609)	0.134** (0.0612)	0.150*** (0.0484)	0.138*** (0.0499)	0.127*** (0.0418)	0.123*** (0.0424)
<i>Interest in politics</i>								
Somewhat interested	-0.0726 (0.0584)				-0.101 (0.0709)			
Not very interested	-0.136** (0.0603)				-0.149** (0.0653)			
Not at all interested	-0.176** (0.0749)				-0.195** (0.0854)			
Somewhat interested × Policy exposure	-0.0165 (0.0470)				0.00852 (0.0345)			
Not very interested × Policy exposure	-0.0405 (0.0561)				-0.0140 (0.0348)			
Not at all interested × Policy exposure	-0.0936 (0.0598)				-0.0402 (0.0416)			
<i>Confidence: The Government</i> (Baseline: A great deal)								
Quite a lot		-0.0708* (0.0401)				-0.0627* (0.0317)		
Not very much		-0.117** (0.0514)				-0.118** (0.0466)		
None at all		-0.232*** (0.0669)				-0.211*** (0.0644)		
Quite a lot × Policy exposure		-0.0286 (0.0473)				-0.0208 (0.0204)		
Not very much × Policy exposure		-0.0429 (0.0614)				-0.0230 (0.0331)		
None at all × Policy exposure		-0.0823 (0.0751)				-0.0592 (0.0418)		
<i>Government vs People Responsibility</i>								
People responsibility			0.0622 (0.0389)				0.0692* (0.0406)	
People responsibility × Policy exposure			-0.0791*** (0.0227)				-0.0488*** (0.0166)	
Government responsibility				-0.0454 (0.0328)				-0.0478 (0.0308)
Government responsibility × Policy exposure				-0.0320 (0.0319)				-0.0162 (0.0188)
Policy			Tax				CO2 Tax	
Recession exposure	✓	✓	✓	✓	✓	✓	✓	✓
EQ exposure	✓	✓	✓	✓	✓	✓	✓	✓
Individual controls	✓	✓	✓	✓	✓	✓	✓	✓
Survey FE	✓	✓	✓	✓	✓	✓	✓	✓
Year of birth FE	✓	✓	✓	✓	✓	✓	✓	✓
Country × Year of interview FE	✓	✓	✓	✓	✓	✓	✓	✓
Country-age linear trends	✓	✓	✓	✓	✓	✓	✓	✓
Mean Outcome	2.595	2.619	2.599	2.599	2.595	2.619	2.599	2.599
SD Outcome	0.854	0.857	0.858	0.858	0.854	0.857	0.858	0.858
N	18785	15445	20200	20200	18785	15445	20200	20200
adj. R <sup>2</sup>	0.093	0.092	0.090	0.091	0.093	0.092	0.090	0.091

*Notes:* All regressions control for male dummy, unemployment dummy, 3-category education (Lower, Middle, Upper), 10-class subjective income decile scale. All regressions control for survey, country-year of interview, year of birth FE. Recession exposure is a dummy variable that takes value one if during adulthood the individual has experienced at least one year in which the real GDP per capita growth rate of its country is at least 10% below the previous year's growth rate. PM2.5 and HAP exposure are respectively the adult years average of age-standardized disability-adjusted life-years lost per 100,000 people due to exposure to fine air particulate matter smaller than 2.5 micrometers (PM2.5) and due to exposure to household air pollution (HAP) from the use of household solid fuels. People responsibility is a dummy variable equal to one if individuals answer either 1 or 2 in a categorical question on government responsibility from one (People should take more responsibility) to ten (Government should take more responsibility). Government responsibility is a dummy variable equal to one if individuals answer either 9 or 10 in a categorical question on government responsibility from one (People should take more responsibility) to ten (Government should take more responsibility). Observations are weighted using survey weights. Standard errors are clustered by country-year. Significance levels: \*  $p < 0.1$ , \*\*  $p < 0.05$ , \*\*\*  $p < 0.01$ .



Table A17: Environmental Policy Stringency and Other Environmental Preferences: Heterogeneous Effects

	Give part of income (Likert)					Tax increase (Likert)						
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)
EPS exposure	-0.127* (0.0728)	-0.167** (0.0728)	-0.130* (0.0734)	-0.132* (0.0726)	-0.149* (0.0822)	-0.143* (0.0815)	-0.112 (0.112)	-0.139 (0.116)	-0.0988 (0.114)	-0.110 (0.112)	-0.110 (0.114)	-0.0763 (0.115)
Uninteracted Term 1	0.00499 (0.0427)	0.0612 (0.0414)	-0.0240 (0.0557)	-0.0307 (0.0565)	0.0812 (0.0835)	0.0647 (0.0883)	-0.0499 (0.0308)	0.0471 (0.0291)	0.0265 (0.0499)	-0.00541 (0.0514)	-0.0813 (0.0609)	0.122* (0.0640)
Uninteracted Term 2		0.0976** (0.0392)						0.107** (0.0396)				
Interaction Term 1	-0.0287 (0.0263)	0.0300 (0.0256)	0.00608 (0.0305)	0.0371 (0.0276)	0.0229 (0.0436)	-0.0860 (0.0525)	0.0255 (0.0412)	0.0201 (0.0267)	-0.0364 (0.0376)	0.0148 (0.0478)	0.111** (0.0538)	-0.237** (0.0572)
Interaction Term 2		0.112** 0.0940*						(0.0260) (0.0486)				
Interaction Term	Unemployed (=1)	Education (Middle=1; Upper=2)	Rich (=1)	Left-wing (=1)	Right-wing (=1)	Unemployed (=1)	Education (Middle=1; Upper=2)	Poor (=1)	Rich (=1)	Left-wing (=1)	Right-wing (=1)	
Recession exposure controls	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
EQ exposure controls	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Individual controls	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Survey FE	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Year of birth FE	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Country × Year of interview FE	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Country-age linear trends	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Mean Outcome	2.720	2.720	2.720	2.720	2.740	2.740	2.598	2.598	2.598	2.614	2.614	2.614
SD Outcome	0.858	0.858	0.858	0.858	0.852	0.852	0.860	0.860	0.860	0.859	0.859	0.859
N	25545	25545	25545	25545	21021	21021	20709	20709	20709	16848	16848	16848
adj. R <sup>2</sup>	0.103	0.104	0.103	0.103	0.099	0.099	0.090	0.090	0.090	0.088	0.088	0.090

Notes: The outcome variable ranges from 1 to 4 (with higher values reflecting stronger agreement with the statement "Government should reduce environmental pollution"). All regressions control for male dummy, unemployment dummy, 3-category education (Lower, Middle, Upper), 10-class subjective income decile scale. Recession exposure is a dummy variable that takes value one if during adulthood the individual has experienced at least one year in which the real GDP per capita growth rate of his country is at least 10% below the previous year's growth rate. PM2.5 and HAP exposure are respectively the adult years-average of age-standardized disability-adjusted life-years lost per 100,000 people due to exposure to fine air particulate matter smaller than 2.5 micrometers (PM2.5) and due to exposure to household air pollution (HAP) from the use of household solid fuels (PM2.5 and HAP exposure variables are inverted such that higher values imply higher quality). Poor is a dummy variable equal to one if individuals report belonging to the first two lowest deciles of the income scale, and zero otherwise. Rich is a dummy variable equal to one if individuals report belonging to the first two highest deciles of the income scale, and zero otherwise. Left-wing is a dummy variable equal to one if individuals report belonging to the last two steps in a ten-point political scale that goes from one (Left) to ten (Right). Right-wing is a dummy variable equal to one if individuals report belonging to the last two steps in a ten-point political scale that goes from one (Left) to ten (Right). All regressions also include year of birth, country-by-year of interview, survey fixed effects, and country-by-age linear trends. Observations are weighted using survey weights. Standard errors are clustered by country-year. Significance levels: \*  $p < 0.1$ , \*\*  $p < 0.05$ , \*\*\*  $p < 0.01$ .

Table A18: Effect of Environmental Policy Stringency (EPS) exposure by age windows using binary outcomes.

	Government should reduce pollution							
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
<b>Panel A: Agree &amp; Strongly Agree</b>								
EPS exposure	-0.00840 (0.143)	0.0920** (0.0377)	0.0293 (0.0360)	-0.0270 (0.0182)	0.0269 (0.0201)	0.0105 (0.0343)	-0.0361 (0.0358)	0.00717 (0.0423)
Age window	10-17	18-25	26-33	34-41	42-49	50-57	58-65	66-73
Mean outcome	0.698	0.667	0.654	0.654	0.647	0.649	0.679	0.708
SD Outcome	0.459	0.471	0.476	0.476	0.478	0.477	0.467	0.455
<b>Panel B: Strongly Agree</b>								
EPS exposure	-0.187 (0.156)	0.0868** (0.0406)	-0.00985 (0.0246)	-0.00535 (0.0170)	0.00722 (0.0201)	0.0161 (0.0256)	0.000245 (0.0279)	0.0365 (0.0453)
Age window	10-17	18-25	26-33	34-41	42-49	50-57	58-65	66-73
Mean outcome	0.314	0.303	0.307	0.307	0.295	0.302	0.324	0.342
SD Outcome	0.464	0.460	0.461	0.461	0.456	0.459	0.468	0.475
Recession exposure	✓	✓	✓	✓	✓	✓	✓	✓
EQ exposure	✓	✓	✓	✓	✓	✓	✓	✓
Individual controls	✓	✓	✓	✓	✓	✓	✓	✓
Survey FE	✓	✓	✓	✓	✓	✓	✓	✓
Year of birth FE	✓	✓	✓	✓	✓	✓	✓	✓
Country × Year of interview FE	✓	✓	✓	✓	✓	✓	✓	✓
Country-age linear trends	✓	✓	✓	✓	✓	✓	✓	✓
N	6623	17070	20300	20211	17904	14522	11179	7788

*Notes:* All regressions control for male dummy, unemployment dummy, 3-category education (Lower, Middle, Upper), 10-class subjective income decile scale. Recession exposure is a dummy variable that takes value one if during adulthood the individual has experienced at least one year in which the real GDP per capita growth rate of its country is at least 10% below the previous year's growth rate. PM2.5 and HAP exposure are respectively the adult years average of age-standardized disability-adjusted life-years lost per 100,000 people due to exposure to fine air particulate matter smaller than 2.5 micrometers (PM2.5) and due to exposure to household air pollution (HAP) from the use of household solid fuels (PM2.5 and HAP exposure variables are inverted such that higher values imply higher quality and divided by 1000 to improve readability of coefficients). All regressions also include year of birth, country-by-year of interview, survey fixed effects, and country-by-age linear trends. Observations are weighted using survey weights. Standard errors are clustered by country-year. Significance levels: \*  $p < 0.1$ , \*\*  $p < 0.05$ , \*\*\*  $p < 0.01$ .

Table A19: Environmental Policy Stringency (EPS) exposure and environmental preferences. Alternative definitions of formative age.

	Government should reduce pollution (Likert)							
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
EPS exposure	0.398 (0.246)	0.398 (0.246)	0.516** (0.242)	0.287*** (0.0901)	0.392* (0.198)	0.318 (0.200)	0.198** (0.0819)	0.185* (0.0944)
Formative age	16-23	16-24	16-25	17-23	17-24	17-25	18-23	18-24
Recession exposure	✓	✓	✓	✓	✓	✓	✓	✓
EQ exposure	✓	✓	✓	✓	✓	✓	✓	✓
Individual controls	✓	✓	✓	✓	✓	✓	✓	✓
Survey FE	✓	✓	✓	✓	✓	✓	✓	✓
Year of birth FE	✓	✓	✓	✓	✓	✓	✓	✓
Country × Year of interview FE	✓	✓	✓	✓	✓	✓	✓	✓
Country-age linear trends	✓	✓	✓	✓	✓	✓	✓	✓
Mean Outcome	2.923	2.923	2.921	2.919	2.911	2.916	2.913	2.915
SD Outcome	0.880	0.880	0.881	0.890	0.886	0.884	0.896	0.893
Mean Exposure	0.964	0.964	0.979	0.859	0.982	0.991	0.879	0.885
SD Exposure	0.719	0.719	0.722	0.664	0.717	0.722	0.673	0.681
<i>N</i>	6064	6064	5919	14805	7418	7185	17215	16282
adj. $R^2$	0.126	0.126	0.127	0.135	0.136	0.132	0.132	0.135

*Notes:* All regressions control for male dummy, unemployment dummy, 3-category education (Lower, Middle, Upper), 10-class subjective income decile scale. Recession exposure is a dummy variable that takes value one if during adulthood the individual has experienced at least one year in which the real GDP per capita growth rate of its country is at least 10% below the previous year's growth rate. PM2.5 and HAP exposure are respectively the adult years average of age-standardized disability-adjusted life-years lost per 100,000 people due to exposure to fine air particulate matter smaller than 2.5 micrometers (PM2.5) and due to exposure to household air pollution (HAP) from the use of household solid fuels (PM2.5 and HAP exposure variables are inverted such that higher values imply higher quality and divided by 1000 to improve readability of coefficients). All regressions also include year of birth, country-by-year of interview, survey fixed effects, and country-by-age linear trends. Observations are weighted using survey weights. Standard errors are clustered by country-year. Significance levels: \*  $p < 0.1$ , \*\*  $p < 0.05$ , \*\*\*  $p < 0.01$ .

Table A20: EPS exposure during formative age on environmental preferences

	Government should reduce pollution (Likert)			
	(1)	(2)	(3)	(4)
<b>Panel A: Baseline exposure measure</b>				
EPS average exposure	0.190** (0.0887)	0.190** (0.0880)	0.206** (0.0917)	0.207** (0.0914)
Mean Exposure	0.914	0.914	0.914	0.914
SD Exposure	0.681	0.681	0.681	0.681
<b>Panel B: Year-demeaned relative exposure</b>				
EPS average exposure	0.156 (0.0982)	0.183* (0.102)	0.156 (0.0980)	0.183* (0.102)
Mean exposure	-0.230	-0.230	-0.230	-0.230
SD exposure	0.684	0.684	0.684	0.684
<b>Panel C: Country-detrended exposure</b>				
EPS average exposure	0.160* (0.0948)	0.181* (0.0982)	0.166* (0.0952)	0.190* (0.0995)
Mean exposure	-0.112	-0.112	-0.112	-0.112
SD exposure	0.230	0.230	0.230	0.230
Recession exposure	✓	✓	✓	✓
PM2.5 exposure		✓		✓
HAP exposure			✓	✓
Individual controls	✓	✓	✓	✓
Survey FE	✓	✓	✓	✓
Year of birth FE	✓	✓	✓	✓
Country × Year of interview FE	✓	✓	✓	✓
Country-age linear trends	✓	✓	✓	✓
Mean Outcome	2.909	2.909	2.909	2.909
SD Outcome	0.896	0.896	0.896	0.896
N	16889	16889	16889	16889

*Notes:* The outcome variable ranges from 1 to 4 (with higher values reflecting stronger agreement with the statement “Government should reduce environmental pollution”). All regressions control for male dummy, unemployment dummy, 3-category education (Lower, Middle, Upper), 10-class subjective income decile scale. Recession exposure is a dummy variable that takes value one if during adulthood the individual has experienced at least one year in which the real GDP per capita growth rate of its country is at least 10% below the previous year’s growth rate. PM2.5 and HAP exposure are respectively the adult years average of age-standardized disability-adjusted life-years lost per 100,000 people due to exposure to fine air particulate matter smaller than 2.5 micrometers (PM2.5) and due to exposure to household air pollution (HAP) from the use of household solid fuels (PM2.5 and HAP exposure variables are divided by 1000 to improve readability of coefficients). All regressions also control for survey, year of birth, country-by-year of interview fixed effects and country-age linear trends. Observations are weighted using survey weights. Standard errors are clustered by country-year. Significance levels: \*  $p < 0.1$ , \*\*  $p < 0.05$ , \*\*\*  $p < 0.01$ .

Table A21: EPS exposure during formative age and contemporaneous policy level

	Government should reduce pollution (Likert)	
	(1)	(2)
EPS exposure ( $\beta_1$ )	0.199** (0.0824)	0.274** (0.108)
$\Delta policy < 0$	-0.258*** (0.0416)	-0.234*** (0.0423)
EPS exposure $\times \Delta policy < 0$ ( $\beta_3$ )	0.229*** (0.0549)	0.194*** (0.0520)
Exposure	Formative age	Adulthood
Individual controls	✓	
Recession exposure	✓	
EQ exposure	✓	
Survey FE	✓	
Year of birth FE	✓	
Country $\times$ Year of interview FE	✓	
Country-age linear trends	✓	
Mean Outcome	2.912	2.909
SD Outcome	0.896	0.896
Mean $\Delta policy$	0.126	0.135
SD $\Delta policy$	0.332	0.342
$N$	17070	16889
adj. $R^2$	0.133	0.133

*Notes:* All regressions control for male dummy, unemployment dummy, 3-category education (Lower, Middle, Upper), 10-class subjective income decile scale. Recession exposure is a dummy variable that takes value one if, during her formative age, the individual has experienced at least one year in which the real GDP per capita growth rate of its country is at least 10% below the previous year's growth rate. EQ exposure includes PM2.5 and HAP exposure, which are respectively the formative age's average of age-standardized disability-adjusted life-years lost per 100,000 people due to exposure to fine air particulate matter smaller than 2.5 micrometers (PM2.5) and due to exposure to household air pollution (HAP) from the use of household solid fuels. Observations are weighted using survey weights. Standard errors are clustered by country-year. Significance levels:

\*  $p < 0.1$ , \*\*  $p < 0.05$ , \*\*\*  $p < 0.01$ .

Table A22: EPS exposure across age windows and contemporaneous policy level

	Government should reduce pollution (Likert)						
	(1)	(2)	(3)	(4)	(5)	(6)	(7+)
EPS exposure	0.199** (0.0824)	0.0153 (0.0721)	-0.0539 (0.0326)	0.0576 (0.0403)	0.0360 (0.0491)	-0.0746 (0.0732)	0.0582 (0.0752)
$\Delta policy < 0$	-0.258*** (0.0416)	-0.130 (0.143)	-0.0834* (0.0468)	0.0816 (0.0613)	0.115 (0.0959)	0.103 (0.0926)	-0.110 (0.110)
EPS exposure $\times \Delta policy < 0$	0.229*** (0.0549)	0.124 (0.140)	0.117* (0.0654)	-0.0948 (0.0575)	-0.0819 (0.123)	-0.0814 (0.0821)	0.122 (0.119)
Age window	18-25	26-33	34-41	42-49	50-57	58-65	66-73
Individual controls	✓	✓	✓	✓	✓	✓	✓
Recession exposure	✓	✓	✓	✓	✓	✓	✓
EQ exposure	✓	✓	✓	✓	✓	✓	✓
Survey FE	✓	✓	✓	✓	✓	✓	✓
Year of birth FE	✓	✓	✓	✓	✓	✓	✓
Country $\times$ Year of interview FE	✓	✓	✓	✓	✓	✓	✓
Country-age linear trends	✓	✓	✓	✓	✓	✓	✓
Mean Outcome	2.912	2.899	2.901	2.879	2.884	2.944	3.000
SD Outcome	0.896	0.912	0.909	0.906	0.917	0.905	0.888
Mean $\Delta policy$	0.132	0.123	0.111	0.106	0.090	0.094	0.096
SD $\Delta policy$	0.338	0.328	0.314	0.308	0.286	0.292	0.295
$N$	17070	20300	20211	17904	14522	11179	7788
adj. $R^2$	0.133	0.135	0.142	0.162	0.163	0.171	0.168

*Notes:* All regressions control for male dummy, unemployment dummy, 3-category education (Lower, Middle, Upper), 10-class subjective income decile scale. Recession exposure is a dummy variable that takes value one if during adulthood the individual has experienced at least one year in which the real GDP per capita growth rate of its country is at least 10% below the previous year's growth rate. EQ exposure includes PM2.5 and HAP exposure, which are respectively the adult years average of age-standardized disability-adjusted life-years lost per 100,000 people due to exposure to fine air particulate matter smaller than 2.5 micrometers (PM2.5) and due to exposure to household air pollution (HAP) from the use of household solid fuels. Observations are weighted using survey weights. Standard errors are clustered by country-year. Significance levels: \*  $p < 0.1$ , \*\*  $p < 0.05$ , \*\*\*  $p < 0.01$ .

Table A23: EPS and EQ exposure during adulthood

	Government should reduce pollution (Likert)			
	(1)	(2)	(3)	(4)
EPS exposure	0.516** (0.212)	0.170 (0.108)	0.446** (0.210)	0.0858 (0.125)
Environmental Quality exposure	-0.0658 (0.0525)	-0.127* (0.0673)	-0.0790 (0.0586)	0.0152 (0.0745)
Environmental Quality variable	PM2.5		HAP	
Sample	Below	Above	Below	Above
Recession exposure	✓	✓	✓	✓
Individual controls	✓	✓	✓	✓
Survey FE	✓	✓	✓	✓
Year of birth FE	✓	✓	✓	✓
Country $\times$ Year of interview FE	✓	✓	✓	✓
Country-age linear trends	✓	✓	✓	✓
Mean outcome	2.962	2.878	3.005	2.826
SD outcome	0.877	0.923	0.881	0.912
$N$	8885	8004	9013	7876
adj. $R^2$	0.095	0.172	0.100	0.159

*Notes:* All regressions control for male dummy, unemployment dummy, 3-category education (Lower, Middle, Upper), 10-class subjective income decile scale. Recession exposure is a dummy variable that takes value one if during adulthood the individual has experienced at least one year in which the real GDP per capita growth rate of its country is at least 10% below the previous year's growth rate. PM2.5 and HAP exposure are respectively adult years average of age-standardized disability-adjusted life-years lost per 100,000 people due to exposure to fine air particulate matter smaller than 2.5 micrometers (PM2.5) and due to exposure to household air pollution (HAP) from the use of household solid fuels (PM2.5 and HAP exposure variables are inverted such that higher values imply higher quality and divided by 1000 to improve the readability of coefficients). All regressions also include year of birth, country-by-year of interview, survey fixed effects, and country-by-age linear trends. Observations are weighted using survey weights. Standard errors are clustered by country-year. Significance levels: \*  $p < 0.1$ , \*\*  $p < 0.05$ , \*\*\*  $p < 0.01$ .

Table A24: EPS and environmental quality exposure during adulthood

	Government should reduce pollution (Likert)	
	(1)	(2)
EPS exposure ( $\beta_1$ )	0.129* (0.0759)	0.102 (0.0869)
Below median EQ ( $\beta_2$ )	-0.468*** (0.156)	-0.374 (0.245)
EPS exposure $\times$ Below median EQ ( $\beta_3$ )	0.448*** (0.132)	0.325 (0.220)
EQ variable	PM2.5	HAP
Recession exposure	✓	✓
Individual controls	✓	✓
Survey FE	✓	✓
Year of birth FE	✓	✓
Country $\times$ Year of interview FE	✓	✓
Country-age linear trends	✓	✓
$N$	16889	16889
adj. $R^2$	0.133	0.132

*Notes:* All regressions control for male dummy, unemployment dummy, 3-category education (Lower, Middle, Upper), 10-class subjective income decile scale. Recession exposure is a dummy variable that takes value one if during adulthood the individual has experienced at least one year in which the real GDP per capita growth rate of its country is at least 10% below the previous year's growth rate. Below median EQ is a binary variable equal to one if individuals have been exposed to an environmental quality measure (PM2.5 or HAP) that is strictly below the median exposure value. All regressions also control for survey, year of birth, country-by-year of interview fixed effects and country-age linear trends. Observations are weighted using survey weights. Standard errors are clustered by country-year. Significance levels: \*  $p < 0.1$ , \*\*  $p < 0.05$ , \*\*\*  $p < 0.01$ .



Table A25: EPS and environmental quality exposure during formative age

	Government should reduce pollution (Likert)	
	(1)	(2)
EPS exposure ( $\beta_1$ )	0.0810 (0.0650)	0.0833 (0.0690)
Below median EQ ( $\beta_2$ )	-0.246* (0.156)	-0.267* (0.245)
EPS exposure $\times$ Below median EQ ( $\beta_3$ )	0.293*** (0.109)	0.292*** (0.144)
EQ variable	PM2.5	HAP
Recession exposure	✓	✓
Individual controls	✓	✓
Survey FE	✓	✓
Year of birth FE	✓	✓
Country $\times$ Year of interview FE	✓	✓
Country-age linear trends	✓	✓
$N$	17070	17070
adj. $R^2$	0.133	0.132

*Notes:* All regressions control for male dummy, unemployment dummy, 3-category education (Lower, Middle, Upper), 10-class subjective income decile scale. Recession exposure is a dummy variable that takes value one if during adulthood the individual has experienced at least one year in which the real GDP per capita growth rate of its country is at least 10% below the previous year's growth rate. Below median EQ is a binary variable equal to one if individuals have been exposed to an environmental quality measure (PM2.5 or HAP) that is strictly below the median exposure value. All regressions also control for survey, year of birth, country-by-year of interview fixed effects and country-age linear trends. Observations are weighted using survey weights. Standard errors are clustered by country-year. Significance levels: \*  $p < 0.1$ , \*\*  $p < 0.05$ , \*\*\*  $p < 0.01$ .