Climate-induced migration and environmental values

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Abstract

Climate awareness is crucial for garnering support for climate policies. While prior work highlights socio-political factors and local weather experiences as determinants of climate concern, this paper formulates a novel mechanism: exposure to the socio-economic consequences of climate change. I test this hypothesis using climate-induced migration inflows, which can reduce the psychological distance of climate shocks or raise the perceived costs of climate inaction. Focusing on asylum seekers displaced by extreme temperatures and precipitation in non-OECD countries and arriving in the European Union between 2000 and 2019, I construct a gravity-predicted instrument combining exogenous weather variation and bilateral measures of migration costs. I find that weather-driven asylum demands significantly increase public climate concern in host countries, ruling out alternative channels such as media coverage and trade. The effect is driven by right-leaning and less-educated voters, suggesting that heightened concern reflects an increase in perceived salience and cost of climate inaction rather than a broad increase in climate awareness. Shifts in stated preferences, however, do not translate into pro-environmental voting, consistent with turnout effects, non-voter preference changes, and stable party platforms.

Keywords: Asylum seekers; climate change; climate concern; migration; political ideology; public opinion

JEL Classification: D72, F22, J15, P16, Q54

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1 Introduction

Climate mitigation ambitions continue to outpace public support for policy action, making the study of determinants of climate concern crucial. Advancing and implementing effective climate policies depends on public awareness and concern. Prior research has emphasized socio-political determinants (Dechezleprêtre et al., 2025), and personal experience of local weather (Djourelova et al., 2024; Hazlett and Mildenberger, 2020; Hoffman et al., 2022) as key factors influencing climate concern. Yet climate change also has far-reaching socio-economic consequences, including migration (Arias and Blair, 2024; Burzyński et al., 2022). Surveys in the European Union indicate that respondents increasingly perceive migration as a consequence of climate change (Figure 1a). Despite mounting interest in the political effects of migration (Alesina and Tabellini, 2024), the implications of climate-induced migration remain unexplored. Indirect exposure to climate shocks through migration inflows may reduce psychological and social distance to such events or increase perceived costs of climate inaction, fostering greater concern for the underlying cause: climate change.

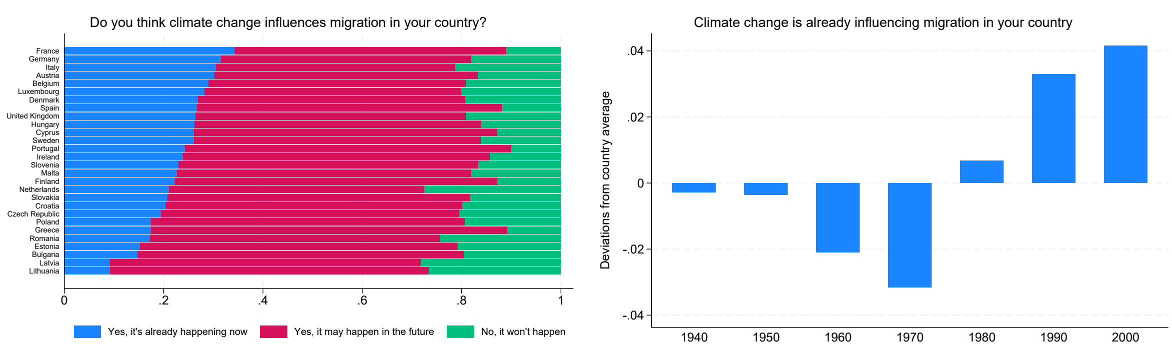
This paper empirically examines whether the arrival of asylum seekers displaced by extreme temperatures and precipitation have influenced public climate concern and pro-environment voting behavior in the European Union between 2000 and 2019. I combine non-OECD asylum demands with high-resolution climate data and cross-country data on individual attitudes, online searches, political party platforms, and electoral outcomes. While both internal and international, and permanent and temporary migration can respond to climatic changes, with projections reaching up to 1.5 billion people displaced from the Global South by 2070 (Xu et al., 2020), the European Union provides a compelling setting: asylum applications are expected to rise by 28% to 188% by the end of the century due to climate change (Missirian and Schlenker, 2017b), and both migration and climate change rank among the most salient political issues.

To estimate the effect of weather-induced asylum demands, I adopt an instrumental variable approach. I construct a measure of weather-driven asylum applications using a gravity model that leverages plausibly exogenous variation in temperatures and precipitation in origin countries, combined with bilateral measures of migration costs. I recover an asymmetric U-shaped relationship between temperature and asylum demands, and use the estimated semi-elasticities to weather and bilateral migration costs to predict bilateral flows, holding fixed origin, destination-year, and region-of-origin-year characteristics. This predicted time-varying measure serves as an instrument for actual asylum demands, isolating the weather-driven component and mitigating measurement error. My main specification estimates the effect of asylum demands, instrumented by its weather-induced portion, on climate attitudes and voting behavior, exploiting within-country variation over time, while accounting for local weather conditions, individual covariates, and birth cohort, age, and regional time-varying unobserved heterogeneity.

Using Eurobarometer survey data, I find that exposure to weather-induced asylum applications increases individual climate concern as a political priority. A doubling of weather-induced asylum applications over the preceding five years increases the likelihood that respondents view climate change as a key electoral issue by approximately 30–40% relative to the mean. Climate-induced migration has a differential degree of awareness and concern across age (Figure 1b), and so does public climate concern (Bowman, 2020; Kenis, 2021). Exploiting birth-cohort variation, I show that individuals exposed to more asylum demands during their formative years (ages 16–24) were more concerned by climate change at the time of the survey, supporting the "impressionable years" hypothesis (Krosnick and Alwin, 1989). A 50% increase in weather-induced asylum applications (roughly the inter-quartile range) increases individual climate concern by 19% of the sample mean, comparable to the difference between Cyprus and Germany or Hungary and France. Importantly, my results are not explained by online searches: predicted weather-induced asylum flows are not correlated with Google search trends, ruling out public attention as a confounder.

Figure 1. Awareness of climate-migration nexus in surveys

(a) Country-level responses (b) Birth-cohort heterogeneity in responses



Notes: Both figures use the survey question "Do you think climate change influences migration in your country?" from the European Investment Bank Climate Survey in 2019. Panel (a) shows the country frequency by response category. Panel (b) shows the average deviations by ten-year birth cohorts across countries from country-specific means using a binary version of the question equal to one if individuals answers "Yes, it's already happening now".

Identifying effects in a quasi-experimental instrumental variable research design requires careful attention to estimation and inference, and several validity checks (Lal et al., 2024). The time-varying instrument makes it possible to control for unobserved country-and time-region specific factors potentially correlated with changes in the interaction between weather conditions at origin and bilateral migration costs, and climate concern. Most alternative pathways correlated with weather would not violate the exclusion restriction (Gallen and Raymond, 2023; Mellon, 2024) since my approach exploits variation in geographically distant weather at origin, interacted with country-dyad–specific geographic characteristics, which makes the identifying assumptions substantially less restrictive. Nevertheless, some threats remain. One important example is trade, which may also respond to bilateral differences in weather and geographic factors, and affect climate concern. To address this, I re-estimate the gravity equation for trade, construct a trade-based instrument analogous to asylum demands, and include it as a control. The estimated effect of weather-induced asylum inflows remains consistent with the main results, while the trade effect is negative and insignificant. To address additional concerns about weak instruments, I implement two recommendations (Andrews et al., 2019). First, I compute Anderson-Rubin weak instrument confidence intervals and the adjusted t-ratio inference (Lee et al., 2022). Second, I compute and report the F-statistics both using Kleibergen and Paap (2006) and Olea and Pflueger (2013). Additional robustness checks reinforce the validity of the results, including: a randomization inference test supporting the stable unit treatment value assumption (Cooperman, 2017), and a sensitivity analysis quantifying the potential impact of unobserved confounders (Cinelli and Hazlett, 2025). Together, these diagnostics support the validity of the instrument and the causal interpretation of the estimates.

Building on two mechanisms outlined in my conceptual framework, I empirically test competing explanations for my baseline findings. First, increased asylum seeker inflows may reduce the perceived geographical and psychological distance to climate shocks, prompting individuals to recognize climate change as a global challenge. Second, climate-induced migration may act as a tangible social cost or perceived "threat" (Baldwin, 2013), raising climate concern not through environmental awareness per se, but as a response to the proximate consequences of climate inaction. Using additional survey outcomes, my evidence supports the latter mechanism: weather-driven asylum applications do not alter generalized climate awareness, but increase concern about migration as a political issue. Furthermore, climate concern increases primarily among right-leaning and less-educated individuals — subgroups most sensitive to migration — suggesting that concern arises from an increase in salience and perceived cost of the consequences of climate inaction, rather than a generalized increase in climate awareness.

Finally, I examine whether changes in stated preferences translate into revealed preferences by analyzing pro-environment voting behavior. Weather-induced asylum demands between two European elections do not increase Green party votes, and if anything, reduce them. Several co-existing mechanisms help explain the gap between stated and revealed political preferences. First, weather-induced asylum seekers do not significantly affect other party votes, but decrease electoral turnout, suggesting that a dropout of traditional Green voters partly drives the result. Second, only individuals below voting age report climate change as an important theme for European Parliament elections, highlighting that rising concern among non-voters may not translate to ballots, but emerges with a lag, as documented by a positive effect of lagged weather-induced asylum flows. Finally, party platforms do not become more pro-environmental in response to asylum inflows, indicating that limited supply-side shifts may constrain the political translation of rising climate concern into voting behavior.

This paper contributes to the literature on the determinants of climate concern and pro-environment voting. Previous studies emphasize perceptions of climate policy costs, risk attitudes, socio-demographics including ideology, education, and gender,[1] and personal experience of local weather.[2] Yet these effects often appear among already progressive individuals, widening ideological gaps (Djourelova et al., 2024; Hazlett and Mildenberger, 2020). This paper introduces a novel framework, shifting focus from physical exposure, such as temperature anomalies or natural disasters, to exposure to socio-economic consequences of climate shocks, using climate-induced migration as an example. My findings reveal novel heterogeneous responses, with effects strongest among individuals less responsive to direct climate shocks, suggesting that different impacts of climate change — whether physical or social — resonate differently in the society, with important implications for climate communication strategies and policy support.

A growing literature links immigration, political attitudes, and voting behavior (Alesina and Tabellini, 2024; Bazzi et al., 2023; Bursztyn et al., 2024; Cools et al., 2021; Giuliano and Tabellini, 2020).[3] Emerging evidence documents how the public

[1]For example, Carlsson et al. (2021); Czarnek et al. (2021); Dechezleprêtre et al. (2025); Duijndam and van Beukering (2021); Hornsey et al. (2016); Nowakowski and Oswald (2020); Poortinga et al. (2019). See Drews and van den Bergh (2016) for a review. Recent work also documents a positive impact of climate protests (Brehm and Gruhl, 2024; Fabel et al., 2022; Marini and Nocito, 2025; Valentim, 2023) and a negative impact of international trade (Bez et al., 2023).

[2]For example, Arias and Blair (2024); Baccini and Leemann (2020); Bassi (2019); Bergquist and Warshaw (2019); Borick and Rabe (2014); Carlton et al. (2016); Deryugina (2013); Djourelova et al. (2024); Egan and Mullin (2012); Garside and Zhai (2022); Hazlett and Mildenberger (2020); Hilbig and Riaz (2024); Hoffman et al. (2022); Konisky et al. (2016); Lee et al. (2015, 2018); Li et al. (2011); Osberghaus and Fugger (2022); Shao and Goidel (2016); Whitmarsh (2008); Zaval et al. (2014); Zappalà (2023). See Howe et al. (2019) for a review.

[3]Prior work studies the impact of economic migration and refugee arrivals on host attitudes and voting in Austria (Halla et al., 2017; Steinmayr, 2021), Denmark (Harmon, 2018), France (Edo et al., 2019), Germany (Otto and Steinhardt, 2014), Greece (Dinas et al., 2019; Hangartner et al., 2019), Italy (Barone et al., 2016; Campo et al., 2024), Netherlands (Achard et al., 2025), Sweden (Andersson and Dehdari, 2021), Switzerland (Brunner and Kuhn, 2018), and Europe (Alesina et al., 2021; Moriconi et al., 2019, 2022).

perceives climate-induced migration: generally favorable in Denmark (Hedegaard, 2022) and Germany (Helbling, 2020), more mixed in the U.S. (Arias and Blair, 2022, 2024; Gillis et al., 2023; Raimi et al., 2024), and less so in developing countries such as Kenya and Vietnam (Spilker et al., 2020). While recent work has focused on the economic consequences of climate-induced migration (e.g., Conte, 2025; Imbert and Ulyssea, 2025),[4] this paper provides the first analysis of the political effects of climate-induced migration.

Methodologically, this study also contributes to research on climate change and international migration (Beine and Jeusette, 2021; Hoffmann et al., 2021; Millock, 2015), which has insofar ambiguous findings: positive in certain cases (Backhaus et al., 2015; Cai et al., 2016; Cattaneo et al., 2024; Coniglio and Pesce, 2015; Marchiori et al., 2012), null in others (Beine and Parsons, 2015), or conditional on income (Cattaneo and Peri, 2016). Regarding asylum seekers, Missirian and Schlenker (2017b) find that higher temperatures increases them, and Abel et al. (2019) document drought severity and induced conflict as other important drivers. This paper complements these works by estimating a bilateral gravity model for asylum applications, leveraging origin weather as a push factor and bilateral country-dyad characteristics as migration costs to predict climate-driven asylum demands.

2 Conceptual framework

In this section, I outline a conceptual framework in which climate concern arises not only from direct personal exposure to the physical consequences of climate change — such as unusual or extreme weather — but also from exposure to its socio-economic consequences, including migration. Climate change affects societies through multiple pathways, including health, productivity, conflict, and migration (Carleton and Hsiang, 2016). Exposure to these social impacts can influence how individuals form and update beliefs about climate change, independently of their direct personal experience with weather. Climate-induced migration represents one such channel. By bringing individuals with first-hand experience of climate-related hardships into host communities, migration can increase awareness of climate change through two main mechanisms.

First, it can reduce the perceived psychological and social distance between host populations and the consequences of climate change (McDonald et al., 2015; Schuldt et al., 2018). Climate-induced migration inflows can weaken the belief that climate change is a remote threat affecting only distant places or other people (Brügger et al., 2015; Spence et al., 2012). This mechanism predicts that inflows of climate-induced

[4] See Carleton et al. (2024) for a review of climate-induced migration as an adaptation strategy to climate change and its effects on the welfare impacts of climate change.

migrants increase perceptions of climate change as a global threat, even in the absence of local weather anomalies.

Second, climate-induced migration can act as a signal of the tangible socio-economic costs of climate inaction. Increased migration flows due to climate change can be perceived as a social cost or a "threat" (Baldwin, 2013), inducing individuals to update their beliefs about climate as a political priority by increasing their perceived cost of inaction. In this case, the effect of climate-induced migration on climate concern would be accompanied by shifts in attitudes toward migration and in preferences among specific population subgroups that are particularly concerned with migration issues.

Different population subgroups may respond to different experiences of socio-economic climate impacts, reacting more strongly to proximate and personally relevant consequences. Some groups, such as right-leaning or less-educated individuals, may respond more strongly to migration signals (Schneider-Strawczynski and Valette, 2025), whereas others, such as older populations, may react more to direct health-related risks, such as the well-documented links between extreme temperatures and mortality (see, e.g., Carleton et al., 2022). Understanding which channels and population groups drive belief updating is essential, given evidence that certain forms of climate information can be ineffective or even counterproductive (Mildenberger et al., 2024).

The empirical analysis that follows tests for this hypothesis by examining whether weather-induced asylum applications in the European Union increase climate concern in host countries. I explore variation across demographic and political subgroups to assess which of the two mechanisms outlined above best explains the results.

3 Data

I combine data from multiple sources including asylum demands, climate data, surveys, Google searches, national party political agendas, and electoral outcomes in European Parliament elections. This section (with complementary information in the Data Appendix B) describes and summarizes the main data sources.

3.1 Asylum applications

Bilateral data on asylum applications are sourced from the United Nations High Commissioner for Human Rights. Around 13.4 million asylum applications were registered in the European Union between 2000 and 2019, of which more than 95% from non-OECD countries. Asylum seekers have already received substantial attention in academia (Hatton, 2020; Missirian and Schlenker, 2017a) and in the policy debate (Byravan and Rajan, 2017; Wennersten and Robbins, 2017). Appendix Figure A2 shows the outflows by origin country, and Appendix Figure A3 displays the inflow distribution across the European Union (see Appendix B.1 for additional details).

The motivation to use asylum demands as a measure to derive migration induced by climate is three-fold. First, asylum-seeking can be linked to climate-related migration more directly than regular economic migration which is influenced by multiple push and pull factors. Weather-induced conflicts in developing countries spill over to developed countries through asylum flows (Missirian and Schlenker, 2017b), with increases associated with droughts (Abel et al., 2019) and conflicts (Burke et al., 2015). Second, while refugee flows may also reflect climate-induced conflict, they are endogenous to host-country policies. Asylum procedures differ across countries and can take over two years from application to formal status (Campo et al., 2024), making asylum demands a preferable measure over refugee stocks (additional details in Appendix Section B.1.1). Finally, annual bilateral economic migration data from non-OECD countries are unavailable and only obtained through estimation (Abel and Cohen, 2019), a limitation to which I return in the Section 7.

3.2 Weather data

I gather temperature and precipitation data from two different sources. The primary source is reanalysis ERA-5 data by the European Centre for Medium-Range Weather Forecasts (Copernicus Climate Change Service, 2023), available at the daily level on a 0.25° grid resolution ($\approx$ 28km at the Equator) from 1950 to the present. For robustness, I also use the gridded Climatic Research Unit of the University of East Anglia (CRU) data at a 0.5° spatial resolution ($\approx$ 55km at the Equator) and a monthly resolution.

To maintain weather variability, I compute nonlinear transformations at the grid level before averaging values across space using grid-level weights, and account for fractional grid cells that partially fall within a country (Hsiang, 2016). Since a large share of the population in origin countries works in agriculture, I aggregate weather over space using agricultural land devoted to maize (Monfreda et al., 2008), a staple commodity accounting for the largest share of humans' caloric intake (Missirian and Schlenker, 2017b), and over the year using country-specific growing season (Sacks et al., 2010).[5] For robustness, I also consider an unweighted average of weather across grid cells in the whole year, and a weighted average by population density using Gridded Population of the World data set.

[5]For daily weather data, I compute measures from the median planting to the median harvest date. For monthly data, the growing season spans from the first day of the planting month to the last day of the harvest month. For crops with multiple growing cycles per year, I focus on the first season.

Extensive research shows agricultural productivity as the main pathway linking temperature and migration (Bohra-Mishra et al., 2017; Cai et al., 2016; Cattaneo and Peri, 2016; Falco et al., 2019; Feng et al., 2012; Hoffmann et al., 2024; Marchiori et al., 2012; Missirian and Schlenker, 2017b). Elevated temperatures can also generate other migration-relevant disruptions, including heightened conflict and war, as well as adverse effects on health and fertility. However, under the 1951 Refugee Convention (UN, 1951), only certain of these conditions constitute valid grounds for asylum. While it is beyond the scope of this paper to isolate the precise channels through which weather fluctuations drive asylum demands, in Appendix Section C.3 I present evidence consistent with the agricultural productivity channel: seasonal weather shocks leading to output conflicts over scarce resources (Burzyński et al., 2022; Carleton et al., 2016; McGuirk and Burke, 2020) can trigger spikes in asylum applications and increase acceptance rates.

3.3 Individual survey data

As a first measure of public opinion, I draw on survey data (Stantcheva, 2023), using individual-level climate concern from the Eurobarometer. These surveys include questions on perceptions, awareness, and attitudes towards climate change and typically cover 25,000-30,000 respondents across all European Union member states.[6] My two primary binary outcomes indicate whether respondents consider climate change i) important in the electoral campaign for the European Parliament elections, ii) a priority for European Parliament deliberations. The surveys also contains additional questions on attitudes towards climate change and public concern towards other salient topics, including migration, which I use in supplementary analyses to explore potential mechanisms. Appendix Table B1 reports the exact question wording, temporal coverage, and summary statistics for the outcome variables.

3.4 Electoral outcomes

I use data on European Parliament election results, covering six election rounds between 1994 and 2019 at the NUTS-2 level (Schraff et al., 2022). Parties are classified as Green based on their party family designation in the Manifesto Project electoral program database (Merz et al., 2016) and their membership in the European Green Party, a federation of parties advocating green politics across Europe and forming the G-EFA parliamentary group. Appendix Table B2 reports the timing of European Parliament elections for each country and the number of years of national elections in the data.

[6]They also collect socio-demographic characteristics, such as gender, age, education, employment status, and political orientation.

I focus on European Parliament elections because their proportional representation rules reduce incentives for strategic voting, making outcomes a closer reflection of voters' revealed preferences than in national elections (Pearson and Rüdig, 2020). As "second-order elections" (Reif and Schmitt, 1980), they tend to feature lower levels of strategic or utilitarian voting, with voters more likely to "vote with the heart" (Hix and Marsh, 2007). This makes them a useful setting for capturing underlying political support for environmental parties. Although Green parties' electoral destinies vary, ranging from sustained success in countries such as Germany, Belgium, Finland, and France to limited relevance in parts of Central and Eastern Europe, they remain a consistent presence in European politics and share a strong focus on environmental, ecological, and climate-related issues (Richardson and Rootes, 2006).

3.5 Party political agenda

I retrieve information for 622 European political parties contesting elections between 2000 and 2019 from the Manifesto Project Database (Merz et al., 2016), which provides content-coded analyses of party platforms and vote shares. The dataset classifies 56 policy positions across economic, social, foreign policy, and environmental domains (Appendix Table B3 reports the wording for each topic). I measure party environmental agenda as the share of quasi-sentences that positively refers to environmental protection, fighting climate change and other green policies, including preservation of natural resources, protection of countryside and forests, safeguarding national parks, and animal rights.

4 Empirical approach

This section presents the baseline empirical approach estimating the effect of asylum applications on environmental values. Section 4.1 details the individual-level approach exploiting within-country and -cohort variation. Section 4.2 describes the instrumental variable strategy identifying the effect of weather-driven asylum demands.

4.1 Individual-level analysis

I begin my analysis focusing on the demand side of the environmental political process, and study how stated preferences measured through surveys respond to migration (Giuliano and Spilimbergo, 2025). I test whether asylum demands increase concern about climate change as a political priority in the host country with individual-level regressions of the form:

$$Y_{ibdrt} = \beta_1 \log\left(\sum_{\tau=s}^{S} \text{Asylum Applications}_{d,t-\tau}\right) + X_i'\boldsymbol{\gamma} + Z_{dt}'\boldsymbol{\delta} + \mu_d + \kappa_{t-b} + \zeta_{rt} + \theta_d \times age + \varepsilon_{ibdrt} \tag{1}$$

where Y_{ibdrt} is a vector of survey responses of individual i born in year b in country d in region r interview in year t.[7] The main explanatory variable is the sum of asylum applications from non-OECD countries in host country d over the previous five years ($\sum_{\tau=0}^{5} AsyApp_{d,t-\tau}$), capturing diffusion dynamics and typical electoral cycles (Appendix Section D tests alternative intervals). Due to right skewness, I use logged values, interpreting coefficients as semi-elasticities. Controls include individual covariates X_i' (gender, education, political orientation, and employment status), and a second-order polynomial of historical and current local temperature and precipitation Z_{dt}' to isolate migration effects from local weather influences on climate concern.

I also include destination fixed effects, μ_d, to partial out country-specific factors (e.g., political, cultural) that could drive unobserved heterogeneity in climate attitudes, age-specific fixed effects, κ_{t-b}, to partial out unobserved age-specific determinants of preferences and attitudes (e.g., preferences specific to life-cycle),[8] and region-year fixed effects, ζ_{rt}, that absorb international shocks but also region-specific events (both climatic and economic). Country-specific linear age trends $\theta_d \times age$ account for country-specific cohort effects. Standard errors are clustered at the country level.

4.2 Instrument for asylum applications

In an OLS estimation of Equation (1), β_1 may be biased if unobserved factors affect both asylum applications and the outcome. For instance, if asylum seekers are attracted to pro-immigration countries, and these attitudes correlate with climate attitudes or pro-environment voting, spurious correlations could arise. Similarly, socio-economic or demographic changes attracting asylum seekers and changing individual attitudes would also bias estimates. Furthermore, not all asylum seekers are driven by climate change. To address these concerns, in the following section I describe an instrumental variable

[7]Regions are defined following the UN M49 nomenclature: Eastern Europe (Bulgaria, Hungary, Poland, Romania, Slovakia); Northern Europe (Denmark, Estonia, Finland, Ireland, Latvia, Lithuania, Sweden, United Kingdom); Southern Europe (Croatia, Greece, Italy, Malta, Portugal, Slovenia, Spain); Western Asia (Cyprus); Western Europe (Austria, Belgium, France, Germany, Luxembourg, Netherlands).

[8]I conduct robustness tests including birth year fixed effects instead of age fixed effects.

approach that combines plausibly exogenous variation in asylum applications driven by weather shocks in origin countries and bilateral measures of migration costs.

4.2.1 Gravity equation and predicting weather-induced flows

I exploit plausibly exogenous variation in origin-country weather combined with bilateral measures of migration costs to predict asylum flows, and use the weather-driven component of asylum applications as an instrument in a 2SLS framework. Leveraging the bilateral nature of asylum flows, I adopt a "gravity" model predicting applications based on nonlinear temperature and precipitation effects in origin countries.

Gravity models have been borrowed by the migration literature to predict the geography-driven portion of migrant flows and estimate the causal impact of migration on receiving countries' economic performance (Alesina et al., 2016; Docquier et al., 2016; Ortega and Peri, 2014) and probabilities of conflict (Bosetti et al., 2020). I predict bilateral migration using an OLS estimator for the canonical log-transformation of the gravity equation (Frankel and Romer, 1999). The bilateral gravity equation is written as:

$$\log\left(AsyApp_{odt}\right) = f(\boldsymbol{W_{ot}}; \boldsymbol{X_{od}}; \alpha) + \theta_o + \mu_{dt} + \chi_{r(o)t} + u_{odt} \tag{2}$$

where the dependent variable is the natural logarithm of the asylum applications from origin o to destination d in year t. To obtain bilateral time-varying variation, I include interaction terms between origin weather $\boldsymbol{W_{ot}}$ and bilateral characteristics that measure migration costs, $\boldsymbol{X_{od}}$, including common border, common official language, common colonial history, and distance between the two capital cities.

The baseline specification uses contemporaneous weather, modeling daily average temperatures over the maize growing season with a fourth-order polynomial to capture nonlinearities. Precipitation is modeled similarly using a second-order polynomial. The model includes fixed effects for origin, θ_o, destination-year, ψ_{dt}, and region-of-origin-year,[9] $\chi_{r(o)t}$, with the latter purging out spatial correlation from weather and time-varying heterogeneity in migration preferences at origin. Destination-year fixed effects absorb all time-varying destination factors, including local temperatures, making the estimated coefficients α equivalent to those from a bilateral regression with origin and destination shocks (Borusyak et al., 2023). Robustness checks consider alternative functional forms (lower-order polynomials, binned temperatures) and weather lags. Standard errors are clustered by origin-year.

[9] Following UN M49 nomenclature, the world comprises 17 regions: Australia and New Zealand, Central Asia, Eastern Asia, Eastern Europe, Latin America and the Caribbean, Melanesia, Micronesia, Northern Africa, Northern America, Northern Europe, Polynesia, South-Eastern Asia, Southern Asia, Southern Europe, Sub-Saharan Africa, Western Asia, Western Europe.

I use the estimated parameters $\widehat{\alpha}$'s to construct an instrument for asylum applications at the destination-year level. Let $\boldsymbol{X_{odt}}$ be the matrix of temperature and precipitation, both uninteracted and interacted with bilateral characteristics. The predicted weather-induced asylum seeker inflows for country d in year t are $\widehat{AsyApp}_{dt} = \sum_o \exp(\widehat{\alpha} X_{odt})$. For robustness, I also construct alternative instruments: Appendix Section C.1 estimates a gravity model excluding destination-year fixed effect, but including destination-specific weather as a measure of pull factor, while Appendix Section C.2 estimates destination-specific response functions to origin-country weather shocks.

4.2.2 Identifying assumptions and instrument validity

The instrument exploits variation from deviations in temperature and precipitation in non-OECD origin countries combined with bilateral measures of migration costs, and it is thus free from reverse causality and is exogenous to any destination, and within countries, to any specific age cohort characteristics. For validity, the instrument must also satisfy the exclusion restriction, the stable unit treatment value assumption, and monotonicity. While Section 5 describes statistical tests supporting instrument relevance, below I consider potential threats to these three core assumptions.

Exclusion. The exclusion restriction would fail if the predicted weather-driven asylum flows correlate with environmental values through channels other than actual asylum applications. The key assumption is that, conditional on destination and region-year fixed effects, only asylum applications directly respond to the predicted weather-induced flows. This assumption is less restrictive than the traditional use of local weather as an instrument, which requires ruling out many alternate pathways (Gallen and Raymond, 2023; Mellon, 2024). Here, it suffices that asylum applications predicted by origin weather and bilateral migration costs affect climate concern solely through observed asylum applications. Below, I address five main concerns about this assumption.

First, environmental values may trend differentially with baseline origin-destination networks and migration enclaves, making some host countries more aware of weather in origin countries, and thus affect climate concern. I mitigate this by using gradual climatic variation and not natural disasters, such as droughts or floods, which may affect the attitudes through other channels than migration inflows, and by including time-varying destination-country fixed effects in the gravity equation, which absorb the effects of any shocks at destination, for instance, through colonization history, geographical accessibility, as well as the country's institutions. In robustness exercises described in Section 5, I also empirically test for this channel by expanding the baseline specification with exposure to weather shocks at the origin weighted by the country's baseline propensity to receive asylum seekers from a origin country in a shift-share fashion.

Second, origin weather shocks might increase climate change salience in host countries via news and media coverage of those events instead of their social effects through migration. Using weather variation in temperature and precipitation — which attracts less coverage in cross-border news that usually covers earthquakes, disasters, and wildfires (Fetzer and Garg, 2025) — allays concerns. Furthermore, while cross country media coverage is not available for the whole time period in my analysis, I show that Google searches about climate and migration (see Appendix Section B.3) have limited correlation with asylum demands and the instrument, and in additional robustness tests, controlling for these does not alter my results.

Third, spatial correlation of weather shocks could confound my analysis if individuals exposed to weather-induced asylum surges also experience correlated local weather shocks affecting climate concern. To address this, all specifications always include local temperature and precipitation controls and account for destination-region-by-year unobserved heterogeneity.

Fourth, since the instrument exploits variation from differential weather changes in origin countries combined with bilateral dyadic characteristics, one may wonder whether results are due not only to asylum demands, but also other components of bilateral interaction. One example is trade — in particular agricultural — which could be influenced by both weather and bilateral ties (Dallmann, 2019), and may confound results if correlated with asylum applications. Three considerations mitigate this concern. First, international trade is negatively associated with environmental attitudes (Bez et al., 2023), hence, omitting trade would bias against a positive migration effect. Second, refugees have negligible correlation with trade compared to other migrants (White and Tadesse, 2010). Third, global production networks are relatively rigid, and agricultural international supply-chain linkages do not adjust to annual temperature shocks (Zappalà, 2024). To further allay any remaining concerns, I also document that trade flows between non-OECD and EU27+UK countries do not respond to agricultural-season temperatures (Appendix Figure A4), and are uncorrelated with predicted and observed asylum applications (Appendix Table D5). Finally, I confirm robustness by augmenting my baseline specification with weather-induced trade flows estimated via a gravity equation (more details in Section 5).

Fifth, although application motives are unobserved, climate and weather-related reasons are not, per se, grounds for refugee status under the 1951 Convention (UN, 1951). Climate change may nonetheless indirectly generate valid claims by contributing to disputes, armed conflict, or violence. For this reason, institutional bodies avoid the term "climate refugee", preferring "persons displaced in the context of disasters and climate change" (UNHCR, 2021). I show that weather-induced spikes in asylum applications are associated with higher acceptance rates, suggesting these surges are not driven by economic reasons, but are recognized as legitimate refugee claims by host countries (Appendix Section C.3).

Stable Unit Treatment Value Assumption. Identification also requires that the weather-driven component of asylum applications does not affect asylum flows from other origin countries nor climate concern in other destination countries. This assumption applies to the instrument, i.e., the predicted weather-induced portion of asylum applications differentially driven by bilateral migration costs, not to actual weather itself, which may be spatially correlated or jointly salient. While spillovers across destinations are plausible (e.g., the 2015 refugee crisis influencing political discourse and public concern beyond directly affected countries), destination-region-by-year fixed effects, absorb Europe-wide shocks, including anomalies in migrant inflows, but also flexibly account for differential spatial trends, including regional media coverage or targeted regional coordinated European Union responses. To further allay concerns, I conduct a randomization inference test (Cooperman, 2017) by shuffling migration flows 500 times across countries and years, finding no spurious associations with climate concern, with estimates centered at zero (Appendix Figure D1).

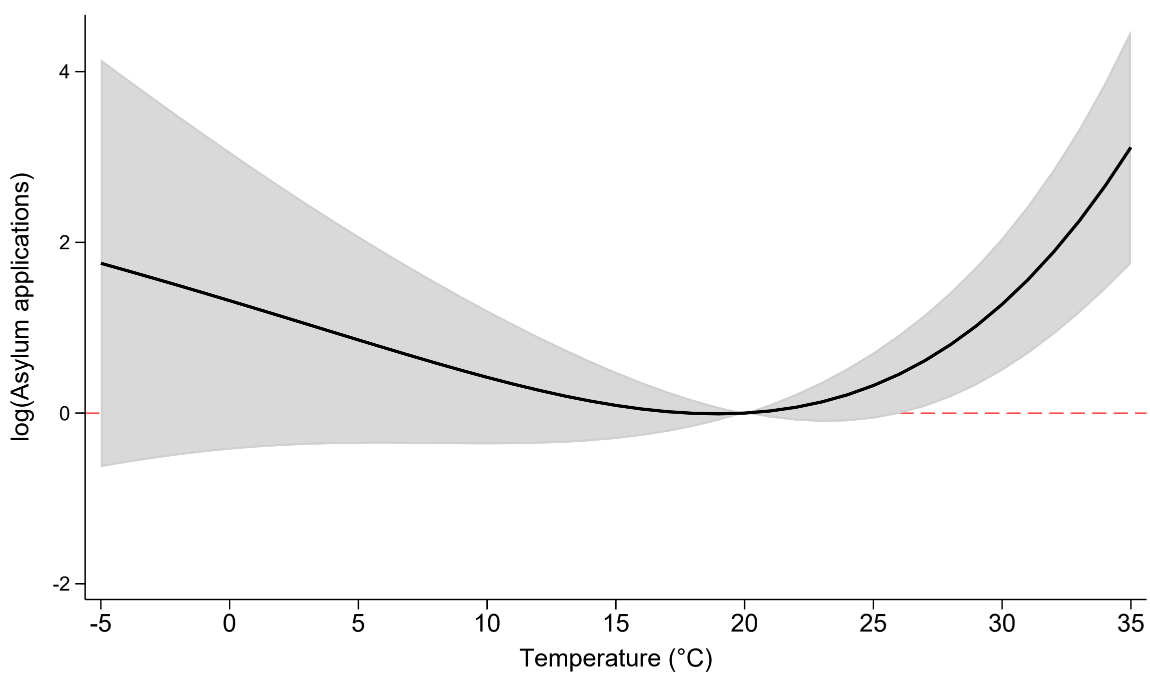
Monotonicity. Finally, the instrumental variable strategy requires that the instrument does not induce increases in asylum applications for some origin–destination pairs while causing decreases for others in the same treatment dimension. This condition applies to the instrument, not raw origin weather shocks. In other words, this assumption does not require that weather shocks always raise migration, but rather that the weather-induced component of asylum applications shifts the probability of treatment (i.e., asylum application flows) in the same direction across units. This is plausible because the instrument draws on variation in weather interacted with stable bilateral characteristics capturing migration frictions. For this reason, any non-monotonic effect of weather on migration allowed by high-order polynomials in the gravity equation does not violate the monotonicity of the instrument itself. The gravity equation captures potential declines in asylum applications over the temperature distribution, but the instrumental variable approach remains valid so long as the instrument moves migration in the same direction over the distribution of the instrument's variation.

Finally, in Appendix Section C.4, I also assess the robustness of the instrumental variable estimates conducting sensitivity analyses (Cinelli and Hazlett, 2025). I report weak-instrument confidence intervals (Andrews et al., 2019; Enikolopov et al., 2020), the robustness value, and the extreme robustness value, and present contour plots mapping confounder strength to critical t-values (Cinelli and Hazlett, 2020). The results indicate that unobserved confounders twice as strong as observed covariates in my model traditionally indicated as strong predictors of climate concern, such as political orientation, local temperatures, gender, and education, would not account for sufficient variation to overturn the main findings.

4.2.3 Gravity results

Figure 2 plots the marginal effect of temperatures on asylum demands, showing a robust asymmetric U-shaped relationship relative to a 20°C day. Effects are strongly positive and significant only for days hotter than 25°C. Total precipitation is not a significant predictor (Appendix Table D2), aligning with prior work (Cai et al., 2016). Including up to three lags of weather variables captures delayed asylum responses; the contemporaneous temperature effect remains significant, and past temperature fluctuations show similar patterns (Appendix Table D3).

Figure 2. Response of asylum applications in the EU with respect to the origin country temperatures



Notes: The figure represents a predicted asylum applications-temperature response function from non-OECD countries in the European Union. Regression estimates are from a fourth-order polynomial in daily average temperature over the maize growing season weighted by maize area in each grid cell. The response function is estimated in a regression model that controls for a quadratic function in season-total precipitation, as well as destination-by-year, region-of-origin-by-year, and dyad-specific fixed effects. Shaded areas are the associated 95% confidence interval using clustered standard errors at the origin country-year level.

Appendix Table D1 reports the gravity model estimates from Equation (2) with interaction terms, using three measures of temperature and precipitation: (1) unweighted annual averages, (2) maize-area-weighted growing-season weather, and (3) population-weighted growing-season weather. I also assess robustness to alternative functional forms. A non-parametric specification with 5°C bins for growing-season daily temperatures (Appendix Figure A5) yields similar patterns, as does a quadratic specification (Appendix Figure A6), mitigating concerns about high-order polynomials exaggerating small variations (Gelman and Imbens, 2019). Monthly CRU climate data produce similar results (Appendix Figure A7).

Appendix Figure A8 shows the residual correlation between actual asylum inflows and the predicted weather-driven component, purged of destination and year fixed effects, across six alternative instruments. These variants, respectively, include uninteracted bilateral controls' coefficients; destination weather instead of destination-year fixed effects; allow for destination-specific effects of origin weather; and use alternative measures of origin weather including second-order polynomial and binned temperatures. The correlation is strongly statistically significant and positive across specifications, suggesting that these instruments effectively predict observed asylum demands.

Appendix Figure A9 plots average annual changes in the instrument, revealing that weather-induced asylum flows originate mainly from Sub-Saharan Africa, the Middle East, and partly Latin America, with notable within-region variation and lower flows from much of Central America and Southeast Asia. In the presence of heterogeneous treatment effects, the 2SLS estimates identify a local average treatment effect (LATE) on "compliers" in destination countries where asylum inflows strongly respond to exogenous weather shocks in origin countries.

5 Individual climate concern

5.1 Main results

Table 1 reports the estimated effect of weather-induced asylum applications on the two survey responses measuring climate concern as a political priority. Columns (1) and (3) present OLS estimates of Equation (1), while columns (2) and (4) show the corresponding 2SLS results.

OLS estimates reveal small, statistically insignificant correlations between asylum applications and climate concern. In contrast, 2SLS estimates indicate that weather-induced asylum applications have a large, positive, and statistically significant effect on climate concern. The Kleibergen and Paap (2006) F-statistic exceeds conventional thresholds, rejecting weak instruments.[10]

The 2SLS coefficients are approximately an order of magnitude larger than their OLS counterparts, consistent with attenuation bias from measurement error in observed asylum applications, which do not isolate the weather-driven portion of asylum demands, or a LATE concentrated among countries receiving larger weather-induced inflows, where residents are more likely to update climate concern.

The effects, while modest, are meaningful. Doubling a country's weather-induced asylum applications in the five years before the survey raises the probability of reporting climate change as an important electoral campaign theme for European elections by 2.3 percentage points (p.p.) and as a political priority for European Parliament deliberations by 4.4 p.p., comparable to the gap between Cyprus and Germany. These correspond to increases of 33% and 42%, respectively, relative to sample means. For comparison, the electoral campaign effect is more than seven times larger than the partial correlation of employment status and twice as large as that of left-wing orientation.[11]

Appendix Table C3 presents the first-stage and reduced-form estimates. Predicted asylum flows are strongly associated with observed flows. I also report the weak-instrument robust confidence intervals, calculated without the assumption of a strong instrument, which exclude zero in both cases (Andrews et al., 2019; Keane and Neal, 2024). The reduced form results show that predicted weather-induced asylum flows significantly increase climate concern. Combined with the small, insignificant OLS coefficients, this pattern suggests that the weather-driven component of asylum flows drives the effect on host communities' climate attitudes. Appendix Section C.5 reports additional diagnostics, including the Anderson–Rubin test with inverted 95% intervals (Chernozhukov and Hansen, 2008), and the adjusted t-ratio inference (Lee et al., 2022), all supporting instrument validity.

Summary of robustness checks. Appendix Section D reports extensive robustness analyses. Controlling for origin-country weather weighted by the origin-destination baseline migration propensity through a shift-share design yields similar or stronger effects (Appendix Table D6); varying fixed effects (Appendix Table D7), using alternative gravity-based instruments (Appendix Table D8), or changing the exposure window to asylum seekers (Appendix Table D9) leaves results unchanged. Alternative treatments, such as contemporaneous asylum demands and weather-induced asylum anomalies (Ap-

[10] In this just-identified setting, the Olea and Pflueger (2013) effective F-statistic yields the same conclusion.

[11] Appendix Table C4 reports coefficients for all controls.

Table 1. Weather-induced asylum applications and individuals' environmental values

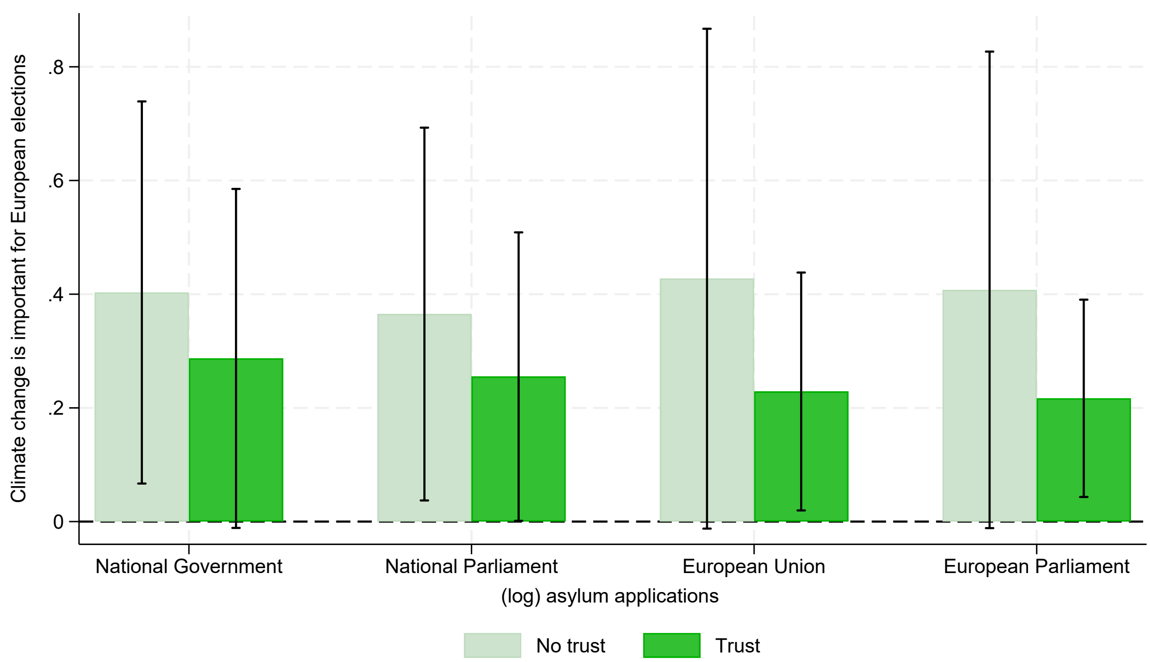
Outcome variable	Climate concern in European Elections		Climate change as political priority	
	OLS	2SLS	OLS	2SLS
	(1)	(2)	(3)	(4)
log(Asylum Applications)	-0.00147	0.0226**	0.00746	0.0444**
	(0.00384)	(0.0106)	(0.00651)	(0.0213)
Local weather controls	X	X	X	X
Individual controls	X	X	X	X
Country FE	X	X	X	X
Age FE	X	X	X	X
Region-by-year FE	X	X	X	X
Country-age linear trends	X	X	X	X
Mean outcome	0.068	0.068	0.106	0.106
F-Statistic		14.434		21.448
N	106,614	106,614	130,068	130,068
Number of countries	28	28	28	28

Notes: The sample is restricted to survey respondents that have the same nationality as the country in which they are interviewed. The dependent variable in columns (1) and (2) is a dummy equal to 1 if the respondent reports climate change as a theme that the European Parliament should give priority to when deliberating. The dependent variable in columns (3) and (4) is a dummy equal to 1 if the respondent reports climate change as a theme that should be discussed as a matter of priority during the electoral campaign for the next European Parliament elections (see Table B1 for exact wording and additional details on the construction of the variable). Asylum Applications is the sum of the asylum applications in a given country in the five years preceding the survey year, as defined in Equation 1. Columns (2) and (4) report the 2SLS estimates using the predicted asylum applications constructed from the gravity-predicted weather-induced asylum applications as described in Equation (2) in the text. All columns control for individual characteristics (gender, education levels; employment status; political orientation) and country-level covariates (linear and squared annual average temperature and total precipitation), and country, age, region-by-survey-year fixed effects and country by age linear trends. F-Statistic refers to the Kleibergen–Paap F-statistic, which corresponds to the effective F-statistic (Olea and Pflueger, 2013). Robust standard errors, clustered at the country level, in parentheses. Significance levels: * $p < 0.1$, ** $p < 0.05$, *** $p < 0.01$.

pendix Table D10 with details in Appendix Section C.3), and scaling applications by population (Appendix Table D11), produce similar estimates. Using a placebo instrument with predicted asylum demands by non-climatic disasters does not affect climate concern (Appendix Table D12), and, in a falsification exercise, non-climate concerns such as terrorism, the Euro, food safety, or economic growth are not affected by weather-induced asylum seeker inflows (Appendix Table D13). Excluding the top five origin countries by asylum volume (Afghanistan, Iraq, Russian Federation, Serbia, Syria) yields more precise but otherwise unchanged estimates (Appendix Table D14), and pre-trend tests find no correlation between past climate concern and leads in actual or predicted asylum demands (Appendix Table D15). Finally, I test whether trade confounds the estimated migration effects. Replacing asylum applications with trade measures instrumented using an analogous gravity approach yields small, insignificant coefficients. Augmenting the baseline specification with predicted weather-induced trade and instrumenting observed trade with its predicted counterpart produces similarly negative, imprecise trade estimates, while the coefficient on asylum applications remains positive and significant (Appendix Table D16).

Heterogeneity. I examine whether the baseline effects vary by individual characteristics. Age shapes interactions with asylum seekers and the malleability of preferences during certain life stages (see Section 5.2). Splitting the sample into age terciles, younger individuals respond more strongly to weather-induced asylum demands (Appendix Table C5). By gender, the effect is largely driven by females (Appendix Table C6). Since climate concern is measured as a supra-national political priority, responses to asylum inflows could depend on views of European Union legitimacy. Figure 3 suggests that the effect is concentrated among individuals with low trust in national and high trust in supra-national legislative institutions (although point estimates are not statistically different in the two sub-samples).

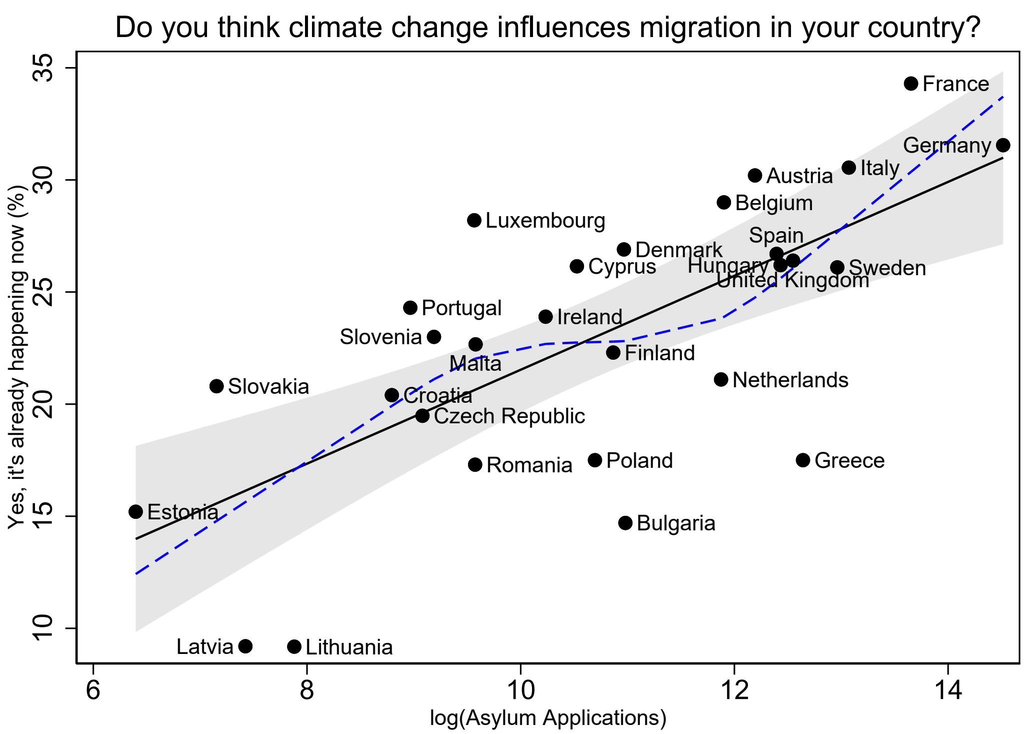
Figure 3. Heterogeneous effects of weather-induced asylum demands on climate concern by trust towards institutions



Notes: The figure plots the 2SLS coefficients for the effects of the log of five-year asylum applications on the survey response to the question "Climate change is important in the electoral campaign for European Parliament elections", after controlling for individual covariates (gender; education level; unemployment status; left-wing orientation) and country-level covariates (linear and squared average temperature and precipitation) and country-, age-, region-by-year fixed effects and country-age linear trends. Light (resp., dark) green bars report the coefficient on the subsample of individuals who reported no trust (resp. trust) in the institution reported in the x-axis. Standard errors are clustered at the country level. Bins represent 95% confidence intervals.

Channels. I examine the mechanisms underlying the estimated effects. Two puzzles arise. First, to what extent are asylum demands informative about shifts in origin-country weather distributions, and how do host-country residents perceive climate as a driver of asylum seeking, since migrants cannot cite climate as an asylum motive? Descriptively, Figure 4 shows a strong positive correlation between asylum demands and the share of respondents believing climate change already influences migration in their country ($p < 0.0001$). This evidence links awareness of the climate–migration nexus to actual migrant inflows.

Figure 4. Asylum demands and climate-migration nexus awareness



Notes: The figure plots the share of respondents that answered "Yes, it's already happening now" to the statement "Do you think climate change influences migration in your country?" in the European Investment Bank Climate Survey in 2019 against the cumulative asylum applications received in the country over the period five years (in logs). The black dashed line is the fitted line (slope equal to 2.09, p-value< 0.0001), while the blue dashed line is a restricted cubic splines with 5 knots.

Second, why does climate concern shift after increases in weather-induced asylum applications? One potential channel is increased public attention to the climate–migration nexus. Using Google Trends as a proxy for issue salience (Mellon, 2014), I test two possibilities. First, in Appendix Table C8, I include Google search volumes for "climate" (columns 1-3) and “migration” (columns 2-4) in the baseline model to ascertain that the instrumental variable approach does not confound in the media channel; the coefficients on weather-induced asylum demands remain similar, if slightly larger, than in the baseline. Second, I correlate actual and predicted asylum flows with Google searches. Asylum demands are weakly positively correlated with “climate change” searches, and imprecisely and negatively correlated with other terms (Appendix Table C9). Although I cannot fully rule out that non-migration forces through Google searches might have independent effects on climate concern, these results suggest that public attention does not confound the effect of weather-induced asylum demands. Further, splitting the sample by cumulative asylum inflows shows a positive, significant effect only among countries above the median, reinforcing the interpretation that actual asylum demands drive the results (Appendix Table C10).

Finally, I empirically test for the two mechanisms behind the relationship between climate-induced migration and climate concern outlined in Section 2: (1) climate-induced migration reduces the psychological distance to non-local weather shocks increasing perceptions of climate change as a global threat; (2) climate-induced migration raises awareness of the short-term costs of climate inaction. In Table 2, weather-induced asylum demands have no significant effect on perceiving climate change as a global problem (columns 1-2), but significantly increase public concern about migration (columns 3-4), as measured in the Eurobarometer surveys. This pattern suggests that the second mechanism prevails: individuals become more concerned about climate in response to the perceived costs of inaction that trigger migration inflows. Consistent with this hypothesis and in line with the conceptual framework outline above, Table 3 shows that the effect is substantially larger at the mean and statistically significant in the subsample of right-leaning individuals and of those without tertiary education, in contrast with prior findings that local weather shocks primarily increase concern among more educated, left-leaning respondents (Djourelova et al., 2024; Duijndam and van Beukering, 2021; Lee et al., 2015). These findings, bundled with the heterogeneity results above, highlight new dynamics in coalition formation around climate concern (Bush and Clayton, 2023; Gaikwad et al., 2022).

5.2 Exposure by age window

Climate change is a particularly salient concern for children and young people (Hickman et al., 2021; Marris, 2019; Nature, 2021; Thompson, 2021), as recent school strikes and student-led demonstrations illustrate (Bowman, 2020; Kenis, 2021; Ojala, 2012). Social psychology posits the “impressionable years” hypothesis: attitudes and values are largely

Table 2. Effect of weather-induced asylum applications on other survey outcomes. 2SLS estimates.

Outcome variable	Climate change a world problem	Seriousness climate change	Migration in European Elections	Migration as political priority
	(1)	(2)	(3)	(4)
log(Asylum Applications)	0.00108	-0.129	0.0318*	0.0383**
	(0.00666)	(0.0451)	(0.0174)	(0.0162)
Local weather controls	X	X	X	X
Individual controls	X	X	X	X
Country FE	X	X	X	X
Age FE	X	X	X	X
Region-by-year FE	X	X	X	X
Country-age linear trends	X	X	X	X
Mean outcome	0.37	7.57	0.073	0.085
F-Statistic	20.995	21.172	11.672	21.434
N	116,879	116,110	100,707	130,068

Notes: The sample is restricted to survey respondents that have the same nationality as the country in which they are interviewed. All columns report the 2SLS estimates where the (log) of asylum applications is instrumented with the gravity-predicted (log) of asylum applications described in Equation (2) in the text. All columns control for individual characteristics (gender, education levels; employment status; political orientation) and country-level covariates (linear and squared annual average temperature and total precipitation), and country, age, region-by-survey-year fixed effects and country by age linear trends. Robust standard errors, clustered at the country level, in parentheses. The F-Statistic refers to the Kleibergen-Paap F-statistic, which takes the same value as the Olea and Pflueger F-Statistic. Significance levels: * $p < 0.1$, ** $p < 0.05$, *** $p < 0.01$.

shaped during late adolescence and early adulthood (ages 16–24) and change slowly thereafter (Cutler, 1974; Greenstein, 1965; Krosnick and Alwin, 1989; Sears, 1975).[12] Exploiting within-country across birth-cohort variation, I investigate whether exposure to asylum flows during these formative years amplifies climate concern. For individuals born in year b in country d, I define exposure as:

$$exposure_{bd} = \sum_{s=0}^{8} (\text{Asylum Applications})_{d,b+16+s}$$

This measure allows me to construct exposure for all cohorts between 2000 and 2019, as respondents in the same country and survey year can differ in birth cohort.[13] Using this exposure measure, I estimate:

$$Y_{ibdrt} = \beta_1 \log(exposure_{bdt}) + X_i'\boldsymbol{\gamma} + Z_{bdt}'\boldsymbol{\delta} + \mu_d + \zeta_{rt} + \kappa_{t-b} + \xi_b + \theta_d \times age + \varepsilon_{ibdt} \quad (3)$$

where Y_{ibdrt} is the same vector of survey outcomes, $exposure_{bdt}$ in logs allows for concavity in the response.[14] I also control for a set of individual covariates, X_i', and for exposure to local weather conditions Z_{bdt}'. I include a wide set of fixed effects (country, region-by-year, age, birth-cohort), and country-age linear trends, so that β_1 is estimated

[12]This hypothesis has been tested in domains including redistribution preferences (Carreri and Teso, 2023), job preferences (Cotofan et al., 2023), migration attitudes (Cotofan et al., 2024), preferences for democracy (Magistretti and Tabellini, 2023), political preferences (Barone et al., 2022), confidence in political institutions and leaders (Eichengreen et al., 2024), and environmental policy preferences (Vora and Zappalà, 2025).

[13]Analysis is limited to cohorts born after 1984, whose formative years fall after 2000.

[14]For individuals interviewed before the end of their formative age, I use all available years over the 9-year age window, so exposure varies at the cohort-country-year level.

Table 3. Weather-induced asylum applications and environmental values. Heterogeneity by political orientation and education levels. 2SLS estimates.

Outcome variable	Climate concern in European Elections		Climate change as political priority	
	(1)	(2)	(3)	(4)
Panel A: Political Orientation				
log(Asylum Applications)	0.0250**	0.0191	0.0444**	0.0326
	(0.0100)	(0.0174)	(0.0187)	(0.0327)
Sample	Right-wing	Left-wing	Right-wing	Left-wing
Mean outcome	0.056	0.105	0.096	0.137
F-Statistic	16.237	12.382	25.335	11.062
N	79,947	26,666	97,464	32,604
Panel B: Education level				
log(Asylum Applications)	0.0174*	0.0103	0.0334**	0.0633
	(0.00901)	(0.0107)	(0.0142)	(0.0386)
Sample	Non Tertiary	Tertiary	Non Tertiary	Tertiary
Mean outcome	0.050	0.108	0.095	0.130
F-Statistic	14.028	16.635	22.434	23.388
N	73,229	33,382	89,513	40,555
Local weather controls	X	X	X	X
Individual controls	X	X	X	X
Country FE	X	X	X	X
Age FE	X	X	X	X
Region-by-year FE	X	X	X	X
Country-age linear trends	X	X	X	X

Notes: The sample is restricted to survey respondents that have the same nationality as the country in which they are interviewed. The dependent variable is a dummy equal to 1 if the respondent reports climate change as a theme that should be discussed as a matter of priority during the electoral campaign for the next European Parliament elections (columns 1 and 2). In columns (3) and (4) the dependent variable is a dummy equal to 1 if the respondent reports climate change as a theme that the European Parliament should give priority to when deliberating (see Table B1 for exact wording and additional details on the construction of the variables). All columns report the 2SLS estimates where the (log) of asylum applications is instrumented with the gravity-predicted (log) of asylum applications described in Equation (2) in the text. All columns control for individual characteristics (gender, education levels; employment status; political orientation) and country-level covariates (linear and squared annual average temperature and total precipitation), and country, survey year, birth-year and country by year of birth fixed effects. Robust standard errors, clustered at the country level, in parentheses. The F-Statistic refers to the Kleibergen-Paap F-statistic for weak instruments, which corresponds to the effective Olea-Pflueger F-Statistic. Significance levels: * $p < 0.1$, ** $p < 0.05$, *** $p < 0.01$.

from changes across birth cohorts within a country, as compared to changes across the same age groups in other countries within the same region, in a given year of interview.

Table 4 reports OLS and 2SLS estimates. 2SLS results indicate that higher exposure to weather-induced asylum applications during the impressionable years significantly increases both measures of climate concern. A 50% increase in exposure (roughly the interquartile range) raises the probability of reporting climate change as important in European Parliament campaigns by 15% of the sample mean, and as a political priority by 19%, comparable to the gap between Cyprus and Germany or Hungary and France. These findings suggest that exposure to weather-induced asylum demands during late adolescence and early adulthood drives later concern about climate change. Results are robust to alternative definitions of formative age (Appendix Table D18).

Table 4. Formative age exposure to weather-induced asylum seeker flows and environmental values

Outcome variable	Climate concern in European Elections		Climate change as political priority	
	OLS	2SLS	OLS	2SLS
	(1)	(2)	(3)	(4)
$\log(\text{Exposure}_{16-24})$	0.00203	0.0235**	0.0165**	0.0390**
	(0.00455)	(0.00959)	(0.00775)	(0.0180)
Local weather controls	X	X	X	X
Individual controls	X	X	X	X
Country FE	X	X	X	X
Age FE	X	X	X	X
Birth-cohort FE	X	X	X	X
Region-by-year FE	X	X	X	X
Country-age linear trends	X	X	X	X
Mean outcome	0.079	0.079	0.099	0.099
F-Statistic		26.023		46.351
N	17,554	17,554	21,661	21,661

Notes: The sample is restricted to survey respondents that have the same nationality as the country in which they are interviewed and whose formative age (between 16 and 24 years) occurs in the time period in which asylum applications data are available (i.e., after 2000). In columns (1)-(2), the dependent variable is a dummy equal to 1 if the respondent reports climate change as a theme that should be discussed as a matter of priority during the electoral campaign for the next European Parliament elections; in columns (3)-(4) the dependent variable is a dummy equal to 1 if the respondent reports climate change as a theme that the European Parliament should give priority to when deliberating (see Table B1 for exact wording and additional details on the construction of the variable). Columns (1) and (3) report the OLS estimates using the (log) of the sum of asylum applications while individual was between 16 and 24 years old. Columns (2) and (4) report the 2SLS estimates where the (log) of exposure to asylum applications is instrumented with gravity-predicted asylum application flows described in Equation (2). Appendix Table D17 reports the estimates for all the other age windows. Robust standard errors, clustered at the country level, in parentheses. *Individual controls*: gender, education level, employment status, political orientation. *Local weather controls*: exposure to average temperature and precipitation. The F-Statistic refers to the Kleibergen-Paap F-statistic for weak instruments, which which corresponds to the effective Olea and Pflueger F-Statistic. Significance levels: * $p < 0.1$, ** $p < 0.05$, *** $p < 0.01$.

6 From stated to revealed preferences

6.1 Empirical approach

To assess whether climate concern translates into political choices, I examine voting behavior. I estimate country-level regressions using the (Green party) vote share in European elections as outcome variable, and instrumenting the sum of national asylum demands in the European Parliament mandate with predicted weather-induced counterpart. I include country-level covariates that may affect both migration and Green votes: share of young people (Franklin and Rüdig, 1992), tertiary education attainment (Knutsen, 2004), unemployment (Knutsen, 2005), GDP (Pearson and Rüdig, 2020), and electoral turnout (Van der Eijk and Van Egmond, 2007). I also control for second-order polynomials of temperature and precipitation, given local weather's influence on voting (Hoffman et al., 2022), as well as country and year fixed effects.

6.2 Main results

Table 5 reports OLS (column 1) and 2SLS (columns 2–4) estimates. Coefficients are negative but mostly imprecise; 2SLS estimates are larger in magnitude than OLS. Despite the small sample, the instrument remains strong (F-statistic above conventional thresholds). Placebo tests show that Green party vote shares in earlier elections do not predict actual or predicted asylum flows (Appendix Table D19). Overall, Green parties in countries experiencing higher weather-induced asylum demands do not gain votes, and may, if anything, lose votes.

Table 5. Weather-induced asylum applications and Green party votes in European Parliament elections

Outcome variable	% Green votes (*Mean: 9.84*)			
	OLS	2SLS	2SLS	2SLS
	(1)	(2)	(3)	(4)
log(Asylum Applications)	-0.323	-1.609	-2.392	-4.022*
	(1.398)	(1.711)	(1.695)	(2.214)
Local weather controls	X	X	X	X
Country controls	X		X	X
Country FE	X	X	X	X
Year FE	X	X	X	X
Regional linear time trends				X
F-Statistic		12.657	23.060	20.882
N	65	65	65	65
Number of countries	20	20	20	20

Notes: The table reports the OLS (columns 1) and 2SLS (columns 2 to 4) coefficients on (log) of total asylum applications in the five years preceding the European elections. The dependent variable is the share of votes for Green parties. In columns (2) to (4), the (log) of total asylum applications in the five years preceding the elections is instrumented with the gravity-predicted (log) of total asylum applications described in Equation (2). Robust standard errors, clustered at the country level, in parentheses. *Local weather controls*: Linear and squared average temperature and total precipitation in the country. *Country controls*: (log) GDP per capita, % tertiary education, unemployment rate, population rate between 18 and 23 years old, voter turnout. All columns control for country and year-fixed effects. Column 4 adds region-specific linear time trends. F-statistic refers to the Kleibergen-Paap F-statistic for weak instruments, which corresponds to the effective Olea and Pflueger F-Statistic. Significance levels: * $p < 0.1$, ** $p < 0.05$, *** $p < 0.01$.

6.3 Mechanisms

To explain why higher exposure to weather-induced asylum demands increases individual climate concern but does not translate into voting behavior, I examine several non-mutually-exclusive mechanisms: anti-immigration party votes, electoral turnout, youth preferences, and parties' environmental agenda.

Anti-immigration parties. First, voters may not distinguish between weather-induced asylum seekers and for other economic causes. Electoral shifts could favor nationalist, anti-immigrant parties rather than pro-environment ones, while Green party votes may not capture all pro-environment voting. Estimating effects on other parties shows imprecise coefficients for most groups; nationalist party votes are negatively affected at the 10% level (Appendix Table D20), suggesting individuals shift away from climate-skeptical parties, although not towards Green parties, with a small, imprecise positive effect on socialist or left-wing votes.

Turnout dropout. Second, Green vote shares could decline due to lower turnout among traditional Green voters. I document a negative significant relationship between weather-induced asylum applications and voter turnout (Appendix Table D21), indicating that part of the negative effect on Green votes may reflect electoral exit.

Changes in concern of young voters. Third, younger citizens — typically more supportive of Green parties (Lichtin et al., 2023) but with low European election turnout (Bhatti and Hansen, 2012) — may drive the observed rise in climate concern without affecting votes. Estimating effects separately by voting age shows that respondents just below voting age report climate as a an important theme for the electoral campaign for the European Parliament elections, whereas those above voting age do not (Appendix Figure A11), with the opposite effect for climate change as a political priority in European Parliament deliberations, consistent with a gap between stated and revealed preferences. To further explore this dynamic, I re-estimate the baseline country-level specifications including total asylum applications received during the previous electoral mandate to capture delayed electoral response to earlier migration inflows. Appendix Table C13 shows that, although imprecisely estimated, the 2SLS coefficient on lagged asylum applications is positive, consistent with the interpretation that cohorts who were previously too young to vote may subsequently express their climate concern at the ballot box by voting for Green parties.

Parties' environmental agenda. Fourth, I also examine the supply side of the environmental political process. I exploit within-party variation in the environmental political agenda across national elections (see Appendix Section C.8 for details). Weather-induced asylum demands do not shift parties toward a greener environmental agenda

(Appendix Table C14), aligning with evidence on inelastic supply, which does not respond to extreme weather or correcting politicians' misperceptions about voter concern either (Hsiao and Kuipers, 2024; Wappenhans et al., 2024). Constructing an election-country measure of environmentalism as the vote-share-weighted average of party manifestos, I also find similar null results (Appendix Tables C12), which extend to other political agenda dimensions (Appendix Table D22). Altogether, these findings suggest that the gap between rising climate concern and unchanged pro-environment voting behavior is driven by low turnout among young voters and a lack of supply-side responses from parties.

7 Conclusions

While prior research emphasizes socio-economic factors and personal experience with local weather as main determinants of climate concern, this paper introduces and empirically tests for a novel concept whereby exposure to the socio-economic impacts of climate change can affect climate concern, particularly among population subgroups most sensitive to those impacts. I test for this hypothesis using indirect spillovers of weather shocks through the arrival of asylum seekers in the European Union between 2000 and 2019 displaced by extreme temperatures and precipitation.

Exposure to such climate-induced asylum applications increases climate concern in host countries, particularly among right-leaning and less-educated voters, and also increases migration concerns rather than affecting the general perception of climate as a global problem, suggesting that climate-induced migration raises the perceived salience and social cost of climate inaction. These attitudinal changes do not translate into voting behavior changes. Three coexisting mechanisms rationalize this gap: partial exit of traditional Green voters from turnout, rising concern among individuals not yet eligible to vote, and limited shifts in parties' pro-environment platforms.

While my analysis shows that weather-induced asylum demand increases individual climate concern, several limitations remain. First, despite extensive robustness checks, spurious correlation cannot be entirely ruled out. Yet, to the best of my knowledge, this is the first study demonstrating that salient socio-economic consequences of climate change — via migration inflows — can shift climate concern, particularly among subgroups typically unresponsive to local weather information (Djourelova et al., 2024; Hazlett and Mildenberger, 2020). Second, although I consider and rule out alternative pathways such as news coverage and trade, others may exist. One is economic migration. I show that weather-driven asylum anomalies correlate with higher acceptance rates, suggesting that these flows are largely non-economic. Lack of bilateral annual migration data prevents me from directly testing this channel, but if climate shocks drive economic migration affecting climate concern similarly, my results would likely be reinforced rather than weakened.

The findings and limitations point to several avenues for future research. First, this paper provides the first cross-national evidence on the political effects of exposure to climate-induced migration across diverse contexts, interactions, and time periods. Important heterogeneities remain: country-specific analyses, in the European Union and in other major migrant-receiving contexts such as the United States, would shed light on institutional, cultural, and media environments that mediate public responses to climate-induced migration. Public attitudes and voting behavior may also depend on host-migrant interactions and characteristics of both groups, including the specific climate shocks, origin countries, and host population characteristics. Second, by examining how climate-induced migration influences concern, this paper lays groundwork for identifying which subgroups respond most to different socio-economic climate impacts. Results suggest right-leaning and less-educated individuals are particularly responsive likely due to immigration sensitivity. Other subgroups may react to other information, for instance, older individuals to information on heat-induced mortality. Understanding subgroup-specific responsiveness can maximize communication policy effectiveness and catalyze public support.

References

Abel, G. J., M. Brottrager, J. Crespo Cuaresma, and R. Muttarak (2019). Climate, conflict and forced migration. *Global Environmental Change 54*, 239–249.

Abel, G. J. and J. E. Cohen (2019). Bilateral international migration flow estimates for 200 countries. *Scientific Data 6*(1), 82.

Achard, P., S. Albrecht, R. Ghidoni, E. Cettolin, and S. Suetens (2025). Local exposure to refugees changed attitudes to ethnic minorities in the Netherlands. *The Economic Journal 135*(667), 808–837.

Alesina, A., J. Harnoss, and H. Rapoport (2016). Birthplace diversity and economic prosperity. *Journal of Economic Growth 21*(2), 101–138.

Alesina, A., E. Murard, and H. Rapoport (2021). Immigration and preferences for redistribution in Europe. *Journal of Economic Geography 21*(6), 925–954.

Alesina, A. and M. Tabellini (2024). The political effects of immigration: Culture or economics? *Journal of Economic Literature 62*(1), 5–46.

Andersson, H. and S. H. Dehdari (2021). Workplace contact and support for anti-immigration parties. *American Political Science Review 115*(4), 1159–1174.

Andrews, I., J. H. Stock, and L. Sun (2019). Weak instruments in instrumental variables regression: Theory and practice. *Annual Review of Economics 11*(1), 727–753.

Arias, S. B. and C. W. Blair (2022). Changing tides: Public attitudes on climate migration. *The Journal of Politics 84*(1), 560–567.

Arias, S. B. and C. W. Blair (2024). In the eye of the storm: Hurricanes, climate migration, and climate attitudes. *American Political Science Review 118*(4), 1593–1613.

Baccini, L. and L. Leemann (2020). Do natural disasters help the environment? How voters respond and what that means. *Political Science Research and Methods*, 1–17.

Backhaus, A., I. Martinez-Zarzoso, and C. Muris (2015). Do climate variations explain bilateral migration? A gravity model analysis. *IZA Journal of Migration 4*(1), 1–15.

Baldwin, A. (2013). Racialisation and the figure of the climate-change migrant. *Environment and Planning A 45*(6), 1474–1490.

Barone, G., G. de Blasio, and S. Poy (2022). The legacy of 1968 student protests on political preferences. *Economics Letters 210*, 110198.

Barone, G., A. D'Ignazio, G. de Blasio, and P. Naticchioni (2016). Mr. Rossi, Mr. Hu and politics. The role of immigration in shaping natives' voting behavior. *Journal of Public Economics 136*, 1–13.

Bassi, A. (2019). Weather, risk, and voting: An experimental analysis of the effect of weather on vote choice. *Journal of Experimental Political Science 6*(1), 17–32.

Battiston, G. (2020). Rescue on Stage: Border Enforcement and Public Attention in the Mediterranean Sea. Marco Fanno Working Papers 292, University of Padova.

Bazzi, S., A. Ferrara, M. Fiszbein, T. Pearson, and P. A. Testa (2023). The other great migration: Southern whites and the new right. *The Quarterly Journal of Economics 138*(3), 1577–1647.

Beine, M. and L. Jeusette (2021). A meta-analysis of the literature on climate change and migration. *Journal of Demographic Economics 87*(3), 293–344.

Beine, M. and C. Parsons (2015). Climatic Factors as Determinants of International Migration. *The Scandinavian Journal of Economics 117*(2), 723–767.

Bergquist, P. and C. Warshaw (2019). Does global warming increase public concern about climate change? *The Journal of Politics 81*(2), 686–691.

Bez, C., V. Bosetti, I. Colantone, and M. Zanardi (2023). Exposure to international trade lowers green voting and worsens environmental attitudes. *Nature Climate Change*, 1–5.

Bhatti, Y. and K. M. Hansen (2012). The effect of generation and age on turnout to the European Parliament–How turnout will continue to decline in the future. *Electoral Studies 31*(2), 262–272.

Bohra-Mishra, P., M. Oppenheimer, R. Cai, S. Feng, and R. Licker (2017). Climate variability and migration in the Philippines. *Population and Environment 38*, 286–308.

Borick, C. P. and B. G. Rabe (2014). Weather or not? examining the impact of meteorological conditions on public opinion regarding global warming. *Weather, Climate, and Society 6*(3), 413–424.

Borusyak, K., R. Dix-Carneiro, and B. Kovak (2023). Understanding migration responses to local shocks. *Working Paper*.

Bosetti, V., C. Cattaneo, and G. Peri (2020). Should they stay or should they go? Climate migrants and local conflicts. *Journal of Economic Geography*, 33.

Bowman, B. (2020). "They don't quite understand the importance of what we're doing today": The young people's climate strikes as subaltern activism. *Sustainable Earth 3*(1), 1–13.

Brehm, J. and H. Gruhl (2024). Increase in concerns about climate change following climate strikes and civil disobedience in Germany. *Nature Communications 15*(1), 2916.

Brügger, A., S. Dessai, P. Devine-Wright, T. A. Morton, and N. F. Pidgeon (2015). Psychological responses to the proximity of climate change. *Nature Climate Change 5*(12), 1031–1037.

Brunner, B. and A. Kuhn (2018). Immigration, cultural distance and natives' attitudes towards immigrants: Evidence from Swiss voting results. *Kyklos 71*(1), 28–58.

Burke, M., S. Hsiang, and E. Miguel (2015). Climate and conflict. *Annual Reiew of Economics 7*, 577–617.

Bursztyn, L., T. Chaney, T. A. Hassan, and A. Rao (2024). The immigrant next door. *American Economic Review 114*(2), 348–384.

Burzyński, M., C. Deuster, F. Docquier, and J. De Melo (2022). Climate change, inequality, and human migration. *Journal of the European Economic Association 20*(3), 1145–1197.

Bush, S. S. and A. Clayton (2023). Facing change: Gender and climate change attitudes worldwide. *American Political Science Review 117*(2), 591–608.

Byravan, S. and S. C. Rajan (2017). Taking lessons from refugees in Europe to prepare for climate migrants and exiles. *Environmental Justice 10*(4), 108–111.

Cai, R., S. Feng, M. Oppenheimer, and M. Pytlikova (2016). Climate variability and international migration: The importance of the agricultural linkage. *Journal of Environmental Economics and Management 79*, 135–151.

Campo, F., S. Giunti, and M. Mendola (2024). Refugee crisis and right-wing populism: Evidence from the Italian Dispersal Policy. *European Economic Review 168*, 104826.

Carleton, T., E. Duflo, B. K. Jack, and G. Zappalà (2024). Adaptation to climate change. In *Handbook of the Economics of Climate Change*, Volume 1, pp. 143–248. Elsevier.

Carleton, T., S. M. Hsiang, and M. Burke (2016). Conflict in a changing climate. *The European Physical Journal Special Topics 225*(3), 489–511.

Carleton, T., A. Jina, M. Delgado, M. Greenstone, T. Houser, S. Hsiang, A. Hultgren, R. E. Kopp, K. E. McCusker, I. Nath, et al. (2022). Valuing the global mortality consequences of climate change accounting for adaptation costs and benefits. *The Quarterly Journal of Economics 137*(4), 2037–2105.

Carleton, T. A. and S. M. Hsiang (2016). Social and economic impacts of climate. *Science 353*(6304).

Carlsson, F., M. Kataria, A. Krupnick, E. Lampi, Å. Löfgren, P. Qin, T. Sterner, and X. Yang (2021). The climate decade: Changing attitudes on three continents. *Journal of Environmental Economics and Management 107*, 102426.

Carlton, J. S., A. S. Mase, C. L. Knutson, M. C. Lemos, T. Haigh, D. P. Todey, and L. S. Prokopy (2016). The effects of extreme drought on climate change beliefs, risk perceptions, and adaptation attitudes. *Climatic change 135*, 211–226.

Carreri, M. and E. Teso (2023). Economic recessions and congressional preferences for redistribution. *The Review of Economics and Statistics 105*(3), 723–732.

Cattaneo, C., E. Massetti, F. Farinosi, and S. Dasgupta (2024). Climate variability and worldwide migration: current evidence and future projections. *Environmental Research Letters*.

Cattaneo, C. and G. Peri (2016). The migration response to increasing temperatures. *Journal of Development Economics 122*, 127–146.

Chernozhukov, V. and C. Hansen (2008). The reduced form: A simple approach to inference with weak instruments. *Economics Letters 100*(1), 68–71.

Cinelli, C. and C. Hazlett (2020). Making sense of sensitivity: Extending omitted variable bias. *Journal of the Royal Statistical Society Series B: Statistical Methodology 82*(1), 39–67.

Cinelli, C. and C. Hazlett (2025). An omitted variable bias framework for sensitivity analysis of instrumental variables. *Biometrika 112*(2).

Coniglio, N. D. and G. Pesce (2015). Climate variability and international migration: an empirical analysis. *Environment and Development Economics 20*(4), 434–468.

Conte, B. (2025). Climate change and migration: the case of Africa. CESifo Working Paper 9948, CESifo.

Cools, S., H. Finseraas, and O. Rogeberg (2021). Local immigration and support for anti-immigration parties: A meta-analysis. *American Journal of Political Science 65*(4), 988–1006.

Cooperman, A. D. (2017). Randomization inference with rainfall data: Using historical weather patterns for variance estimation. *Political Analysis 25*(3), 277–288.

Copernicus Climate Change Service, C. D. S. (2023). ERA5 hourly data on single levels from 1940 to present.

Cotofan, M., L. Cassar, R. Dur, and S. Meier (2023). Macroeconomic conditions when young shape job preferences for life. *The Review of Economics and Statistics 105*(2), 467–473.

Cotofan, M., R. Dur, and S. Meier (2024). Does growing up in a recession increase compassion? The case of attitudes towards immigration. *Journal of Economic Behavior & Organization 218*, 245–262.

Cutler, N. E. (1974). Aging and generations in politics: The conflict of explanations and inference. *Public opinion and political attitudes*, 440–462.

Czarnek, G., M. Kossowska, and P. Szwed (2021). Right-wing ideology reduces the effects of education on climate change beliefs in more developed countries. *Nature Climate Change 11*(1), 9–13.

Dallmann, I. (2019). Weather variations and international trade. *Environmental and Resource Economics 72*(1), 155–206.

Dechezleprêtre, A., A. Fabre, T. Kruse, B. Planterose, A. Sanchez Chico, and S. Stantcheva (2025). Fighting climate change: International attitudes toward climate policies. *American Economic Review 115*(4), 1258–1300.

Deryugina, T. (2013). How do people update? The effects of local weather fluctuations on beliefs about global warming. *Climatic Change 118*(2), 397–416.

Dinas, E., K. Matakos, D. Xefteris, and D. Hangartner (2019). Waking up the golden dawn: does exposure to the refugee crisis increase support for extreme-right parties? *Political Analysis 27*(2), 244–254.

Djourelova, M., R. Durante, E. Motte, and E. Patacchini (2024). Experience, narratives, and climate change beliefs. *Working Paper*.

Docquier, F., E. Lodigiani, H. Rapoport, and M. Schiff (2016). Emigration and democracy. *Journal of Development Economics 120*, 209–223.

Drews, S. and J. C. van den Bergh (2016). What explains public support for climate policies? A review of empirical and experimental studies. *Climate Policy 16*(7), 855–876.

Duijndam, S. and P. van Beukering (2021). Understanding public concern about climate change in Europe, 2008–2017: The influence of economic factors and right-wing populism. *Climate Policy 21*(3), 353–367.

Edo, A., Y. Giesing, J. Öztunc, and P. Poutvaara (2019). Immigration and electoral support for the far-left and the far-right. *European Economic Review 115*, 99–143.

Egan, P. J. and M. Mullin (2012). Turning personal experience into political attitudes: The effect of local weather on Americans' perceptions about global warming. *The Journal of Politics 74*(3), 796–809.

Eichengreen, B., O. Saka, and C. G. Aksoy (2024). The political scar of epidemics. *The Economic Journal 134*(660), 1683–1700.

Enikolopov, R., A. Makarin, and M. Petrova (2020). Social media and protest participation: Evidence from russia. *Econometrica 88*(4), 1479–1514.

Fabel, M., M. Flückiger, M. Ludwig, H. Rainer, M. Waldinger, and S. Wichert (2022). The power of youth: Did the "Fridays for Future" climate movement trickle-up to influence, voters, politicians, and the media? CESifo Working Paper 9742, CESifo.

Falco, C., M. Galeotti, and A. Olper (2019). Climate change and migration: is agriculture the main channel? *Global Environmental Change 59*, 101995.

Fasani, F., T. Frattini, and L. Minale (2021). Lift the ban? Initial employment restrictions and refugee labour market outcomes. *Journal of the European Economic Association 19*(5), 2803–2854.

Felbermayr, G. J., S. Hiller, and D. Sala (2010). Does immigration boost per capita income? *Economics Letters 107*(2), 177–179.

Feng, S., M. Oppenheimer, and W. Schlenker (2012). Climate change, crop yields, and internal migration in the United States. NBER Working Paper w17734, National Bureau of Economic Research.

Fetzer, T. and P. Garg (2025). Network determinants of cross-border media coverage of natural disasters. *Working Paper*.

Finlay, K. and L. M. Magnusson (2009). Implementing weak-instrument robust tests for a general class of instrumental-variables models. *The Stata Journal 9*(3), 398–421.

Foged, M., L. Hasager, and G. Peri (2022). Comparing the effects of policies for the labor market integration of refugees. NBER Working Paper 30534, National Bureau of Economic Research.

Frankel, J. A. and D. H. Romer (1999). Does trade cause growth? *American Economic Review 89*(3), 379–399.

Franklin, M. N. and W. Rüdig (1992). The green voter in the 1989 European elections. *Environmental Politics 1*(4), 129–159.

Gaikwad, N., F. Genovese, and D. Tingley (2022). Creating climate coalitions: mass preferences for compensating vulnerability in the world's two largest democracies. *American Political Science Review 116*(4), 1165–1183.

Gallen, T. and B. Raymond (2023). Broken instruments. *Working Paper*.

Garside, S. and H. Zhai (2022). If not now, when? climate disaster and the green vote following the 2021 germany floods. *Research & Politics 9*(4), 20531680221141523.

Gelman, A. and G. Imbens (2019). Why high-order polynomials should not be used in regression discontinuity designs. *Journal of Business & Economic Statistics 37*(3), 447–456.

Gentzkow, M. and J. M. Shapiro (2010). What drives media slant? Evidence from US daily newspapers. *Econometrica 78*(1), 35–71.

Gillis, A., N. Geiger, K. Raimi, J. L. Cunningham, and M. A. Sarge (2023). Climate change–induced immigration to the United States has mixed influences on public support for climate change and migrants. *Climatic Change 176*(5), 48.

Giuliano, P. and A. Spilimbergo (2025). Aggregate shocks and the formation of preferences and beliefs. *Journal of Economic Literature 63*(2), 542–597.

Giuliano, P. and M. Tabellini (2020). The seeds of ideology: Historical immigration and political preferences in the United States. NBER Working Paper w27238, National Bureau of Economic Research.

Greenstein, F. I. (1965). *Children and politics*. Yale University Press New Haven.

Halla, M., A. F. Wagner, and J. Zweimüller (2017). Immigration and voting for the far right. *Journal of the European Economic Association 15*(6), 1341–1385.

Hangartner, D., E. Dinas, M. Marbach, K. Matakos, and D. Xefteris (2019). Does exposure to the refugee crisis make natives more hostile? *American Political Science Review 113*(2), 442–455.

Harmon, N. A. (2018). Immigration, ethnic diversity, and political outcomes: Evidence from Denmark. *The Scandinavian Journal of Economics 120*(4), 1043–1074.

Hatton, T. J. (2020). Asylum migration to the developed world: Persecution, incentives, and policy. *Journal of Economic Perspectives 34*(1), 75–93.

Hazlett, C. and M. Mildenberger (2020). Wildfire exposure increases pro-environment voting within democratic but not republican areas. *American Political Science Review 114*(4), 1359–1365.

Head, K. and T. Mayer (2014). Gravity equations: Workhorse, toolkit, and cookbook. Chapter 3 in the Handbook of International Economics Vol. 4, eds. Gita Gopinath, Elhanan Helpman, and Kenneth S. Rogoff. *Elsevier Ltd., Oxford 131*, 195.

Hedegaard, T. F. (2022). Attitudes to climate migrants: results from a conjoint survey experiment in Denmark. *Scandinavian Political Studies 45*(1), 25–45.

Helbling, M. (2020). Attitudes towards climate change migrants. *Climatic Change*.

Hickman, C., E. Marks, P. Pihkala, S. Clayton, R. E. Lewandowski, E. E. Mayall, B. Wray, C. Mellor, and L. Van Susteren (2021). Climate anxiety in children and young people and their beliefs about government responses to climate change: a global survey. *The Lancet Planetary Health 5*(12), e863–e873.

Hilbig, H. and S. Riaz (2024). Natural disasters and green party support. *The Journal of Politics 86*(1), 000–000.

Hix, S. and M. Marsh (2007). Punishment or protest? Understanding European Parliament elections. *The Journal of Politics 69*(2), 495–510.

Hoffman, R., R. Muttarak, J. Peisker, and P. Stanig (2022). Climate change experiences raise environmental concerns and promote green voting. *Nature Climate Change 12*, 148–155.

Hoffmann, R., G. Abel, M. Malpede, R. Muttarak, and M. Percoco (2024). Drought and aridity influence internal migration worldwide. *Nature Climate Change*, 1–9.

Hoffmann, R., B. Šedová, and K. Vinke (2021). Improving the evidence base: A methodological review of the quantitative climate migration literature. *Global Environmental Change 71*, 102367.

Hornsey, M. J., E. A. Harris, P. G. Bain, and K. S. Fielding (2016). Meta-analyses of the determinants and outcomes of belief in climate change. *Nature Climate Change 6*(6), 622–626.

Howe, P. D., J. R. Marlon, M. Mildenberger, and B. S. Shield (2019). How will climate change shape climate opinion? *Environmental Research Letters 14*(11), 113001.

Hsiang, S. (2016). Climate econometrics. *Annual Review of Resource Economics 8*, 43–75.

Hsiao, A. and N. Kuipers (2024). Climate crisis and policy inaction in indonesia. *American Journal of Political Science*.

Imbert, C. and G. Ulyssea (2025). Rural migrants and urban informality: Evidence from brazil. Technical report.

Keane, M. P. and T. Neal (2024). A practical guide to weak instruments. *Annual Review of Economics 16*.

Kenis, A. (2021). Clashing tactics, clashing generations: The politics of the school strikes for climate in Belgium. *Politics and Governance 9*(2), 135–145.

Kleibergen, F. and R. Paap (2006). Generalized reduced rank tests using the singular value decomposition. *Journal of Econometrics 133*(1), 97–126.

Knutsen, O. (2004). *Social structure and party choice in western Europe: A comparative longitudinal study*. Springer.

Knutsen, O. (2005). The impact of sector employment on party choice: A comparative study of eight West European countries. *European Journal of Political Research 44*(4), 593–621.

Konisky, D. M., L. Hughes, and C. H. Kaylor (2016). Extreme weather events and climate change concern. *Climatic Change 134*(4), 533–547.

Krosnick, J. A. and D. F. Alwin (1989). Aging and susceptibility to attitude change. *Journal of Personality and Social Psychology 57*(3), 416.

Lal, A., M. Lockhart, Y. Xu, and Z. Zu (2024). How much should we trust instrumental variable estimates in political science? Practical advice based on 67 replicated studies. *Political Analysis 32*(4), 521–540.

Lee, D. S., J. McCrary, M. J. Moreira, and J. Porter (2022). Valid t-ratio Inference for IV. *American Economic Review 112*(10), 3260–3290.

Lee, G.-E., S. Loveridge, and J. A. Winkler (2018). The influence of an extreme warm spell on public support for government involvement in climate change adaptation. *Annals of the American Association of Geographers 108*(3), 718–738.

Lee, T. M., E. M. Markowitz, P. D. Howe, C.-Y. Ko, and A. A. Leiserowitz (2015). Predictors of public climate change awareness and risk perception around the world. *Nature Climate Change 5*(11), 1014–1020.

Li, Y., E. J. Johnson, and L. Zaval (2011). Local warming: Daily temperature change influences belief in global warming. *Psychological science 22*(4), 454–459.

Lichtin, F., W. Van Der Brug, and R. Rekker (2023). Generational replacement and Green party support in Western Europe. *Electoral Studies 83*, 102602.

Magistretti, G. and M. Tabellini (2023). Economic integration and the transmission of democracy. HBS Working Paper 19-003, Harvard Business School.

Marchiori, L., J.-F. Maystadt, and I. Schumacher (2012). The impact of weather anomalies on migration in sub-Saharan Africa. *Journal of Environmental Economics and Management 63*(3), 355–374.

Marini, M. A. and S. Nocito (2025). Climate activism favors pro-environmental consumption. *European Journal of Political Economy 86*, 102642.

Marris, E. (2019). Why young climate activists have captured the world's attention. *Nature 573*(7775), 471–473.

McDonald, R. I., H. Y. Chai, and B. R. Newell (2015). Personal experience and the "psychological distance" of climate change: An integrative review. *Journal of Environmental Psychology 44*, 109–118.

McGuirk, E. and M. Burke (2020). The economic origins of conflict in Africa. *Journal of Political Economy 128*(10), 3940–3997.

Mellon, J. (2014). Internet search data and issue salience: The properties of google trends as a measure of issue salience. *Journal of Elections, Public Opinion & Parties 24*(1), 45–72.

Mellon, J. (2024). Rain, rain, go away: 194 potential exclusion-restriction violations for studies using weather as an instrumental variable. *American Journal of Political Science*.

Merz, N., S. Regel, and J. Lewandowski (2016). The manifesto corpus: A new resource for research on political parties and quantitative text analysis. *Research & Politics 3*(2).

Mildenberger, M., A. Sahn, C. Miljanich, M. A. Hummel, M. Lubell, and J. R. Marlon (2024). Unintended consequences of using maps to communicate sea-level rise. *Nature Sustainability 7*(8), 1018–1026.

Millock, K. (2015). Migration and environment. *Annual Review of Resource Economics 7*(1), 35–60.

Missirian, A. and W. Schlenker (2017a). Asylum applications and migration flows. *American Economic Review 107*(5), 436–40.

Missirian, A. and W. Schlenker (2017b). Asylum applications respond to temperature fluctuations. *Science 358*(6370), 1610–1614.

Monfreda, C., N. Ramankutty, and J. A. Foley (2008). Farming the planet: 2. Geographic distribution of crop areas, yields, physiological types, and net primary production in the year 2000. *Global Biogeochemical Cycles 22*(1).

Moriconi, S., G. Peri, and R. Turati (2019). Immigration and voting for redistribution: Evidence from European elections. *Labour Economics 61*, 101765.

Moriconi, S., G. Peri, and R. Turati (2022). Skill of the immigrants and vote of the natives: Immigration and nationalism in European elections 2007–2016. *European Economic Review 141*, 103986.

Nature (2021). Young people will be key to climate justice at COP26. *Nature 598*, 386.

Nowakowski, A. and A. J. Oswald (2020). Do Europeans Care about Climate Change? An Illustration of the Importance of Data on Human Feelings. IZA Discussion Paper 13660, IZA.

Ojala, M. (2012). Hope and climate change: The importance of hope for environmental engagement among young people. *Environmental Education Research 18*(5), 625–642.

Olea, J. L. M. and C. Pflueger (2013). A robust test for weak instruments. *Journal of Business & Economic Statistics 31*(3), 358–369.

Ortega, F. and G. Peri (2014). Openness and income: The roles of trade and migration. *Journal of International Economics 92*(2), 231–251.

Osberghaus, D. and C. Fugger (2022). Natural disasters and climate change beliefs: The role of distance and prior beliefs. *Global Environmental Change 74*, 102515.

Otto, A. H. and M. F. Steinhardt (2014). Immigration and election outcomes—Evidence from city districts in Hamburg. *Regional Science and Urban Economics 45*, 67–79.

Pearson, M. and W. Rüdig (2020). The Greens in the 2019 European elections. *Environmental Politics 29*(2), 336–343.

Poortinga, W., L. Whitmarsh, L. Steg, G. Böhm, and S. Fisher (2019). Climate change perceptions and their individual-level determinants: A cross-European analysis. *Global Environmental Change 55*, 25–35.

Raimi, K. T., M. A. Sarge, N. Geiger, A. Gillis, and J. L. Cunningham (2024). Effects of communicating the rise of climate migration on public perceptions of climate change and migration. *Journal of Environmental Psychology 93*, 102210.

Reif, K. and H. Schmitt (1980). Nine second-order national elections - A conceptual framework for the analysis of European Election results. *European Journal of Political Research 8*(1), 3–44.

Richardson, D. and C. Rootes (2006). *The Green challenge: the development of Green parties in Europe*. Routledge.

Sacks, W. J., D. Deryng, J. A. Foley, and N. Ramankutty (2010). Crop planting dates: an analysis of global patterns. *Global Ecology and Biogeography 19*(5), 607–620.

Schneider-Strawczynski, S. and J. Valette (2025). Media coverage of immigration and the polarization of attitudes. *American Economic Journal: Applied Economics 17*(1), 337–368.

Schraff, D., I. Vergioglou, and B. B. Demirci (2022). EU-NED: The European NUTS-Level Election Dataset.

Schuldt, J. P., L. N. Rickard, and Z. J. Yang (2018). Does reduced psychological distance increase climate engagement? On the limits of localizing climate change. *Journal of Environmental Psychology 55*, 147–153.

Sears, D. (1975). *Political Socialization*. Addison-Wesley.

Shao, W. and K. Goidel (2016). Seeing is believing? An examination of perceptions of local weather conditions and climate change among residents in the US Gulf Coast. *Risk Analysis 36*(11), 2136–2157.

Spence, A., W. Poortinga, and N. Pidgeon (2012). The psychological distance of climate change. *Risk Analysis: An International Journal 32*(6), 957–972.

Spilker, G., Q. Nguyen, V. Koubi, and T. Böhmelt (2020). Attitudes of urban residents towards environmental migration in Kenya and Vietnam. *Nature Climate Change 10*(7), 622–627.

Stantcheva, S. (2023). How to run surveys: A guide to creating your own identifying variation and revealing the invisible. *Annual Review of Economics 15*(1), 205–234.

Steinmayr, A. (2021). Contact versus exposure: Refugee presence and voting for the far right. *Review of Economics and Statistics 103*(2), 310–327.

Thompson, T. (2021). Young people's climate anxiety revealed in landmark survey. *Nature 597*, 605.

UN (1951). *Convention Relating to the Status of Refugees, 28 July 1951.* United Nations, Treaty Series, vol. 189, p. 137.

UNHCR (2021). Climate change and disaster displacement. Accessed on 04.11.2021.

Valentim, A. (2023). Repeated exposure and protest outcomes: How Fridays for Future protests influenced voters. *Working Paper*.

Van der Eijk, C. and M. Van Egmond (2007). Political effects of low turnout in national and European elections. *Electoral Studies 26*(3), 561–573.

Vora, N. R. and G. Zappalà (2025). Endogenous green preferences. CESifo Working Paper 11857, CESifo.

Wappenhans, T., A. Valentim, H. Klüver, and L. F. Stoetzer (2024). Extreme weather events do not increase political parties' environmental attention. *Nature Climate Change 14*(7), 696–699.

Wennersten, J. R. and D. Robbins (2017). *Rising tides: climate refugees in the twenty-first century*. Indiana University Press.

White, R. and B. Tadesse (2010). The effects of refugee and non-refugee immigrants on us trade with their home countries. *The Journal of International Trade & Economic Development 19*(2), 289–317.

Whitmarsh, L. (2008). Are flood victims more concerned about climate change than other people? The role of direct experience in risk perception and behavioural response. *Journal of Risk Research 11*(3), 351–374.

Xu, C., T. A. Kohler, T. M. Lenton, J.-C. Svenning, and M. Scheffer (2020). Future of the human climate niche. *Proceedings of the National Academy of Sciences 117*(21), 11350–11355.

Zappalà, G. (2023). Drought exposure and accuracy: Motivated reasoning in climate change beliefs. *Environmental and Resource Economics 85*(3), 649–672.

Zappalà, G. (2024). Propagation of extreme heat in agriculture across sectors and space. *Working Paper*.

Zaval, L., E. A. Keenan, E. J. Johnson, and E. U. Weber (2014). How warm days increase belief in global warming. *Nature Climate Change 4*(2), 143–147.

Online Appendix "Climate-induced migration and environmental values"

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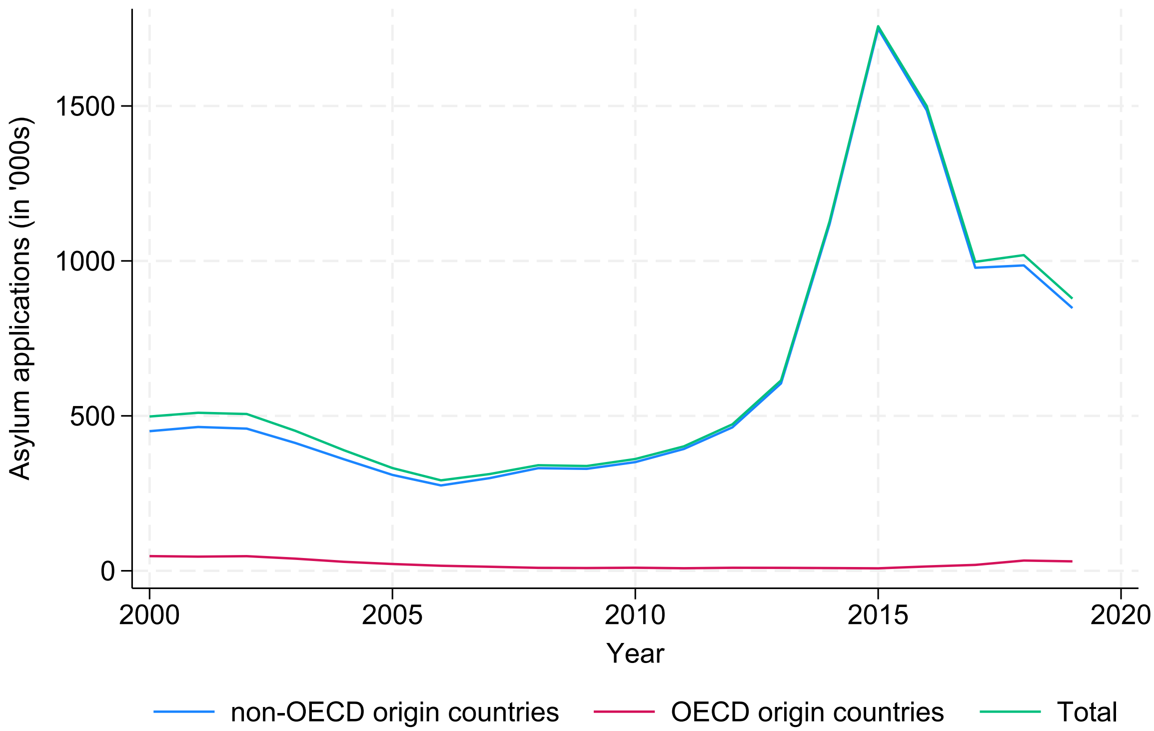
A Additional Figures

Figure A1. Asylum applications in the European Union between 2000 and 2019



Notes: Cumulative annual asylum demands in EU27+UK countries from 2000 to 2019 from UNHCR (2021).

Figure A2. Asylum applications (in ’000s) from non-OECD countries between 2000 and 2019

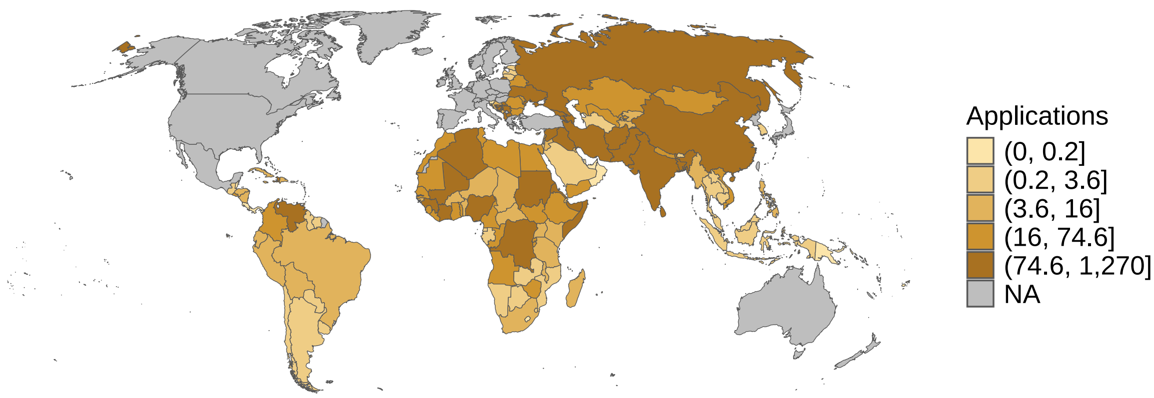


Figure A3. Asylum applications (in '000s) in EU27 + UK between 2000 and 2019

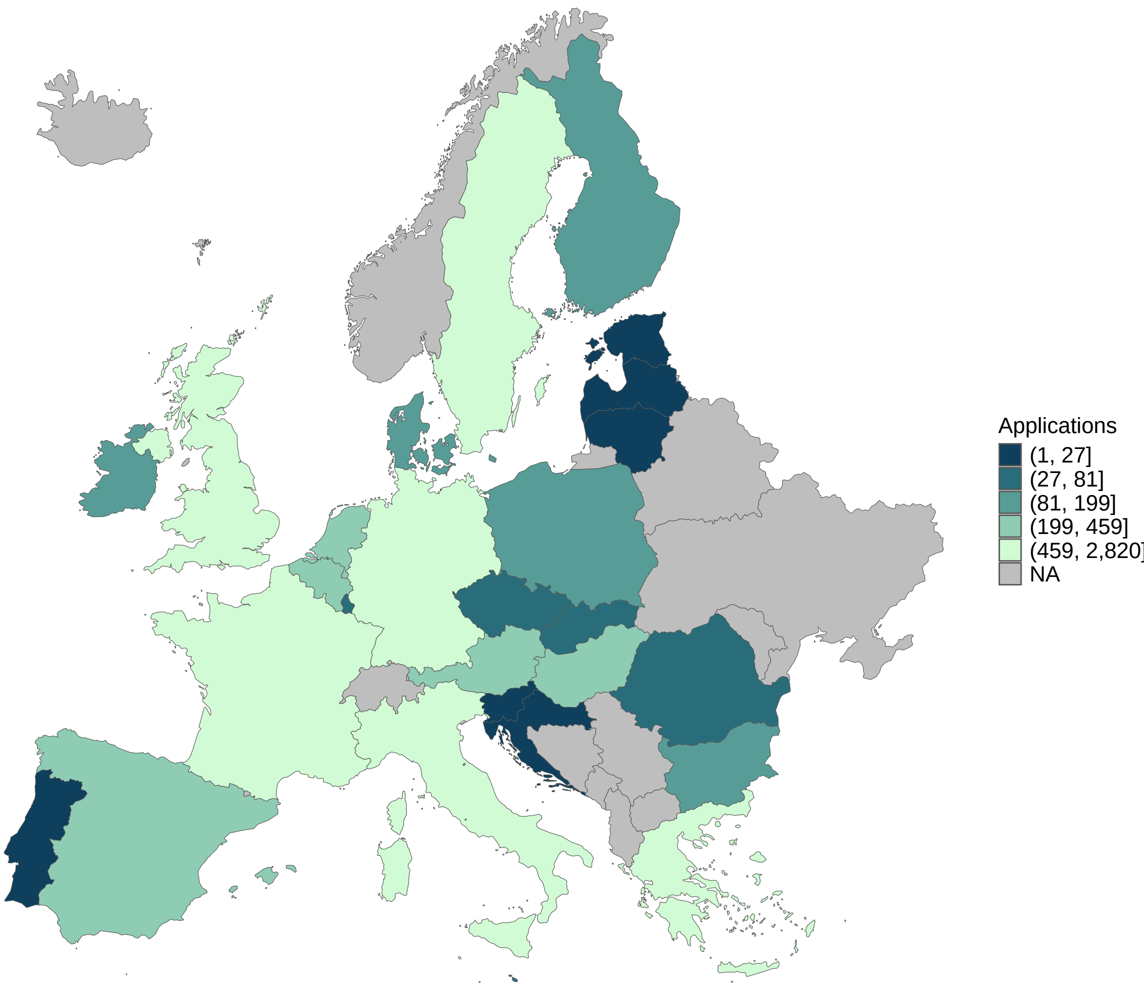
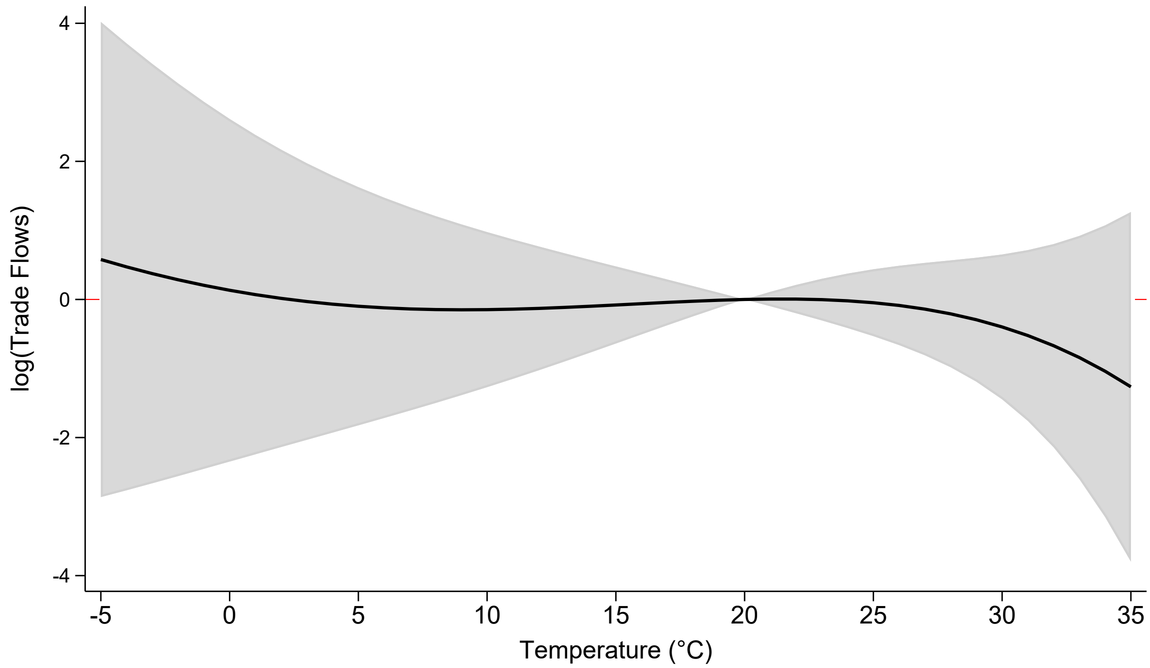
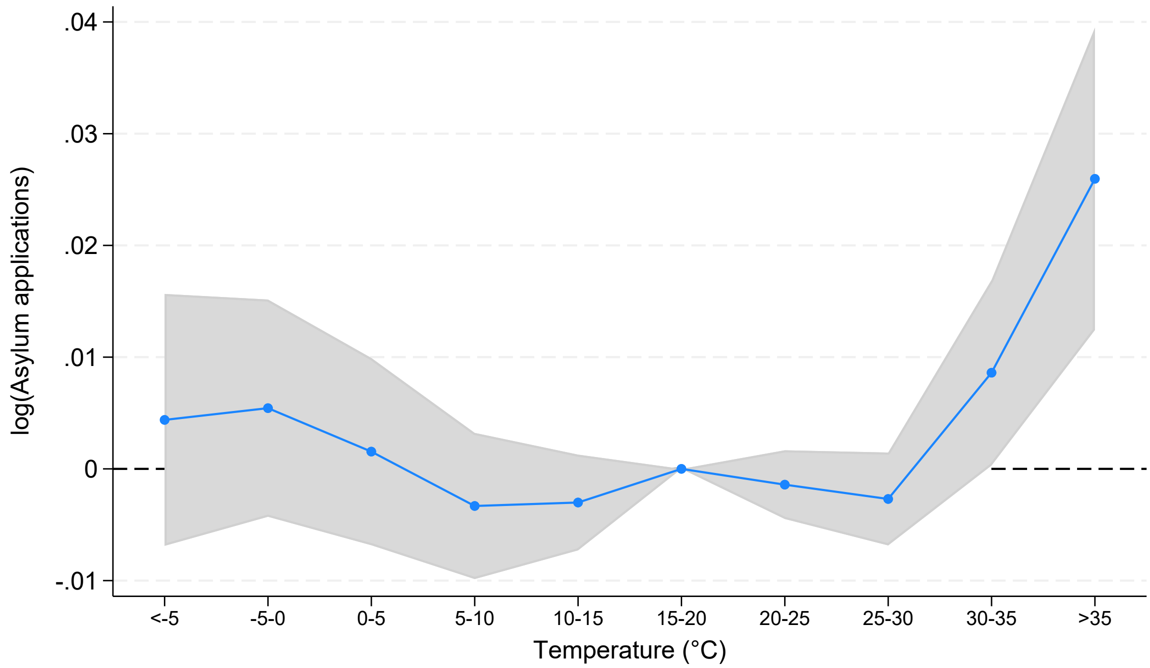


Figure A4. Response of trade flows between non-OECD countries and EU27+UK to daily temperatures over the maize growing season



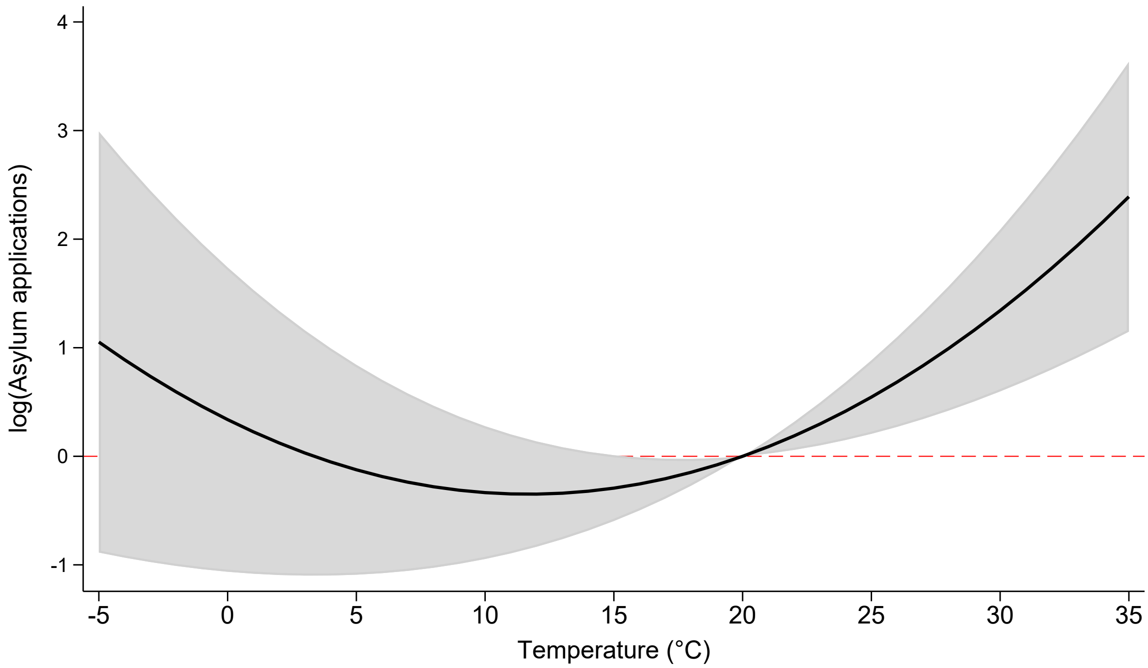
Notes: The figure represents a trade flow-temperature response function for the trade flows from non-OECD countries and the EU27+UK member countries using data from UN Comtrade. Regression estimates are from a fourth-order polynomial in daily average temperature over the maize growing season weighted by maize area in each grid cell. The response function is estimated in a regression model that controls for a quadratic function in season-total precipitation, as well as destination-by-year, region-of-origin-by-year, and dyad-specific fixed effects. Shaded areas are the associated 95% confidence interval using clustered standard errors at the origin country-year level.

Figure A5. Response of asylum applications to 5°C binned daily temperature over the maize growing season



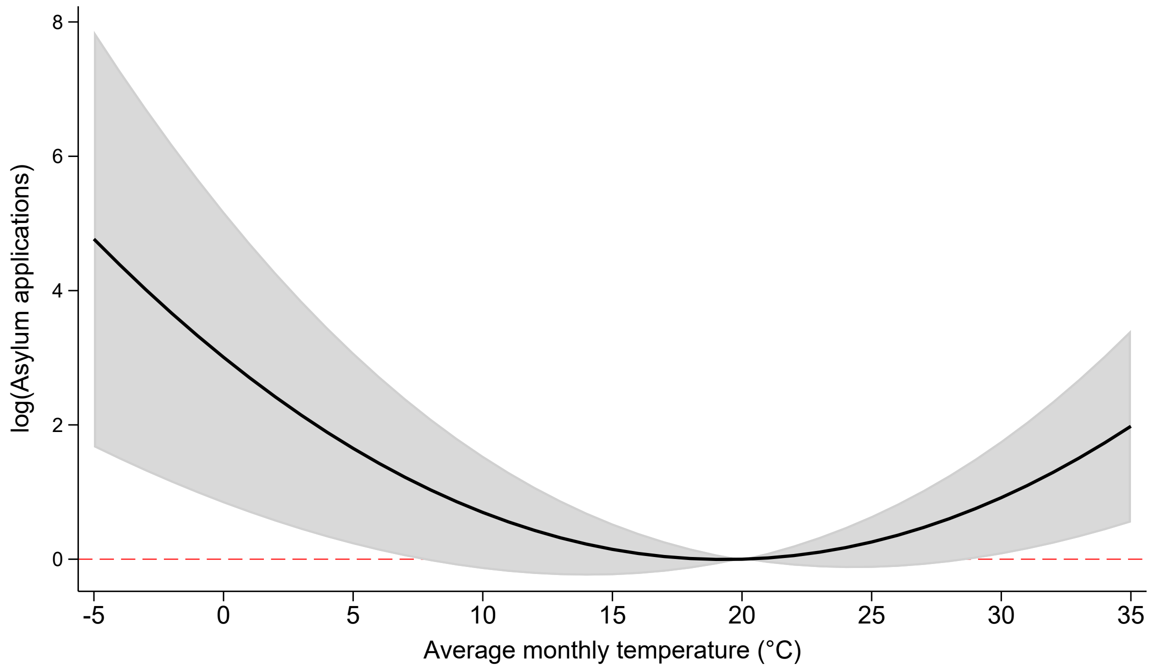
Notes: The figure represents a predicted asylum applications-temperature response function for the applications coming from non-OECD countries in the EU. Regression estimates are from binned daily average temperature over the maize growing season with bins 5°C wide weighted by maize area in each grid cell. The response function is estimated in a regression model that controls for a quadratic function in season-total precipitation, as well as destination-by-year, region-of-origin-by-year, and dyad-specific fixed effects. Shaded areas are the associated 95% confidence interval using clustered standard errors at the origin country-year level.

Figure A6. Response of asylum applications to quadratic daily temperatures over the maize growing season



Notes: The figure represents a predicted asylum applications-temperature response function from non-OECD countries in the EU. Regression estimates are from a second-order polynomial in daily average temperature over the maize growing season weighted by maize area in each grid cell. The response function is estimated in a regression model that controls for a quadratic function in season-total precipitation, as well as destination-by-year, region-of-origin-by-year, and dyad-specific fixed effects. Shaded areas are the associated 95% confidence interval using clustered standard errors at the origin country-year level.

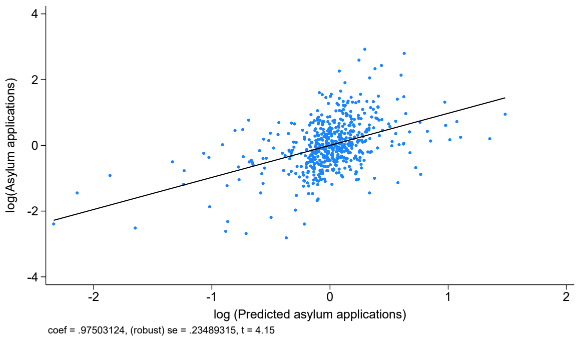
Figure A7. Response of asylum applications to quadratic monthly temperatures over the maize growing season using CRU data



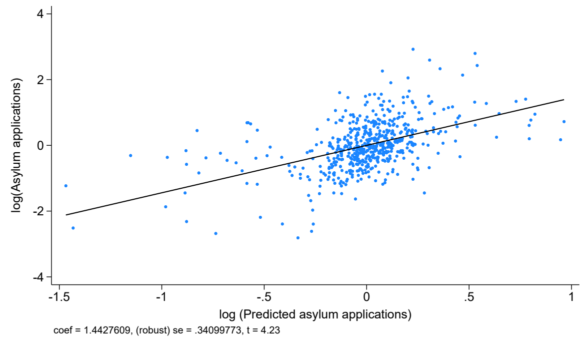
Notes: The figure represents a predicted asylum applications-temperature response function from non-OECD countries in the EU. Regression estimates are from a second-order polynomial in seasonal monthly average temperature from CRU climate data over the maize growing season weighted by maize area in each grid cell. The response function is estimated in a regression model that controls for a quadratic function in season-total precipitation, as well as destination-by-year, region-of-origin-by-year, and dyad-specific fixed effects. Shaded areas are the associated 95% confidence interval using clustered standard errors at the origin country-year level.

Figure A8. Observed and predicted asylum applications with alternative prediction methods

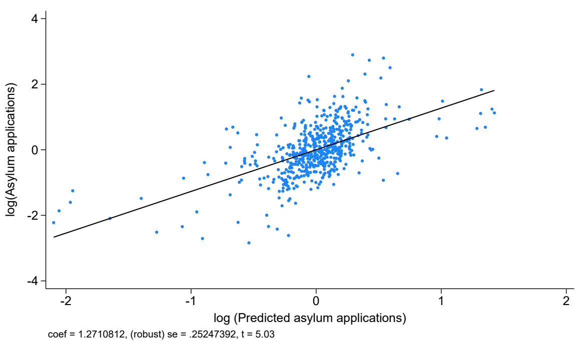
(a) Equation (2)



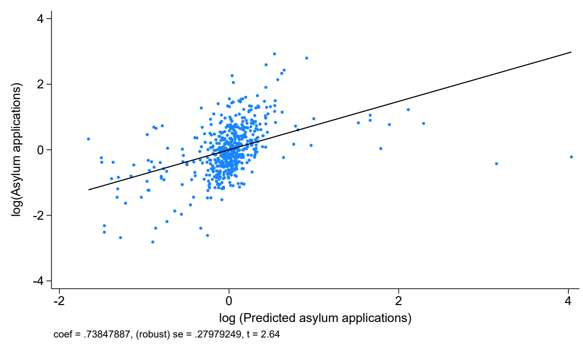
(b) Including migration costs coefficients



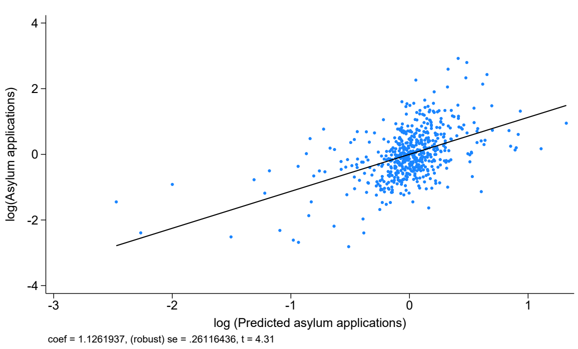
(c) Equation (C1)



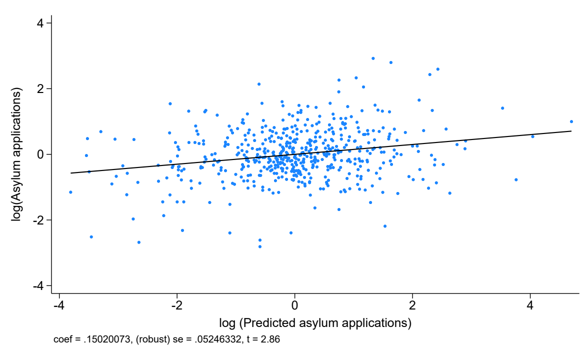
(d) Equation (C2)



(e) Equation (2) with squared temperatures

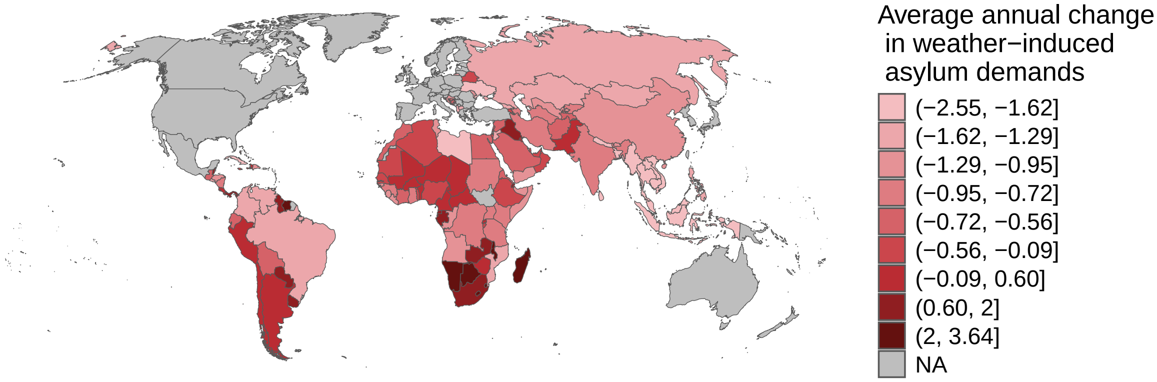


(f) Equation (2) with 5°C-bin temperatures



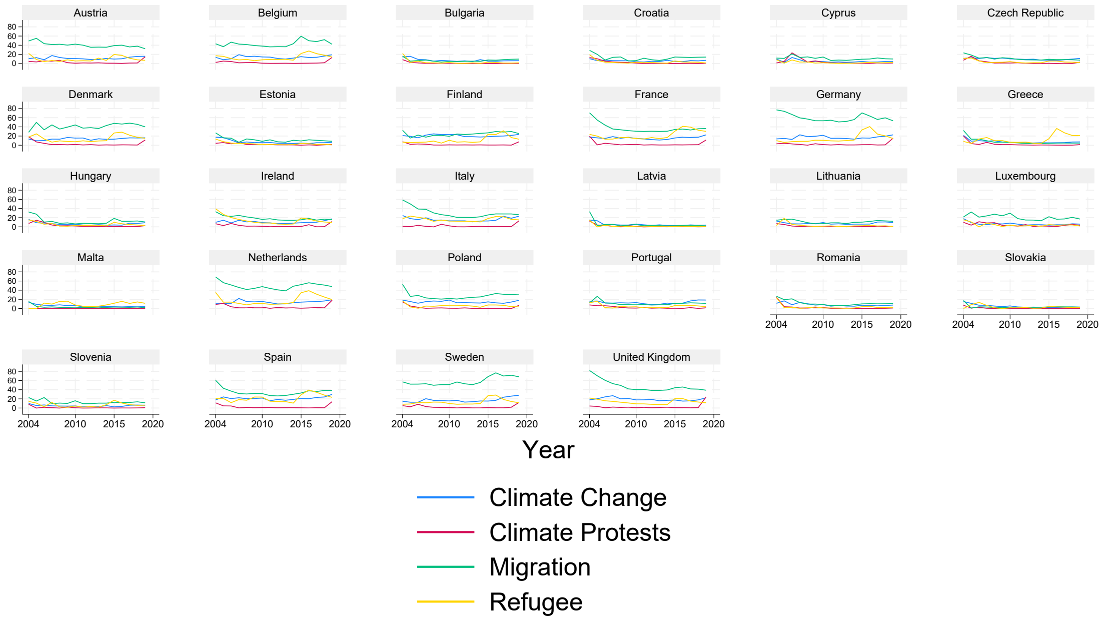
Notes: The vertical axis shows the observed logarithm of flows of asylum applications. The horizontal axis shows the logarithm of predicted weather-induced flows of asylum applications in the EU27+UK obtained by estimating different gravity equations as reported in the title. Each point in the scatterplot represents the residuals of the two variables for each country-year observation, after filtering out country and year fixed effects. Standard errors are clustered at the country level. The black line refers to the slope of the regression of the actual (log) of asylum applications on the predicted weather-driven counterpart.

Figure A9. Average change in predicted weather-induced asylum applications



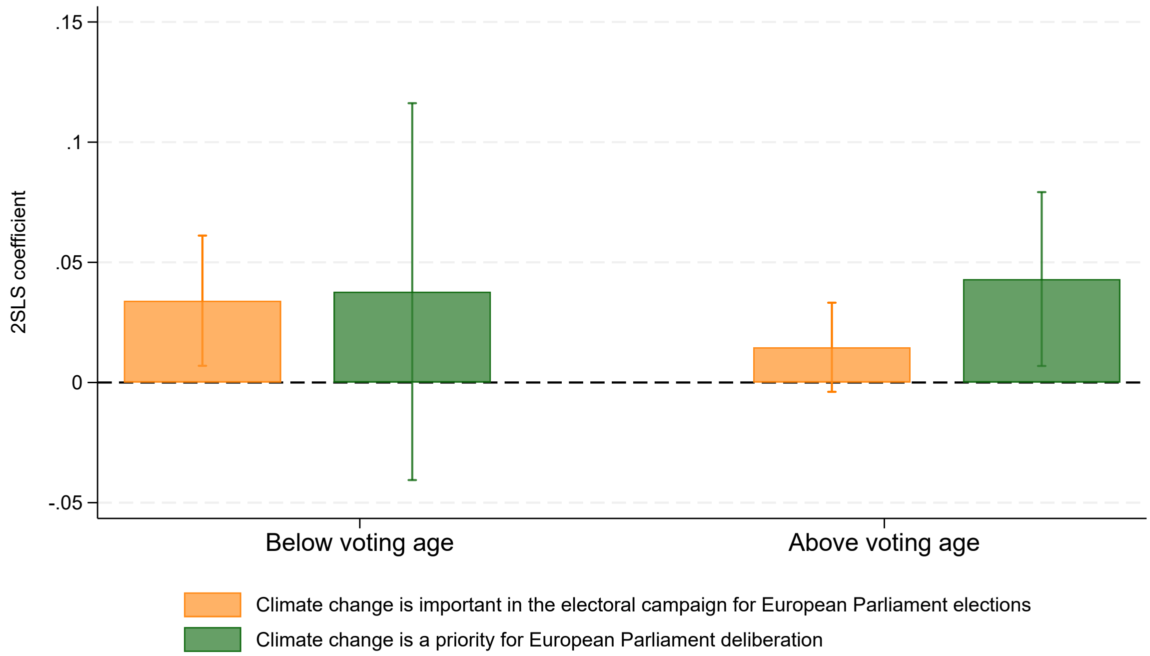
Notes: The figure plots the deciles of the average annual change in the log of predicted weather-induced asylum demands in European Union member countries (EU27+UK) from non-OECD origin countries from the estimation of Equation (2).

Figure A10. Annual average attention (measured with Google search) for climate change, climate protests, migration and refugee by country



Notes: The figure plots the average annual searches for "climate change", "climate protests", "migration", "refugee" from Google Trends. Additional details on the construction of the four variables can be found in Appendix Section B.3.

Figure A11. 2SLS coefficients of weather-induced asylum seeker flows exposure by eligibility to vote



Notes: The figure plots the 2SLS coefficients estimated regressing the survey response on asylum applications in the sample of individuals interviewed above or below the voting age threshold in the country. The voting age is a minimum age established by law that a person must attain before they become eligible to vote in a public election. This is set at 18 years for most of the countries in the sample, except for Austria after 2007, Malta after 2018 which set their voting age to 16 years, and Greece after 2017, setting it to 17 years. Point estimates are reported in Table C11. Bins represent the 95% confidence interval.

B Data Appendix

B.1 Asylum applications data

The applications generally refer to the number of applicants or persons, rather than the number of applications or families. Only those persons who have officially filed a formal request for asylum are included. Other refugees who, for whatever reason, are either unwilling or unable to file an asylum request, and illegal immigrants are not included. The UNHCR data lists the year an application was filed, which allows for a clear temporal link on the intention to migrate, even if asylum is granted with a delay. The UNHCR also provides, at the same spatial and temporal resolution, the number of decisions. A decision corresponds to the closure of an application because the refugee status has been either granted ("recognized"), denied ("rejected"), denied but the applicant is given a complementary form of protection ("other decision"), or not determined before the application got closed for administrative reasons ("otherwise closed").

B.1.1 Asylum application process

The asylum application process can substantially differ across European countries, however, there are certain common characteristics that they share which are described in what follows. Individuals fleeing their country have the right to ask for protection in a European country they have entered if they are afraid to return to the country of their current residence because their life or that of their family members is in danger. To register the request for asylum, individuals usually contact the national Police upon their arrival and, if needed, can ask to be hosted in a reception center, and have the right to be welcomed in a special center, have a temporary residence permit, and remain on the national territory waiting for their application to be examined. As long as their status as asylum seekers last, individuals cannot leave the national territory. Labor market integration of refugees differs across countries with lasting negative consequences of delayed entry into the destination country labor market due to employment restrictions while waiting for asylum (Fasani et al., 2021). In Denmark since 2013, refugees can work before asylum adjudication (Foged et al., 2022); in Italy, two months after the compilation of the application form at the Immigration Office of the Police, asylum seekers have the right to work regularly (Campo et al., 2024). Other countries, such as Germany in 2017, grant asylum seekers access to training and employment program during the pre-asylum phase (Fasani et al., 2021).

B.2 Additional covariates

I retrieve variables on geographic time-invariant bilateral characteristics that are included in the estimation of the gravity equation. The geographic controls come from the BACI dataset and provided by CEPII (Head and Mayer, 2014). In particular, I include variables on whether countries have a common border, a common official language, a common colonial history and a variable measuring the natural logarithm of bilateral (geodesic) distance between capitals (Abel et al., 2019; Beine and Parsons, 2015; Bosetti et al., 2020). The use of these time-invariant dyad-specific covariates introduces bilateral variation driven by migration costs in the gravity equation, which allows me to obtain origin-destination-time varying variation in the weather-driven portion of asylum demands. This approach justifies a gravity equation as a zero stage to construct the instrument I use in my analysis.

In the country-level specification, I include time-varying country-level covariates to account for potential confounders of the determinants of voting behavior that are also correlated with changes in asylum seeker inflows. Immigration may be driving per capita income levels in the destination country (Felbermayr et al., 2010), which has also been found to be associated with higher support for Green parties (Pearson and Rüdig, 2020). For this reason, I retrieve GDP and population data from the Penn World Table, version 10.0. In particular, I use Output-side real GDP at chained PPPs (in millions 2017 US$) and population in the country in millions. I also obtain yearly unemployment rate data from the World Bank indicator on total unemployment (as a percentage of total labor force based on International Labor Organization estimates), tertiary-level educational attainment (in the percentage of the total population) from Eurostat and the percentage of population between 18 and 23 years old from the United Nations Department of Economics and Social Affairs[15] as proxies of institutional determinants of migrants' decision of destination countries and as explanatory factors of the support for Green parties.

B.3 Google Trends Data

Google Trends data consist of the volume of daily searches by word, or list of words, in a given country, over time in all languages. I leverage these data to measure public attention to migration, refugees, and climate change. I collect the volume of searches for several keywords to construct a measure of relative attention to the following topics (keywords in parentheses) "climate change" (climate change, drought*, flood*, heat wave*, global warming, storm*), "climate protests" (climate protest*, climate strike*, Fridays for future), "migration" (migration, migrants) and "refugee" (refugee*, asylum

[15]Source: https://population.un.org/wpp/Download/Standard/Interpolated/

seeker*). Search trends are computed based on a random sample of the total searches on Google, and this might produce measurement error issues. To diminish such worries, I draw the time series three times and take an average. I then construct the four indices as an unweighted average of the searches of each keyword. Appendix Figure A10 plots the evolution of Google searches about the four indices by destination country. Each line represents the annual average of Google searches over time. Before averaging, the value is normalized, assigning 100 to the weekly maximum. Google searches strongly correlate with news articles (Battiston, 2020). Ideally, one would gather data from news articles to compare the two and include them in the estimating equation. This channel would be particularly relevant since newspapers' language and sentiment largely respond to readers' demands (Gentzkow and Shapiro, 2010). Given the wide cross-national scope of this analysis, it is difficult and beyond the aim of this paper to construct a comprehensive dataset of EU member states' newspaper coverage of climate and migration issues. This is left as a promising avenue for future research.

B.4 Additional data information

Table B1. *Eurobarometer* Outcome Variable Definition

VARIABLE	DESCRIPTION	MEAN (SD)	SURVEY WAVES [Sample Size]
Climate concern in European Elections (0/1)	Which of the following themes should be discussed as a matter of priority during the electoral campaign for the next European Parliament (EP) elections? (Combating climate change and protecting the environment)	0.06 (0.24)	2008; 2009; 2018 [106,614]
Climate change as political priority (0/1)	The EP makes decisions on European legislation which directly impacts every citizen's life. In your opinion which of the following should be given priority by the European Parliament? (Combating climate change and protecting the environment)	0.107 (0.31)	2008; 2009; 2012; 2013; 2014; 2018 [130,068]
Climate change is a world problem (0/1)	In your opinion, which of the following do you consider to be the most serious problem currently facing the world as a whole? (Global Warming / Climate Change)	0.37 (0.48)	2008; 2009; 2011; 2013; 2015; 2017; 2019 [116,879]
Seriousness of climate change (1-10)	How serious a problem do you think climate change is at this moment? Please use a scale from 1 to 10, '1' would mean that it is "not at all a serious problem" and '10' would mean that "it is a problem extremely serious".	7.57 (2.14)	2008; 2009; 2011; 2013; 2015; 2017; 2019 [116,110]
Migration in European Elections (0/1)	Which of the following themes should be discussed as a matter of priority during the electoral campaign for the next European Parliament elections? (Migration)	0.08 (0.27)	2008; 2009; 2018 [100,707]
Migration as political priority (0/1)	The EP makes decisions on European legislation which directly impacts every citizen's life. In your opinion which of the following should be given priority by the European Parliament? (Migration)	0.08 (0.28)	2008; 2009; 2012; 2013; 2014; 2018 [130,068]
Economic growth in European Elections (0/1)	Which of the following themes should be discussed as a matter of priority during the electoral campaign for the next EP elections? (Economy and growth)	0.16 (0.37)	2008; 2009; 2018 [106,614]
Euro single currency in European Elections (0/1)	Which of the following themes should be discussed as a matter of priority during the electoral campaign for the next EP elections? (Euro as single currency)	0.03 (0.16)	2008; 2009; 2018 [53,799]
Terrorism in European Elections (0/1)	Which of the following themes should be discussed as a matter of priority during the electoral campaign for the next EP elections? (Fight against terrorism)	0.06 (0.23)	2008; 2009; 2018 [106,614]
Food safety in European Elections (0/1)	Which of the following themes should be discussed as a matter of priority during the electoral campaign for the next EP elections? (Consumer protection and food safety)	0.05 (0.21)	2008; 2009; 2018 [106,614]
Terrorism as political priority (0/1)	The EP makes decisions on European legislation which directly impacts every citizen's life. In your opinion which of the following should be given priority by the EP? (Fight against terrorism)	0.11 (0.31)	2008; 2009; 2012; 2013; 2014; 2018 [130,068]

Notes: The survey waves used include Eurobarometer 69.2 (2008), 71.1 (2009), 78.2 (2012), 79.5 (2013),82.5 (2014), 83.4 (2015), 87.1 (2017), 90.1 (2018).

Table B2. European Parliament elections and National elections by country and year in the estimation sample

Country	# European Parliament Elections	Years with Green party votes	# National Elections	Years
Austria	4	2004; 2009; 2014; 2019	4	2006; 2013; 2017; 2019
Belgium	4	2004; 2009; 2014; 2019	4	2003; 2007; 2010; 2019
Bulgaria	0		5	2001; 2005; 2013; 2014; 2017
Croatia	0		4	2007; 2011; 2015; 2016
Cyprus	0		0	
Czech Republic	3	2004; 2009; 2014	5	2002; 2006; 2010; 2013 ; 2017
Denmark	3	2009; 2014; 2019	6	2001; 2005; 2007; 2011; 2015; 2019
Estonia	2	2009; 2019	4	2003; 2007; 2011; 2015
Finland	4	2004; 2009; 2014; 2019	5	2003; 2007; 2011; 2015; 2019
France	4	2004; 2009; 2014; 2019	4	2002; 2007; 2012; 2017
Germany	4	2004; 2009; 2014; 2019	4	2002; 2009; 2013; 2017
Greece	3	2004; 2009; 2019	4	2004; 2009; 2012; 2015
Hungary	2	2014; 2019	4	2002; 2006; 2010; 2014
Ireland	4	2004; 2009; 2014; 2019	3	2002; 2007; 2011
Italy	0		2	2008; 2018
Latvia	0		6	2002; 2006; 2010; 2011; 2014; 2018
Lithuania	2	2014; 2019	0	
Luxembourg	4	2004; 2009; 2014; 2019	2	2009; 2013
Malta	4	2004; 2009; 2014	0	
Netherlands	4	2004; 2009; 2014; 2019	6	2002; 2003; 2006; 2010; 2012; 2017
Poland	0		2	2001; 2005
Portugal	2	2014; 2019	4	2009; 2011; 2015; 2019
Romania	0		2	2012; 2016
Slovakia	0		5	2002; 2006; 2010; 2012; 2016
Slovenia	2	2004; 2019	4	2004; 2008; 2011; 2018
Spain	3	2009; 2014; 2019	6	2004; 2008; 2011; 2015; 2016; 2019
Sweden	4	2004; 2009; 2014; 2019	5	2002; 2006; 2010; 2014; 2018
United Kingdom	4	2004; 2009; 2014; 2019	5	2001; 2005; 2010; 2015; 2019

Table B3. *Manifesto* Outcome Variables Definition

VARIABLE	DESCRIPTION	MANIFESTO VARIABLE
Environmentalism	Environmental Protection. General policies in favour of protecting the environment, fighting climate change, and other "green" policies. For instance: General preservation of natural resources; Preservation of countryside, forests, etc.; Protection of national parks; Animal rights. May include a great variance of policies that have the unified goal of environmental protection.	per501
Europe +	Favourable mentions of European Community/Union in general. May include the: - Desirability of the manifesto country joining (or remaining a member);- Desirability of expanding the European Community/Union; - Desirability of increasing the ECs/EUs competences; - Desirability of expanding the competences of the European Parliament.	per108
Europe -	European Community/Union: Negative. Negative references to the European Community/Union. May include: Opposition to specific European policies which are preferred by European authorities; Opposition to the net-contribution of the manifesto country to the EU budget.	per110
Multiculturalism +	Multiculturalism: Positive. Favourable mentions of cultural diversity and cultural plurality within domestic societies. May include the preservation of autonomy of religious, linguistic heritages within the country including special educational provisions	per607
Multiculturalism -	Multiculturalism: Negative. The enforcement or encouragement of cultural integration. Appeals for cultural homogeneity in society	per608
Refugees +	Favourable mentions of, or need for, assistance to people who left their homes because of the war (for instance, on the territory of ex-Yugoslavia) or were forcibly displaced.	per706_2
Cultural Autonomy +	Cultural Autonomy: Positive. Favourable mentions of cultural autonomy	per607_1

C Additional Results

C.1 Gravity equation accounting for weather in host countries

To introduce additional bilateral source of variation in the predicted values of asylum demands, I include a second-order polynomial in temperature and precipitation in host countries as measures of pull factors. This comes at the cost of removing destination-year fixed effects, which makes the identifying assumption more restrictive. The alternative gravity equation is written as

$$\log\left(AsyApp_{odt}\right) = f(\boldsymbol{W_{ot}}, BIL_{od}, \alpha) + g(\boldsymbol{W_{dt}}, \beta) + \theta_{od} + \chi_{rt} + u_{odt} \tag{C1}$$

This alternative specification does not account for destination-by-year fixed effect, collinear with the pull factors. Predicted values of asylum demands are then constructed as $\widehat{AsyApp}_{dt} = \sum_{o \neq d} \exp\left(\widehat{\alpha}_M X_{odt} + \widehat{\beta}_M W_{dt}\right)$. Appendix Table D4 displays the results for the three different alternative measures of temperature and precipitation.

C.2 Destination-specific response function to weather fluctuations

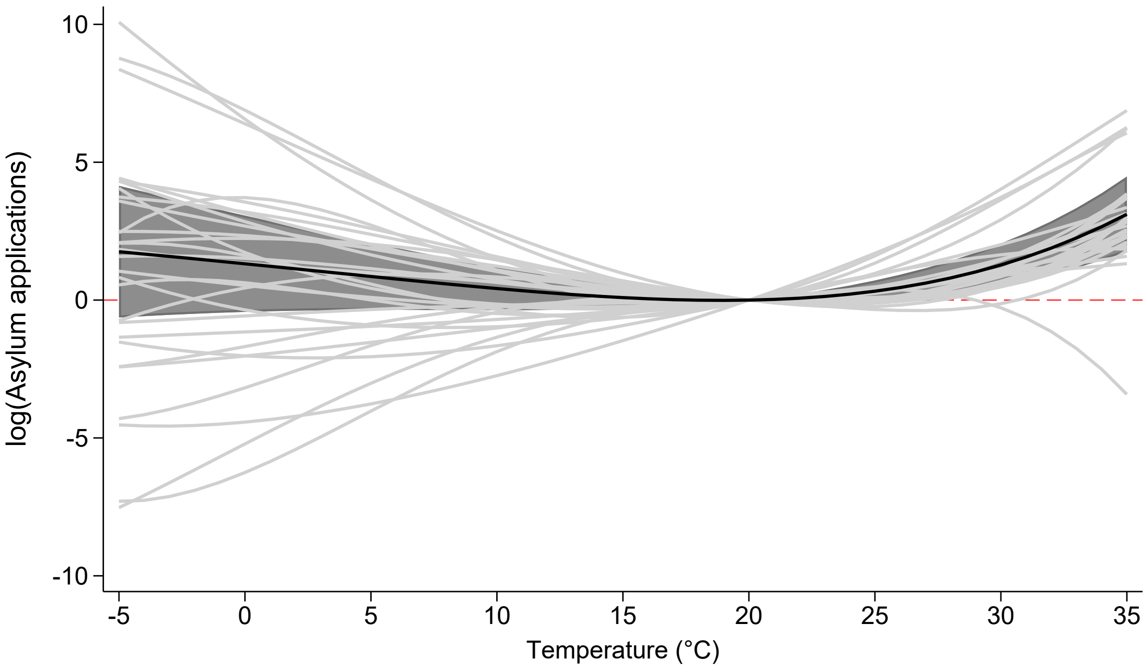
To account for the fact that weather deviations in the origin country have differential effects for each destination country, I estimate destination-specific response functions. The estimating gravity equation is written as

$$\log\left(AsyApp_{odt}\right) = f(\boldsymbol{W_{ot}}, \alpha_d) + \theta_{od} + \psi_{dt} + \chi_{rt} + u_{odt} \tag{C2}$$

where I now allow the response to origin weather α_o to differ by destination country. By estimating destination-specific responses to weather fluctuations in origin countries, the predicted values obtained leveraging only weather variation are time-varying and pair-specific, so I can now include origin-destination specific fixed effects in place of measures of migration costs.

Figure C1 displays the destination-specific response functions to season-total temperature in origin countries. The country-specific response to hotter temperatures at origin is positive and similar to the average pooled response for all destination countries except Estonia. This exception should not raise concerns for two reasons. First, Estonia is the country with the lowest number of asylum applications in the sample, 882 over the time period considered, which is less than 0.01% of the total applications in the sample. Therefore, it is unlikely, and supported by empirical leave-one-country-out tests, that this country drives the results alone. Second, as discussed in Section 4.2.2, hotter temperatures in origin countries reducing asylum applications to Estonia does not raise concerns on the validity of the monotonicity assumption for my instrumental variable approach. The monotonicity assumption applies to the first-stage relationship between the weather-induced portion of asylum seekers, the instrument, and the observed asylum applications, the endogenous variable, while temperatures are allowed to have non-linear flexible effects on asylum applications in the gravity equation in the "zero" stage.

Figure C1. Destination-specific response functions to temperature in origin countries over maize growing season



Notes: The figure plots the predicted asylum applications-temperature response function for each destination country for the applications coming from non-OECD countries in the EU27+UK. Regression estimates are from a fourth-order polynomial in daily average temperature over the maize growing season weighted by maize area in each grid cell. The response function is estimated in a regression model that controls for a quadratic function in season-total precipitation, as well as destination-by-year, region-of-origin-by-year, dyad-specific fixed effects. The solid black line reports the pooled average response function as displayed in Figure 2 and its associated 95% confidence interval using country-year clustered standard errors.

C.3 Weather-induced anomalies in asylum applications lead to higher acceptance rate

Weather anomalies and climate change are not valid criteria for asylum applications (UN, 1951). There are two main channels through which weather fluctuations can increase asylum demands. On the one hand, asylum applications can increase due to economic reasons, on the other one, they can increase due to conflict or persecution, for instance, as a result of crop failures or tightening of natural resource constraints. Only in the latter case, asylum applications could be deemed valid by the host countries. I test whether application decisions respond positively to weather-induced asylum demands, providing an indirect test of the validity of weather-induced asylum applications (Missirian and Schlenker, 2017b).

I compute anomalies in weather-induced asylum demands as the predicted change in the number of applications from an origin country to a destination country as explained by deviations in the weather variables from their respective sample averages. The weather-induced application anomaly (which I also use in a OLS regression as main treatment in further robustness checks) from origin o to destination d in year t is

$$n_{odt} = e^{f(\boldsymbol{W_{ot}};\boldsymbol{X_{od}};\widehat{\alpha})+\widehat{\theta}_o+\widehat{\mu_{dt}}+\widehat{\chi_{rt}}+\frac{\widehat{\sigma_u^2}}{2}} - e^{f(\boldsymbol{W_{ot}};\boldsymbol{X_{od}};\widehat{\alpha})+\widehat{\theta}_o+\widehat{\mu_{dt}}+\widehat{\chi_{rt}}+\frac{\widehat{\sigma_u^2}}{2}} \tag{C3}$$

where the parameters are the coefficients from the baseline gravity in Equation (2) of log asylum applications on weather, and $\widehat{\sigma_u^2}$ is the predicted variance of the error term from the same regression. Then, I examine asylum decisions (acceptances) d_{odt} in the following two years.

$$d_{odt} = \sum_{\tau=0}^{2} \gamma \; n_{od(t-\tau)} + \theta_{od} + \psi_{dt} + \chi_{rt} + \nu_{odt} \tag{C4}$$

Table C1 displays the coefficients on how weather-induced asylum anomalies translate into additional acceptances accounting for up to two-year lagged application anomalies. Accounting for both recognized refugee status and complementary protections granted (column 2), contemporaneous and one-year lagged anomalies are positive and statistically significant and the sum of the three coefficients is 45.23 (p-value: 0.001) for the baseline fourth-order polynomial model in temperature. These findings suggest that weather-induced shocks to applications are deemed valid by host countries at a much higher rate. I find that weather shocks induce people to flee and be recognized as needing international protection through refugee status.

Table C1. Weather-induced asylum application anomalies and acceptance

	(1)	(2)
n_{odt}	31.80*	36.25**
	(18.59)	(17.73)
n_{odt-1}	12.22***	18.90***
	(3.148)	(3.742)
n_{odt-2}	1.207	7.947
	(5.624)	(6.327)
Outcome	Recognized decisions	Recognized decisions & Complementary Protection
p-value ($\gamma_1 + \gamma_2 + \gamma_3 = 0$)	0.024	0.001
F-Statistic($\gamma_1 + \gamma_2 + \gamma_3 = 0$)	5.076	10.822
Mean Outcome	150.547	513.577
Average acceptance rate	0.061	0.326
N	19125	19125
adj. R^2	0.362	0.442

Notes: The estimated equation includes origin-destination, region-of-origin-by-year, and destination-by-year fixed effects. Robust standard errors, clustered at the origin-destination pair level, in parentheses. Significance levels: * $p < 0.1$, ** $p < 0.05$, *** $p < 0.01$.

C.4 Sensitivity analysis for instrumental variable

I conduct a sensitivity analysis of the baseline instrumental variable estimates (Cinelli and Hazlett, 2025). This approach jointly addresses potential violations of the exclusion restriction and of the ignorability of the instrument, allowing for an assessment of how strong such violations would need to be to overturn the main results. It is not necessary to have precisely zero confounding bias in order to arrive at my findings, but it is important to determine how severe confounding would need to be to have meaningfully altered my conclusions through sensitivity analysis.

Table C2 presents the baseline estimates, Anderson–Rubin weak instrument confidence intervals, and corresponding t-values for the two main survey outcomes (Panels A and B), along with robustness values and extreme robustness values (Cinelli and Hazlett, 2020, 2025). To benchmark the potential severity of omitted variable bias, I compare the estimated sensitivity metrics to those implied by four observed covariates that account for a substantial share of the variation in the outcomes: left-wing political orientation, destination temperature, gender (male), and educational attainment above 20 years of age. For example, a hypothetical confounder as predictive as political orientation in Panel A would explain 0.37% of the residual variation in the outcome and just 0.004% of the residual variation in the instrument, resulting in a bias-adjusted critical t-value of 2.08. Since the observed t-value (7.21) remains well above this threshold—as well as all other benchmark-adjusted thresholds—these results indicate that confounding of a magnitude comparable to any of the observed covariates would not meaningfully threaten the validity of the findings.

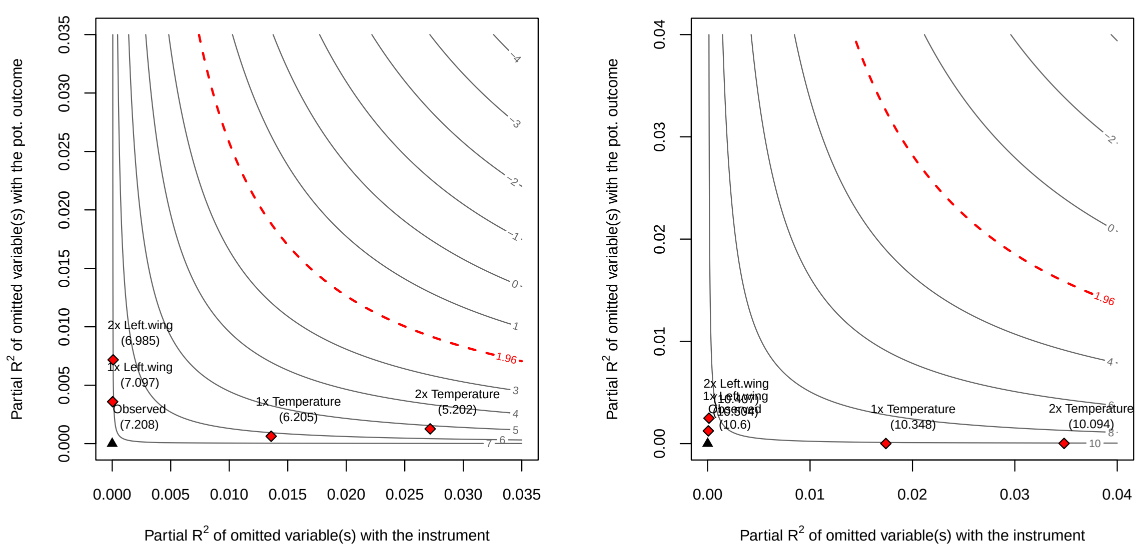
Figure C2 presents sensitivity contour plots illustrating how the t-statistic for testing the null hypothesis of no effect of asylum applications on climate concern varies with the strength of potential unobserved confounding. In both outcomes (Panels A and B), the estimated effects remain statistically significant under a wide range of plausible violations of the exclusion restriction. The benchmark bounds (diamonds) show how confounding "as strong as" (able to explain as much of the instrument and outcome residual variation) as observed covariates would alter the t-statistics associated with asylum applications. Specifically, even hypothetical confounders that are twice as predictive of the outcome and the instrument as key observed covariates—such as destination temperature or left-wing political orientation (as well as gender and tertiary education, omitted from the plot for clarity)—would be insufficient to reduce the t-value below conventional significance thresholds. Therefore, any confounding able to substantially alter the conclusions reached would need to explain far more of predicted weather-induced asylum applications and climate concern than is explained by even these theoretically important variables.

Table C2. Minimal sensitivity reporting

Instrument	Estimate	Anderson-Rubin CI	t-value	Extreme Robustness Value (%)	Robustness Value (%)
Panel A: Climate concern in European Elections					
Asylum applications	0.0226	[0.016, 0.029]	7.21	0.05	1.6
Bound (1x Left-wing): $R^2_{Y\sim W\|Z,X} = 0.37\%$, $R^2_{W \sin Z\|X} = 0.004\%$, $t^{\max}_{\alpha} = 2.08$					
Bound (2x Left-wing): $R^2_{Y\sim W\|Z,X} = 0.75\%$, $R^2_{W \sin Z\|X} = 0.008\%$, $t^{\max}_{\alpha} = 2.21$					
Bound (1x Temperature): $R^2_{Y\sim W\|Z,X} = 0.37\%$, $R^2_{W \sin Z\|X} = 1.36\%$, $t^{\max}_{\alpha} = 4.29$					
Bound (2x Temperature): $R^2_{Y\sim W\|Z,X} = 0.73\%$, $R^2_{W \sin Z\|X} = 2.72\%$, $t^{\max}_{\alpha} = 6.64$					
Bound (1x Male): $R^2_{Y \sin W\|Z,X} = 0.06\%$, $R^2_{W \sin Z\|X} = 0.007\%$, $t^{\max}_{\alpha} = 2.02$					
Bound (2x Male): $R^2_{Y \sin W\|Z,X} = 0.12\%$, $R^2_{W \sin Z\|X} = 0.013\%$, $t^{\max}_{\alpha} = 2.09$					
Bound (1x Tertiary education): $R^2_{Y \sin W\|Z,X} = 0.21\%$, $R^2_{W \sin Z\|X} = 0.009\%$, $t^{\max}_{\alpha} = 2.10$					
Bound (2x Tertiary education): $R^2_{Y \sin W\|Z,X} = 0.42\%$, $R^2_{W \sin Z\|X} = 0.017\%$, $t^{\max}_{\alpha} = 2.23$					
Panel B: Climate change as political priority					
Asylum applications	0.0444	[0.035, 0.051]	10.6	0.08	2.4
Bound (1x Left-wing): $R^2_{Y\sim W\|Z,X} = 0.14\%$, $R^2_{W \sin Z\|X} = 0.007\%$, $t^{\max}_{\alpha} = 2.07$					
Bound (2x Left-wing): $R^2_{Y\sim W\|Z,X} = 0.28\%$, $R^2_{W \sin Z\|X} = 0.013\%$, $t^{\max}_{\alpha} = 2.17$					
Bound (1x Temperature): $R^2_{Y\sim W\|Z,X} = 0.002\%$, $R^2_{W \sin Z\|X} = 1.74\%$, $t^{\max}_{\alpha} = 2.17$					
Bound (2x Temperature): $R^2_{Y\sim W\|Z,X} = 0.003\%$, $R^2_{W \sin Z\|X} = 3.48\%$, $t^{\max}_{\alpha} = 2.39$					
Bound (1x Male): $R^2_{Y \sin W\|Z,X} = 0.02\%$, $R^2_{W \sin Z\|X} = 0.15\%$, $t^{\max}_{\alpha} = 2.02$					
Bound (2x Male): $R^2_{Y \sin W\|Z,X} = 0.04\%$, $R^2_{W \sin Z\|X} = 0.31\%$, $t^{\max}_{\alpha} = 2.08$					
Bound (1x Tertiary education): $R^2_{Y \sin W\|Z,X} = 0.04\%$, $R^2_{W \sin Z\|X} = 0.001\%$, $t^{\max}_{\alpha} = 1.98$					
Bound (2x Tertiary education): $R^2_{Y \sin W\|Z,X} = 0.08\%$, $R^2_{W \sin Z\|X} = 0.002\%$, $t^{\max}_{\alpha} = 2.00$					

Figure C2. Sensitivity contour plots for main survey outcomes

(a) Climate concern in European Elections (b) Climate change as political priority



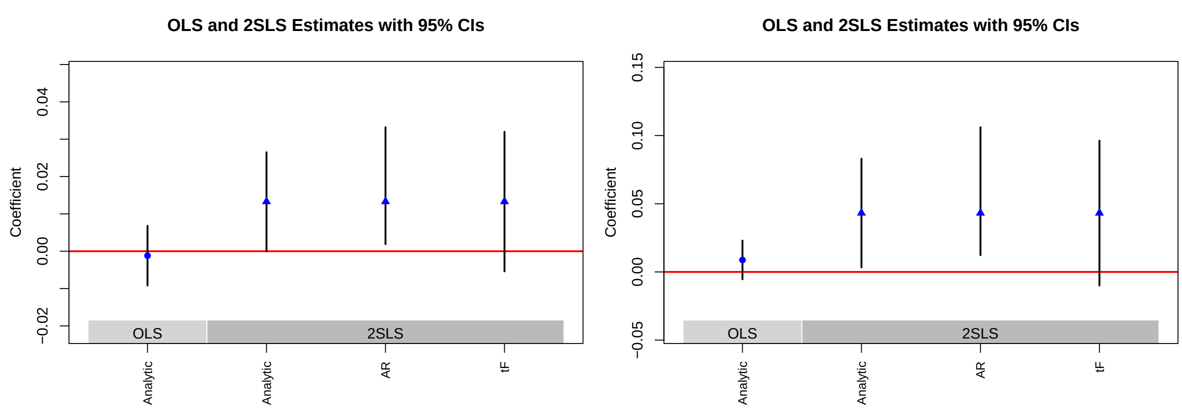
Notes: Sensitivity contour plots of the t-value in the partial R^2 scale with benchmark bounds for the baseline instrumental variable estimates for the two main survey outcomes (columns 2 and 4 in Table 1). Alternative t-values reported only for temperature and left-wing political orientation to improve visualization (all other simulated confounders' strength are lower). The red dashed line reports the contour for the conventional 1.96 t-value threshold used for hypothesis testing.

C.5 Additional validity checks on instrumental variable approach

Following Lal et al. (2024), I conduct additional validity checks on my research design. In particular, I conduct both OLS and 2SLS estimation and quantify uncertainties using multiple inferential methods, including the Anderson-Rubin (AR) test with its associated 95% confidence interval computed using the inversion method (Chernozhukov and Hansen, 2008), and the adjusted t-ratio inference (tF) from Lee et al. (2022). The 2SLS estimates are larger in magnitude than the OLS estimates, and various inferential methods tend to agree with each other, although confidence intervals computed using the F-statistic-dependent t-test (Lee et al., 2022) include 0 at the 95% but not at 90% level, suggesting robustness of the findings.

Figure C3. OLS and IV estimates with 95% CIs from various inferential methods on two main survey outcomes

(a) Climate concern in European Elections (b) Climate change as political priority



Notes: Replicated OLS and 2SLS estimates with 95% confidence intervals. The outcomes are the survey response to "Climate concern in European Elections" (panel a) and "Climate change as political priority" (panel b). The treatment is flow of asylum seekers and the instrument is the predicted weather-induced portion.

C.6 Additional individual-level results

Table C3. Weather-induced asylum applications and environmental values. First stage and reduced form results.

Outcome variable	log(Asylum Applications)	Climate concern in European Elections	log(Asylum Applications)	Climate change as political priority
	First stage	Reduced form	First stage	Reduced form
	(1)	(2)	(3)	(4)
log(Predicted asylum applications)	1.397***	0.0316***	1.531***	0.0660***
	(0.368)	(0.0102)	(0.331)	(0.0223)
Local weather controls	X	X	X	X
Individual controls	X	X	X	X
Country FE	X	X	X	X
Age FE	X	X	X	X
Region-by-year FE	X	X	X	X
Country-age linear trends	X	X	X	X
Anderson-Rubin p-value	0.02		0.003	
Weak IV Robust 95% Confidence Interval	[0.002, 0.033]		[0.012, 0.106]	
N	106,614	106,614	130,068	130,068
Number of countries	28	28	28	28

Notes: Predicted asylum applications is constructed from the gravity-predicted asylum application flows as described in Equation (2) in the text. Columns (1) and (3) show the first stage of the baseline instrumental variable regression. Columns (2) and (4) show the reduced form between the predicted weather-induced asylum applications and the main survey outcomes. Weak IV robust 95% confidence intervals are Anderson–Rubin confidence sets calculated using package from Finlay and Magnusson (2009). Robust standard errors, clustered at the country level, in parentheses. Significance levels: * $p < 0.1$, ** $p < 0.05$, *** $p < 0.01$.

Table C4. Weather-induced asylum applications and environmental values. Baseline results with all coefficients.

Outcome variable	Climate concern in European Elections		Climate change as political priority	
	OLS	2SLS	OLS	2SLS
	(1)	(2)	(3)	(4)
log(Asylum Applications)	-0.00147	0.0226**	0.00746	0.0431**
	(0.00384)	(0.0106)	(0.00651)	(0.0207)
Male	-0.0119***	-0.0118***	-0.00795**	-0.00777**
	(0.00395)	(0.00395)	(0.00367)	(0.00363)
Education categories (baseline: Up to 15 years)				
Between 16 and 19 years	0.0126***	0.0124***	0.00752**	0.00717**
	(0.00225)	(0.00221)	(0.00274)	(0.00278)
20 years or older	0.0377***	0.0378***	0.0193***	0.0193***
	(0.00451)	(0.00451)	(0.00404)	(0.00403)
Still studying	0.0483***	0.0478***	0.0299***	0.0293***
	(0.00693)	(0.00691)	(0.00757)	(0.00770)
No education	-0.0159	-0.0160	-0.0323***	-0.0309***
	(0.00978)	(0.00994)	(0.0110)	(0.0106)
Unemployed	-0.00673*	-0.00592*	-0.00812**	-0.00735**
	(0.00331)	(0.00314)	(0.00346)	(0.00352)
Left Political Orientation	0.0343***	0.0342***	0.0234***	0.0232***
	(0.00943)	(0.00943)	(0.00770)	(0.00768)
Average Temperature previous five years (°C)	-0.144***	-0.146***	-0.000460	-0.0149
	(0.0346)	(0.0473)	(0.0462)	(0.0417)
Average Temperature^2 previous five years (°C)	0.000923	-0.00230	-0.000915	-0.00147
	(0.00206)	(0.00354)	(0.00119)	(0.00138)
Total Precipitation previous five years (m)	-42.74***	-34.27**	32.84**	26.22**
	(12.32)	(14.46)	(12.04)	(10.59)
Total Precipitation^2 previous five years (m)	37982.1***	21882.3	-20203.4	-17776.2
	(10801.5)	(14900.4)	(13120.0)	(12896.4)
Average Temperature (°C)	-0.0271*	0.00246	-0.0149	-0.00198
	(0.0145)	(0.0201)	(0.0160)	(0.0144)
Average Temperature^2 (°C)	0.00320***	0.00344***	0.00116*	0.00117
	(0.000589)	(0.000907)	(0.000674)	(0.000691)
Total Precipitation (m)	18.21***	18.53***	-7.168**	-6.689**
	(3.899)	(4.320)	(3.157)	(3.033)
Total Precipitation^2 (m)	-15416.6***	-17287.7***	8099.0*	7189.3*
	(3830.3)	(3943.3)	(4124.2)	(3741.5)
F-Statistic		14.434		21.435
Panel B: No controls				
log(Asylum Applications)	0.000657	0.0161**	0.0244*	0.0762***
	(0.00333)	(0.00740)	(0.0119)	(0.0267)
F-Statistic		21.876		23.218
Country FE	X	X	X	X
Age FE	X	X	X	X
Region-by-year FE	X	X	X	X
Country-age linear trends	X	X	X	X
N	106,614	106,614	130,068	130,068
Number of countries	28	28	28	28

Notes: The table replicates Table 1 reporting all individual controls included in the regressions. The 2SLS estimates use the predicted asylum applications constructed from the gravity-predicted asylum application flows as described in Equation (2) in the text. Robust standard errors, clustered at the country level, in parentheses. The F-Statistic refers to the Kleibergen-Paap F-statistic for weak instruments, which corresponds to the effective Olea-Pflueger F-Statistic. Significance levels: * $p < 0.1$, ** $p < 0.05$, *** $p < 0.01$.

Table C5. Weather-induced asylum applications and environmental values. Heterogeneity by age. 2SLS estimates.

Outcome variable	Climate concern in European Elections			Climate change as political priority		
	(1)	(2)	(3)	(4)	(5)	(6)
log(Asylum Applications)	0.0264**	0.0233*	0.0181	0.0514**	0.0374**	0.0386
	(0.0108)	(0.0118)	(0.0124)	(0.0209)	(0.0169)	(0.0264)
Sample	14-40	41-59	60+	14-40	41-59	60+
Country FE	X	X	X	X	X	X
Age FE	X	X	X	X	X	X
Region-by-year FE	X	X	X	X	X	X
Country-age linear trends	X	X	X	X	X	X
F-Statistic	15.657	13.808	13.840	24.611	20.910	19.226
N	35,938	36,455	34,221	44,395	44,428	41,245

Notes: The sample is restricted to survey respondents that have the same nationality as the country in which they are interviewed. The dependent variable is a dummy equal to 1 if the respondent reports climate change as a theme that should be discussed as a matter of priority during the electoral campaign for the next European Parliament elections (columns 1 and 2, see Table B1 for exact wording and additional details on the construction of the variable). In columns (3) and (4) the dependent variable is a dummy equal to 1 if the respondent reports climate change as a theme that the European Parliament should give priority to when deliberating (see Table B1 for exact wording and additional details on the construction of the variable). All columns report the 2SLS estimates where the (log) of asylum applications is instrumented with the gravity-predicted (log) of asylum applications described in Equation (2) in the text. All columns control for individual characteristics (gender, education levels; employment status; political orientation) and country-level covariates (linear and squared annual average temperature and total precipitation), and country, age, region-by-survey-year fixed effects and country by age linear trends. Robust standard errors, clustered at the country level, in parentheses. The F-Statistic refers to the Kleibergen-Paap F-statistic for weak instruments, which corresponds to the effective Olea-Pflueger F-Statistic. Significance levels: * $p < 0.1$, ** $p < 0.05$, *** $p < 0.01$.

Table C6. Weather-induced asylum applications and environmental values. Heterogeneity by gender. 2SLS estimates.

Outcome variable	Climate concern in European Elections		Climate change as political priority	
	(1)	(2)	(3)	(4)
log(Asylum Applications)	0.0160*	0.0137	0.0454**	0.0400
	(0.00916)	(0.00819)	(0.0183)	(0.0241)
Sample	Female	Male	Female	Male
Country FE	X	X	X	X
Age FE	X	X	X	X
Region-by-year FE	X	X	X	X
Country-age linear trends	X	X	X	X
F-Statistic	20.414	21.154	27.587	21.963
N	58,446	48,168	70,963	59,103

Notes: The sample is restricted to survey respondents that have the same nationality as the country in which they are interviewed. The dependent variable is a dummy equal to 1 if the respondent reports climate change as a theme that should be discussed as a matter of priority during the electoral campaign for the next European Parliament elections (columns 1 and 2, see Table B1 for exact wording and additional details on the construction of the variable). In columns (3) and (4) the dependent variable is a dummy equal to 1 if the respondent reports climate change as a theme that the European Parliament should give priority to when deliberating (see Table B1 for exact wording and additional details on the construction of the variable). All columns report the 2SLS estimates where the (log) of asylum applications is instrumented with the gravity-predicted (log) of asylum applications described in Equation (2) in the text. All columns control for individual characteristics (gender, education levels; employment status; political orientation) and country-level covariates (linear and squared annual average temperature and total precipitation), and country, age, region-by-survey-year fixed effects and country by age linear trends. Robust standard errors, clustered at the country level, in parentheses. The F-Statistic refers to the Kleibergen-Paap F-statistic for weak instruments, which corresponds to the effective Olea-Pflueger F-Statistic. Significance levels: * $p < 0.1$, ** $p < 0.05$, *** $p < 0.01$.

Table C7. Weather-induced asylum applications and environmental values. Heterogeneity by trust towards institutions. 2SLS estimates.

Outcome variable	Climate concern in European Elections							
Trust in	National government		National Parliament		European Union		European Parliament	
	No Trust	Trust	No Trust	Trust	No Trust	Trust	No Trust	Trust
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
log(Asylum Applications)	0.403*	0.287	0.365*	0.255	0.427	0.229*	0.408	0.217*
	(0.205)	(0.182)	(0.200)	(0.155)	(0.268)	(0.128)	(0.256)	(0.106)
Local weather controls	X	X	X	X	X	X	X	X
Individual controls	X	X	X	X	X	X	X	X
Country FE	X	X	X	X	X	X	X	X
Age FE	X	X	X	X	X	X	X	X
Region-by-year FE	X	X	X	X	X	X	X	X
Country-age linear trends	X	X	X	X	X	X	X	X
F-Statistic	6.368	3.582	7.773	3.424	3.419	6.027	3.413	7.264
N	19,936	30,660	19,939	30,055	28,236	18,931	28,056	16,011

Notes: The dependent variable is a dummy equal to 1 if the respondent reports climate change as a theme that the European Parliament should give priority to when deliberating (see Table B1 for exact wording and additional details on the construction of the variable). Asylum Applications is the sum of the asylum applications in the country in the five years preceding the survey year, as defined in Equation 1. Columns report the 2SLS estimates using the predicted asylum applications constructed from the gravity-predicted asylum application flows as described in Equation (2) in the text. All columns control for individual characteristics (gender, education levels; employment status; political orientation) and country-level covariates (linear and squared annual average temperature and total precipitation), and country, age, region-by-survey-year fixed effects and country by age linear trends. Robust standard errors, clustered at the country level, in parentheses. The F-Statistic refers to the Kleibergen-Paap F-statistic for weak instruments, which corresponds to the effective Olea-Pflueger F-Statistic. Significance levels: * $p < 0.1$, ** $p < 0.05$, *** $p < 0.01$.

Table C8. Weather-induced asylum applications, environmental values, and Google Trends. 2SLS estimates.

Outcome variable	Climate concern in European Elections		Climate change as political priority	
	(1)	(2)	(3)	(4)
log(Asylum Applications)	0.0181*	0.0162*	0.0454**	0.0417***
	(0.00934)	(0.00890)	(0.0191)	(0.0142)
Google search "Climate change"	0.00209*	0.00282**	-0.00243	0.000430
	(0.00102)	(0.00125)	(0.00266)	(0.00227)
Google search "Climate protests"	-0.000550	0.000628	0.0243**	0.0185**
	(0.00441)	(0.00488)	(0.00943)	(0.00835)
Google search "Migration"		0.00187		-0.00345*
		(0.00137)		(0.00202)
Google search "Refugee"		-0.00198		-0.00118
		(0.00278)		(0.00310)
Local weather controls	X	X	X	X
Individual controls	X	X	X	X
Country FE	X	X	X	X
Age FE	X	X	X	X
Region-by-year FE	X	X	X	X
Country-age linear trends	X	X	X	X
F-Statistic	12.923	11.982	29.273	43.921
N	106,614	106,614	130,068	130,068

Notes: The sample is restricted to survey respondents that have the same nationality as the country in which they are interviewed. In columns (1)-(2), the dependent variable is a dummy equal to 1 if the respondent reports climate change as a theme that should be discussed as a matter of priority during the electoral campaign for the next European Parliament elections; in columns (3)-(4) the dependent variable is a dummy equal to 1 if the respondent reports climate change as a theme that the European Parliament should give priority to when deliberating (see Table B1 for exact wording and additional details on the construction of the variable). All columns report the 2SLS estimates where the (log) of asylum applications is instrumented with the gravity-predicted (log) of asylum applications described in Equation (2) in the text. All columns control for individual characteristics (gender, education levels; employment status; political orientation) and country-level covariates (linear and squared annual average temperature and total precipitation), and country, age, region-by-survey-year fixed effects and country by age linear trends. Robust standard errors, clustered at the country level, in parentheses. The F-Statistic refers to the Kleibergen-Paap F-statistic, which corresponds to the effective Olea and Pflueger F-Statistic. Significance levels: * $p < 0.1$, ** $p < 0.05$, *** $p < 0.01$.

Table C9. Asylum applications and Google Trends. OLS and 2SLS estimates.

Google Trends for	Climate change		Climate protests		Migration		Refugee	
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
log(Predicted Asylum Applications)	0.333		-0.705**		-1.037		-0.624	
	(0.381)		(0.308)		(0.690)		(0.738)	
log(Asylum Applications)		0.372		-0.786*		-1.157		-0.696
		(0.415)		(0.433)		(0.826)		(0.966)
Country FE	X	X	X	X	X	X	X	X
Year FE	X	X	X	X	X	X	X	X
Mean outcome	11.15	11.15	2.38	2.38	23.92	23.92	9.36	9.36
SD outcome	5.96	5.96	3.82	3.82	18.32	18.32	8.54	8.54
F-Statistic		12.76		12.76		12.76		12.76
N	444	444	444	444	444	444	444	444

Notes: Country-level estimates regressing annual average Google Searches for “Climate change” (columns 1-2), “Climate protests” (columns 3-4), “Migration” (columns 5-6), “Refugee” (columns 7-8) on the instrument (odd columns) and the actual flows instrumented with the instrument (even columns). The gravity-predicted (log) of asylum applications is obtained from the predicted values from Equation (2) in the text. All columns control for country and survey year fixed effects. Robust standard errors, clustered at the country level, in parentheses. The F-Statistic refers to the Kleibergen-Paap F-statistic for weak instruments, which corresponds to the effective Olea-Pflueger F-Statistic. Significance levels: * $p < 0.1$, ** $p < 0.05$, *** $p < 0.01$.

Table C10. Weather-induced asylum applications and environmental values. Heterogeneity by total asylum applicants in destination country. 2SLS estimates.

Outcome variable	Climate concern in European Elections		Climate change as political priority	
	(1)	(2)	(3)	(4)
log(Asylum Applications)	0.00807	0.0193*	0.0213	0.0515*
	(0.00585)	(0.0115)	(0.0167)	(0.0301)
Destination country asylum applications	Below median	Above median	Below median	Above median
Country FE	X	X	X	X
Year FE	X	X	X	X
Age FE	X	X	X	X
Region-by-year FE	X	X	X	X
Country-age linear trends	X	X	X	X
F-Statistic	13.865	11.286	14.272	12.929
N	49,384	57,228	59,095	70,972

Notes: The sample is restricted to survey respondents that have the same nationality as the country in which they are interviewed. The dependent variable is a dummy equal to 1 if the respondent reports climate change as a theme that should be discussed as a matter of priority during the electoral campaign for the next European Parliament elections (columns 1 and 2, see Table B1 for exact wording and additional details on the construction of the variable). In columns (3) and (4) the dependent variable is a dummy equal to 1 if the respondent reports climate change as a theme that the European Parliament should give priority to when deliberating (see Table B1 for exact wording and additional details on the construction of the variable). Odd columns report the estimates in the sub-sample of countries below the median number of asylum demands received, even columns report the estimates in the sub-sample of countries above the median number of asylum demands received (Austria, Belgium, Denmark, France, Germany, Greece, Hungary, Ireland, Italy, Netherlands, Poland, Spain, Sweden, United Kingdom). All columns report the 2SLS estimates where the (log) of asylum applications is instrumented with the gravity-predicted (log) of asylum applications described in Equation (2) in the text. All columns control for individual characteristics (gender, education levels; employment status; political orientation) and country-level covariates (linear and squared annual average temperature and total precipitation), and country, age, region-by-survey-year fixed effects and country by age linear trends. Robust standard errors, clustered at the country level, in parentheses. The F-Statistic refers to the Kleibergen-Paap F-statistic for weak instruments, which corresponds to the effective Olea-Pflueger F-Statistic. Significance levels: * $p < 0.1$, ** $p < 0.05$, *** $p < 0.01$.

Table C11. Weather-induced asylum applications and environmental values. Heterogeneity by eligibility to vote. 2SLS estimates.

Outcome variable	Climate concern in European Elections		Climate change as political priority	
	(1)	(2)	(3)	(4)
log(Asylum Applications)	0.0340**	0.0147	0.0378	0.0431**
	(0.0132)	(0.00904)	(0.0382)	(0.0176)
Voting Age	Below	Above	Below	Above
Local weather controls	X	X	X	X
Individual controls	X	X	X	X
Country FE	X	X	X	X
Age FE	X	X	X	X
Region-by-year FE	X	X	X	X
Country-age linear trends	X	X	X	X
F-Statistic	32.155	20.089	48.265	30.174
N	2,412	16,979	2,999	20,815

Notes: The sample is restricted to survey respondents that have the same nationality as the country in which they are interviewed and below the age of thirty years old. Odd columns report estimates on the sub-sample of individuals interviewed below the age eligible to vote in national and European elections; even columns report the estimates on the sub-sample of individuals interviewed above the age eligible to vote in the elections. The dependent variable is a dummy equal to 1 if the respondent reports climate change as a theme that should be discussed as a matter of priority during the electoral campaign for the next European Parliament elections (columns 1 and 2, see Table B1 for exact wording and additional details on the construction of the variable). In columns (3) and (4) the dependent variable is a dummy equal to 1 if the respondent reports climate change as a theme that the European Parliament should give priority to when deliberating (see Table B1 for exact wording and additional details on the construction of the variable). All columns report the 2SLS estimates where the (log) of asylum applications is instrumented with the gravity-predicted (log) of asylum applications described in Equation (2) in the text. All columns control for individual characteristics (Gender, Education (Up to 15 years; 16-19 years; 20 years or older; still studying; no education), Unemployed, Left-wing oriented) and country-level covariates (Linear and squared average temperature and total precipitation in the country), and country, age, region-by-survey-year fixed effects and country by age linear trends. Robust standard errors, clustered at the country level, in parentheses. The F-Statistic refers to the Kleibergen-Paap F-statistic for weak instruments, which corresponds to the effective Olea-Pflueger F-Statistic. Significance levels: * $p < 0.1$, ** $p < 0.05$, *** $p < 0.01$.

C.7 Additional country-level results

Table C12. Weather-induced asylum applications and environmentalism in national elections.

Outcome variable	National Elections Environmentalism Index			
	OLS	2SLS	2SLS	2SLS
	(1)	(2)	(3)	(4)
log(Asylum Applications)	-0.0729	0.215	0.232	0.371
	(0.107)	(0.260)	(0.343)	(0.501)
Local weather controls	X	X	X	X
Country controls	X		X	X
Country FE	X	X	X	X
Year FE	X	X	X	X
Regional linear time trends				X
F-Statistic		22.366	16.030	13.664
N	119	119	119	119
Number of countries	27	27	27	27

Notes: The table reports the OLS (columns 1) and 2SLS (columns 2 to 4) coefficients on (log) of total asylum applications in the years between one national election round and the other. The dependent variable is the normalized index of environmentalism of national elections where the share of quasi-sentences that positively referred to the environment in each party's manifesto is weighted by its vote share in the national elections. In columns 2 to 4, the (log) of asylum applications is instrumented with the gravity-predicted (log) of asylum applications described in Equation (2) in the text. Robust standard errors, clustered at the country level, in parentheses. *Country controls*: (log) GDP per capita, % tertiary education, unemployment rate, population rate between 18 and 23 years old. *Local weather controls*: Linear and squared average temperature and total precipitation in the country. The F-Statistic refers to the Kleibergen-Paap F-statistic for weak instruments, which corresponds to the effective Olea-Pflueger F-Statistic. Significance levels: * $p < 0.1$, ** $p < 0.05$, *** $p < 0.01$.

Table C13. Effect of lagged weather-induced asylum applications on Green party vote share in European Parliament elections

Outcome variable	% Green votes (*Mean: 10.42*)			
	OLS	2SLS	2SLS	2SLS
	(1)	(2)	(3)	(4)
log(Asylum Applications) - lagged	-0.957	0.761	0.719	2.873
	(2.261)	(2.145)	(3.551)	(6.819)
Local weather controls	X	X	X	X
Country controls	X		X	X
Country FE	X	X	X	X
Year FE	X	X	X	X
Regional linear time trends				X
F-Statistic		24.425	16.513	7.946
N	49	50	50	50
Number of countries	19	19	19	19

Notes: The table reports OLS (column 1) and 2SLS (columns 2–4) estimates of the effect of the (log) total number of asylum applications received during the preceding electoral mandate on the share of votes for Green parties in European Parliament elections. In the 2SLS specifications, the (log) of lagged total asylum applications is instrumented with the gravity-predicted (log) total asylum applications described in Equation (2). Robust standard errors, clustered at the country level, in parentheses. *Local weather controls*: Linear and squared average temperature and total precipitation in the country. *Country controls*: (log) GDP per capita, % tertiary education, unemployment rate, population rate between 18 and 23 years old, voter turnout. All columns control for country and year-fixed effects. Column 4 adds region-specific linear time trends. F-statistic refers to the Kleibergen-Paap F-statistic for weak instruments, which corresponds to the effective Olea and Pflueger F-Statistic. Significance levels: * $p < 0.1$, ** $p < 0.05$, *** $p < 0.01$.

C.8 Party-level empirical approach

In Section 6.3, I explore the aspects of the supply side and the political dynamics of the party system, by investigating whether changes in asylum applications have determined a shift in the supply side of the climate-related political process. I use the information on parties' political agenda related to the environment from the *Manifesto Project Database* (MPD) to measure the degree of environmentalism of each party in national elections. Using a similar approach to Moriconi et al. (2019), I exploit within-party variation in the environmental political agenda across elections. The econometric specification writes as follows:

$$environmentalism_{pdt} = \beta_1 \log\left(\sum_{\tau=1}^{s} AsyApp_{d,t-\tau}\right) + X'_{dt}\boldsymbol{\gamma} + Z'_{pt}\boldsymbol{\delta} + \alpha_p + \mu_d + \lambda_t + \varepsilon_{pdt} \quad \text{(C5)}$$

where $environmentalism_{pdt}$ is the normalized share with mean equal to 0 and standard deviation equal to 1 of quasi-sentences that positively referred to policies in favor of protecting the environment and fighting climate change in the political manifesto of party p in country d in election year t. The main variable of interest is $\sum_{\tau=1}^{s} AsyApp_{d,t-\tau}$, i.e., the cumulative number of asylum applications between one election and the other. In X'_{dt}, I include country-level socio-economic and environmental characteristics averaged over the period between two consecutive elections in a country that may confound the effect of migration flows on electoral outcomes. The use of party-specific fixed effects α_p and country-specific fixed effects μ_d identifies the effect of asylum applications on the political agendas only through changes within parties over time. Any time-invariant feature of countries and parties will not affect identification, since it will be filtered out by these fixed effects. Election-year fixed effects (λ_t) capture common trends over time. Standard errors are clustered at the country level. The inclusion of party- and country-fixed effects guarantees the identification of the effect of weather-induced asylum seeker flows on parties' environmental preferences only through changes in agendas for parties that were present in at least two elections. This approach captures changes in the agendas of existing parties in response to changes in weather-induced flows, rather than the entry or exit of new parties.

In the baseline specification, each party running in multiple elections has the same weight. Nevertheless, small parties do not have the same influence on the political system as large parties, and may change their positions more easily. When I weigh each party by the percentage of votes gained in the elections, I find no significant effect. Results are also robust to considering parties that gained at least 5% of votes, to rule out entry/exit or mergers and splits of small parties and potential measurement error in their agendas. I find a larger and significant negative effect on party environmentalism when only including larger parties that gained at least 10, 15, or 20% of votes in the elections (Appendix Table D23). I also examine the presence of heterogeneous effects by party family masked in the average treatment effect but find small and largely imprecise estimates across the seven party families (Appendix Table D24).

Moriconi et al. (2019) show that inflows of less-educated immigrants induce European parties to endorse platforms less favorable to social welfare. To investigate whether asylum demands drive similar mechanisms, I consider alternative dimensions of the manifesto of parties, including attitudes towards refugees, Europe, and multiculturalism (see Appendix Table B3 for the exact definition). I find a negligible negative effect that is not statistically significant across all outcomes (Appendix Table D25) in response to higher asylum applications.

Table C14. Weather-induced asylum applications and environmental agenda of parties.

	Party's Environmentalism (Mean=0)			
	(1)	(2)	(3)	(4)
	OLS	2SLS	2SLS	2SLS
log(Asylum Applications)	-0.0739**	-0.0254	-0.154	-0.158
	(0.0359)	(0.103)	(0.112)	(0.116)
Weights			Votes	Votes
Votes				Above 5%
Right-left ideological index	X	X	X	X
Country controls	X	X	X	X
Local weather controls	X	X	X	X
Country FE	X	X	X	X
Year FE	X	X	X	X
Party FE	X	X	X	X
F-Statistic		32.570	28.076	27.312
N	641	641	634	469
adj. R^2	0.723	0.082	0.120	0.115

Notes: The analysis is over a sample of parties that are running in multiple elections. The table reports the coefficients associated with (log) of the sum of asylum applications in the period between one election year and the other. The dependent variable is the (normalized) share of quasi-sentences that positively referred to the environment in each party's manifesto in the national elections. Column (1) reports the OLS estimates, and columns (2) to (4) display the 2SLS estimates where (log) of asylum applications is instrumented with the gravity-predicted (log) of asylum applications described in Equation (2) in the text. Robust standard errors, clustered at the country level, in parentheses. All columns control for the normalized right-left ideological index provided in the MPD. *Country controls*: averages between two elections of (log) GDP per capita, % tertiary education, unemployment rate, population rate between 18 and 23 years old, and in the year of the elections. *Local weather controls*: averages between two elections of linear and squared temperature and precipitation and in the year of the elections. All columns control for country, year, and party fixed effects. Columns (3) and (4) weigh each party's observation by the vote gained in the national elections. Column (4) only considers parties that gained at least 5% of the votes. The F-Statistic refers to the Kleibergen-Paap F-statistic for weak instruments, which corresponds to the effective Olea-Pflueger F-Statistic. Significance levels: * $p < 0.1$, ** $p < 0.05$, *** $p < 0.01$.

D Robustness Checks

D.1 Robustness checks for gravity equation

Table D1. Gravity model for asylum applications in non-OECD origin countries & EU destination countries with dyadic controls

	log(Asylum Applications)		
	(1)	(2)	(3)
Temperature	-1.436*	-1.782**	-1.803*
	(0.759)	(0.885)	(0.912)
Temperature^2	0.0824**	0.0411	0.0440
	(0.0414)	(0.0321)	(0.0312)
Temperature^3	0.000838	0.00167	0.00189
	(0.00133)	(0.00191)	(0.00217)
Temperature^4	-0.0000331	-0.0000313	-0.0000432
	(0.0000381)	(0.0000424)	(0.0000421)
Temperature * Contiguity	0.803***	0.438	0.407
	(0.220)	(0.283)	(0.302)
Temperature * Common Language	-0.0391	0.188	0.403
	(0.245)	(0.366)	(0.356)
Temperature * Common Colonial History	0.690***	0.427**	0.398*
	(0.232)	(0.202)	(0.214)
Temperature* Log(distance)	0.192**	0.212*	0.217*
	(0.0927)	(0.108)	(0.110)
Temperature^2 * Contiguity	0.0135	0.0222*	0.0161
	(0.0101)	(0.0127)	(0.0116)
Temperature^2 * Common Language	-0.0148	-0.00947	-0.0386
	(0.0198)	(0.0435)	(0.0400)
Temperature^2 * Common Colonial History	-0.0129	-0.00911	-0.00710
	(0.00950)	(0.00954)	(0.00962)
Temperature^2 * Log(distance)	-0.0107**	-0.00532	-0.00568
	(0.00499)	(0.00391)	(0.00377)
Temperature^3* Contiguity	0.0000449	-0.0000907	-0.000164
	(0.000237)	(0.000813)	(0.000845)
Temperature^3* Common Language	0.00109	0.000372	0.00165
	(0.00143)	(0.00193)	(0.00179)
Temperature^3* Common Colonial History	-0.00105*	-0.000375	-0.000279
	(0.000573)	(0.000474)	(0.000563)
Temperature^3* Log(distance)	-0.000131	-0.000205	-0.000236
	(0.000155)	(0.000221)	(0.000250)
Temperature^4 * Contiguity	-0.0000167	-0.0000253	-0.0000149
	(0.0000113)	(0.0000216)	(0.0000214)
Temperature^4 * Common Language	-0.0000160	-0.00000441	-0.0000220
	(0.0000260)	(0.0000276)	(0.0000261)
Temperature^4 * Common Colonial History	0.0000290*	0.0000122	0.00000904
	(0.0000160)	(0.00000875)	(0.0000119)
Temperature^4 * Log(distance)	0.00000527	0.00000436	0.00000582
	(0.00000469)	(0.00000507)	(0.00000498)
Precipitation	13.96	57.91	28.07
	(61.82)	(58.40)	(53.17)
Precipitation^2	1322.5	-31071.0	-13403.8
	(42959.9)	(55904.3)	(46178.8)
Precipitation * Contiguity	19.86	11.38	7.539
	(23.97)	(50.60)	(49.79)
Precipitation * Common Language	2.262	8.100	9.380
	(5.220)	(6.195)	(5.725)
Precipitation * Common Colonial History	10.02	2.529	-4.058
	(15.02)	(21.68)	(19.06)
Precipitation* Log(distance)	-1.665	-6.851	-3.423
	(6.900)	(6.530)	(6.008)
Precipitation^2 * Contiguity	30550.1	15682.9	24834.9
	(20185.6)	(46456.1)	(47742.0)
Precipitation^2 * Common Language	-984.3	-2068.1	-3416.1
	(2459.8)	(3198.1)	(2768.5)
Precipitation^2 * Common Colonial History	490.4	1716.9	3725.7
	(5056.8)	(7668.4)	(6566.9)
Precipitation^2 * Log(distance)	-233.0	3414.2	1481.8
	(4802.8)	(6220.4)	(5181.1)
Weather	Annual	Maize season	Maize season
Weights	None	Maize agricultural land	Population
Origin-destination FE	X	X	X
Destination-year FE	X	X	X
Region of origin-by-year FE	X	X	X
Number of country pairs	2084	2084	2084
Number of origin countries	141	141	141
Destination Sample	EU27 + UK	EU27 + UK	EU27 + UK
Mean Outcome	3.733	3.733	3.733
Dep Var SD	1.858	1.858	1.858
N	25,951	25,951	25,951
adj. R^2	0.796	0.796	0.796

Notes: Standard errors are clustered by origin country-year. Significance levels: * $p < 0.1$, ** $p < 0.05$, *** $p < 0.01$. Column (1) uses annual weather, column (2) uses weather weighted by maize area over maize-growing season, column (3) uses weather weighted by population over maize-growing season.

Table D2. Gravity model for asylum applications without bilateral controls interactions.

	(log) Asylum Applications		
	(1)	(2)	(3)
Temperature origin	0.121	-0.0905	-0.0806
	(0.0988)	(0.0747)	(0.0771)
Temperature origin^2	-0.00453	-0.000517	-0.000177
	(0.00316)	(0.00219)	(0.00220)
Temperature origin^3	-0.000194**	0.0000301	0.00000463
	(0.0000856)	(0.0000766)	(0.0000851)
Temperature origin^4	0.00000852***	0.00000287	0.00000281
	(0.00000293)	(0.00000212)	(0.00000221)
Precipitation origin	0.581	3.096	1.875
	(3.515)	(4.675)	(4.491)
Precipitation origin^2	-820.6	-2278.6	-1302.9
	(1452.4)	(1853.8)	(1690.7)
Weather	Annual	Maize season	Maize season
Weights	None	Maize agricultural land	Population
Origin-destination FE	X	X	X
Destination-by-year FE	X	X	X
Region of origin-by-year FE	X	X	X
Number of country pairs	2138	2138	2138
Number of origin countries	145	145	145
Destination Sample	EU27 + UK	EU27 + UK	EU27 + UK
Mean Outcome	3.751	3.751	3.751
SD Outcome	1.873	1.873	1.873
N	26,533	26,533	26,533
adj. R^2	0.798	0.799	0.799

Notes: The table reports the coefficients associated with the weather variables in origin country in Equation (2) in the text. The sample is restricted to non-OECD 145 origin countries and to EU27 member countries + UK as destinations. Standard errors are clustered by origin country-year. Significance levels: * $p < 0.1$, ** $p < 0.05$, *** $p < 0.01$. Column (1) uses annual weather, column (2) uses weather weighted by maize area over maize growing season, column (3) uses weather weighted by population over maize growing season. The estimated fixed effects are not used in building the predictors for asylum applications. All regressions control for origin-destination, destination-by-year, and region-of-origin-by-year fixed effects.

Table D3. Gravity model for asylum applications with lags of weather

	(log) Asylum Applications			
	(1)	(2)	(3)	(4)
Temperature origin	-0.0905	-0.0745	-0.118	-0.136*
	(0.0747)	(0.0739)	(0.0747)	(0.0739)
Temperature origin^2	-0.000517	-0.000805	0.000291	0.000464
	(0.00219)	(0.00218)	(0.00221)	(0.00221)
Temperature origin^3	0.0000301	0.0000431	0.000118	0.000158*
	(0.0000766)	(0.0000777)	(0.0000886)	(0.0000908)
Temperature origin^4	0.00000287	0.00000269	0.000000433	-0.000000152
	(0.00000212)	(0.00000207)	(0.00000223)	(0.00000228)
Precipitation origin	3.096	7.652	6.963	4.693
	(4.675)	(5.198)	(5.393)	(5.505)
Precipitation origin^2	-2278.6	-3691.6*	-2861.5	-2162.3
	(1853.8)	(2056.9)	(2013.5)	(2023.6)
L1.Temperature origin		-0.0879	-0.0901	-0.121
		(0.0806)	(0.0777)	(0.0774)
L1.Temperature origin^2		0.000103	0.000468	0.00248
		(0.00231)	(0.00230)	(0.00230)
L1.Temperature origin^3		0.0000770	0.0000886	0.000136
		(0.0000795)	(0.0000813)	(0.0000937)
L1.Temperature origin^4		0.00000113	0.000000591	-0.00000161
		(0.00000213)	(0.00000214)	(0.00000224)
L1.Precipitation origin		8.156	10.55*	9.637*
		(5.079)	(5.418)	(5.559)
L1.Precipitation origin^2		-3606.5*	-4332.6**	-3174.5
		(1972.5)	(2056.5)	(2094.9)
L2.Temperature origin			-0.126	-0.125
			(0.0890)	(0.0882)
L2.Temperature origin^2			0.00446*	0.00574**
			(0.00252)	(0.00247)
L2.Temperature origin^3			0.000164*	0.000166*
			(0.0000985)	(0.0000994)
L2.Temperature origin^4			-0.00000413	-0.00000511**
			(0.00000260)	(0.00000254)
L2.Precipitation origin			7.458	8.168
			(5.287)	(5.654)
L2.Precipitation origin^2			-3135.3	-2986.7
			(2063.5)	(2165.7)
L3.Temperature origin				-0.249***
				(0.0961)
L3.Temperature origin^2				0.00612**
				(0.00258)
L3.Temperature origin^3				0.000308***
				(0.000100)
L3.Temperature origin^4				-0.00000725***
				(0.00000261)
L3.Precipitation origin				7.050
				(5.717)
L3.Precipitation origin^2				-2574.3
				(2190.6)
Origin-destination FE	X	X	X	X
Destination-by-year FE	X	X	X	X
Region of origin-by-year FE	X	X	X	X
Mean Outcome	3.751	4.029	4.175	4.276
SD Outcome	1.873	1.844	1.828	1.820
N	26,533	21,890	19,109	16,942
adj. R^2	0.799	0.799	0.805	0.811

Notes: The table reports the coefficients associated with the weather variables in origin country in Equation (2) in the text. The sample is restricted to non-OECD 145 origin countries and to EU27 member countries + UK as destinations. Standard errors are clustered by origin country-year. Significance levels: * $p < 0.1$, ** $p < 0.05$, *** $p < 0.01$. All regressions use weather weighted by maize area over maize growing season with different lags of weather. All regressions control for origin-destination, destination-by-year, and region-of-origin-by-year fixed effects.

Table D4. Gravity model for asylum applications with destination weather

	(log) Asylum Applications		
	(1)	(2)	(3)
Temperature origin	-1.650**	-2.036***	-2.102***
	(0.657)	(0.603)	(0.615)
Temperature origin^2	0.0793**	0.0448	0.0470
	(0.0316)	(0.0289)	(0.0293)
Temperature origin^3	0.000990	0.00206	0.00237
	(0.00119)	(0.00183)	(0.00188)
Temperature origin^4	-0.0000350	-0.0000445	-0.0000578
	(0.0000328)	(0.0000366)	(0.0000352)
Precipitation origin	-16.45	18.63	-9.071
	(55.75)	(66.72)	(63.21)
Precipitation origin^2	28112.6	4645.8	22074.1
	(36210.8)	(48527.1)	(41935.2)
Temperature destination	-0.0564**	-0.0467**	-0.0472**
	(0.0231)	(0.0229)	(0.0228)
Temperature destination^2	0.00391***	0.00395***	0.00395***
	(0.000889)	(0.000879)	(0.000880)
Precipitation destination	6.303*	6.304*	6.292*
	(3.814)	(3.803)	(3.804)
Precipitation destination^2	1034.1	1160.2	1241.9
	(4398.2)	(4393.4)	(4396.6)
Weather	Annual	Maize season	Maize season
Weights	None	Maize agricultural land	Population
Origin-destination FE	X	X	X
Region of origin-by-year FE	X	X	X
Mean Outcome	3.748	3.748	3.748
SD Outcome	1.873	1.873	1.873
N	25,957	25,957	25,957
adj. R^2	0.749	0.749	0.749

Notes: The table reports the coefficients associated with the weather variables in the origin country in Equation (2) in the text. The sample is restricted to non-OECD 141 origin countries and to EU27 member countries + UK as destinations. Standard errors are clustered by origin country-year. Significance levels: * $p < 0.1$, ** $p < 0.05$, *** $p < 0.01$.

Table D5. Trade and asylum applications

Outcome variable	log(Trade)	
	OLS	2SLS
	(1)	(2)
log(Predicted Asylum Applications)	-0.00884	
	(0.00592)	
log(Asylum Applications)		0.232
		(0.144)
Country FE	X	X
Year FE	X	X
F-Statistic		22.303
N	550	550
Number of countries	28	28

Notes: The table reports estimates of a reduced form OLS regressions in column (1) using the instrument constructed from Equation (2) of weather-induced asylum applications, and estimates of a 2SLS regressions in column (2). Outcome variable is the log of the trade flows between non-OECD countries and EU27+UK member countries between 2000 and 2019. All columns include country and year fixed effects. Robust standard errors, clustered at the country level, in parentheses. F-statistic refers to the Kleibergen-Paap F-statistic for weak instruments. Significance levels: * $p < 0.1$, ** $p < 0.05$, *** $p < 0.01$.

D.2 Robustness checks for individual-level analysis

Table D6. Weather-induced asylum applications and individuals' environmental values. Accounting for shift-share weather in origin countries.

Outcome variable	Climate concern in European Elections		Climate change as political priority	
	OLS	2SLS	OLS	2SLS
	(1)	(2)	(3)	(4)
log(Asylum Applications)	0.00209	0.0313^{**}	0.0147^{*}	0.0532^{**}
	(0.00463)	(0.0138)	(0.00825)	(0.0214)
Weighted weather in origin countries	X	X	X	X
Local weather controls	X	X	X	X
Individual controls	X	X	X	X
Country FE	X	X	X	X
Age FE	X	X	X	X
Region-by-year FE	X	X	X	X
Country-age linear trends	X	X	X	X
F-Statistic		16.931		39.206
N	106,614	106,614	130,068	130,068

Notes: The sample is restricted to survey respondents that have the same nationality as the country in which they are interviewed. The dependent variable in columns (1) and (2) is a dummy equal to 1 if the respondent reports climate change as a theme that the European Parliament should give priority to when deliberating. The dependent variable in columns (3) and (4) is a dummy equal to 1 if the respondent reports climate change as a theme that should be discussed as a matter of priority during the electoral campaign for the next European Parliament elections (see Table B1 for exact wording and additional details on the construction of the variable). Asylum Applications are the cumulative asylum applications in a country in the five years preceding the survey year, as defined in Equation 1. Columns (2) and (4) report the 2SLS estimates using the predicted asylum applications constructed from the gravity-predicted asylum application flows as described in Equation (2) in the text. All columns control for individual characteristics (Gender, Education (Up to 15 years; 16-19 years; 20 years or older; still studying; no education), Unemployed, Left-wing oriented) and country-level covariates (Linear and squared five-year average temperature and total precipitation, linear and squared annual temperature and total precipitation). All columns control for "Weighted weather in origin countries": a fourth-order polynomial of seasonal temperature and a second-order polynomial of total precipitation in origin countries weighted by the baseline propensity to migrate to a destination country as measured by the first five-year average share of asylum demands from a given origin. All columns include country, age, region-by-survey-year fixed effects, and country-by-age linear trends. Robust standard errors, clustered at the country level, in parentheses. The F-Statistic refers to the Kleibergen-Paap F-statistic for weak instruments, which corresponds to the effective Olea-Pflueger F-Statistic. Significance levels: * $p < 0.1$, ** $p < 0.05$, *** $p < 0.01$.

Table D7. Weather-induced asylum applications and individuals' environmental values. 2SLS estimates. Alternative specifications.

Outcome variable	Climate concern in European Elections			Climate change as political priority		
	(1)	(2)	(3)	(4)	(5)	(6)
log(Asylum Applications)	0.0217**	0.0222**	0.0232**	0.0427**	0.0432**	0.0476**
	(0.0102)	(0.0104)	(0.0108)	(0.0202)	(0.0208)	(0.0218)
Local weather controls	X	X	X	X	X	X
Individual controls	X	X	X	X	X	X
Country FE	X	X	X	X	X	X
Region-by-year FE	X	X	X	X	X	X
Country-by-age FE	X			X		
Birth cohort FE	X			X		
Country-by-birth cohort FE		X	X		X	X
Country-age linear trends	X	X		X	X	
F-Statistic	21.341	21.367	21.427	27.410	27.317	27.438
N	106,547	106,613	106,542	130,010	130,067	130,004

Notes: The sample is restricted to survey respondents that have the same nationality as the country in which they are interviewed. The dependent variable in columns 1-3 is a dummy equal to 1 if the respondent reports climate change as a theme that the European Parliament should give priority to when deliberating. The dependent variable in columns 4-6 is a dummy equal to 1 if the respondent reports climate change as a theme that should be discussed as a matter of priority during the electoral campaign for the next European Parliament elections (see Table B1 for exact wording and additional details on the construction of the variable). Asylum Applications is the sum of the asylum applications in the country in the five years preceding the survey year, as defined in Equation 1. All columns report the 2SLS estimates using the predicted asylum applications constructed from the gravity-predicted asylum application flows as described in Equation (2) in the text. All columns control for individual characteristics (Gender, Education (Up to 15 years; 16-19 years; 20 years or older; still studying; no education), Unemployed, Left-wing oriented) and country-level covariates (Linear and squared five-year average temperature and total precipitation, linear and squared annual temperature and total precipitation). Robust standard errors, clustered at the country level, in parentheses. The F-Statistic refers to the Kleibergen-Paap F-statistic for weak instruments, which corresponds to the effective Olea-Pflueger F-Statistic. Significance levels: * $p < 0.1$, ** $p < 0.05$, *** $p < 0.01$.

Table D8. Weather-induced asylum applications and individuals' environmental values. 2SLS estimates. Alternative instruments.

Outcome variable	Climate concern in European Elections				
	(1)	(2)	(3)	(4)	(5)
log(Asylum Applications)	0.0150*	0.0134*	0.0140*	0.0140*	0.0181*
	(0.00816)	(0.00788)	(0.00738)	(0.00791)	(0.00893)
Instrument	with migration costs	Equation (C1)	Equation (C2)	Origin temperature squared	5°C-bin origin temperature
Weak IV Robust 95% Confidence Interval	[0.002,0.022]	[0.002,0.022]	[0.002,0.022]	[0.002,0.022]	[0.002,0.042]
F-Statistic	17.243	20.143	20.492	20.528	18.401
N	106,614	106,614	106,614	106,614	106,614
Outcome variable	Climate change as political priority				
log(Asylum Applications)	0.0498**	0.0458**	0.0410**	0.0468**	0.0495**
	(0.0204)	(0.0197)	(0.0194)	(0.0197)	(0.0200)
Instrument	with migration costs	Equation (C1)	Equation (C2)	Origin temperature squared	5°C-bin origin temperature
Weak IV Robust 95% Confidence Interval	[0.002,0.102]	[0.002,0.082]	[0.002,0.082]	[0.002,0.082]	[0.002,0.102]
F-Statistic	21.431	26.343	23.397	27.187	25.695
N	130,068	130,068	130,068	130,068	130,068
Local weather controls	X	X	X	X	X
Individual controls	X	X	X	X	X
Country FE	X	X	X	X	X
Age FE	X	X	X	X	X
Region-by-year FE	X	X	X	X	X
Country-age linear trends	X	X	X	X	X

Notes: The sample is restricted to survey respondents that have the same nationality as the country in which they are interviewed. The dependent variable in columns 1-3 is a dummy equal to 1 if the respondent reports climate change as a theme that the European Parliament should give priority to when deliberating. The dependent variable in columns 4-6 is a dummy equal to 1 if the respondent reports climate change as a theme that should be discussed as a matter of priority during the electoral campaign for the next European Parliament elections (see Table B1 for exact wording and additional details on the construction of the variable). Asylum Applications is the sum of the asylum applications in the country in the five years preceding the survey year, as defined in Equation 1. Each column uses a different instrument for predicted weather-induced asylum applications. All columns control for individual characteristics (gender, education levels; employment status; political orientation) and country-level covariates (linear and squared annual average temperature and total precipitation), and country, age, region-by-survey-year fixed effects and country by age linear trends. Robust standard errors, clustered at the country level, in parentheses. The F-Statistic refers to the Kleibergen-Paap F-statistic for weak instruments, which corresponds to the effective Olea-Pflueger F-Statistic. Weak IV robust 95% confidence intervals are Anderson–Rubin confidence sets. Significance levels: * $p < 0.1$, ** $p < 0.05$, *** $p < 0.01$.

Table D9. Weather-induced asylum applications and individuals' environmental values. 2SLS estimates. Alternative time windows.

Outcome variable	Climate concern in European Elections				Climate change as political priority			
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
log(Asylum Applications)	0.0226**	0.0209**	0.0154*	0.0174**	0.0431**	0.0383*	0.0369*	0.0359*
	(0.0106)	(0.00993)	(0.00798)	(0.00807)	(0.0207)	(0.0212)	(0.0196)	(0.0188)
Local weather controls	X	X	X	X	X	X	X	X
Individual controls	X	X	X	X	X	X	X	X
Country FE	X	X	X	X	X	X	X	X
Age FE	X	X	X	X	X	X	X	X
Region-by-year FE	X	X	X	X	X	X	X	X
Country-age linear trends	X	X	X	X	X	X	X	X
Window exposure	5 years	4 years	4 years (excl. contemp.)	5 years (excl. contemp.)	5 years	4 years	4 years (excl. contemp.)	5 years (excl. contemp.)
F-Statistic	22.106	17.934	20.835	26.397	27.252	28.695	31.225	31.223
N	106,614	106,614	106,614	106,614	130,068	130,068	130,068	130,068

Notes: The sample is restricted to survey respondents that have the same nationality as the country in which they are interviewed. The dependent variable in columns 1-3 is a dummy equal to 1 if the respondent reports climate change as a theme that the European Parliament should give priority to when deliberating. The dependent variable in columns 4-6 is a dummy equal to 1 if the respondent reports climate change as a theme that should be discussed as a matter of priority during the electoral campaign for the next European Parliament elections (see Table B1 for exact wording and additional details on the construction of the variable). Asylum Applications is the sum of the asylum applications in the country in the five years preceding the survey year, as defined in Equation 1. The 2SLS estimates are obtained using the predicted asylum applications constructed from the gravity-predicted asylum application flows as described in Equation (2) in the text. All columns control for individual characteristics (gender, education levels; employment status; political orientation) and country-level covariates (linear and squared annual average temperature and total precipitation), and country, age, region-by-survey-year fixed effects and country by age linear trends. Robust standard errors, clustered at the country level, in parentheses. The F-Statistic refers to the Kleibergen-Paap F-statistic for weak instruments, which corresponds to the effective Olea-Pflueger F-Statistic. Significance levels: * $p < 0.1$, ** $p < 0.05$, *** $p < 0.01$.

Table D10. Weather-induced asylum applications and individuals' environmental values. 2SLS estimates. Alternative treatments.

Outcome variable	Climate concern in European Elections		Climate change as political priority	
	(1)	(2)	(3)	(4)
Asylum Applications	0.0151*	0.0244***	0.0213*	0.0204**
	(0.00776)	(0.00629)	(0.0120)	(0.00927)
Local weather controls	X	X	X	X
Individual controls	X	X	X	X
Country FE	X	X	X	X
Age FE	X	X	X	X
Region-by-year FE	X	X	X	X
Country-age linear trends	X	X	X	X
Regressor	log annual flow	weather-induced asylum anomaly	log annual flow	weather-induced asylum anomaly
F-Statistic	29.737		11.569	
N	106,614	106,614	130,068	130,068
Number of countries	28	28	28	28

Notes: The sample is restricted to survey respondents that have the same nationality as the country in which they are interviewed. The dependent variable in columns (1) and (2) is a dummy equal to 1 if the respondent reports climate change as a theme that the European Parliament should give priority to when deliberating. The dependent variable in columns (3) and (4) is a dummy equal to 1 if the respondent reports climate change as a theme that should be discussed as a matter of priority during the electoral campaign for the next European Parliament elections (see Table B1 for exact wording and additional details on the construction of the variable). Columns (1) and (3) report the 2SLS estimates where Asylum Applications is the log of asylum applications in the country in the survey year and is instrumented using the predicted asylum applications constructed from the gravity-predicted asylum application flows as described in Equation (2). Columns (2)-(4) report the OLS estimates where Asylum Applications is the measure of weather-induced asylum application spikes n_{dt} constructed in Appendix Section C.3. All columns control for individual characteristics (gender, education levels; employment status; political orientation) and country-level covariates (linear and squared annual average temperature and total precipitation), and country, age, region-by-survey-year fixed effects and country by age linear trends. Robust standard errors, clustered at the country level, in parentheses. The F-Statistic refers to the Kleibergen-Paap F-statistic for weak instruments, which corresponds to the effective Olea-Pflueger F-Statistic. Significance levels: * $p < 0.1$, ** $p < 0.05$, *** $p < 0.01$.

Table D11. Weather-induced asylum applications per capita and individuals' environmental values. 2SLS estimates.

Outcome variable	Climate concern in European Elections		Climate change as political priority	
	OLS	2SLS	OLS	2SLS
	(1)	(2)	(3)	(4)
log(Asylum Applications/Population)	-0.00123	0.0203**	0.00775	0.0397**
	(0.00385)	(0.00940)	(0.00650)	(0.0193)
Local weather controls	X	X	X	X
Individual controls	X	X	X	X
Country FE	X	X	X	X
Age FE	X	X	X	X
Region-by-year FE	X	X	X	X
Country-age linear trends	X	X	X	X
F-Statistic		16.688		23.726
N	106,614	106,614	130,068	130,068

Notes: The sample is restricted to survey respondents that have the same nationality as the country in which they are interviewed. The dependent variable in columns (1) and (2) is a dummy equal to 1 if the respondent reports climate change as a theme that the European Parliament should give priority to when deliberating. The dependent variable in columns (3) and (4) is a dummy equal to 1 if the respondent reports climate change as a theme that should be discussed as a matter of priority during the electoral campaign for the next European Parliament elections (see Table B1 for exact wording and additional details on the construction of the variable). Both actual and predicted asylum applications are scaled by the total population in the country. All columns control for individual characteristics (gender, education levels; employment status; political orientation) and country-level covariates (linear and squared annual average temperature and total precipitation), and country, age, region-by-survey-year fixed effects and country by age linear trends. Robust standard errors, clustered at the country level, in parentheses. The F-Statistic refers to the Kleibergen-Paap F-statistic for weak instruments, which corresponds to the effective Olea-Pflueger F-Statistic. Significance levels: * $p < 0.1$, ** $p < 0.05$, *** $p < 0.01$.

Table D12. Asylum applications and environmental values using volcanic eruptions and earthquakes in origin country.

Outcome variable	Climate concern in European Elections		Climate change as political priority	
	OLS	2SLS	OLS	2SLS
	(1)	(2)	(3)	(4)
log(Asylum Applications)	-0.00147	0.00396	0.00746	0.0176
	(0.00384)	(0.0115)	(0.00651)	(0.0294)
Local weather controls	X	X	X	X
Individual controls	X	X	X	X
Country FE	X	X	X	X
Age FE	X	X	X	X
Region-by-year FE	X	X	X	X
Country-age linear trends	X	X	X	X
F-Statistic		12.393		5.062
N	106,614	106,614	130,068	130,068

Notes: The sample is restricted to survey respondents that have the same nationality as the country in which they are interviewed. The dependent variable in columns (1) and (2) is a dummy equal to 1 if the respondent reports climate change as a theme that the European Parliament should give priority to when deliberating. The dependent variable in columns (3) and (4) is a dummy equal to 1 if the respondent reports climate change as a theme that should be discussed as a matter of priority during the electoral campaign for the next European Parliament elections (see Table B1 for exact wording and additional details on the construction of the variable). Asylum Applications is the sum of the asylum applications in the country in the five years preceding the survey year, as defined in Equation 1. Columns (2) and (4) report the 2SLS estimates using the predicted asylum applications constructed from the gravity-predicted asylum application flows using earthquakes and volcanic eruptions from EM-DAT data. All columns control for individual characteristics (gender, education levels; employment status; political orientation) and country-level covariates (linear and squared annual average temperature and total precipitation), and country, age, region-by-survey-year fixed effects and country by age linear trends. Robust standard errors, clustered at the country level, in parentheses. The F-Statistic refers to the Kleibergen-Paap F-statistic for weak instruments, which corresponds to the effective Olea-Pflueger F-Statistic. Significance levels: * $p < 0.1$, ** $p < 0.05$, *** $p < 0.01$.

Table D13. Weather-induced asylum applications and individual concern on other topics. 2SLS estimates.

Outcome variable	Economic growth in European Elections	Euro single currency in European Elections	Terrorism in European Elections	Food safety in European Elections	Terrorism as political Priority
	(1)	(2)	(3)	(4)	(5)
log(Asylum Applications)	-0.00226	-0.0458	-0.00383	-0.0193	0.0126
	(0.0165)	(0.0814)	(0.00804)	(0.0130)	(0.0153)
Local weather controls	X	X	X	X	X
Individual controls	X	X	X	X	X
Country FE	X	X	X	X	X
Age FE	X	X	X	X	X
Region-by-year FE	X	X	X	X	X
Country-age linear trends	X	X	X	X	X
F-Statistic	14.434	9.437	14.434	14.434	21.434
N	106,614	53799	106,614	106,614	130,068

Notes: The sample is restricted to survey respondents that have the same nationality as the country in which they are interviewed. The dependent variable is a dummy equal to 1 if the respondent reports economic growth (in col. 1), euro single currency (col. 2), terrorism (col. 3) and food safety (col. 4) as a theme that the European Parliament should give priority to when deliberating. The dependent variable in column 5 is a dummy equal to 1 if the respondent reports terrorism as a theme that should be discussed as a matter of priority during the electoral campaign for the next European Parliament elections (see Appendix Table B1 for exact wording). The estimates refer to the 2SLS coefficients obtained using the predicted asylum applications constructed from the gravity-predicted asylum application flows as described in Equation (2) in the text. All columns control for individual characteristics (gender, education levels; employment status; political orientation) and country-level covariates (linear and squared annual average temperature and total precipitation), and country, age, region-by-survey-year fixed effects and country by age linear trends. Robust standard errors, clustered at the country level, in parentheses. The F-Statistic refers to the Kleibergen-Paap F-statistic for weak instruments, which corresponds to the effective Olea-Pflueger F-Statistic. Significance levels: * $p < 0.1$, ** $p < 0.05$, *** $p < 0.01$.

Table D14. Weather-induced asylum applications and environmental values. No top-5 countries of origin for asylum seekers.

Outcome variable	Climate concern in European Elections		Climate change as political priority	
	OLS	2SLS	OLS	2SLS
	(1)	(2)	(3)	(4)
log(Asylum Applications)	-0.000120	0.0160^{*}	0.0145^{*}	0.0507^{***}
	(0.00437)	(0.00854)	(0.00760)	(0.0178)
Country FE	X	X	X	X
Age FE	X	X	X	X
Region-by-year FE	X	X	X	X
Country-age linear trends	X	X	X	X
F-Statistic		23.737		22.552
N	106,614	106,614	130,068	130,068

Notes: The sample is restricted to survey respondents that have the same nationality as the country in which they are interviewed. The dependent variable is a dummy equal to 1 if the respondent reports climate change as a theme that should be discussed as a matter of priority during the electoral campaign for the next European Parliament elections (columns 1 and 2, see Table B1 for exact wording and additional details on the construction of the variable). In columns (3) and (4) the dependent variable is a dummy equal to 1 if the respondent reports climate change as a theme that the European Parliament should give priority to when deliberating (see Table B1 for exact wording and additional details on the construction of the variable). Asylum demands do not account for the top-5 countries of origin for asylum seekers in the sample (Afghanistan, Iraq, Russian Federation, Serbia, Syria). All columns reporting the 2SLS estimates (2 and 4) instrument the (log) of asylum applications with the gravity-predicted (log) of asylum applications described in Equation (2) in the text. All columns control for individual characteristics (gender, education levels; employment status; political orientation) and country-level covariates (linear and squared annual average temperature and total precipitation), and country, age, region-by-survey-year fixed effects and country by age linear trends. Robust standard errors, clustered at the country level, in parentheses. The F-Statistic refers to the Kleibergen-Paap F-statistic for weak instruments, which corresponds to the effective Olea-Pflueger F-Statistic. Significance levels: * $p < 0.1$, ** $p < 0.05$, *** $p < 0.01$.

Table D15. Country average climate concern and leads of actual and predicted asylum demands.

Outcome variable	Asylum Applications		5-year Asylum Applications		Predicted Asylum Applications	
	(1)	(2)	(3)	(4)	(5)	(6)
Climate concern in European Elections	-2.045		0.132		-2.498	
	(3.103)		(4.075)		(2.382)	
Climate change as political priority		1.483		1.659		1.005
		(1.282)		(1.224)		(0.674)
Local weather controls	X	X	X	X	X	X
Country FE	X	X	X	X	X	X
Year FE	X	X	X	X	X	X
N	83	164	83	164	83	164

Notes: All estimates are obtained from country-level regressions. The main regressors are country-average responses for "Climate concern in European Elections" and "Climate change as political priority". The first two columns use one-year ahead asylum applications, columns 3 and 4 use five-year ahead cumulative asylum applications, and columns 5 and 6 use the one-year ahead predicted weather-induced asylum applications. The predicted measure of weather-induced asylum applications is constructed from the estimation of Equation (C2). All columns control for linear and squared five-year average temperature and total precipitation, linear and squared annual temperature and total precipitation, and country, and survey year fixed effects. Robust standard errors, clustered at the country level, in parentheses. Significance levels: * $p < 0.1$, ** $p < 0.05$, *** $p < 0.01$.

Table D16. Weather-induced asylum applications and environmental values. Controlling for trade.

Outcome variable	Climate concern in European Elections			Climate change as political priority		
	(1)	(2)	(3)	(4)	(5)	(6)
log(Asylum Applications)		0.157	0.0334*		0.0511	0.0443**
		(0.346)	(0.0195)		(0.0312)	(0.0213)
log(Trade/GDP)	0.0295		-0.0681	0.0894		-0.0132
	(0.0264)		(0.0509)	(0.0855)		(0.0340)
log(Predicted Trade/GDP)		-0.148			-0.0124	
		(0.360)			(0.0333)	
Local weather controls	X	X	X	X	X	X
Individual controls	X	X	X	X	X	X
Country FE	X	X	X	X	X	X
Age FE	X	X	X	X	X	X
Region-by-year FE	X	X	X	X	X	X
Country-age linear trends	X	X	X	X	X	X
F-Statistic	7.256	0.234	1.947	9.873	5.393	5.138
SW F-Statistic (Asylum applications)			8.38			14.75
SW F-Statistic (Trade)			7.95			13.12
N	106,614	106,614	106,614	130,068	130,068	130,068

Notes: The sample is restricted to survey respondents that have the same nationality as the country in which they are interviewed. The dependent variable is a dummy equal to 1 if the respondent reports climate change as a theme that should be discussed as a matter of priority during the electoral campaign for the next European Parliament elections (columns 1-3, see Table B1 for exact wording and additional details on the construction of the variable). In columns (4)-(6) the dependent variable is a dummy equal to 1 if the respondent reports climate change as a theme that the European Parliament should give priority to when deliberating (see Table B1 for exact wording and additional details on the construction of the variable). Trade is defined as the sum of bilateral trade flows with all non-OECD countries and then scaled by country GDP, and logged. Predicted trade is obtained through a gravity approach like the one adopted for asylum applications described in Section 4.2. Columns (1) and (4) replicates the baseline specification replacing asylum applications with. Columns (2) and (5) control for predicted weather-induced trade flows. Columns (3) and (6) augment the preferred specification by including trade flows and instrumented it with the weather-induced predicted counterpart. All columns control for individual characteristics (gender, education levels; employment status; political orientation) and country-level covariates (linear and squared annual average temperature and total precipitation), and country, age, region-by-survey-year fixed effects and country by age linear trends. Robust standard errors, clustered at the country level, in parentheses. F-statistic refers to the Kleibergen-Paap F-statistic for weak instruments. SW F-stats refer to joint significance of the instruments in the various separate first-stage regressions. Significance levels: * $p < 0.1$, ** $p < 0.05$, *** $p < 0.01$.

Table D17. 2SLS Estimates: Exposure to weather-induced asylum demands by age range

	(1) Climate concern in European Elections	(2) Climate change as political priority
Log(Exposure$_{16-24}$)	0.0235**	0.0390**
	(0.00959)	(0.0180)
F-statistic	48.091	54.376
N	17554	21661
Log(Exposure$_{25-33}$)	0.00990	0.0409***
	(0.00635)	(0.0139)
F-statistic	41.019	37.483
N	21324	26359
Log(Exposure$_{34-42}$)	0.00889	0.0403**
	(0.00661)	(0.0150)
F-statistic	41.939	40.211
N	24389	30320
Log(Exposure$_{43-51}$)	0.00815	0.0209
	(0.00673)	(0.0135)
F-statistic	38.166	36.681
N	25698	31544
Log(Exposure$_{52-60}$)	0.00605	0.0167
	(0.00792)	(0.0145)
F-statistic	40.667	37.419
N	27558	33144
Log(Exposure$_{61-69}$)	0.00971	0.0286**
	(0.00573)	(0.0131)
F-statistic	34.782	35.594
N	24344	29936
Log(Exposure$_{70-78}$)	0.00484	0.00553
	(0.00740)	(0.0255)
F-statistic	28.925	22.865
N	15234	18158
Log(Exposure$_{79+}$)	0.0120	0.0304
	(0.0376)	(0.0352)
F-statistic	21.008	22.046
N	5,269	6,315
Local weather controls	X	X
Individual controls	X	X
Country FE	X	X
Age FE	X	X
Birth-cohort FE	X	X
Region-by-year FE	X	X
Country-age linear trends	X	X

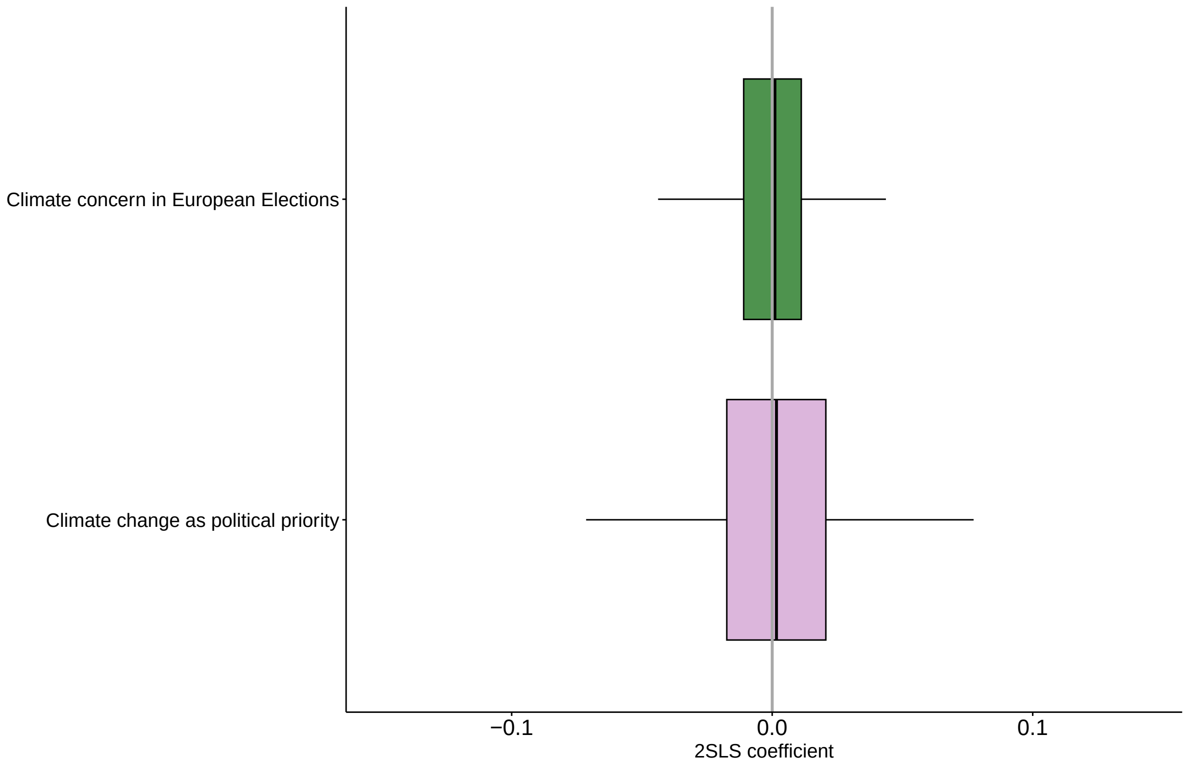
Notes: Each cell reports the 2SLS estimate of the coefficient associated with the (log) exposure to asylum applications as the (log) of the cumulative asylum applications in the country in a given age range of an individual. The sample is restricted to survey respondents that have the same nationality as the country in which they are interviewed and whose exposure period occurs in the time period in which asylum application data are available (i.e., after 2000). The dependent variable is a dummy equal to 1 if the respondent reports climate change as a theme that should be discussed as a matter of priority during the electoral campaign for the next European Parliament elections (columns 1 and 3, see Table B1 for exact wording and additional details on the construction of the variable). In columns (2) and (4) the dependent variable is a dummy equal to 1 if the respondent reports climate change as a theme that the European Parliament should give priority to when deliberating (see Table B1 for exact wording and additional details on the construction of the variable). The 2SLS estimates use the predicted asylum applications constructed from the gravity-predicted asylum application flows as described in Equation (2) in the text. Robust standard errors, clustered at the country level, in parentheses. Individual controls: Gender, Education (Up to 15 years; 16-19 years; 20 years or older; still studying; no education), Unemployed, Left-wing oriented. weather controls: Exposure to average temperature and precipitation over the same time period in which exposure to asylum applications is measured and contemporaneous linear and quadratic terms of temperature and precipitation. The F-Statistic refers to the Kleibergen-Paap F-statistic for weak instruments, which corresponds to the effective Olea-Pflueger F-Statistic. Significance levels: * $p < 0.1$, ** $p < 0.05$, *** $p < 0.01$.

Table D18. Exposure to weather-induced asylum applications and individuals' environmental values. 2SLS estimates. Alternative definitions for formative age.

Outcome variable	Climate concern in European Elections						Climate change as political priority					
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)
log(Asylum Applications)	0.0235**	0.0379**	0.0130*	0.0123*	0.01097	0.01196*	0.0383**	0.0461*	0.0282*	0.0286*	0.0307**	0.0303**
	(0.00959)	(0.0160)	(0.00721)	(0.00750)	(0.00772)	(0.00716)	(0.0153)	(0.0261)	(0.0147)	(0.0148)	(0.0138)	(0.0129)
Local weather controls	X	X	X	X	X	X	X	X	X	X	X	X
Individual controls	X	X	X	X	X	X	X	X	X	X	X	X
Country FE	X	X	X	X	X	X	X	X	X	X	X	X
Age FE	X	X	X	X	X	X	X	X	X	X	X	X
Birth-cohort FE	X	X	X	X	X	X	X	X	X	X	X	X
Region-by-year FE	X	X	X	X	X	X	X	X	X	X	X	X
Country-age linear trends	X	X	X	X	X	X	X	X	X	X	X	X
Formative age	16-24	16-25	17-24	17-25	18-24	18-25	16-24	16-25	17-24	17-25	18-24	18-25
F-Statistic	26.020	20.808	27.368	27.073	29.487	29.414	46.347	33.767	45.758	44.988	43.767	44.128
N	17,554	9,542	18,230	18,230	18,704	18,704	21,661	11,915	22,384	22,384	22,956	22,956

Notes: The sample is restricted to survey respondents that have the same nationality as the country in which they are interviewed. The dependent variable in columns 1-6 is a dummy equal to 1 if the respondent reports climate change as a theme that the European Parliament should give priority to when deliberating. The dependent variable in columns 7-12 is a dummy equal to 1 if the respondent reports climate change as a theme that should be discussed as a matter of priority during the electoral campaign for the next European Parliament elections (see Table B1 for exact wording and additional details on the construction of the variable). Asylum Applications is the sum of the asylum applications in the country in the five years preceding the survey year, as defined in Equation 1. The 2SLS estimates use the predicted asylum applications constructed from the gravity-predicted asylum application flows as described in Equation (2) in the text. All columns control for individual characteristics (gender, education levels; employment status; political orientation) and country-level covariates (linear and squared annual average temperature and total precipitation), and country, survey year, age, birth-year, region-by-survey-year fixed effects and country by age linear trends. Robust standard errors, clustered at the country level, in parentheses. The F-Statistic refers to the Kleibergen-Paap F-statistic for weak instruments, which corresponds to the effective Olea-Pflueger F-Statistic. Significance levels: * $p < 0.1$, ** $p < 0.05$, *** $p < 0.01$.

Figure D1. Randomization-based 2SLS estimates of weather-induced asylum applications on climate concern



Notes: This figure reports the 2SLS coefficient estimates of the effect of weather-induced asylum applications on "Climate concen in European Elections" and "Climate change as political priority". Estimates are obtained by shuffling 5-year cumulative asylum applications across country-years, with 500 iterations of randomization and model re-estimation. Boxplots show the interquartile range (25th–75th percentiles), whiskers span the full range of simulated estimates.

D.3 Robustness checks for country-level analysis

Table D19. Green party votes and leads of actual and predicted asylum demands

Outcome variable	Actual asylum demands	Predicted asylum demands
	(1)	(2)
Green votes (%)	0.0454	-0.00227
	(0.0300)	(0.00860)
Country controls	X	X
Local weather controls	X	X
Country FE	X	X
Year FE	X	X
N	42	42
adj. R^2	0.957	0.999

Notes: The table reports the OLS estimates associated with the % of Green party votes in European Parliament elections on the leads of actual and predicted weather-induced asylum demands in logarithm as constructed in Equation (C1). Robust standard errors, clustered at the country level, in parentheses. *Country controls*: (log) GDP per capita, % tertiary education, unemployment rate, population rate between 18 and 23 years old. *Local weather controls*: Linear and squared average temperature and total precipitation in the country. All columns account for country- and year-specific fixed effects. F-statistic refers to the Kleibergen-Paap F-statistic for weak instruments. Significance levels: * $p < 0.1$, ** $p < 0.05$, *** $p < 0.01$.

Table D20. Weather-induced asylum applications and other parties' votes in European Parliament elections. 2SLS estimates. Other parties.

Outcome variable: % votes	Socialist/Left	Social democrats	Liberal	Christian democrats	Conservative	Nationalist
	(1)	(2)	(3)	(4)	(5)	(6)
log(Asylum Applications)	4.399	-1.287	-0.884	-0.447	2.434	-4.895**
	(2.840)	(1.617)	(3.839)	(2.807)	(2.376)	(2.059)
Country controls	X	X	X	X	X	X
Local weather controls	X	X	X	X	X	X
Country FE	X	X	X	X	X	X
Year FE	X	X	X	X	X	X
N	67	99	83	65	73	84
F-Statistic	15.273	16.410	25.556	10.922	13.949	22.641
Number of countries	20	27	24	18	20	25

Notes: The table reports the 2SLS coefficients on (log) of total asylum applications in the five years preceding the European Parliament elections. The dependent variable is the share of votes of other parties by party family as classified in the Manifesto database in European Parliament elections after 2000 in an European Union member country. The (log) of total asylum applications in the five years preceding the elections is instrumented with the gravity-predicted (log) of total asylum applications described in Equation (2) in the text. *Country controls*: (log) GDP per capita, % tertiary education, unemployment rate, population rate between 18 and 23 years old between the two election rounds and in the year of the elections, voter turnout. *Local weather controls*: Linear and squared average temperature and total precipitation in the country between the two election rounds and in the year of the elections. All countries control for country-specific, year-specific fixed effects. Robust standard errors, clustered at the country level, in parentheses. F-statistic refers to the Kleibergen-Paap F-statistic for weak instrument. Significance levels: * $p < 0.1$, ** $p < 0.05$, *** $p < 0.01$.

Table D21. Weather-induced asylum applications and electoral turnout in European Parliament elections

Outcome variable	% Voter Turnout (*Mean: 46.134*)			
	OLS	2SLS	2SLS	2SLS
	(1)	(2)	(3)	(4)
log(Asylum Applications)	1.097	-3.785	-2.428*	-3.256*
	(1.617)	(3.061)	(1.360)	(1.912)
Country controls	X	X	X	X
Local weather controls	X	X	X	X
Country FE	X		X	X
Year FE	X	X	X	X
Regional linear time trends				X
F-Statistic		9.468	15.536	11.083
N	65	65	65	65
Number of countries	28	28	28	28

Notes: The table reports the OLS (column 1) and 2SLS (columns 2 to 4) coefficients on (log) of total asylum applications in the five years preceding the European Parliament elections. The dependent variable is the share of electoral turnout in European Parliament elections after 2000 in an European Union member country. The (log) of total asylum applications in the five years preceding the elections is instrumented with the gravity-predicted (log) of total asylum applications described in Equation (2) in the text. The sample is the same as in baseline results using Green party votes. *Country controls*: (log) GDP per capita, % tertiary education, unemployment rate, population rate between 18 and 23 years old between the two election rounds and in the year of the elections, voter turnout. *Local weather controls*: Linear and squared average temperature and total precipitation in the country between the two election rounds and in the year of the elections. All countries control for country-specific, year-specific fixed effects. Robust standard errors, clustered at the country level, in parentheses. F-statistic refers to the Kleibergen-Paap F-statistic for weak instrument. Significance levels: * $p < 0.1$, ** $p < 0.05$, *** $p < 0.01$.

Table D22. Weather-induced asylum applications and other dimensions of national elections. 2SLS estimates.

	Europe + (1)	Europe - (2)	Multiculturalism + (3)	Multiculturalism - (4)	Refugees + (5)	Cultural Autonomy + (6)
log(Asylum Applications)	0.226	0.0865	-0.232	0.156	-0.186	0.287
	(0.182)	(0.174)	(0.160)	(0.343)	(0.150)	(0.353)
Country controls	X	X	X	X	X	X
Local weather Controls	X	X	X	X	X	X
Country FE	X	X	X	X	X	X
Year FE	X	X	X	X	X	X
F-Statistic	16.030	16.030	16.030	16.030	16.030	16.030
N	119	119	119	119	119	119

Notes: The dependent variable is the normalized index of each topic of national elections where the share of quasi-sentences that referred to each topic as described in Table B3 in each party's manifesto is weighted by its vote share in the national elections. The table reports the coefficients associated with (log) of the sum of asylum applications in the period between one election year and the other, obtained using an instrumental variable approach, where the instrument is constructed using the predicted values in Equations (2). *Country controls*: averages between two elections of (log) GDP per capita, % tertiary education, unemployment rate, population rate between 18 and 23 years old, and in the year of the elections. *Local weather controls*: averages between two elections of linear and squared temperature and precipitation and in the year of the elections. Robust standard errors, clustered at the country level, in parentheses. The F-Statistic refers to the Kleibergen-Paap F-statistic for weak instruments, which corresponds to the effective Olea-Pflueger F-Statistic. Significance levels: * $p < 0.1$, ** $p < 0.05$, *** $p < 0.01$.

D.4 Robustness checks for party-level analysis

Table D23. Weather-induced asylum applications and environmental agenda of parties. 2SLS estimates. Alternative vote cutoffs.

	Party's Standardized Environmentalism			
	(1)	(2)	(3)	(4)
Panel A: Unweighted				
log(Asylum Applications)	-0.0583	-0.334**	-0.365**	-0.347**
	(0.108)	(0.145)	(0.165)	(0.153)
F-Statistic	32.421	25.869	20.066	15.168
Panel B: Weighted by party votes				
log(Asylum Applications)	-0.158	-0.274*	-0.314*	-0.297*
	(0.116)	(0.147)	(0.160)	(0.148)
F-Statistic	27.312	23.909	19.597	14.649
Votes above	5%	10%	15%	20%
Right-left ideological index	X	X	X	X
Country controls	X	X	X	X
Local weather controls	X	X	X	X
Country FE	X	X	X	X
Year FE	X	X	X	X
Party FE	X	X	X	X
N	469	293	210	170

Notes: The analysis is over a sample of parties that are running in multiple elections. The table reports the coefficients associated with (log) of the sum of asylum applications in the period between one election year and the other. The dependent variable is the (normalized) share of quasi-sentences that positively referred to the environment in each party's manifesto in the national elections. All columns report the 2SLS estimates where (log) of asylum applications is instrumented with the gravity-predicted (log) of asylum applications described in Equations (2). Panel B weighs each party's observation by the vote gained in the national elections. Column (1) only considers parties that gained at least 5% of the votes, column (2) only considers parties that gained at least 10% of the votes, column (3) only considers parties that gained at least 15% of the votes, column (4) only considers parties that gained at least 20% of the votes. All columns control for the normalized right-left ideological index provided in the MPD. *Country controls*: averages between two elections of (log) GDP per capita, % tertiary education, unemployment rate, population rate between 18 and 23 years old, and in the year of the elections. *Local weather controls*: averages between two elections of linear and squared temperature and precipitation and in the year of the elections. All columns control for country, year, and party fixed effects. Robust standard errors, clustered at the country level, in parentheses. The F-Statistic refers to the Kleibergen-Paap F-statistic for weak instruments, which corresponds to the effective Olea-Pflueger F-Statistic. Significance levels: * $p < 0.1$, ** $p < 0.05$, *** $p < 0.01$.

Table D24. Weather-induced asylum applications and environmental agenda by party family. 2SLS Estimates.

	Green/Ecologist (1)	Socialist/Left (2)	Social democrats (3)	Liberal (4)	Christian democrats (5)	Conservative (6)	Nationalist (7)
Panel A: Unweighted							
log(Asylum Applications)	-3.200	-0.542	-0.274	-0.0154	0.872	0.353	-0.0183
	(2.885)	(2.005)	(0.171)	(0.149)	(1.104)	(0.206)	(0.0777)
F-Statistic	1.289	2.491	25.802	47.751	2.713	10.025	46.526
Panel B: Weighted by party votes							
log(Asylum Applications)	-3.498	4.474	-0.355**	0.0478	-5.050	0.440	-0.0829
	(3.845)	(14.88)	(0.155)	(0.156)	(24.31)	(0.293)	(0.0916)
F-Statistic	1.605	2.080	34.013	64.349	2.060	5.542	50.383
Right-left ideological index	X	X	X	X	X	X	X
Country controls	X	X	X	X	X	X	X
Local weather controls	X	X	X	X	X	X	X
Country FE	X	X	X	X	X	X	X
Year FE	X	X	X	X	X	X	X
Party FE	X	X	X	X	X	X	X
N	52	73	105	84	72	66	68

Notes: The analysis is over a sample of parties that are running in multiple elections. The table reports the coefficients associated with (log) of the sum of asylum applications in the period between one election year and the other. The dependent variable is the (normalized) share of quasi-sentences that positively referred to the environment in each party's manifesto in the national elections. Each column only considers the parties belonging to a specific party family as defined by the Manifesto database. The coefficients reported are the 2SLS estimates where (log) of asylum applications is instrumented with the gravity-predicted (log) of asylum applications described in Equation (2) in the text. All columns control for the normalized right-left ideological index provided in the MPD. *Country controls*: averages between two elections of (log) GDP per capita, % tertiary education, unemployment rate, population rate between 18 and 23 years old, and in the year of the elections. *Local weather controls*: averages between two elections of linear and squared temperature and precipitation and in the year of the elections. All columns control for country, year, and party fixed effects. Panel B weighs each party's observation by the vote gained in the national elections. Robust standard errors, clustered at the country level, in parentheses. The F-Statistic refers to the Kleibergen-Paap F-statistic for weak instruments, which corresponds to the effective Olea-Pflueger F-Statistic. Significance levels: * $p < 0.1$, ** $p < 0.05$, *** $p < 0.01$.

Table D25. Weather-induced asylum applications and other dimensions of parties' manifestos. 2SLS Estimates.

	Europe + (1)	Europe - (2)	Multiculturalism + (3)	Multiculturalism - (4)	Refugees + (5)	Cultural Autonomy + (6)
Panel A: Unweighted						
log(Asylum Applications)	-0.269	0.0538	0.0161	-0.0953	-0.0899	-0.164
	(0.314)	(0.103)	(0.172)	(0.0791)	(0.0886)	(0.159)
F-Statistic	51.412	51.412	51.412	51.412	51.412	51.412
Panel B: Weighted by party votes						
log(Asylum Applications)	-0.0494	0.0756	-0.0217	-0.135	0.000911	-0.000171
	(0.181)	(0.0803)	(0.0829)	(0.0894)	(0.000963)	(0.00318)
F-Statistic	40.407	40.407	40.407	40.407	40.407	40.407
Right-left ideological index	X	X	X	X	X	X
Country controls	X	X	X	X	X	X
Local weather controls	X	X	X	X	X	X
Country FE	X	X	X	X	X	X
Year FE	X	X	X	X	X	X
Party FE	X	X	X	X	X	X
N	520	520	520	520	520	520

Notes: The analysis is over a sample of parties that are running in multiple elections. The table reports the coefficients associated with (log) of the sum of asylum applications in the period between one election year and the other. The dependent variable is the (normalized) share of quasi-sentences that refers to each dimension as described in Table B3 in each party's manifesto in the national elections. The coefficients report the 2SLS estimates where the (log) of asylum applications is instrumented with the gravity-predicted (log) of asylum applications described in Equation (2). Robust standard errors, clustered at the country level, in parentheses. All columns control for the normalized right-left ideological index provided in the MPD. *Country controls*: averages between two elections of (log) GDP per capita, % tertiary education, unemployment rate, population rate between 18 and 23 years old, and in the year of the elections. *Local weather controls*: averages between two elections of linear and squared temperature and precipitation and in the year of the elections. All columns control for country, year, and party fixed effects. Panel B weighs each party's observation by the vote gained in the national elections. Robust standard errors, clustered at the country level, in parentheses. The F-Statistic refers to the Kleibergen-Paap F-statistic for weak instruments, which corresponds to the effective Olea-Pflueger F-Statistic. Significance levels: * $p < 0.1$, ** $p < 0.05$, *** $p < 0.01$.