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POPULISM, POLARIZATION AND GREEN INVESTMENT

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ABSTRACT

We use detailed, individual-level, panel data to relate growing political polarization to (i) changing beliefs about the pace of global warming and (ii) the propensity to make climate-friendly investment decisions. Individuals in our study were exogenously exposed to forest fires to varying degrees in the summer of 2018. While exposure increased the perceived pace of climate change on average, the response is attenuated in areas experiencing increases in right-wing populism, especially when local environmental media coverage was stronger. Changing beliefs also predict climate-friendly investment, but this is heavily mediated by the same political dynamics.

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> In the East, it could be the coldest New Year's Eve on record. Perhaps we could use a little bit of that good old Global Warming that our Country, but not other countries, was going to pay TRILLIONS OF DOLLARS to protect against. Bundle up!
>
> President Donald J. Trump

1 Introduction

President Trump's message, posted to X on December 28, 2017 as a winter storm was engulfing the East Coast of the United States, illustrates several noteworthy features of right-wing populist discourse on the subject of global warming. The message implicitly mocks climate science, suggesting that global warming is an exaggerated phenomenon. It also highlights perceived economic injustice created by international agreements, depicting global warming in anti-globalist terms with suggestions that global cooperation comes at the unfair expense of national interests and ordinary citizens. In addition, by conflating *weather* (freezing temperatures in late December) and *climate* (long-term trends in weather in a specific region), it illustrates a well-known tendency for extreme weather events to raise the salience of climate change.[1] It also illustrates the fact that, throughout much of Europe and North America, global warming has increasingly become a politically charged topic. This is true both of right-wing and left-wing populist discourse, which often characterizes climate change as a battle between enfranchised capitalist elites and an oppressed lower-class of the young and the poor.

In this paper, we show that this growing politicization not only influences expectations about the pace of global warming, but also affects long-term, household investment decisions. Our paper makes two main contributions. First, we use an exogenous shock to the salience of global warming to show that changes in beliefs about the pace of global warming are heavily influenced by rising local political populism, both on the right and on the left. Second, we show how these changing beliefs translate into actual portfolio

[1] This has been shown in a wide range of settings. Recent settings include car purchases, Busse et al (2015); real estate prices, Bernstein, Gustafson, and Lewis (2019) and Baldauf et al (2020); stock prices, Choi, Gao, and Jiang (2020) and Anderson and Robinson (2019); options pricing, Kruttli, Tran, and Watugala (2021); and analyst earnings forecasts, Addoum, Ng, and Ortiz-Bobea (2023). Borick and Rabe (2017) contains a review of earlier findings.

decisions. We show that an individual's tendency to make climate-friendly investment decisions is also heavily influenced by rising populism. This analysis illustrates how random shocks to beliefs about global warming are filtered through the lens of the media and the political environment. More generally, it illustrates how the politicization of science shapes household beliefs and the decisions that arise from these beliefs.

To measure changing attitudes towards global warming, we conduct two surveys for a nationally representative sample of working-age individuals in Sweden. The first survey was conducted in the spring of 2018. In the summer of 2018, a massive, historic heat wave set off forest fires throughout Sweden. The fires burned in remote areas above the arctic circle, but also very close to city centers throughout the country. In the wake of the forest fires, climate policy became a central political topic in national elections that took place that fall. As we show in detail below, the number of news reports on global warming in local newspapers roughly doubled in the wake of the forest fires. We surveyed the same individuals again in the fall of 2019, one year after these events. Our key repeated survey question asks about the expected pace of global warming—a measure intended to reflect scientific understanding rather than political opinion. The timing of the survey allows us to measure within-respondent variation in beliefs about the pace of climate change as a result of the shock and relate these changes to respondent demographics and characteristics of the communities in which they live.

We measure each survey respondent's proximity to forest fires, as well as the severity of forest fires in that area. Consistent with previous work, we find a clear *average* effect of forest fires on environmental attitudes: individuals who live in areas affected by forest fires are on average more convinced that global temperatures will rise quicker over the next twenty years than they were before the forest fires occurred. We call this the *climate salience effect*. This measured climate salience effect is stronger when we apply more severe measures of forest fire exposure.

Critical to our analysis is the fact that the *average* salience effect—the parameter obtained from a population-level regression of belief revision on proximity to the forest fire—masks considerable cross-sectional heterogeneity across individuals. While most Swedes are generally concerned about climate change, almost as many respondents grow less concerned about global warming after the forest fires as grow more concerned. Our

key contribution is to show that the magnitude of the salience effect is explained by an individual's surrounding political environment, specifically by factors that relate to populism and polarization. The multi-party system in Sweden, which is typical for most European countries, provides an ideal setting to identify populism since it allows us to group parties at both ends of the political spectrum.

We link the climate salience effect to populism and polarization in two principal ways. First, we show that the magnitude of the climate salience effect varies according to factors associated with the rise of both left- and right-wing populist parties in Sweden during this period. Specifically, increases in support for right-wing (left-wing) populism are explained by factors aligned with cultural (economic) concerns. The climate salience effect is minimal in regions marked by low social trust, high unemployment, and high levels of immigration, while it is nearly twice the national average in areas without these characteristics. Thus, in regions with socio-demographic characteristics linked to the rise of right-wing populism, the climate salience effect is largely absent.

Second, we show that climate forecast revisions varies with local political outcomes. Individuals living in areas where right-wing populist parties gained vote share tend to report lower concern about global warming, while those in areas where left-wing populists gained support become more concerned. These ideological shifts are further stratified by demographics: right-leaning effects are more pronounced among men, whereas left-leaning effects are stronger among younger and lower-income respondents, consistent with broader patterns of political alignment. We also find a significant interaction effect: polarized regions, who exhibits stronger support for both the far left and right exacerbates the differences in climate forecast revisions.

Of course, we are not arguing that the causal linkages only run from political rhetoric to climate beliefs. Our argument is simply that climate beliefs are political beliefs: that political views affect the interpretation of weather shocks just as weather shocks affect political views. Indeed, forest fires have a direct impact on the acceleration of political polarization: areas more severely affected by fires saw increased voter turnout for both left- and right-wing populist parties in the elections held later that autumn. But the climate salience effect associated with forest fire exposure disappears once we account for these populist shifts. This implies that forest fires influence climate beliefs only through

the political polarization they help to fuel.

The media plays an important role in the linkage between politics and the reaction to weather shocks. Gentzkow and Shapiro (2010) show that newspapers slant their media coverage towards the views of their readership, in addition to affecting the views of their readership directly. To explore how media slant connects to climate polarization, we measure the news coverage around climate change among local, small-distribution newspapers, where we can tie readership to local political conditions. In areas where local climate media coverage was unusually high, the treatment effect of the shock is insignificant. The climate salience effect is only observed in low media coverage areas. In areas where local newspapers featured heavy coverage of climate change stories, populist drift in both directions explains climate belief revision. Conversely, in areas with low media coverage of global warming, the fire shock created a strong climate salience effect. Media coverage in general is also higher in areas that experienced more populist drift. These patterns suggest that local media coverage amplified a "climate backlash" on the populist right (see Falkenberg et al (2018)).

In the second part of the paper, we link these shifting beliefs to individuals' propensity to make long-term financial choices. We use investment decision-making in a mandatory retirement savings plan to infer whether climate revisions translate into greener investment choices. Drawing on detailed administrative records of retirement portfolios—measured several years after the belief changes captured in our survey—we find that attentive individuals who increase their concern about climate change are more likely to divest from high climate-risk stocks and invest in fossil fuel exclusion funds. Notably, there is no corresponding effect for individuals who grow less concerned about climate change.

However, this average effect conceals important variation tied to local political environments. Individuals who become more convinced of global warming are more likely to hold fossil fuel exclusion funds only in areas with low right-wing or high left-wing populist support. These positions arise through a combination of manager-led fund reclassifications and investor-led active rebalancing.

This polarization becomes even more pronounced when we isolate active rebalancing behavior. Respondents who become less concerned about climate change tend to exit

exclusion funds only if they live in areas with strong right-wing populist support. Conversely, those who grow more concerned are more likely to enter exclusion funds only in areas with strong left-wing populist support. This effect is particularly strong in areas with higher media coverage. The results in the second part of the paper not only demonstrate the real effects of attenuated climate change beliefs, but they also show how short-term events like weather shocks can have long-term effects on capital allocation through the portfolio holdings of individuals.

Our paper connects household finance to both the climate finance literature and the literature on politics and finance.[2] The first part of our analysis relates to a large body of experimental evidence documenting how individuals engage in asymmetric updating—overweighting information that aligns with prior beliefs and underweighting information that contradicts them.[3] Such selective interpretation contributes to the growing polarization of opinions observed in modern society. Asymmetric updating is especially important in the context of climate change, where there is enormous scope for encountering politically charged, conflicting information. For example, Sunstein et al (2017) show that respondents who are initially skeptical about anthropogenic climate change attach more weight to unexpected good news about climate change and tend to dismiss unexpected bad news about climate change, while respondents who are already convinced of climate change attach more weight to unexpected bad news and dismiss unexpected good news. Hence, our analysis of individual changes in expectations in response to a common weather shock sheds new light on the dynamics of the dispersion in beliefs about climate change (see Falkenberg et al (2018), Giglio et al (2025) and Dechezleprêtre et al (2023)).

The second part of our paper connects to a broader literature on politics and investment decisions. Although we rely empirically on the institutional and political setting of Sweden to establish these results, political discourse around global warming and climate change has become increasingly polarized around the world, and increasingly we see politics affecting financial decisions in a wide range of settings. Earlier work by Hong and Kostovetsky (2012) and Bauer, Ruof, and Smeets (2021) link partisanship and social preferences to portfolio holdings. Meeuwis et al. (2022) and Mian, Sufi, and Khoshkhou

[2]Starks (2023) and Kempf and Tsoutsoura (2024) provide excellent overviews of these two literatures.

[3]This mechanism is developed and explored in Rabin and Schrag (1999), Andreoni and Mylovanov (2012), Baliga, Hanany, and Klibanoff (2013), Thaler (2024), among others.

(2023) use unexpected changes in political leadership to exploit changes in economic expectations and decisions. Goldman, Gupta, and Israelsen (2024) link politically tilted coverage of financial news to an increase in abnormal stock trading volume. Pan et al (2023) show that growing political dispersion at the county level to the securities holdings of wealthy individuals. Djourleva et al (2023) interact political orientation with natural disasters in the US and connect this to levels of climate polarization in a region. Unlike these studies, our design allows us to measure individual-level climate belief changes as a function of the local political landscape and directly connect them to individual financial choices. While it is widely recognized that political polarization leads to divergent opinions on climate and related issues, our study provides the first evidence linking changes in individual beliefs about global warming to individual financial behavior.

The balance of the paper proceeds as follows. Section 2 provides institutional details and background concerning political polarization in Sweden and its connection to weather events in the summer of 2018. This sets the backdrop for our empirical analysis. Section 3 describes our survey and connects it to pension data. In Section 4, we show how temperature revisions vary with characteristics and the heat wave. Section 5 relates these temperature revisions to rebalances and portfolio holdings. Section 6 concludes.

2 Politics, Polarization, and Climate Change in Sweden

Our analysis is built around two surveys that measure environmental attitudes for a nationally representative sample of working-age individuals in Sweden. Figure 1 presents the timeline of our study. The first survey was conducted in the spring of 2018, before a record-breaking heat wave caused a large number of forest fires throughout the country. National elections took place in the fall of the same year, and in the wake of the forest fires, climate policy became a central political topic. The same individuals were surveyed again in the fall of 2019, after these events, allowing us to measure within-respondent variation in climate beliefs and relate these changes to respondent demographics and characteristics of the communities in which they live.

Figure 1 here

This section provides details around the institutional setting of our empirical analysis

and how they relate to our surveys. We discuss the rise of populist political parties in Sweden, how this connects to political polarization, as well as the role of beliefs about global warming in this increasing polarization. For this purpose, we introduce fire shocks that occurred throughout the country between the surveys, and the elevated media reporting surrounding climate change that followed in the months after the heatwave, prior to national elections.

We end this section with a spatial analysis where we bring these variables together across Sweden's 290 municipalities. We show that increased voting support for populistic parties is as a function of socio-demographics associated with social divide and trust. We also show that the forest fires increased vote shares for both to the populist left and right and generated more local news coverage about global warming in the same regions.

2.1 Political Polarization in Sweden

Sweden is a constitutional monarchy that operates under a proportional representation system, which has historically encouraged the formation of centrist coalition governments. While traditional parties such as the Social Democrats (center-left) and Moderate Party (center-right) have dominated governance for decades, the last two decades have seen increasing fragmentation, particularly with the emergence of populist movements on both sides of the political spectrum.[4] One key advantage of studying a setting with multi-party representation is that it allows us to more cleanly trace out the rise in populism by tracking the messaging and popularity of specific parties.

Mudde (2004) defines populism as: *an ideology that considers society to be ultimately separated into two homogeneous and antagonistic groups, 'the pure people' versus 'the corrupt elite', and which argues that politics should be an expression of the volonté générale (general will) of the people.* Funke, Schularick, and Trebesch (2023) further argues that left-wing populists exploit this people-vs-elites dynamic along primarily economic lines, while right-wing populists speak of this struggle more in cultural and social terms. Climate change is a central element of both right-wing and left-wing populist narratives. Left-wing populists point to environmental degradation as yet further evidence of how rich exploit the poor,

[4]See Appendix B for an overview of voting outcomes in Swedish parliamentary elections from 1960 until 2022.

while right-wing populists frame global warming in terms of a globalist, cultural elite–out of touch with the day-to-day realities of common folk–prioritizing distant peoples and natural landscapes over the struggles of the local working class.[5]

The most notable force in Sweden's political shift has been the rise of the Sweden Democrats (SD), a nationalist and anti-immigration party that has steadily gained traction, particularly in rural areas. While SD originally focused on immigration as its primary issue, it has since expanded its platform to include skepticism toward climate policies, often framing them as elitist initiatives that prioritize global concerns over the economic well-being of working-class Swedes.

On the opposite end of the political spectrum, the Left Party (Vänsterpartiet) and Green Party (Miljöpartiet) have pushed for more aggressive climate policies, arguing that climate change is a direct consequence of unchecked capitalism and corporate greed. Their rhetoric often emphasizes wealth redistribution, corporate responsibility, and state intervention to address environmental crises.

Figure 2 here

To illustrate where these parties sit on the policy spectrum, we sort the main eight main Swedish parties on a measure of populism, "People versus Elite", obtained from the 2019 Chapel Hill Expert Survey, which ranks party positioning on ideology and policy issues (see Jolly et al (2022)). Figure 2 shows how the parties rank along two dimensions: environmental sustainability and general left-right orientation on policies. Vertical and horizontal lines indicate the vote-weighted outcome in the 2018 elections. Three parties tend to sort on the extreme on our populism measure: Sweden Democrats to the right and the Left and the Green party on the left. We obtain similar results when sorting on environmental sustainability compared to right/left general policy, although the Green party tends to be more green and Left party more left across these dimensions. Importantly, Sweden Democrats are ranked both anti-environment and pro-right.

[5]Illustrations of this view can be found throughout Europe and the US. For example, Javier Cortés, of Spain's Vox party said in an interview with POLITICO reported on November 6, 2022, "We consider it to be a globalist movement that intends to end all borders, intends to end our freedom, intends to end our freedom for our identities," adding, "the European Union has to clarify that it wants to sell us a climate religion in which we cannot emit CO2, while we make our industries disappear from Europe and we need to buy from China." In the US, one such example is a Senate floor speech by Oklahoma Senator James Inhofe (the same senator who brought a snowball to the Senate floor as proof that global warming was fake), stating "Global warming—just the term—evokes many Members in this Chamber, the media, Hollywood elites, and our pop culture to nod their heads and fret about an impending climate disaster."

The rise of left- and right-wing populism in Sweden is part of a broader pattern across Europe in which extreme parties have taken more parliamentary seats. Figure B.3 in the Appendix presents a version of Figure 2 including parties from Germany, Spain, Italy and the UK that ranks high on the populism scale. Sweden Democrats ranks close to Lega Nord in Italy, AfD in Germany and Rassemblement National in France. The Swedish Green party compares to the Grünen in Germany, the EHB in Spain and Green Party of England, and the Swedish Left Party to EELV in France, and Podempos in Spain, for instance. In virtually all cases, sorting on populism scores creates a sharp divide between both environmental issues and left and right policies. If anything, the political and ideological divide we aim to measure in Sweden is less extreme than that in many other European countries.

To measure changing left- and right-wing populism, we use regional changes in voting outcomes between 2014 and 2018 for the three parties discussed above: Sweden Democrats on the right, Vänsterpartiet and Miljöpartiet on the left. This approach provides separate measures of political movement to the right or left, as well as a general shift away from the centrist parties across Sweden's 290 municipalities.

Figure 3

Figure 3 presents a scatter plot that depicts the movement away from the center. In general, right-wing parties, and in particular the Sweden Democrats, gained ground across the board. This shift is visible along the horizontal axis of Figure 3. All municipalities recorded an increase in support for the Sweden Democrats. About one-quarter of municipalities also showed increased support for the left. These observations are represented above zero on the vertical axis of Figure 3. In our analysis that follows, we will utilize the interaction of these movements in order to capture a greater political divide (also know as "centrifugal movement") as opposed to general shifts to the right or left.

2.2 The Heat Wave and Forest Fires in 2018

In the summer of 2018, Sweden was gripped by a record-setting heat wave. Temperatures measured 3-5 degrees Centigrade higher than normal in Sweden overall, and Stockholm experienced the highest average monthly temperature in its 262-year history of systematic

temperature measurement. The heat wave coincided with numerous forest fires in July and August that not only affected rural areas, but also many municipalities close to the main cities. This is especially noteworthy given that 15% of the land mass of Sweden sits above the Arctic circle.[6]

We use the data from the Swedish Civil Contingencies Agency to measure the severity of forest fires. To capture the local effect of the forest fire we construct a dummy variable equaling one if more than 0.2% of area was destroyed by the fire. This is an extreme outcome in the Swedish historical setting with respect to previous fires. A too wide threshold will make the proxy of a salient shock weaker. Defining it too narrow will reduce the number of people exposed to the shock, which is problematic when the most severe forest fires occurred in rural parts of Sweden which are sparsely populated. The selected threshold affects around one-third of our survey sample.

Figure 4 plots the distribution of forest fires in Sweden in 2018 and over time. Figure 4A shows the full distribution of forest fires and the applied cut-off. Figure 4B plots the cut-off over a time window from 2014 to 2020, and shows by comparison that the severity of the fires at the chosen threshold were very unusual by Swedish standards. We provide further analysis of the fire shocks in Appendix C.

Figure 4

Even though both forest fires and extreme weather events may contain little information about future global climate change, previous work suggests that people directly or indirectly react to them. As we discussed in the Introduction, weather-induced preference shocks have been explored in various settings. Moreover, the weather shock and wild fires coincided with national elections that took place in the early fall of 2018 just after the heat wave. Thus, the heat wave and wild fires themselves became a political flash point: it became both a tool for those advocating stronger measures to fight climate change, as well as an important source of pushback among climate skeptics. The media played an important role in this political amplification and pushback.

[6]The Guardian reports about some of these events in July 18, 2018: "Wildfires rage in Artic Circle as Sweden calls for help", `https://www.theguardian.com/world/2018/jul/18/sweden-calls-for-help-as-arctic-circle-hit-by-wildfires`.

2.3 Climate Change in the Public Debate

As in many other countries, 2018 was the year in which the awareness and concern about climate change moved to the top of the political agenda in Sweden. To capture local variation in news sentiment, we use a text-based measure of saliency. We collect data from 113 local newspapers that cover 276 of 290 municipalities using the web tool provided by the Swedish Royal Library.[7] We search for articles mentioning the words "global warming" during the 17-month time period between surveys (which includes the fire shock).

Figure 5 here

Figure 5 presents a time series plot the number of local news paper articles mentioning the key word "global warming" over time and shows how climate change quickly grew to become an important topic on the political agenda. The highlighted area shows that there is spike in interest in climate news during the peak of the heat wave in the summer of 2018. The heat wave was followed by an intensified discussion about climate change which peaked in September.[8] The timing of events include Greta Thunberg's climate strikes in the fall of 2018 and the IPCC report in October the same year. The Global Climate Strike in in the spring of 2019 and Greta Thunberg's speech to the UN in September later in the year were both important media events for the climate movement.

To construct a variable for local news sentiment, we first benchmark the number of articles in the period following the heat wave in with against all articles appearing in the same newspapers (shown as "Fraction GW" in Figure 5). Overall, we find that around 11% of the articles contained the word "global warming" during the 17 months prior to the heat wave. This rises to 20% in the period after the heat wave, representing a 96% relative increase in average word count. A doubling of climate-related news is consistent with the data from the Climate Change Observatory (Boykoff et al (2023)). We include a comparison with this data in Appendix D and show that the time series correlation is 85%. In what follows, our measure for local news intensity is ΔNews, defined as the relative increase in average word count in local news mentioning "global warming" between the two surveys.

[7] A detailed description of this data is provided in Appendix D.

[8] Indeed, one of the most established political polls (Demoskop) finds that "Climate change" replaced "Immigration" as the most important topic for Swedish voters at this time.

2.4 Analyzing Polarization, Populism and the Role of Media at the Macro Level

Before turning to our suvey data, we merge and analyze the data on populist voting outcomes, fire shocks and news reports on global warming on the municipality level. This allows us to better understand how regional voting outcomes varies in the geographical cross-section.

To this analysis, we add open-source data from Statistics Sweden on unemployment, the proportion of foreign-born residents (used as a proxy for immigration), and total population by municipality—all measured in 2014. We supplement these indicators with data on social trust from a survey conducted by the Public Health Agency the same year. The survey asked, "Do you generally trust others?" and reports the proportion of respondents answering "No" as an average across all 290 municipalities.[9] We also include a dummy variable indicating whether a region was heavily affected by the forest fires during the summer of 2018, prior to the election that year.

Table I here

Columns (1) through (4) of Table I presents predictive regressions where the dependent variable is the change in vote share from centrist parties toward either the far right or far left across Sweden's 290 municipalities while controlling for the 2014 outcome. A movement to the left reflects gains in vote share for the two left-wing populist parties identified earlier, while a movement to the right reflects increased support for the Sweden Democrats between the 2014 and 2018 elections. The independent variables—capturing key socio-economic conditions such as unemployment, immigration, and trust—allows us to examine how pre-existing regional characteristics predict subsequent shifts toward political extremes.

Municipalities with higher unemployment experienced substantial increases in support for left-wing populist parties and were significantly less likely to see gains in right-wing populist support. Consistent with the anti-immigration emphasis of right-wing populist rhetoric, municipalities with larger shares of foreign-born residents saw marked increases in right-wing populist support, whereas support for left-wing populists tended

[9]Summary statistics of these variables are tabulated in Table B.1 in the appendix.

to rise in areas with lower proportions of foreign-born residents. A similar pattern emerges with respect to social trust: municipalities with lower levels of interpersonal trust were more inclined toward right-wing populism, while those with higher trust levels leaned toward left-wing populism. Urbanization also plays a role—left-wing populist support is concentrated in more densely populated municipalities, while right-wing populist gains are stronger in less urban, rural areas.

Columns (2) and (4) of Table I introduce a dummy variable for forest fire exposure. Municipalities more severely affected by the 2018 forest fires experienced increases in both left- and right-wing populist voter turnout.[10]

Columns (5) and (6) present results from OLS regressions in which the dependent variable is the change in global warming-related news in local media. Climate news was stronger in areas of lower unemployment, higher immigration and in those with lower trust. Notably, the change in reporting is not confined to big cities as indicated by the insignificant loading on population. Column (6) of Table I introduces the fire shock dummy, where we find that there was a 11% increase in media attention in areas in which were more heavily affected by wild fires.

In sum, the coefficients on the socio-economic variables reflect the underlying polarity between left-wing and right-wing populist movements, as described in Funke, Schularick, and Trebesch (2023) and Mudde (2004). On the left, populism frames the conflict between "the people" and "the elite" primarily in economic terms—a narrative consistent with the observed leftward shift in areas with higher unemployment. On the right, populism tends to emphasize cultural and social divides, which is reflected in the strong positive associations with variables capturing low social trust and high levels of immigration. We conclude that there is an increase in climate news in areas more affected by wild fires. Section 4 shows how surveyed climate belief revisions depend on political sentiment and media exposure. The next section explains our survey instrument.

[10] In untabulated results, we find that the forest fire dummy also predicts moving both left and right at the same time.

3 Survey Data

The meat of our analysis connecting weather shocks to changing beliefs about global warming is based on a nationally representative panel survey conducted in 2018 and 2019. The two surveys allow us to measure changes in beliefs about climate change before and after the heat wave, and how the changes in turn influence investment decisions. In this section we describe the survey in detail. We defer the discussion of the data surrounding the retirement savings decisions to Section 5.

3.1 Overview

Our empirical strategy can be described in three steps. First, in conjunction with Statistics Sweden (SCB), we administered a series of surveys, the first one in January and February 2018.[11] The first survey, which is documented in detail in Anderson and Robinson (2022), targeted 20,000 randomly selected individuals aged 18 to 65 who were provided instructions by mail on how to complete the survey online. After two reminders, we received 4,230 completed responses corresponding to a 21% response rate. We then administrated a follow-up survey to the same respondents in August and September 2019. Around 60% of the original respondents participated in the second survey, resulting in a total of 2,561 complete responses. Both surveys show high response rates by international standards and are in line with other surveys solicited by the SCB. Working with SCB also has the advantage that our sample demographics can be compared to the underlying population where we apply survey weights to make our analysis generalizable.

In a second step, Statistics Sweden matches the survey responses to administrative data obtained from various sources, including the Swedish Tax Authority. This step allows us to combine the environmental views that we elicited in our surveys with a large set of demographic and wealth characteristics. We also know in which of the 290 municipalities the respondent lives in Sweden, which allows us to match on local voting outcomes and exposure to natural disasters.

Because we are specifically interested in understanding the link between environmen-

[11] SCB is a government agency responsible for collecting and compiling nationwide statistics in Sweden, similar to the US Census Bureau. Details of the response statistics and the matching procedure is provided in Appendix A and Appendix E presents the survey questions.

tal views and investment decisions, we add the complete transaction histories from the Swedish Pension Agency (SPA) in the third step. Since the SPA provides retirement savings accounts for the whole working Swedish population, we can obtain mutual fund choices for virtually every individual in our sample. The data include the timing and fund composition of any rebalances as well as the year-end portfolio balances. From the SPA, we also obtain fund characteristics, which allows us to classify the funds the same way they are presented at the SPA website. Data on monthly fossil fuel exclusion are available from April 2019, but we hand-collect yearly data for all funds back to 2017 — before the survey.[12]

In the remainder of this section, we explain the survey instrument and show how our responses relate to demographics. Then we explain the Swedish pension system and the measures of the climate friendliness of the funds in the system.

3.2 Survey Questions

Our first survey includes basic questions about financial literacy, green preferences and climate beliefs. The questions and responses to the environmental and financial literacy tests are analyzed in detail in Anderson and Robinson (2022). In the second survey, we repeat one question from the first survey. We ask:

- "Over the next 20 years, how likely do you find the following scenario?"
  - "The average temperature on earth will rise by more than one degree Centigrade"

Responses fall on a Likert-scale ranging from "Very unlikely" (-2) to "Very likely" (2). Rather than to ask a more general question about the pace of global warming—which could easily be primed by the general information flow surrounding climate change—asking it this way forces respondents to form their own expectations. The 20-year timeframe was chosen so that individuals were being asked to look forward over their own lifetimes, rather than over longer future periods that they will not experience personally or recall from some media reports.

[12]The hand-collected historical data is obtained from the mutual fund companies annual reports, in which we classify exclusion based on a threshold of 5% restriction of fossil fuel investments.

A one centigrade rise within such a short time frame as 20 years is actually quite unlikely compared to current scientific consensus (although this is being continuously revised). According to the United Nations and the Intergovernmental Panel of Climate Changes (IPCC), the increase in global average temperature is just above one Centigrade since the beginning of industrialization, even if the pace in which occurs is increasing. The historical pace is around 0.17 Centigrade per decade. A further one degree increase within only twenty years would imply that the target for the Paris agreement to keep world's temperature increase well below two Centigrades before year 2100 would be missed by a wide margin. But there is no exact mapping between the Likert-scale and probabilities. The words "Likely" and "Very likely" can mean different things for different people. This is why our repeated sampling procedure becomes crucial, because we implicitly adjust for the individual and unobserved probability mapping and just focus on changes in these assessments.

Table II here

Table II presents a transition matrix of the responses across the two surveys and shows that while 1,264 people did not revise their expectations, 684 revised up and 613 revised down the probability of a sharp global temperature increase. In other words, there is substantial variability in individuals' perceptions of how a temperature increase will play out within the next two decades even if measured only between at time period of 17 months.

In our analysis that follows, we grade assessments from -2 ("Very unlikely") to 2 ("Very likely") to score forecasts and define changes across surveys as forecast revisions. We also use the off-diagonal elements of Table II to define dummies: "Revised up" for the upper diagonal elements and "Revised down" for the lower diagonal elements. We use dummies for the 2018 temperature assessments as controls in our analysis when analyzing how changes in expectations affect choices.

We present a complete break down of characteristics and survey responses in Table A.2 in Appendix A. Response rates for younger, lower-income individuals with lower education are generally lower. Since the second survey is conditioned on having responded to the first, this difference is accentuated. Individuals responding to both surveys are on

average older, have higher income and education relative to the overall Swedish population. More than half of the individuals in our sample went to college and 35% of our respondents are 55 or older, while only 19% of the Swedish working age population is in this age range. Statistics Sweden compute survey weights for us based on age and gender in order to achieve a closer representation of the underlying population. The first survey shows that climate concerns are on average higher for women, younger people, those with lower income and living in big cities.[13]

In order to verify that differences in beliefs about a global temperature increase indeed are associated with general climate awareness and concerns, we asked our respondents in the second survey to which extent they would agree or disagree with four statements concerning climate-related concerns asked in the 2019 survey, but also one question related to social beliefs asked in the first survey in 2018 (see Anderson and Robinson (2022)). The questions are as follows:

- *Notice GW*: "I have already noticed the effects of climate change in Sweden"
- *Worry GW*: "I'm worried about climate change and what it means for myself and my family"
- *Government Action*: "The government should do more to fight climate change"
- *Higher Taxes*: "I am willing to pay higher taxes to increase Sweden's aid to poor countries"

Responses to the questions all fall on a five-point Likert scale from from "Strongly Disagree" to "Strongly Agree". [14]

The overall fraction of respondents strongly agreeing that they have noticed the effects of climate change where they live is 58%, 24% agree and only 7% disagree to some extent. There is much less agreement over the last questions related to social values and higher taxes, where there is a larger fraction (39%) disagreeing than agreeing (31%). Only 9% state a strong willingness to pay higher taxes to increase foreign aid to poor countries.

[13]We define urban areas as municipalities with over 50,000 inhabitants which includes 21 municipalities mainly situated around the three main cities Stockholm, Gothenburg and Malmö.

[14]Table E.1 in Appendix E provides a full tabulation of the survey results.

Table A.2 tabulates the responses across characteristics. Women, young people and with lower income are more worried and also think that the government should do more to fight climate change. There is a strong difference in worry between those living in cities compared to those living outside. Having noticed climate change does not differ as much in this dimension. The last question is about being willing to increase foreign aid with higher taxes, which may only be indirectly related to climate change. Here there is much more disagreement across demographics. Only 9% of men, compared to 13% women, are strongly in support for increasing taxes to help poorer countries. This support is also stronger in urban areas, among younger people and with lower income and higher education. Overall, the cross-tabulations show that there is a positive relation between environmental views and social preferences, which has been shown to be related to voting behavior before (Bauer, Ruof, and Smeets (2021) and Riedl and Smeets (2017)). Equipped with changes to climate concerns and selective exposures to a weather shock, our data allows us to analyze the drivers behind theses changes and how they in turn carry over investment decisions.

3.3 Temperature Estimates and Broader Beliefs

To ensure that our temperature revision measures accurately capture more general measures of environmental attitudes, this section relates the broader measures discussed in the subsection above with our key independent variable, changing beliefs about global warming.

Table III presents the results from Probit regressions where the dependent variable takes the value of one for strongly agreeing to the four statements presented above (Notice GW, Worry GW, Government Action and Higher Taxes). Among the independent variables, we include separate dummy variables for up and down temperature revisions as well as individual characteristics as controls: gender, university education, age (in decades) and the log of income. We use two specifications for each questions: one in which we only include the individual characteristics and one that include the temperature revisions and dummy variables for each value of the initial temperature assessments (TA) made in the first survey. All reported coefficients denote marginal probabilities.

Columns (1) and (2) of Table III show that men and older respondents are less likely

to have noticed the effects of global warming in Sweden, while university-educated individuals are more likely to have noticed it. This demographic breakdown alone hints at the sociodemographic elements of left- and right-wing populism that we highlight below, because it illustrates the gender divide in global warming discussions as well as the divide between the educated elite and others. The loadings on the characteristics explaining green views are consistent with what is found in previous work.[15] In Column (2), we find that upward and downward expected temperature revisions correlate with noticing global warming in exactly the manner one would expect.

Table III here

We obtain very similar patterns in Columns (3) and (4) when we relate our measure to worrying about global warming. Following previous results, men and older people are less worried. Worry is strongly related to upward and downward revision in expected future temperature increases. There is a 14% higher probability to be more worried among those who revise up, but a 17% lower probability to worry for those who revise down. The results are similar, but weaker, for the question about whether the government should take action against climate change.

Finally, columns (7) and (8) of Table III present the results where the dependent variable takes the value of one for agreeing with the statement that one is willing to pay higher taxes for helping third-world countries; zero otherwise. The timing of this last question is different from the other three questions, because it was asked in 2018, before the outcome of the revisions. In other words, the results show that those who were less in favor of paying higher taxes to help the third world were more likely to later revise down. This is therefore another manifestation of how socially rooted values affect climate change revisions.

The main take-away from this analysis is that forecast revisions are meaningfully correlated with more general beliefs about climate change, over and above what is explained by characteristics. Next, we explore what determines these forecast revisions.

[15] See Falk et al (2018) and Dechezleprêtre et al (2023)

4 Changing Beliefs About the Severity of Global Warming

In this section we present the results on how changing beliefs depend on the surrounding political landscape. We briefly describe our methodology and then how beliefs depend on measures of social divide presented in Table I. We then present the relationship between contemporaneous political shifts and forecast revision.

4.1 Identification

Any attempt to study the effect of polarization in this context must confront the endogeneity of politics, economic beliefs and financial decisions. Recent work by Meeuwis et al (2022) and Mian, Sufi, and Khoshkhou (2023) exploit the surprise nature of the 2016 US national election to separate Democrat and Republican voters. Pan et al (2023) in turn uses the expansion of Sinclair Broadcasting Corporation, a right-wing media channel, to induce plausibly exogenous variation in the structure of local political information.

Our approach differs from prior approaches in that we rely on the randomness of environmental catastrophe as an exogenous shock to the salience of climate change. We run regressions of the form

$$\Delta\text{Future Temp. Beliefs}_i = \alpha + \beta\text{Fire Shock}_\text{i} + \epsilon_i \tag{1}$$

and use $\hat{\beta}$ as the crux of our analysis. We then examine how $\hat{\beta}$ varies systematically across both indirect and direct measures of local left-wing and right-wing populism.

Importantly, we do not observe individual-level political preferences or voting behavior. Instead, we rely on historical socio-economic conditions prior to the election and municipality-level voter turnout for left- and right-wing populist parties to proxy for the local political climate. To the extent that individuals with anti-establishment views are less likely to participate in government surveys, our estimates may understate the true extent to which the salience effect varies with political attitudes rooted in distrust of traditional institutions.

Identification in our setting relies on the assumption that variation in forest fire damage is orthogonal to individuals' initial concerns about climate change. This assumption would be violated if, for instance, areas with lower baseline concern about climate change

were also systematically more vulnerable to fire damage due to characteristics of the built environment.

For example, consider the case where individuals unconcerned about climate change are more likely to build structures that are highly flammable or less resilient to extreme weather. In such a scenario, forest fire damage would be more severe in precisely those areas where upward belief revision is more likely than downward revision. This would introduce endogeneity, as belief changes could then be driven not solely by the exogenous fire shock but by pre-existing differences in vulnerability that correlate with climate beliefs.

Table IV here

Columns (1) and (2) of Table IV addresses this directly. Column (1) shows that the fire shock is unrelated to pre-fire beliefs about global warming. Column (2) adopts the same measure of climate concerns in 2019, but is observed after the occurrence of the 2018 forest fires. We find that people living in areas affected by the forest fires grew more convinced of the likelihood and severity of climate change in the next 20 years.

By comparing the loadings of characteristics in the 2018 versus the 2019 survey, we find the concern for a sharp temperature increase became less pronounced among the young and those with low income. Men, however, became much less concerned between surveys. These differences is highlighted by directly regressing forecast revisions on characteristics in column (3).

4.2 Baseline Results

Table V present our main findings where column (1) repeats our baseline result from Table IV. Columns (4) through (9) of Table V explore heterogeneity in this effect by splitting the sample based on whether municipalities fall above or below the median in key socio-economic variables (all measured in 2014) that predict voting outcomes, as discussed in Section 2.4.

Table V here

Columns (2) through (5) reveal that the fire shock effect on belief revisions is substantially stronger in areas with low unemployment and a below-median proportion of

foreign-born residents. In these subsamples, the estimated coefficients are up to twice as large as the baseline result in column (1). Columns (6) and (7) sort the sample by levels of social trust. Here, we find that the fire shock significantly influences belief revisions only in regions with above-median trust in others, with the effect size again notably larger than the baseline.

Finally, columns (8) and (9) split the sample by geography—urban versus rural municipalities— into areas above or below 50,000 inhabitants. These results show that the belief shifts induced by the fire shock are not primarily driven by respondents in large cities, despite the fact that our random sampling design naturally includes a higher number of observations from urban regions.

4.3 Political Shifts, Media and Forecast Revisions

Our results thus far suggest that the saliency shock of natural disasters to climate concerns weakens once we account for regional socio-demographics related to populism. Next, we directly measure how forecast revisions relate to radical left and right votes in the areas in which people live and how they relate to changes in media sentiment.

Column (1) of Table VI runs the same baseline regression as in Table IV, but includes the voting shifts to right and left extreme parties. Right wing district swings predict less upward revisions, moving left positively so. The negative interaction term implies that districts with growing support for both left and right extreme votes tend to give less positive forecast revisions, a sign of that right and left populism creates an exacerbating effect in right-wing strongholds. Column (2) of Table VI shows the results when the fire shock is included. The fire shock becomes insignificant when we account for the populist drift that has occurred. The fire shock partly crowds out the effect of a movement to the left, but does not affect the negative coefficient of moving right. This illustrates that the widely accepted connection between weather shocks and revisions to climate beliefs disappears once we account for the political lens shaping the individual's perception.

Table VI here

Columns (3) thorugh (6) of Table VI splits the sample on areas in which news sentiment on climate change was above or below median compared to the period before the

survey. Columns (3) and (4) drops the political variables and shows that the fire shock is much larger and strongly significant only in areas were news reporting between surveys was relatively low. This shows that the shock to saliency is much larger without media influence. Columns (5) and (6) includes the shifts in political support for left and right wing parties. We find that the political variables strongly predict forecast revisions in areas in which saw an increase in news reporting. There is no effect of the political variables in areas with less change in reports related to global warming.

To summarize, the results suggest that there is an asymmetry in the responses to climate revisions related to the political shifts in support for populistic left and right parties. This is supported by two results. First, the significance for the saliency of the fire shock itself disappears when introducing political shifts as explanatory variables. Increased support for far right (left) is associated with lower (higher) forecast revisions. Second, when we sort respondents into high and low climate change media exposure, we only find evidence of fire shock salience in areas in which have *lower* media exposure. In areas of higher media exposure, the political leanings are instead significant. In other words, the media landscape interacts with politics in creating a greater division in the way people shape expectations about climate change.

4.4 Political Shifts and Forecast Revisions Across Characteristics

Next, we further explore heterogeneity in responses by repeating the analysis in Table VI sorted on characteristics. Table VII presents the results where column (1) and (2) repeats the specification in Table VI. The remaining columns of Table VII partitions the sample on individual demographics, and show how they depend on political influence in the regions in which they live.

Table VII here

We split the sample on income (above or below 287k), age (above or below 50 years) and gender. The political variables are significant for low income and younger people. We find that it is men within regions moving right that revise down and women within regions moving left that revise up, consistent with a general tendency for a greater gender

divide also in voting behavior. The saliency effect of wild fires is explained away in all these specifications when we control for the political landscape.

We conclude that variables that explain local political partisanship diminishes the direct effect of saliency measured by the proximity to wild fires. This effect is entirely driven by exposure to news sentiment. When sorting on characteristics, we find that this effect can be traced down to subsets of the population. They matter more for the young and those with lower income, it affects men and women differently depending on where they live, and they matter more for those that pay attention to retirement savings.

The next section explores how these findings interact when examining long-term financial decisions within the context of the Swedish Pension system.

5 Long-Term Financial Decisions and Beliefs about Global Warming

In this section we connect revisions to beliefs about climate change to the rebalancing of retirement portfolios over longer horizons. We begin by providing an overview of the Swedish Pension System. Then we show how changing beliefs about global warming impact green investment choices within that system. In particular, we show how this relation also depend on the political landscape.

5.1 The Swedish Pension System

5.1.1 Program Structure

The Swedish Pension system currently operates two types of accounts for each individual contributing to the system.[16] One is a defined contribution account funded on a pay-as-you-go basis based on a contribution rate of 16% of labor income, analogous to Social Security in the United States. A second account is based on an additional 2.5% of labor income. This operates in a manner similar to a 401(k) plan in the United States, but as part of the state pension, rather than an as an employer-sponsored plan. Individuals are

[16]The Swedish pension system underwent a dramatic transformation in the 1990s. A full account of this transition is beyond the scope of this paper; details are discussed at length in Palme, Sunden, and Söderlind (2007) and Palmer (1998).

allowed to control how this account is invested by allocating this portion of their account across as many as five different funds. A reallocation is made by stating percentage allocations to a newly chosen portfolio, which triggers a liquidation of the old portfolio and a complete rebalancing into the new one with the desired weights. The simplified rebalancing procedure is different from many private savings schemes, where people often just choose allocations for new inflows, or alternatively, are required to reallocate by selling previous holdings before buying new funds. Inflows to the pension accounts are distributed annually according to the weighting scheme in November. The pension system is therefore a very suitable laboratory to test questions related to beliefs and investments because it involves the whole working population and the amounts are proportional to income.

Investors who do not make a choice automatically fall into the default fund. The default fund is managed by a government controlled company, called AP7, and offers a low-fee, well-diversified fund that employs screening of individual companies in order to take socially responsible investing considerations into account. Since the fund is a broad index fund, it has minimum restrictions of its investment universe, but does exclude manufacturers of biological, nuclear and cluster weapons.[17] More importantly, it does not exclude companies operating in the fossil fuel sector.

The default fund is not part of the general fund offering available for selection, but is by far the most common choice for first entrants in the system since the launch in 2000. As has been widely documented in the literature, default fund investors are generally less financially sophisticated investors with lower income and financial literacy; inertia characterizes many individual's choices. The individual pension data contains the full history of allocations ("rebalances"), in which the share of default fund investors are close to the overall fraction of 40% of all people in the pension system. At the end of 2021, the total assets under management (AUM) were just over SEK 2 Tn (USD 200 Bn) and covered six million people, a number which is close to the weighted sample in ages 18-65 that we apply. After only twenty years since inception, the system is still under consolidation and is expected to level out at approximately twice the size measured by AUM, placing it among the ten largest pension funds in the world.

[17] As of December 2021 the AP7 maintains a list of 97 "blacklisted" firms that are individually screened and excluded from investment, most of them due to breach of UN principles of human rights.

At its launch in 2000, there were 254 funds to select from; this number quickly grew to include almost 900 funds by 2018. There were historically only a minimum set of requirements (such as following the UCITS directive) for a fund to enter an agreement with the SPA and become eligible for participation in the system. In the debate that followed a few scandals where investors had been defrauded and a more broader discussion about improving governance and choice architecture, the SPA were given new guidelines in 2018.[18] In December 2018, the SPA formally terminated all agreements with its current fund companies to be renewed only if funds could comply with a new set of rules, in which the most substantive change was a minimum cap for its AUM. Another requirement was for the fund company to subscribe to the UN Principles for Responsible Investments, but representatives from the SPA tell us that this restriction was not binding. The new requirements decreased funds available for selection from over 800 in 2018 to less than 500 in 2021. Holders of delisted funds received an information letter from the SPA with information about the change and instructions on how to choose a substitute fund. Non-choosers were diverted to the default fund. From April 2019 and onwards, all funds are classified with respect to sustainability objectively (by exclusions and Morningstar ratings) in much more detail than previously.

5.1.2 Green Investment Options in the Swedish Pension System

We collect historical monthly fund characteristics from the SPA website to match with individual holdings. A green ESG label was introduced in 2004 to allow companies label their funds as incorporating social (ethical) or environmental aspects in their investment processes. This procedure did not stipulate any standards or minimum requirements by the SPA. Historically, funds were therefore likely to differ in scope in which they adhere to green investments and other aspects of corporate social responsibility (Anderson and Robinson (2022) give a detailed overview). It is also a clear possibility that some reclassifications were made as a strategic response to increased consumer demand, as in Cooper, Dimitrov, and Rau (2001).

In 2019, the SPA launched more extensive online tools for investors to assess the en-

[18] Dahlquist and Martinez (2015) documents inertia also for those who initially chose a portfolio of funds in the pension system and Cronqvist, Thaler, and Yu (2018) show that the fraction of new entrants in the system making fund choices decreases.

vironmental performance of funds. The online tool enables investors to screen and sort funds according to specific strategies as well as fund fees across category, type of funds and geographic regions. Three additional characteristics were introduced. First, funds could now classify themselves into three broad categories separately based on sustainable stewardship: Environmental, Social and Governance. Around 94% of funds reported that they in some way adhere to all these principles at the end of 2021. The new decomposed ESG label is like the former version not subject to external validation and will likely encompass a lot of variation in the degree to which they comply with ESG standards.

Second, the Morningstar climate risk metric is reported, ranging from "Negligible" (0-10) to "Severe" (40 and higher). The scale aims to capture, in absolute terms, to what extent funds are exposed to financial risks related to climate change. Although the Morningstar climate risk metric is a universal assessment of "expected green" performance, such measures are subject to noise and lack consistency across providers (Dimson, Marsh, and Staunton (2020)). At the end of 2021, there were 34 funds without a Morningstar Climate Risk score, including the default fund. The sample average (median) of funds available is 23 (22), the minimum 8 and maximum 41. Our sample closely matches the distribution of the overall holdings in the pension system.[19]

Finally, funds report up to 13 exclusion strategies (so-called *negative selection* funds as in Hong and Kacperczyk (2009)).[20] We focus on fossil fuel exclusions as they naturally appear to be the most relevant strategy for investors aiming to steer their portfolios away from carbon emitting firms. Choosing exclusions is also likely the most salient way for investors to reveal their preferences over investment mandates. From the annual reports of fund companies, we complement the PPA data by hand-collecting fossil fuel exclusions on the fund-level for 2017 and 2018 which enables us to trace holdings of these funds over time.

There is an obvious link between climate risk and fossil fuel exclusions. The fossil fuel industry is exposed to risks related to carbon regulations, decreasing demand for its products and increasing costs related to the implementation of emission reduction

[19]See Appendix F: Figure F.1 presents a screen print of the web tool and Figure F.2 plots the full Morningstar climate risk score distribution across funds and portfolios.

[20]The exclusions categories are: Fossil fuel, Coal, Uranium, Gene modification, Arms, Nuclear weapons, Cluster bombs, Biological/Chemical weapons, Alcohol, Tobacco, Pornography, Gambling, and breach of UN human rights conventions.

technologies. Fossil fuel exclusion is a narrow, but possibly more salient, measure that captures a reluctance to avoid a particular high carbon dioxide-emitting sector today. The correlation between the two measures is -0.3 across funds, reflecting that climate risk is a much broader measure that also incorporates industry-specific variation (i.e tech versus utilities).

We match the aggregate AUM of all funds to the fossil fuel exclusion classification to characterize the development of the Swedish pension system from January 2017 to December 2021 when the sample ends.

Figure 6 here

The grey area in Figure 6 shows the capital allocated to the default fund (light grey) and all other funds available for selection (dark grey). The green area shows the capital allocated to fossil fuel exclusion funds from 2017 and 2021. Exclusion funds were quite rare in 2017 (the solid black line shows that the fraction of about 10% of the number of available funds), but quickly grew to become a substantial share of the pension fund space in 2021. About half of the funds available in the Swedish system exclude fossil fuel at the end of our sample. This represents around 44% of the total pension wealth. Text boxes indicate the approximate timing of our two surveys.

Is the growth of exclusion funds in Figure 6 a result of investors' increased awareness of climate change? We use the weighted portfolio average of fossil fuel exclusions along with Morningstar climate risk assessments as measures of investment tilts when we analyze portfolio choice as a function of changing global temperature beliefs in Section 5. We measure the portfolios in December of 2021, allowing investors to rebalance their portfolios from when they took the survey to the end of the sample. We introduce a measure of *active fossil fuel exclusion* by using rebalances in the time series from the day they took the first survey in 2018 up until the end of 2021. The total fossil fuel exclusion weight in 2021 can be decomposed into a component attributed to rebalances (actively re-weighting the portfolio) and a passive part which is attributed to reclassification of the fund, measured at the day the individual took the first survey to the end of the sample period. An individual who did not make any rebalancing decisions will have a passive weight identical to the total exclusion weight. An individual who made a decision will have an active

weight equal to the total exclusion weight as long as the fund classification remains unchanged, but can have both an active and passive weight if a fund in the portfolio change their classification after the rebalancing decision.

The decomposition has a distinct advantage over a simple difference in weights between two time periods as it explicitly addresses the issue of reclassification, which is a substantial part of the overall change in exclusions. In a way, the decomposition into an active and passive component can be thought of as portfolio changes attributed to demand (rebalances) and supply (reclassifications). It gives us the opportunity to verify that measured beliefs relates to active choices, but it also allows us to obtain an approximation of how much of the increased total allocation to exclusion funds are attributed to active choices and how much is due to a change in the offering of funds on the aggregate level for the studied time period.

5.2 Climate Change Revisions and Portfolio Choices

Of the total 2,561 respondents in our sample, 2,521 owned a retirement account in 2021. Choices are made by investors rebalancing their portfolio, i.e. they choose a weighting scheme consisting of up to five funds. The fraction of investors in the default fund in the sample is 43% at the end of 2021 and very similar to the population average of 40%. Being outside of the default means that investors made at least one choice since they came into the system. 1,436 people were not in the default fund of which 711 respondents in our sample trade at some point during the three years after the first survey in 2018 up until the end of 2021.

Default investors are more likely to be female, younger, having lower income and less likely to have higher eduction. We do not find any evidence that temperature forecast revisions, nor political variables have any power to explain the propensity to stay in the default fund or trade conditional on their being out of the default fund. In other words, changing concerns about global warming is not enough to overcome inertia in the retirement system. Since the inertia phenomena is already well-documented, we opt to leave these results out of our presentation of our main results.[21]

We focus on the individuals who have opted out of the default fund with the idea

[21] We include this analysis Appendix F.

that they are likely to be more attentive to their portfolios (they already at some point made a rebalancing decision) to analyze if changing climate beliefs predict rebalancing for those not in default. Realizing that portfolio changes are rare and sticky, we assess portfolio changes up until the end of 2021 to capture the effect of temperature revisions. We use two measures of how portfolios align with concerns about climate change: we use the Morningstar Climate Risk measure and fossil fuel exclusions. Both measures are available to investors when selecting funds at the PPA website. Finally, we construct a measure of actively traded tilts towards fossil fuel exclusion funds from the date of the first survey until the end of 2021. This is a way of validating the cross-sectional results of portfolios in 2021 and that they indeed can be attributed to those actually changing their portfolios.

In the following analysis, we use an extensive set of controls in order to be able to compare portfolios in the cross-section. The controls include the fraction invested in each type of fund category (Stock, Bond, Mixed and Target funds), portfolio-weighted past one-year return and standard deviation, fund fee and the exposure to local retail networks (consisting of the four main banks in Sweden). In addition, we dummy out the initial individual temperature assessment (labeled "TA controls") in 2018 such that the temperature change measure indicates movements from the temperature assessments investors made before taking the second survey.

We begin by analyzing the results from the Morningstar climate risk scale for mutual funds. We weight fund portfolios according to the Morningstar climate risk scale for available funds. The default fund and 33 other funds do not have data for the Morningstar Climate Risk measure. After removing 27 investors that were not in default but held funds with missing data, we arrive at a sample of 1,409 investor portfolios.

Table VIII here

Table VIII presents the results from an OLS regression where the dependent variable in columns (1) through (5) is the portfolio weighted Morningstar climate risk rating. Column (1) shows that upward temperature revisions are strongly correlated with lower climate risk exposures as measured by Morningstar, but it is insignificant for downward revisions. We find that women and older investors hold portfolios with less climate risk, consistent with the baseline results on climate revisions also being more positive for these

categories (see column (3) of Table IV). Interpreting magnitudes, the average measured effects from upward revisions on climate risk scores are relatively small. A coefficient of -0.29 in column (1) for those who revise up is to be evaluated against an overall portfolio climate risk mean of around 23. Columns (2) and (3) of Table VIII split the sample on median voting outcome for the populist left-wing parties in the 2018 elections, columns (4) and (5) on the right-wing median voting outcomes.[22] We find relatively small differences in climate scores based on these splits.

Columns (6) through (10) repeats the analysis on portfolio fossil fuel exclusion fund weights. The average fossil fuel exclusion fund weight is 5% higher for those who revised up. Although generally consistent with the results from risk scores in column (1), we find the sorting on left and right votes to have stronger effects on portfolio allocations. In particular, upward revisions in areas of lower support for right-wing populism significant, but not in areas of high support. The stronger results for exclusions rather than risk scores could be related to saliency of these choices. Anderson and Robinson (2022) find stronger effects for green pension choices in settings where investors are more sophisticated or the information environment is less noisy. This may be particularly relevant here, because the Morningstar Climate Risk measure was a relatively new measure when it was introduced in 2019, whereas fossil fuel exclusion funds have been around since at least 2004 with the introduction of the first sustainability label.

One caveat with the analysis above is that the total fund allocation is confounded by the substantial relabelling of funds (see Figure 6). By combining fund fossil fuel exclusion data with the time series of rebalancing decisions, we can decompose the total exclusion weight it into an active and passive component by using portfolio rebalancing decisions during the time period from the first survey to the end of the sample in December 2021. Formally, we can decompose the total exclusion weight of individual i at time T into an active and passive component as follows. First, let x_{ifT} represent the portfolio weight of individual i in fund f at time T. Then define $\mathbb{1}_{f \in \text{Excl}_T}$ as an indicator if fund f is classified as an exclusion fund at time T, and $\mathbb{1}_{f \in \mathcal{A}_i}$ to indicate if fund f was actively selected by individual i through a rebalance at any point prior to or at time T. The *total exclusion*

[22]The two splits are therefore not independent, but rather represent two ways of dividing the sample.

weight is then:

$$\text{TEW}_{iT} = \sum_{f \in \mathcal{F}_T} \mathbb{1}_{f \in \text{Excl}_T} \cdot x_{ifT}, \tag{2}$$

where $\mathcal{F}_T$ is the set of all funds at time T. The *active exclusion weight* is:

$$\text{AEW}_{iT} = \sum_{f \in \mathcal{F}_T} \mathbb{1}_{f \in \text{Excl}_T} \cdot \mathbb{1}_{f \in \mathcal{A}_i} \cdot x_{ifT}. \tag{3}$$

The *passive exclusion weight* is:

$$\text{PEW}_{iT} = \sum_{f \in \mathcal{F}_T} \mathbb{1}_{f \in \text{Excl}_T} \cdot (1 - \mathbb{1}_{f \in \mathcal{A}_i}) \cdot x_{ifT}. \tag{4}$$

This satisfies the identity

$$\text{TEW}_i \equiv \text{AEW}_i + \text{PEW}_i. \tag{5}$$

In the aggregate, we find that around one-third of the total greening of portfolios that occurred from the first survey in 2018 up until the end of 2021 is due to active rebalancing. The remaining two-thirds of portfolio holdings became fossil-fuel free due to passive reclassifications of funds. Table IX presents the result for a repeated analysis where the dependent variable is the active component of fossil fuel exclusions which is a function of having made an active portfolio decision. For brievity, we exclude respondent characteristics from the presentation, but apply the same regression model as in Table VIII.

Table IX here

Column (1) of Table IX shows the same asymmetry of up- and down revisions as found for the total exclusion weight. Columns (2) and (3) split the sample on above or below median left-wing populist voter turnout. In areas with high voter support for left-wing populist parties, individuals who become more concerned about climate change are more likely to invest in fossil-fuel exclusion funds. In areas where left-wing populist support is low, individuals who grow less concerned about climate change actively divest from fossil-fuel exclusion funds. The mirror image of this result holds in Colums (4) and (5) when we split on right-wing populist support. These results are in line with McCartney, Orellana-Li, and Zhang (2024), who also show that neighborhood effects influence financial decision-making.

Finally, in Columns (6) and (7) we split the sample on media coverage. Here, we

see that the link between growing more concerned and investing in fossil-fuel exclusion funds is strongest in areas with high media coverage.

To sum up, our overall results on engagement are similar to what is found by Giglio et al (2021): changing beliefs do not predict the likelihood of trading but do predict the direction of trading conditional on a trade. A growing concern about climate change does not, on average, lead investors to exit the default pension fund—even though the default fund is not climate-friendly in terms of fossil fuel exposure. Nor does increased concern predict a higher likelihood of rebalancing for those already outside the default fund. These patterns reflect inertia and inattention in the retirement savings system. This inertia is especially pronounced among women, younger individuals, and lower-income respondents—the very groups that tend to express the strongest green preferences (see Anderson and Robinson (2022)).

Among those who *do* rebalance, those who grow more concerned about global warming trade into portfolios with lower carbon emission intensities. These results are all conditional on investors being more attentive to their retirement accounts, since they have rebalanced the portfolio at least once before the first survey. Overall, this effect is exclusively coming from upward revisions. When sorting investor into areas of high versus low left or right wing support, we find that the average result masks considerable heterogeneity. Respondents revising down in populist right-leaning areas are more likely to actively trade out of fossil fuel exclusion funds.

Overall, this effect is driven entirely by upward revisions in climate concern. When we disaggregate the results by local political context—sorting individuals into areas with high versus low left- or right-wing populist support—we find substantial heterogeneity. In particular, respondents who lower their climate concern in right-leaning populist areas are significantly more likely to actively divest from fossil fuel exclusion funds. In this way, we have shown that the climate revisions made during a major climate shock had long-term consequences for the allocation of retirement wealth measured several years after the event.

6 Conclusion

This paper illustrates how political polarization shapes the relationship between the salience of environmental issues and household investment behavior. A massive heatwave in Sweden triggered widespread forest fires across the country. Many studies find that extreme weather events like this raises the salience of climate change for those exposed to them. Our paper shows that it changes the probability assessment of the pace of global warming - an assessment which should be grounded in scientific facts rather than political opinion. However, many individuals found global warming less likely in the wake of the fires than they did before the fires. This polarization of opinion emerged most strongly in areas marked by greater social division, and is linked to increased voter turnout for both right- and left-wing populist parties, whose environmental rhetoric became increasingly polarizing. This dynamic reflects a broader form of political polarization, in which individuals interpret shared information through diverging ideological lenses, leading to sharp splits in the updating of beliefs in the face of common shocks.

By linking these belief changes to detailed pension portfolio data, we demonstrate that climate concerns manifest in green investment behavior. Individuals who grew more concerned about global warming were more likely to allocate funds to fossil fuel exclusion portfolios. These shifts occurred through both active rebalancing—where individuals adjusted their portfolios themselves—and passive fund reclassification—where managers adapted fund strategies or labels to appeal to investor sentiment. Yet, the strength of this relationship between belief revision and green investment is mediated by the surrounding political climate and the extent of local populist influence.

Our findings raise several questions for future research. As political polarization increasingly permeates capital markets, it becomes essential to understand how factors such as inertia, financial sophistication, and political orientation shape the translation of environmental beliefs into household financial decisions. Our results also point to a tension in policy implementation: efforts to align investment products with majority climate concerns may inadvertently generate political backlash. While we find that climate-concerned individuals tend to opt into greener portfolios, others—less concerned or outright skeptical—are often carried along passively through fund reclassifications. This dynamic risks deepening the existing polarization around climate change. As climate

change continues to become a politically charged issue, understanding the links between climate finance and politics and finance is an important topic, both for academic research and for policy discussions going forward.

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Table I: Saliency and Regional Shifts in Right and Left Populism

This table presents OLS predictive regressions where the dependent variables "Moved left/right" in columns (1) through (4) denote the change in voting outcomes for left-wing populist parties (Green party and Left party) and right-wing (Sweden Democrats) between the elections in 2014 and 2018 across Sweden's municipalities. The dependent variable ΔNews in columns (5) and (6) denote the change in the fraction of local news content mentioning "global warming" between surveys. Independent variables measured in 2014 include unemployment rate, proportion foreign born, the proportion reporting low trust in others and population (in millions). Election controls denote 2014 voting outcomes for the left and right parties. Specifications in columns (2), (4) and (6) include a dummy that takes the value of one for municipalities most severely affected by forest fires in 2018; zero otherwise. The constant is excluded from the table presentation. There are 290 municipalities in Sweden of which we obtain news data from 276. Robust standard errors in parentheses, and one, two and three asterisks denote significance at the 10, 5, and 1% level.

	Election outcomes 2014-2018				**Media attention**	
	Moved right		Moved left		ΔNews	
VARIABLES	(1)	(2)	(3)	(4)	(5)	(6)
Fire shock		0.499**		0.554***		0.107**
		(0.215)		(0.206)		(0.047)
Unemployment 2014	-0.174***	-0.172***	0.079***	0.083***	-0.026***	-0.026***
	(0.040)	(0.039)	(0.030)	(0.029)	(0.009)	(0.009)
Foreign born 2014	0.069***	0.066**	-0.036***	-0.040***	0.018***	0.017***
	(0.025)	(0.026)	(0.012)	(0.012)	(0.005)	(0.005)
Low trust in others 2014	0.067**	0.064**	-0.037**	-0.036**	0.014*	0.013
	(0.032)	(0.032)	(0.018)	(0.018)	(0.008)	(0.008)
Population 2014	-5.332**	-5.662***	2.955***	2.484***	-0.043	-0.124
	(2.081)	(2.043)	(0.801)	(0.789)	(0.217)	(0.211)
Election 2014 controls	Yes	Yes	Yes	Yes	Yes	Yes
Observations	290	290	290	290	276	276
R-squared	0.274	0.284	0.091	0.135	0.170	0.181

Table II: Changing Beliefs About Future Temperature Increases

This table tabulates the answers to the question "Within the next twenty years, how likely is a global temperature increase by more than one Centigrade". Responses include "Highly Unlikely", "Unlikely", "Neutral", "Likely", and "Highly Likely" grouped in categories "Convinced" and "Unconvinced". The responses come from a survey administrated to the same people: the first survey in the spring of 2018 and the second in the fall of 2019. There are 2,561 respondents in the sample where 613 revised their estimates down, 684 up and 1,264 remained unchanged between the two surveys.

	Temp Forecast 2019					
Temp Forecast 2018	Highly Unlikely	Unlikely	Neither/ nor	Likely	Highly Likely	Total
Highly Unlikely	13	6	7	19	15	60
Unlikely	7	20	22	50	22	121
Neither/nor	9	33	102	131	53	328
Likely	23	45	142	496	359	1,065
Highly Likely	16	23	51	264	633	987
Total	68	127	324	960	1,082	2,561

Table III: Temperature Revisions and ESG Concerns

This table presents OLS regressions where the dependent variables takes the value of one for reporting "Strongly Agree" to the following questions for environmental concerns: "I have already noticed the effects of climate change in Sweden" (columns 1-2) "I'm worried about climate change" (columns 3-4); "The government should do more to fight climate change" (columns 5-6); and "I am willing to pay higher taxes to increase Sweden's aid to poor countries" (columns 7-8); all zero otherwise. The first three questions were asked in 2019 and the last question in 2018. The dummy variables "Revised up/down" are derived from changing the reported likelihood of a more than one Centigrade global temperature rise within 20 years between the two surveys in 2018 and 2019. Individual characteristics include log of disposable income, age in decades, and dummy variables for gender and higher education. Temperature Assessments (TA) controls are dummy variables for each response category for the dependent variable in the 2018 survey. Survey weights are used in all regressions and the constant is excluded from the presentation. Standard errors in parenthesis, and one, two and three asterisks denote significance at the 10, 5, and 1% level, respectively.

	Notice GW		Worry GW		Government Action		Higher Taxes	
VARIABLES	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Revised up		0.226***		0.139***		0.066***		0.033
		(0.027)		(0.031)		(0.017)		(0.022)
Revised down		-0.195***		-0.172***		-0.094***		-0.044***
		(0.028)		(0.019)		(0.021)		(0.014)
Log Income	-0.004	-0.005	-0.000	-0.001	-0.006	-0.006	-0.006	-0.005
	(0.010)	(0.010)	(0.008)	(0.009)	(0.009)	(0.008)	(0.005)	(0.004)
Men	-0.128***	-0.094***	-0.127***	-0.099***	-0.079***	-0.060***	-0.029**	-0.021
	(0.021)	(0.022)	(0.019)	(0.019)	(0.015)	(0.015)	(0.014)	(0.013)
Age	-0.027***	-0.013	-0.037***	-0.029***	-0.007	-0.000	-0.031***	-0.027***
	(0.008)	(0.008)	(0.007)	(0.007)	(0.006)	(0.005)	(0.005)	(0.005)
University	0.075***	0.074***	0.080***	0.081***	0.065***	0.059***	0.057***	0.055***
	(0.022)	(0.022)	(0.019)	(0.019)	(0.015)	(0.015)	(0.013)	(0.013)
TA controls	No	Yes	No	Yes	No	Yes	No	Yes
Observations	2,561	2,561	2,561	2,561	2,541	2,541	2,561	2,561

Table IV: Temperature Forecast and Fire Shocks

This table presents OLS regressions where the dependent variables are based on the response to the survey question: "Within the next twenty years, how likely is a global temperature increase by more than one Centigrade". The dependent variable in columns (1) and (2) are dummy variables taking the value of one for responding "Very Likely" to this question on the 2018 and 2019 survey; zero otherwise. In column (3) the dependent variable is forecast revisions: the difference in responses to the 2019 and 2018 survey reported in Table II graded from -2 ("Very unlikely") to +2 ("Very likely"). Independent variable "Fire shock" is a dummy taking the value of one for areas most severely affected by forest fires in 2018; zero otherwise. Individual characteristics include log of disposable income, gender, age in decades, and a dummy for higher education. There are 2,561 respondents in the sample. Survey weights are used in all regressions and the constant is excluded from the table. Standard errors in parentheses, and one, two and three asterisks denote significance at the 10, 5, and 1% level, respectively.

	Forecast levels		**Forecast revisions**
	Survey		
	2018	2019	All
	(1)	(2)	(3)
Fire shock	0.005	0.047**	0.107**
	(0.023)	(0.023)	(0.052)
Log Income	-0.019*	-0.005	0.026
	(0.010)	(0.009)	(0.026)
Men	-0.022	-0.124***	-0.215***
	(0.022)	(0.022)	(0.048)
Age	-0.051***	-0.033***	0.044**
	(0.008)	(0.008)	(0.018)
University	0.034	0.015	-0.069
	(0.022)	(0.022)	(0.049)
Observations	2,561	2,561	2,561
R-squared	0.026	0.028	0.015

Table V: Forecast Revisions, Fire Shocks and Social Divide

This table presents OLS regressions where the dependent variable "Forecast revisions" is the change to the response to the survey question: "Within the next twenty years, how likely is a global temperature increase by more than one Centigrade" between the 2019 and 2018 survey. Column (1) repeats column (3) in Table IV for comparison. Columns (2) through (7) partition the sample on median unemployment, proportion foreign born and trust across regions measured in 2014 (see Table I). Columns (8) and (9) splits the sample on high and low population density (from Table A.2). Independent variable "Fire shock" is a dummy taking the value of one for areas most severely affected by forest fires in 2018; zero otherwise. Individual characteristics include log of disposable income, gender, age in decades, and a dummy for higher education. There are 2,561 respondents in the sample. Survey weights are used in all regressions and the constant is excluded from the table. Standard errors in parentheses, and one, two and three asterisks denote significance at the 10, 5, and 1% level, respectively.

	Forecast revisions								
		Unemployment		Foreign born		Trusting others		Urban-dwelling	
	All	Low	High	Low	High	Low	High	Yes	No
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
Fire shock	0.107**	0.146**	0.032	0.222**	0.045	0.060	0.165*	0.039	0.185**
	(0.052)	(0.071)	(0.075)	(0.087)	(0.065)	(0.065)	(0.088)	(0.073)	(0.090)
Log Income	0.026	-0.004	0.059	0.081**	-0.013	0.018	0.046*	-0.008	0.053*
	(0.026)	(0.031)	(0.038)	(0.034)	(0.030)	(0.037)	(0.027)	(0.036)	(0.032)
Men	-0.215***	-0.138**	-0.310***	-0.167**	-0.238***	-0.314***	-0.065	-0.200***	-0.220***
	(0.048)	(0.069)	(0.068)	(0.070)	(0.066)	(0.064)	(0.072)	(0.074)	(0.064)
Age	0.044**	0.040	0.050**	0.043*	0.043*	0.029	0.067**	0.060**	0.036
	(0.018)	(0.026)	(0.024)	(0.026)	(0.023)	(0.023)	(0.028)	(0.026)	(0.024)
University	-0.069	-0.023	-0.136**	0.035	-0.169**	-0.109*	-0.004	-0.084	-0.070
	(0.049)	(0.070)	(0.067)	(0.070)	(0.067)	(0.064)	(0.072)	(0.077)	(0.063)
Observations	2,561	1,343	1,218	1,210	1,351	1,477	1,084	1,074	1,487
R-squared	0.015	0.010	0.032	0.023	0.018	0.023	0.015	0.013	0.020

Table VI: Forecast Revisions, Fire Shocks and Media Coverage

This table presents OLS regressions where the dependent variable "Forecast revisions" is the change to the response to the survey question: "Within the next twenty years, how likely is a global temperature increase by more than one Centigrade" between the 2019 and 2018 survey. Columns (1)–(2) include all observations. Columns (3)–(6) split the sample into above- or below-median changes in local news reporting. Independent variable "Fire shock" is a dummy taking the value of one for areas most severely affected by forest fires in 2018; zero otherwise. Individual characteristics include log of disposable income, gender, age in decades, and a dummy for higher education. "Moved left/right" represent the change in voting outcome between the 2014 and 2018 elections in the municipality of respondents and the "Moved right × left" denotes the interaction term. There are 2,561 respondents in the full sample and 2,512 in the news sample covering 276 of the 290 municipalities. Survey weights are used in all regressions and the constant is excluded from the table. Standard errors in parentheses, and one, two and three asterisks denote significance at the 10, 5, and 1% level, respectively.

	Forecast revisions					
			ΔNews			
	All		High	Low	High	Low
VARIABLES	(1)	(2)	(3)	(4)	(5)	(6)
Fire shock		0.099	0.057	0.248***	0.003	0.250***
		(0.061)	(0.070)	(0.090)	(0.094)	(0.093)
Moved right	-0.045**	-0.041**			-0.090***	-0.035
	(0.020)	(0.021)			(0.035)	(0.028)
Moved left	0.135*	0.094			0.284**	0.158
	(0.072)	(0.075)			(0.142)	(0.115)
Moved right × left	-0.032*	-0.027			-0.079**	-0.031
	(0.017)	(0.017)			(0.036)	(0.023)
Characteristics	Yes	Yes	Yes	Yes	Yes	Yes
Observations	2,561	2,561	1,262	1,250	1,262	1,250
R-squared	0.016	0.017	0.012	0.026	0.018	0.029

Table VII: Forecast Revisions, Fire Shocks and Characteristics

This table presents OLS regressions where the dependent variables are based on the response to the survey question: "Within the next twenty years, how likely is a global temperature increase by more than one Centigrade". The dependent variable in columns (1) and (2) are dummy variables taking the value of one for responding "Very Likely" to this question on the 2018 and 2019 survey; zero otherwise. Forecast revisions in columns (3) through (9) denotes the difference in responses to the 2019 and 2018 survey reported in Table II graded from -2 ("Very unlikely") to +2 ("Very likely"). Independent variable "Fire shock" is a dummy taking the value of one for areas most severely affected by forest fires in 2018; zero otherwise. Individual characteristics include log of disposable income, gender, age in decades, and a dummy for higher education. "Moved left/right" represent the change in voting outcome between the 2014 and 2018 elections in the municipality of respondents and the "Moved right × left" denotes the interaction term. Columns (3) through (8) partition the sample on median income, age and splits on gender. There are 2,561 respondents in the sample. Survey weights are used in all regressions and the constant is excluded from the table. Standard errors in parentheses, and one, two and three asterisks denote significance at the 10, 5, and 1% level, respectively.

	Forecast revisions							
			Income		Age		Gender	
	Overall		High	Low	Old	Young	Men	Women
VARIABLES	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Fire shock		0.099	0.119	0.100	0.106	0.103	0.089	0.104
		(0.061)	(0.085)	(0.085)	(0.079)	(0.082)	(0.082)	(0.089)
Moved right	-0.045**	-0.041**	-0.030	-0.046*	-0.026	-0.048	-0.067**	-0.011
	(0.020)	(0.021)	(0.031)	(0.028)	(0.024)	(0.030)	(0.030)	(0.028)
Moved left	0.135*	0.094	-0.028	0.173*	-0.097	0.191**	0.017	0.190*
	(0.072)	(0.075)	(0.116)	(0.097)	(0.097)	(0.096)	(0.104)	(0.105)
Moved right × left	-0.032*	-0.027	-0.007	-0.039*	0.023	-0.054**	-0.020	-0.039*
	(0.017)	(0.017)	(0.027)	(0.022)	(0.022)	(0.023)	(0.025)	(0.023)
Characteristics	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Observations	2,561	2,561	1,322	1,239	1,331	1,230	1,285	1,276
R-squared	0.016	0.017	0.021	0.019	0.016	0.019	0.010	0.016

Table VIII: Temperature Revisions, Climate Risk Exposure and Fossil Fuel Exclusion Fund Holdings

This table reports the results of cross-sectional OLS regressions where the dependent variables is the portfolio weighted Morningstar Climate Risk score (columns (1) through (5)) or the weight in fossil fuel exclusion funds (columns (6) through (10)) of respondent's pension holdings at the end of 2021. The dummy variables "Revised up" and "Revised down" are derived from changing the reported likelihood of a more than one Centigrade global temperature rise within 20 years between the two surveys in 2018 and 2019. Columns (1) and (6) use the full sample in the estimation. Columns (2), (3), (7), and (8) partition the sample by whether voting outcomes for populist left-wing parties in the 2018 elections are above or below the median; columns (4), (5), (9), and (10) apply the same partition for right-wing votes. Characteristic controls include log of disposable income, age in decades, and a dummy for gender and higher education. TA controls denote dummies for the temperature assessments made in 2018. Fund controls include portfolio weights for fund category, exposure to retail networks, one year past return, portfolio weighted standard deviation and fee. Survey weights are used in all regressions and the constant is excluded from the presentation. Standard errors in parentheses, and one, two and three asterisks denote significance at the 10, 5, and 1% level, respectively.

	MS Risk score weight					**Fossil fuel exclusion weight**				
		Left-wing votes		Right-wing votes			Left-wing votes		Right-wing votes	
	All	Low	High	Low	High	All	Low	High	Low	High
VARIABLES	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
Revised up	-0.285***	-0.318**	-0.283**	-0.283**	-0.300**	0.050**	0.047	0.047*	0.057**	0.019
	(0.091)	(0.129)	(0.114)	(0.111)	(0.133)	(0.020)	(0.033)	(0.024)	(0.023)	(0.037)
Revised down	0.129	-0.049	0.190	0.198*	-0.107	-0.005	-0.034	0.006	-0.004	-0.003
	(0.094)	(0.144)	(0.116)	(0.111)	(0.169)	(0.018)	(0.032)	(0.022)	(0.022)	(0.032)
Men	0.183***	0.097	0.226***	0.214***	0.087	-0.036**	-0.092***	-0.011	-0.038**	-0.031
	(0.063)	(0.101)	(0.081)	(0.076)	(0.108)	(0.015)	(0.026)	(0.017)	(0.017)	(0.028)
Log Income	-0.042	0.005	-0.042	-0.039	0.007	0.003	0.034	-0.004	0.001	0.013
	(0.048)	(0.104)	(0.050)	(0.050)	(0.116)	(0.008)	(0.025)	(0.008)	(0.008)	(0.026)
Age	-0.166***	-0.183***	-0.160***	-0.160***	-0.181***	0.018**	-0.001	0.029***	0.023***	-0.009
	(0.033)	(0.052)	(0.042)	(0.039)	(0.065)	(0.007)	(0.013)	(0.009)	(0.008)	(0.014)
University	0.059	0.119	0.014	0.027	0.160	-0.006	-0.032	0.010	0.004	-0.047*
	(0.070)	(0.108)	(0.087)	(0.086)	(0.111)	(0.015)	(0.026)	(0.018)	(0.018)	(0.027)
TA controls	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Fund controls	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Observations	1,409	429	980	1,058	351	1,436	438	998	1,080	356
R-squared	0.476	0.564	0.454	0.453	0.576	0.490	0.475	0.514	0.500	0.518

Table IX: Temperature Revisions and Active Investments into Fossil Fuel Exclusion Funds

This table reports the results of OLS regressions where the dependent variables is the active portfolio weight in fossil fuel exclusion funds of respondent's pension holdings at the end of 2021. The dummy variables "Revised up" and "Revised down" are derived from changing the reported likelihood of a more than one Centigrade global temperature rise within 20 years between the two surveys in 2018 and 2019. Column (1) uses the full sample. Columns (2)–(3) partition by above- or below-median voting outcomes for populist left-wing parties in the 2018 elections; columns (4)–(5) do so for right-wing votes. Columns (6)–(7) split the sample by above- or below-median changes in local news reporting. Characteristics include log disposable income, age (in decades), and dummies for gender and higher education. TA controls denote dummies for the temperature assessments made in 2018. Fund controls include portfolio weights for fund category, exposure to retail networks, one year past return, portfolio weighted standard deviation and fee. There are 1,436 investors in the full active sample and 1,409 in the news sample covering 276 of the 290 municipalities. Survey weights are used in all regressions and the constant is excluded from the presentation. Standard errors in parentheses, and one, two and three asterisks denote significance at the 10, 5, and 1% level, respectively.

	Active fossil fuel exclusion weight						
		Left-wing votes		Right-wing votes		Δ News	
	All	Low	High	Low	High	Low	High
	(1)	(2)	(3)	(4)	(5)	(6)	(7)
Revised up	0.051*	0.012	0.077**	0.051*	0.069	0.036	0.082**
	(0.027)	(0.049)	(0.031)	(0.030)	(0.055)	(0.038)	(0.039)
Revised down	-0.002	-0.102***	0.034	0.030	-0.090**	0.006	0.002
	(0.022)	(0.035)	(0.027)	(0.027)	(0.037)	(0.031)	(0.031)
Fund controls	Yes	Yes	Yes	Yes	Yes	Yes	Yes
TA controls	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Fund controls	Yes	Yes	Yes	Yes	Yes	Yes	Yes
R-squared	0.076	0.099	0.116	0.096	0.116	0.082	0.093
Observations	1,436	438	998	1,080	356	717	692

Figure 1: Timeline of Events

This figure presents the timing of key events in this study. The first survey was distributed in April 2018. The summer that followed included a record heatwave that triggered series of forest fires and media reporting about global warming. National elections were held in September of 2018. The second survey was distributed in August 2019. The retirement portfolio data in this study ends in December 2021.

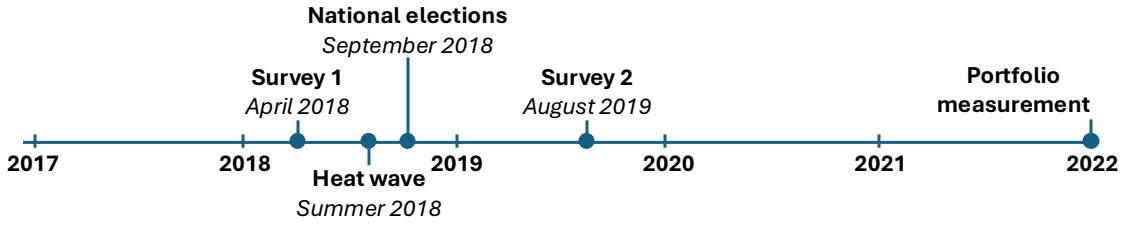


Figure 2: Populism, Politics and Climate Change

This figure presents a graphical analysis of how Sweden's main eight parties in parliament position themselves with respect to policy and a measure of populism. Populism is measured by position on "people versus elected representatives". Figure 2A plots the importance of environmental sustainability against populism and Figure 2B plots overall ideological stance in the left and right dimension against populism. Vertical and horizontal lines indicate voted weighted average outcomes for the 2018 national election. Party acronyms: SD (Sweden Democrats); GP (Green Party); LP (Left Party); C (Center); L (Liberals); S (Social Democrats); CD (Christian Democrats); M (Moderate Party). Data obtained from the 2019 Chapel Hill Expert Survey.

Figure 2A: Environment

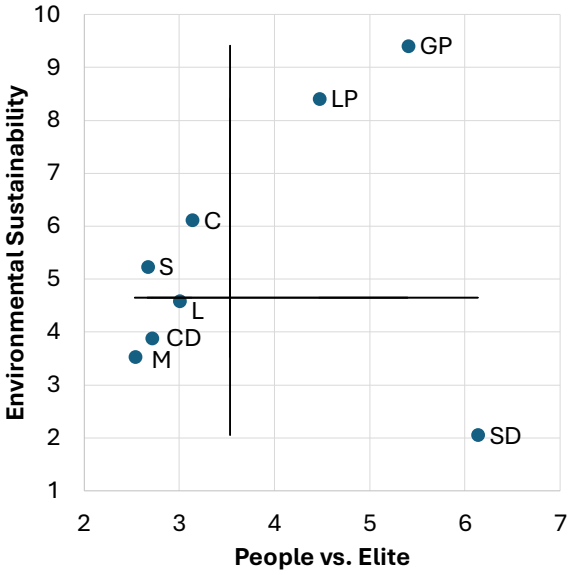


Figure 2B: Left/Right

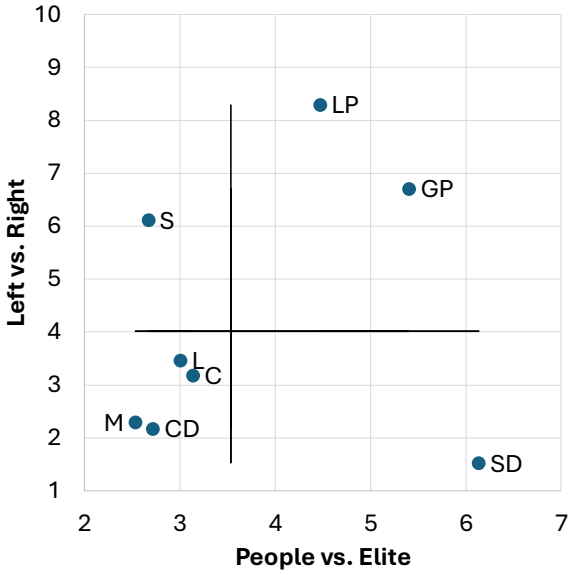


Figure 3: Changes in Right vs. Left Voting Outcomes between 2014 and 2018

This figure presents a scatter plot of the the changes in voting outcomes for populist Left (Green Party and Left Party) versus populist Right (Sweden Democrats) between elections in 2018 compared to 2014 across the 290 regional municipalities in Sweden. 71 municipalities moved both to the right and left during this period, and so diverged from the political center. The cross-sectional average across municipalities of Moved right is 7.8% and Moved left is -0.5%. The voting data is obtained from the Swedish Electoral Authority.

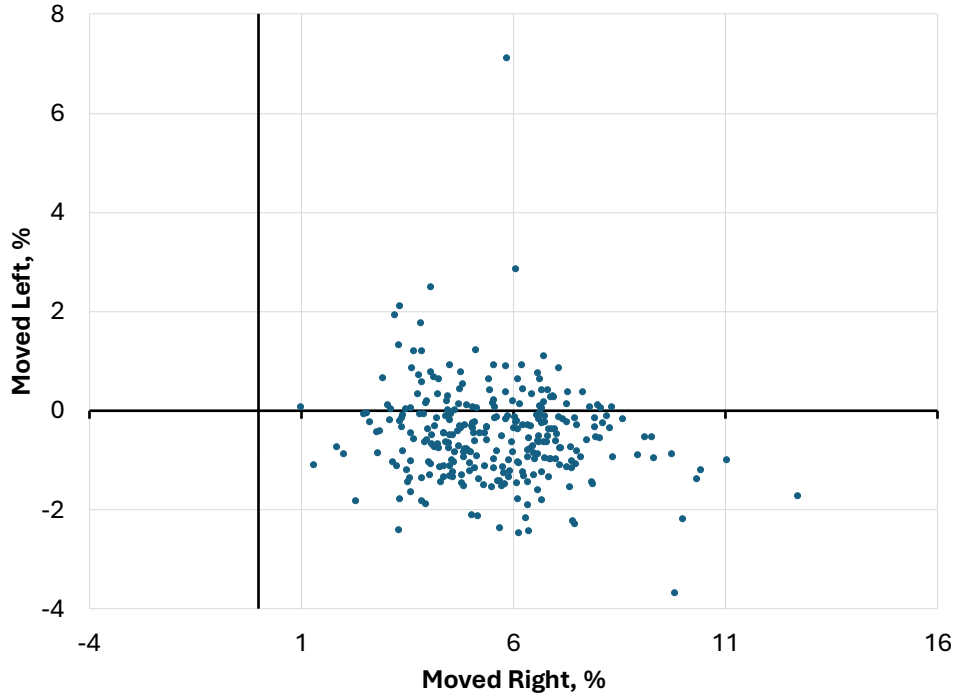


Figure 4: Forest Fires in Sweden during 2018

This figure displays the severity of forest fires across municipalities in 2018 and over time. The definition of severity is measured by the relative area destroyed for each region, where we select the 90th percentile across municipalities as our cut-off. Figure 4A shows that the fraction of municipalities with an area burnt exceeding .02% was around 18% in 2018. Figure 4B shows that 2018 was exceptional, marking a record number of municipalities adversely affected by forest fires. There are 290 municipalities in Sweden. Data is obtained from the Swedish Civil Contingencies Agency.

Figure 4A: Distribution of 2018 Fires

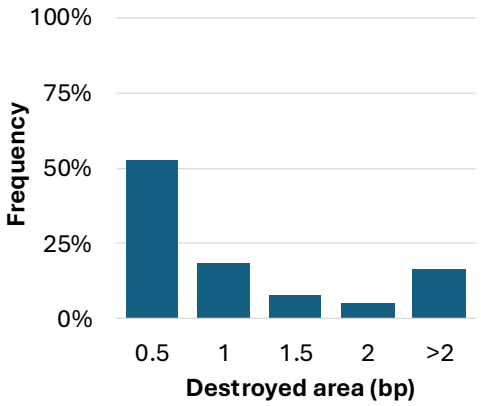


Figure 4B: Fires over Time

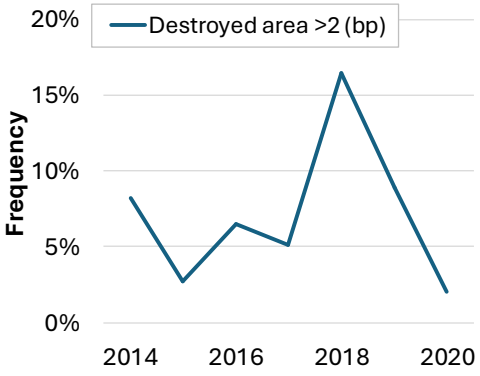


Figure 5: Media Coverage of Global Warming

This figure plots the monthly time series of article counts around a window before and between the two surveys in April 2018 through August 2019 (highlighted by dashed lines). The bars show the number of articles mentioning "global warming" in local news media collected for regional newspapers. The solid line shows the share of articles mentioning global warming compared to all published news articles. Local news data was obtained from the Swedish Royal Library.

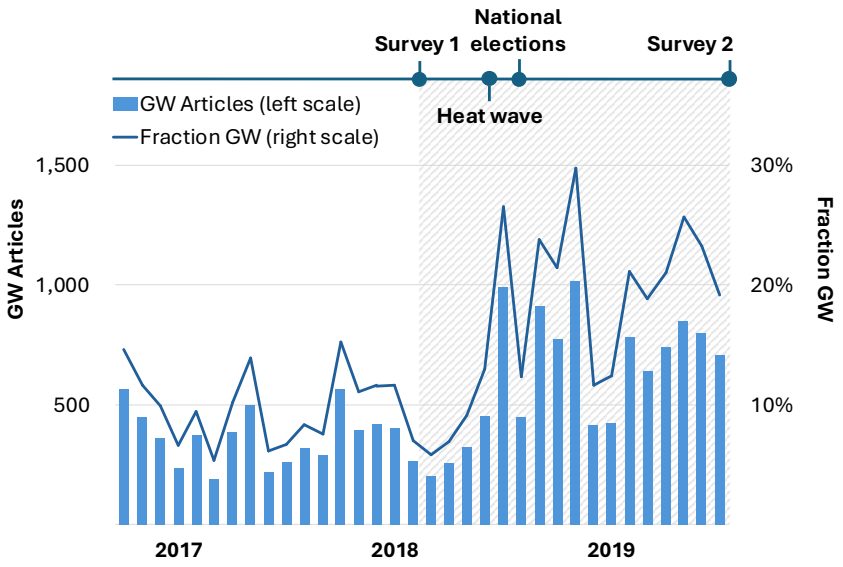
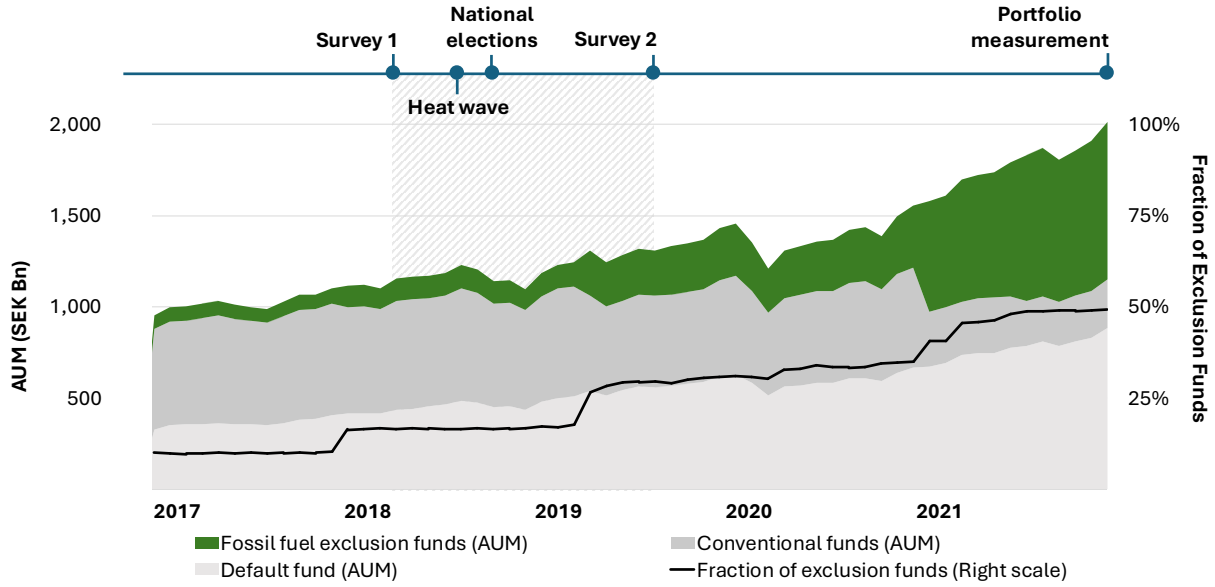


Figure 6: The Swedish Pension System and Fossil Fuel Exclusion Funds

This figure shows the assets under management (AUM) in the Swedish Premium Pension System from January 2017 to December 2021 (shaded area, left scale). The top green area traces out the amount allocated to fossil fuel exclusion funds, the dark grey area to all other funds available for selections, and the light grey area the default fund which does not exclude fossil fuel. The solid line traces out the fraction of fossil fuel exclusion funds (right scale). The window between the two surveys in February 2018 through August 2019 is highlighted by dashed lines. The data for investments are collected from the Swedish Pension Authority webpage.



A Sampling Procedure and Summary Statistics

This appendix presents the data collection and matching procedure in detail. In early 2018, Statistics Sweden (SCB) mailed out 19,977 invitations to a random sample of Swedes aged 18-65. The invitation contained information about the survey and how to log on to the response website at SCB, what registry data that was going to be used and matched to the survey responses if the respondent agreed to participate, and contact details to SCB and one of the authors in case of questions. On behalf of the authors, SCB also collected and matched pension data to the survey which was supplied by the Swedish Pension Agency (SPA). All identities are scrambled and the analysis was conducted through the mainframe computer situated at the SCB from which the authors only can retrieve and keep aggregated results.

The procedure followed all standards applied by SCB and the project has been approved by the Swedish Ethical Review Authority. SCB calibrated the sample to an underlying population of 6,097,316 Swedes in the ages 18-65 as of the end of 2017 using gender and age (details of the exact survey weight methodology and mailer is available upon request).

Panel A and B of Table A.1 presents details of the sampling procedure. Panel C of Table A.1 summarizes the matching of survey responses with retirement accounts. From the total sample of 2,561 respondents 2,521 also owned retirement accounts at the SPA at the end of 2021. Fund holdings is matched to monthly fund characteristics obtained from the SPA website that excludes the default fund. Exclusion fund exposure is obtained for the retirement sample from their selection of 499 available mutual funds and the default fund at the end of 2021 and is calculated as a portfolio weight. There were 1,436 investors with an active portfolio choice as of 2021. The default fund and 33 other funds have missing data for the Morningstar Climate Risk measure. 1,112 investors (1,085 in default and 27 investors in open funds) were invested in missing funds and so are dropped from the regression leaving 1,409 observations. The distribution of Morningstar Climate Risk scores is presented in Figure F.2.

Table A.1: Sample Selection

This table display details of the sample construction across the two surveys conducted in the spring of 2018 and fall of 2019. In 2018, 19,977 randomly selected individuals in the ages 18-65 were invited to take the first survey, of which 4,257 responded. In the fall of 2019, the 4,244 people who remained in the Statistics Sweden (SCB) registry where contacted again to take a second survey. Panel A displays details about the survey invitations, responses and deletions due to missing data. Panel B displays details of the overall responses and final sample in the 2019 survey across three survey waves from first invite to second reminder. Panel C shows the number of observations remaining when matching the survey data to pension holdings from which we only have sustainability data for the privately managed funds, excluding the stock and bond default fund. Panel D of Table A.1 presents the survey weights obtained by Statistics Sweden which are computed using the age and gender profile of survey respondents compared to the underlying sample presented in Table A.2.

Panel A:	**Survey invitations**			
Note	Responses	% of Total	Removed	Remark
Survey 1 invitations	19,977	100.0	0	Survey 1 open February 7, 2018
Survey 1 total responses	4,257	21.3	15,720	Survey 1 closed April 5, 2018
Survey 1 final responses	4,230	21.2	27	Missing location data
Survey 2 invitations	4,244	100.0	13	Survey 2 open August 22, 2019
Survey 2 total responses	2,596	61.2	1,648	Survey 2 closed October 8, 2019
Deletion 1	2,582	60.8	14	Missing SCB registry data
Deletion 2	2,561	58.1	21	Missing Survey 1 responses

Panel B:	**2019 responses**			
Note	Responses	% of Total	Sample	Date
First invitation (Wave 1)	1,347	31.7	1,334	August 22, 2019
Reminder 1 (Wave 2)	775	18.3	766	September 5, 2019
Reminder 2 (Wave 3)	474	11.2	461	September 19, 2019
Responses	2,596	61.2	2,561	Survey 2 closed October 8, 2019
Deletions	0	0.0	35	From Panel A
No response	1,582	37.3	1,582	
Returned mail	18	0.0	18	
Declined	46	1.1	46	
Blank	2	0.0	2	

Panel C:	**SPA Fund Matching**			
Note	Responses	SPA	Choice	Rebalanced
Full sample	2,561	2,521	1,436	711

Panel D:	**Survey weights**			
Strata	Weight	Freq.	% of Total	Population
1	1207.513	451	17.61	544,588
2	1337.449	454	17.73	607,702
3	1996.194	325	12.69	648,763
4	2126.129	325	12.69	690,992
5	2710.985	204	7.97	553,041
6	2840.921	252	9.84	715,912
7	3926.926	194	7.58	761,824
8	4056.861	156	6.09	632,870
9	4646.952	102	3.98	473,989
10	4776.887	98	3.83	468,135

Table A.2: Sample Characteristics, Temperature Change and Green Beliefs

This table presents sample means for the temperature assessments among the 2,561 respondents who took the survey in 2018 and 2019 across demographics. The first two columns report the sample fractions and population averages. The first two rows report the overall actual and survey weighted means. The columns labeled "Temperature change" report responses to question "Within the next twenty years, how likely is a global temperature increase by more than one Centigrade". See Table II for tabulation of responses. The columns labeled "Forecast" report the scored Likert scale responses from -2 ("Very unlikely") to 2 ("Very likely") for the 2018 and 2019 surveys. Rows labeled "Urban" splits the sample on municipalities on number of inhabitants below or above 50,000. There are 2,561 respondents in the sample.

			Temp. Change		**Survey questions**			
	Sample	Pop.	Forecast		Notice	Worry	Gov't	Higher
	prop.	prop.	2018	2019	GW	GW	more	taxes
Overall	1.00	1.00	1.09	1.12	0.58	0.23	0.52	0.09
Pop. Wtd.	.	.	1.15	1.14	0.59	0.25	0.54	0.11
Gender								
Men	0.50	0.51	1.09	0.98	0.53	0.19	0.43	0.09
Women	0.50	0.49	1.20	1.30	0.66	0.32	0.64	0.13
Age								
18-24	0.08	0.15	1.27	1.26	0.62	0.30	0.60	0.16
25-34	0.15	0.23	1.36	1.22	0.66	0.31	0.59	0.17
35-44	0.17	0.21	1.07	1.10	0.59	0.27	0.55	0.10
45-54	0.25	0.22	1.06	1.05	0.56	0.19	0.50	0.06
55-65	0.35	0.19	0.98	1.08	0.55	0.19	0.46	0.06
Income								
0-111	0.11	0.25	1.27	1.22	0.61	0.28	0.57	0.16
111-287	0.37	0.25	1.16	1.16	0.62	0.27	0.55	0.11
287-399	0.32	0.25	1.13	1.14	0.57	0.23	0.54	0.10
399+	0.20	0.25	1.04	1.01	0.56	0.23	0.47	0.07
Education								
Some school	0.09	0.17	1.21	1.15	0.54	0.24	0.52	0.12
High school	0.35	0.44	1.09	1.12	0.55	0.19	0.48	0.06
University	0.56	0.39	1.16	1.15	0.63	0.29	0.57	0.13
Urban								
Yes	0.42	.	1.18	1.20	0.63	0.32	0.61	0.15
No	0.58	.	1.13	1.09	0.56	0.20	0.48	0.07

B Voting Outcomes

This appendix describes voting outcomes for parliamentary elections in Sweden. Voting outcome data is retrieved from the Swedish Electoral Authority. The Swedish parliamentary system is a constitutional monarchy with a parliamentary democracy. Sweden's proportional representation allows multiple parties to gain seats based on the share of the vote. This system promotes a multi-party landscape and coalition governments, but has over the last decades converged to a group of eight parties which take turns in forming governments to the center-right or center-left.

The Swedish Democrats (SD) are a right-wing party in Sweden that has historically been excluded from government leadership positions for extended periods, unlike for example the right-leaning Moderate Party, which has a longer history of leading or participating in governments.

Sweden Democrats (SD) is a party that has grown in popularity over recent years in the wake of increased distrust in the political system as in many other European countries.[23] SD was formed in the 1980's with close ties to the nationalistic movement mainly focusing on immigration, but has since formulated their own political agenda around other topics that opposes mainstream policies, such as EU membership, gay rights and climate control. SD votes are higher in rural areas with lower education, greater income disparity and higher immigration. The anti-immigration and climate sceptic policies makes the party less attractive to women. Men make up around 70% of SD voters (Jylhä, Rydgren, and Stripling (2018)).

Both the Green Party and the Left Party are and have been on the left side of the political spectrum in Swedish politics. These parties have typically acted as support parties for Social Democratic-led governments rather than leading governments themselves.

The Left Party is a self-proclaimed socialist, feminist and green party that has its historical roots in the Communist Party, on the very left of the political scale. The party was originally founded in opposition to the Social Democrats. While the party has never been part of coalitions, it has sporadically supported left-of-center coalitions led by the Social Democrats.

The Green Party was formed in 1981 with an agenda focused on environmental sustainability, climate change, and renewable energy. They advocate for strong environmental regulations and social justice, often aligning with the Social Democrats on progressive social issues. According to Novus, women make up around 60% of their voting base, the support is stronger among those with higher education and among city dwellers. The Green Party first entered Parliament in 1988 with less than 6% of votes and their support have since then fluctuated between around 4% to 7% in later years.

The 2014 elections resulted in a minority Center-Left government led by the Social Democrats and the Green Party. The years that followed saw an increased dispersion the political landscape, pulling voters away from the traditional center parties. The 2018 election outcome left the parliament deeply divided, with less support for the political middle and increased support for both the left right side of politics. Even if the Sweden Democrats gained strong support, neither block wanted to officially include them in a coalition. After months of negotiations and failed attempts, a compromise was reached in January 2019. This arrangement became known as the January Agreement, a deal

[23] See Pew Research Center, https://pewrsr.ch/3CDu5Pp.

where the Center and Liberal parties agreed to support a Social Democrat-led government while pushing for reforms typically associated with the center-right, such as labor market reforms.

Figure B.1 plots the voting outcomes for Swedish parliamentary elections between 1960 and 2022. Table B.1 shows the summary statistics of voting outcomes to the right or left between elections in 2014 and 2018. Right votes are obtained by summing votes for Sweden Democrats, left votes for the Left and Green Party. Movements are computed by taking the difference between the 2018 and 2014 election outcomes.
Figure B.2 plots the fire areas and the shifts in voting outcomes movements. Figure C.2 plots the statistical power of the dummy Fires at various thresholds of area destroyed. Figure B.3 presents a graphical analysis of how Europes's main parties on the ends of the political spectrum position themselves with respect to policy and a measure of populism.

Figure B.1: Historical Voting Outcomes
This figure presents the voting shares across the eight largest political parties over time for parliamentary elections in Sweden between 1960 and 2022. Data is retrieved from the Swedish Electoral Authority.

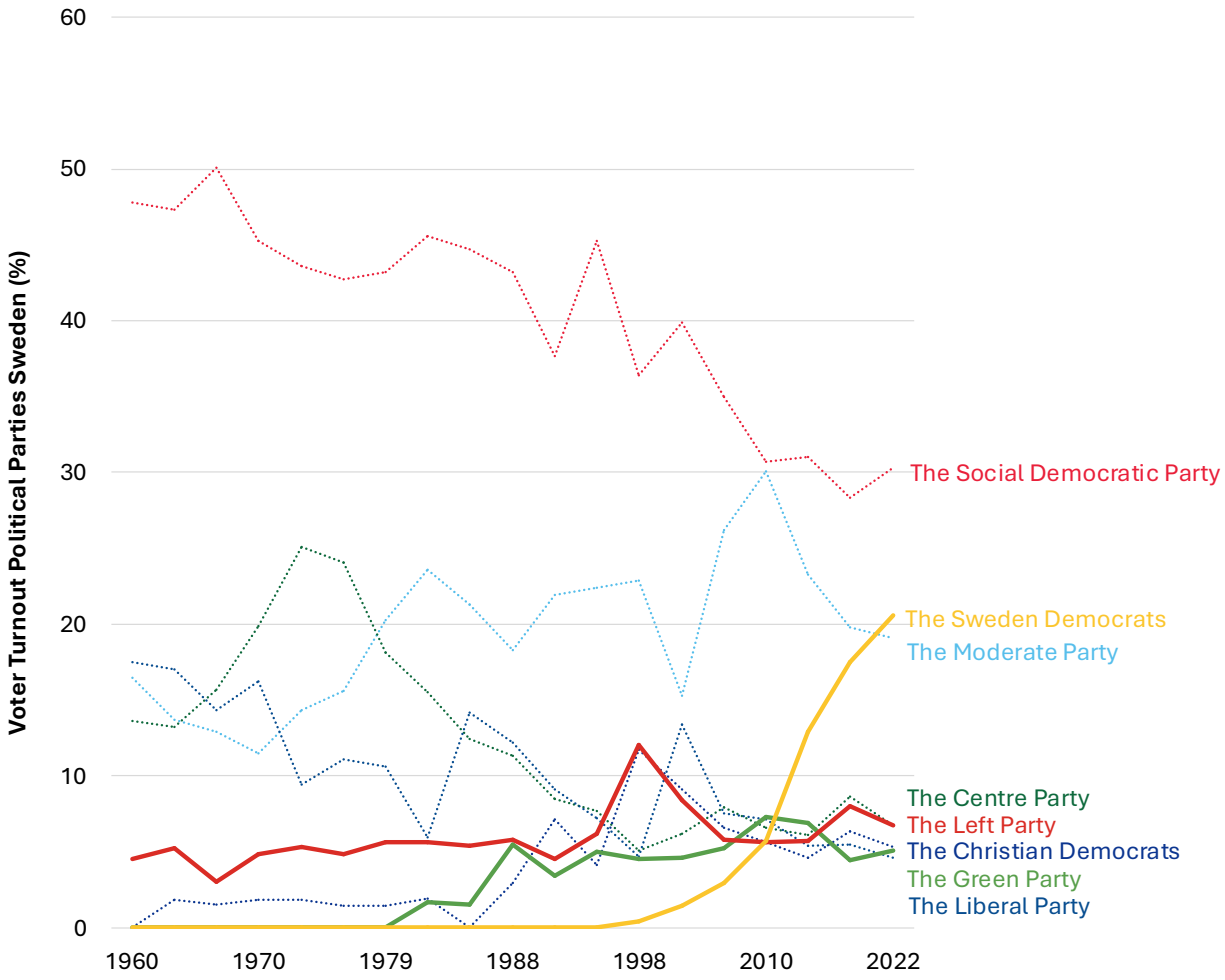


Figure B.2: Political Shifts and Forest Fires

This figure presents a map of Sweden along with shifts in political support for left and right parties between the 2018 and 2014 elections along with extreme forest fires. Figure B.2A plots the quartiles of the distribution in support for left-wing parties (the Left and Green Party). Figure B.2B plots the quartiles of the distribution in support for the right-wing party (Sweden Democrats). Figure B.2C plots the areas most affected by the 2018 forest fires (area destroyed larger than 0.02% in the top decile of affected municipalities).

Figure B.2A: Moved Left

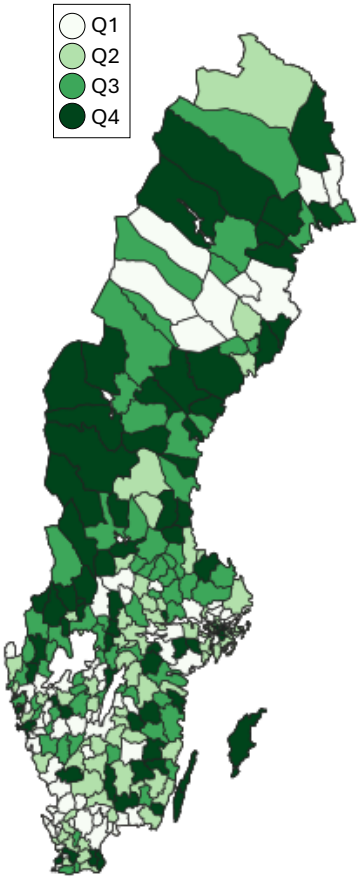


Figure B.2B: Moved Right

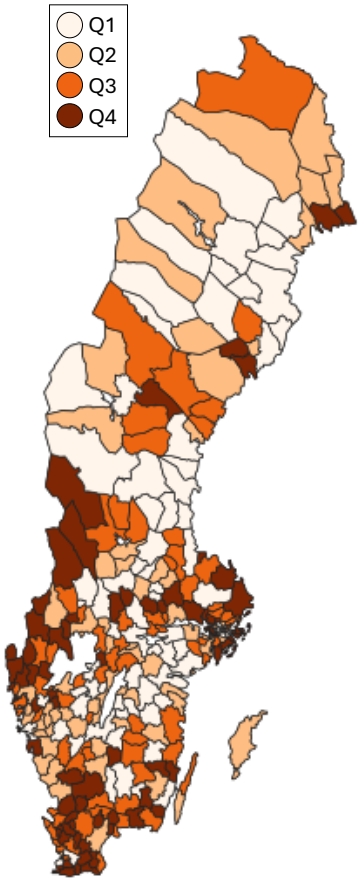


Figure B.2C: Fire

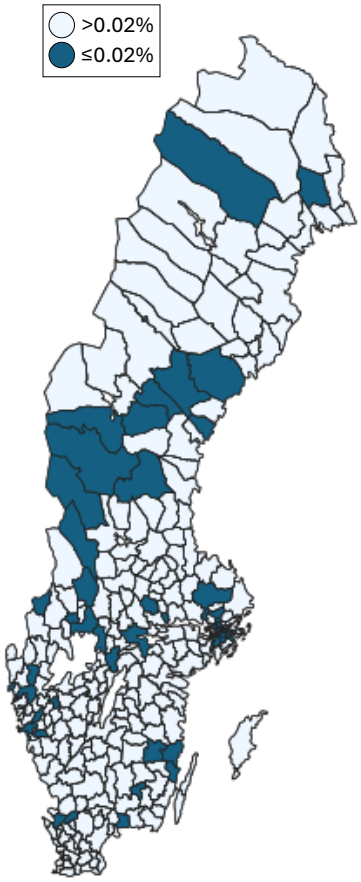


Figure B.3: European Parties: Populism and Policy Positions

This figure presents a graphical analysis of how Europe's main political parties at the ends of the spectrum position themselves regarding policy and populism. Populism is measured by their stance on "the people" versus elected representatives. Figure B.3A plots the importance of environmental sustainability against populism, while Figure B.3B plots ideological positioning on the left-right spectrum against populism. Data sourced from the 2019 Chapel Hill Expert Survey. Party abbreviations for Germany are AfD (Alternative für Deutschland), GRÜNEN (Bündnis 90/Die Grünen), for France are EELV (Europe Écologie Les Verts), RN (Rassemblement National), for Spain are EHB (Eusko Alkartasuna), POD (Podemos) , for Italy are LN (Lega Nord), M5S (Movimento 5 Stelle), for United Kingdom are GREEN (Green Party of England and Wales), SNP (Scottish National Party), UKIP (UK Independence Party) , and for Sweden are SD (Sverigedemokraterna), GP (Miljöpartiet de Gröna), LP (Liberalerna).

Figure B.3A: Environment

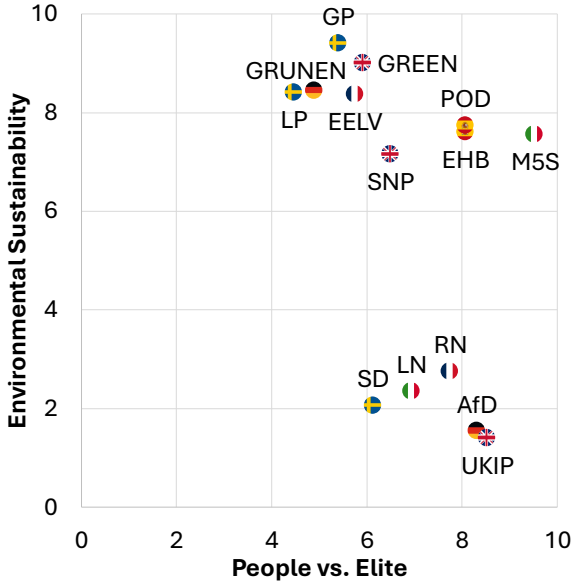


Figure B.3B: Left/Right

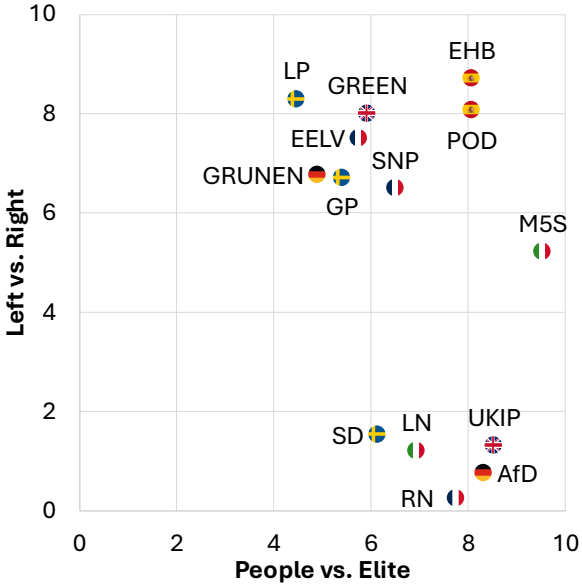


Table B.1: Regional Shifts in Voting Outcomes

This table presents summary statistics for the regressions in table:muni . "Moved left/right" represent the change in voter turnout for two parties on the political left (Green party and Left party) and right (the Sweden Democrats) between the elections in 2018 and 2014. Fire is a dummy variable taking the value of one for the top decile of municipalities affected by forest fires in 2018; zero otherwise. Other variables include unemployment rate, average income, the share of foreign born, low trust in others and population (in millions). The sample covers all 290 municipalities in Sweden. The voting data is obtained from the Swedish Electoral Authority, fires from the Swedish Civil Contingencies Agency and demographics from Statistics Sweden.Low trust is obtained from the national health survey in 2019 solicited by the Swedish Public Health Agency from the fraction responding "No" to the question "Do you generally think that you can trust most people?".

Variable	Mean	Std. Dev.	Min	Max
Moved left	-0.48	0.96	-3.68	7.13
Moved right	5.59	1.75	0.99	12.70
Fire	0.17	0.37	0.00	1.00
Unemployment	7.63	2.61	2.30	15.20
Foreign born	12.69	5.77	4.33	40.16
Low trust in others	27.46	4.12	16.53	40.90
Population (mn)	0.35	0.73	0.00	0.96

C Forest Fires

This appendix describes the fire data. Affected fire areas have been obtained from the Swedish Civil Contingencies Agency. Sweden is around the same size as the state of California with a distance of 1,572 kilometers from north to south. About 15% of its area rests over the arctic circle. The country is divided into 21 counties and 290 municipalities.

Figure C.1 shows the distribution of forest fires during the summer of 2018 and marks the cut-off around the 90th percentile with an area destroyed amounting to more than 0.02% of the total municipal area.

Table C.1 tabulates all the affected areas in accordance with this definition along with the area destroyed.

Figure C.2 presents a robustness analysis of the chosen fire area threshold and the results presented in Table IV.

Figure C.1: Distribution of Destroyed Area

This figure presents a cumulative plot of destroyed area as a result of the 2018 wildfires for across all 290 municipalities in Sweden. The chosen cut-off is indicated by a solid line at 0.02% covering around 20% of the municipalities. The vertical axis presents the log-transformed relative share of destroyed area and the horizontal axis represents municipalities sorted from most to least affected.

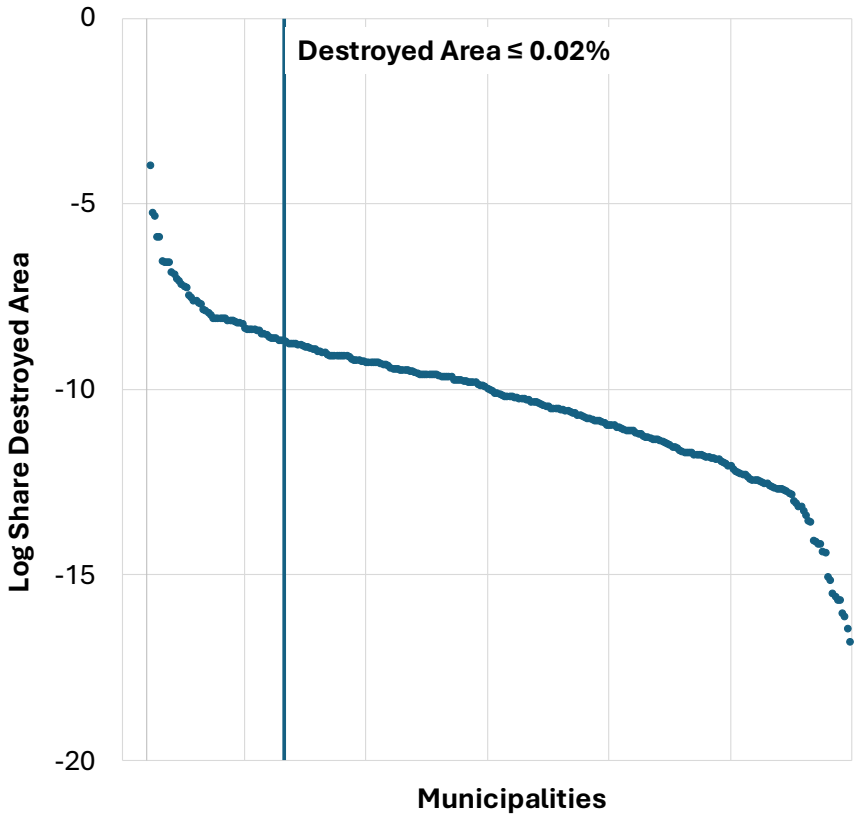


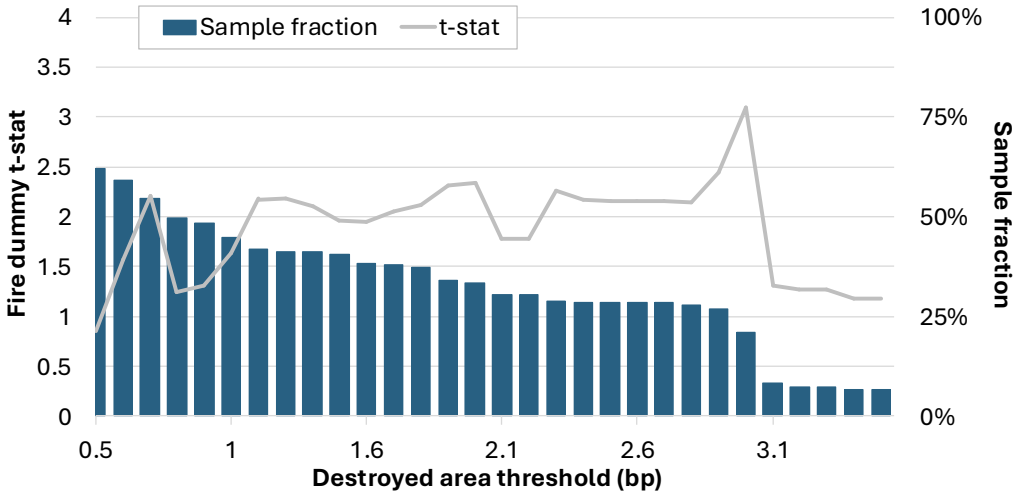
Table C.1: List of Municipalities Severely Affected Fires 2018

This table presents the 48 municipalities and counties that were most severely affected by the forest fires in the summer of 2018. For these counties more than 0.02% or 2 basis points of the total share of land was burnt. Municipalities are ordered from lowest to highest relative area destroyed. Data is retrieved from Swedish Civil Contingencies Agency. There are 290 municipalities and 21 counties in Sweden.

Municipality	County	Destroyed Area
Överkalix	Norrbotten	0.02%
Uppsala	Uppsala	0.02%
Essunga	Västra Götaland	0.02%
Huddinge	Stockholm	0.02%
Sotenäs	Västra Götaland	0.02%
Tyresö	Stockholm	0.02%
Örkelljunga	Skåne	0.02%
Karlshamn	Blekinge	0.02%
Mönsteräs	Kalmar	0.02%
Upplands Väsby	Stockholm	0.03%
Jokkmokk	Norrbotten	0.03%
Skinnskatteberg	Västmanland	0.03%
Karlstad	Värmland	0.03%
Öckerö	Västra Götaland	0.03%
Göteborg	Västra Götaland	0.03%
Hultsfred	Kalmar	0.03%
Ängelholm	Skåne	0.03%
Sigtuna	Stockholm	0.03%
Lidingö	Stockholm	0.03%
Stockholm	Stockholm	0.03%
Sollefteå	Västernorrland	0.03%
Sollentuna	Stockholm	0.03%
Uddevalla	Västra Götaland	0.03%
Hallstahammar	Västmanland	0.04%
Färgelanda	Västra Götaland	0.04%
Härryda	Västra Götaland	0.04%
Berg	Jämtland	0.05%
Örebro	Örebro	0.05%
Kil	Värmland	0.05%
Lessebo	Kronoberg	0.05%
Eda	Värmland	0.05%
Ale	Västra Götaland	0.06%
Laxå	Örebro	0.07%
Järfälla	Stockholm	0.07%
Härnösand	Västernorrland	0.08%
Håbo	Uppsala	0.09%
Örnsköldsvik	Västernorrland	0.09%
Oskarshamn	Kalmar	0.10%
Ragunda	Jämtland	0.11%
Hagfors	Värmland	0.14%
Bräcke	Jämtland	0.14%
Malung-Sälen	Dalarna	0.14%
Nacka	Stockholm	0.15%
Botkyrka	Stockholm	0.28%
Kristinehamn	Värmland	0.28%
Härjedalen	Jämtland	0.49%
Älvdalen	Dalarna	0.53%
Ljusdal	Gävleborg	1.90%

Figure C.2: Fire Dummy Definition

This figure presents the statistical power of the Fire dummy in Table IV by running the regression in column (3) over different thresholds of area destroyed. The t-statistic of Fire parameter estimate at a given threshold of area destroyed is plotted as a grey line (left scale). The fraction of the sample subject to the definition is indicated by bars (right scale).



D Local News

This appendix describes the data collection of local newspaper data and presents the data used in the main analysis where we use the fraction of articles mentioning "global warming" as an indication of saliency sentiment.

The data was retrieved manually from the online database at the Swedish Royal Library (Kungliga biblioteket, see https://tidningar.kb.se). We downloaded data for 113 local newspapers for two equally long (17 months) time periods: the period before the first survey was submitted, and the time period between the first and second survey. The before period runs from November 1, 2016 to March 31, 2018. The between period is from April 1, 2018 to August 31, 2019. The search term used is "global warming" (in Swedish "global uppvärmning") which in turn was benchmarked by the total number of articles in the newspaper. There are 290 municipalities in Sweden for which we were able to match at least one local newspaper to 276.

We define the fraction of newspaper articles mentioning global warming by dividing the two collected variables summed over municipalities. The variable ΔNews in the main text is defined as the relative difference in the fractions of newspaper articles mentioning global warming between and before the surveys:

$$\Delta\text{News}_i = \frac{\text{FGW Between}_\text{i} - \text{FGW Before}_\text{i}}{\text{FGW Before}_\text{i}},$$

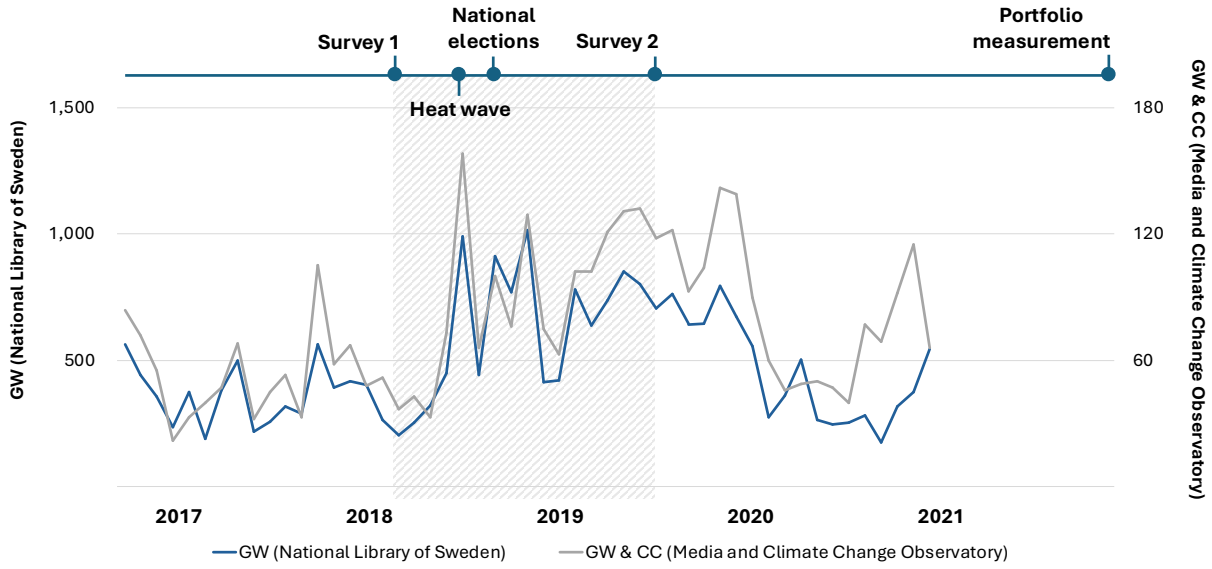
where i denotes municipality. Table D.1 tabulates the summary statistics of the data.

Table D.1: Summary Statistics for Newspaper Saliency
This table presents the data collected for local newspapers mentioning the keyword "global warming" for two 17-month time periods before and between the two surveys in 2018 and 2019. The data covers 113 local newspapers across 276 (of 290) municipalities (Muni's).

Panel A:		**Number of Articles Across Municipalities**		
Variable	Muni's	Mean	Std. dev.	Remark
GW Before	276	113.68	87.02	"Global warming" mentioned
GW Between	276	202.17	132.09	"Global warming" mentioned
All Before	276	965.52	493.25	All articles
All Between	276	942.11	481.66	All articles
Panel B:		**Fraction of Articles Across Municipalities**		
Variable	Muni's	Mean	Std. dev.	Remark
FGW Before	276	0.11	0.04	Fraction mentioning GW
FGW Between	276	0.20	0.06	Fraction mentioning GW
ΔNews	276	0.96	0.37	Difference in fraction mentioning GW

Figure D.1: Local versus National News

This figure plots the monthly time series of article counts from two data sources: the Swedish Royal Library and the Media and Climate Change Observatory (MCCO, see `https://scholar.colorado.edu/concern/datasets/2n49t3497`). The dark blue line shows the number of articles mentioning "global warming" in all news papers available at the Swedish Royal Library used in this paper. The light grey line shows the number of articles mentioning "global warming" or "climate change" in the MCCO data base covering the three main national newspapers.



E Survey instrument

This appendix presents and tabulates the responses to the four questions used for soliciting environmental beliefs.

Table E.1: Environmental Beliefs

This table reports the responses to four statements regarding climate change asked in the survey. Questions 1 through 3 were asked in the second survey in 2019 and the last two questions in the first 2018 survey. Boldface indicates how responses have been coded to dummies (taking the value of one; zero otherwise). The statements have been translated from Swedish into English.

1. *Notice GW*: "I have already noticed the effects of climate change in Sweden"
   (a) Stongly disagree (109, 4.3%)
   (b) Disgree (63, 2.5%)
   (c) Don't Agree nor Disagree (301, 11.8%)
   (d) Agree (604, 23.6%)
   (e) **Strongly Agree (1,481, 57.9%)**
2. *Worry GW*: "I'm worried about climate change and what it means for myself and my family"
   (a) Stongly disagree (20, 0.8%)
   (b) Disgree (129, 5.1%)
   (c) Don't agree nor disagree (641, 25.1%)
   (d) Agree (1,154, 45.7%)
   (e) **Strongly Agree (595, 23.3%)**
3. *Gov't Action*: "The government should do more to fight climate change"
   (a) Stongly disagree (77, 3.0%)
   (b) Disgree (83, 3.3%)
   (c) Don't agree nor disagree (375, 14.8%)
   (d) Agree (687, 27.0%)
   (e) **Strongly Agree (1,319, 51.9%)**
4. *Higher Taxes*: "I am willing to pay higher taxes to increase Sweden's aid to poor countries"
   (a) Stongly disagree (517, 20.4%)
   (b) Disgree (460, 18.0%)
   (c) Don't agree nor disagree (782, 30.8%)
   (d) Agree (552, 21.7%)
   (e) **Strongly Agree (230, 9.0%)**

F Pension Data

This appendix give details about rebalancing retirement accounts at the Swedish Pension Authority (SPA). Table F.1 tabulates the results from OLS regressions explaining default status and the propensity to trade, given that the investor is not in default. In this analysis we include the score of 5-point standard Big 5 financial literacy test among the explanatory variables and the self-reported response on the propensity to look over their retirement savings (see Anderson and Robinson (2022) for details). The results show that only financial literacy is significant over and above what is explained by individual characteristics. Further that it is the subset of attentive investors that stay out of the default fund and rebalance in the period after the survey. Individual temperature revisions nor the political environment affect financial engagement in the pension system.
Figure F.1 shows a screen print of the web tool for choosing funds at the Swedish Pension Authority (SPA) website which was launched during 2019. Figure F.2 plots the frequency distribution of Morningstar Climate Risk scores for the active funds in the pension system at the end of 2021.

Table F.1: Financial Knowledge and Engagement

This table reports the results of OLS regressions where the dependent variable measures propensities to be active in the Swedish Premium Pension System. The dependent variable in columns (1) through (3) is a dummy variable taking the value of one if the respondent was in the default fund in 2021; zero otherwise. The sample contains 2,521 people registered in the system at that time. The sample in columns (4) through (8) contains the 1,436 investors who were not in the default at the same time. The dependent variable is a dummy variable taking the value of one for the 711 investors who rebalanced their portfolio at some point between taking the first survey and the end of 2021. Columns (7) and (8) partition the sample over attentiveness to pension savings sorting on those reporting that they look over their retirement savings at least once a year (labelled "Yes"). Independent variables "Revised up/ down" are derived from changing the reported likelihood of a more than one Centigrade global temperature rise within 20 years between the two surveys in 2018 and 2019. "Moved left" and "Moved right" denote the changes in voting outcomes for left and right populist parties between 2018 and 2014 in the municipalities where respondents live and "Left $\times$ Right" denotes the interaction term. Financial literacy denote the score ranging from 0 to 5 on a modified "Big 5" test solicited in the first survey. Controls include log of disposable income, gender, age in decades, a dummy for higher education and a dummy if the respondent was in the first cohort in the year 2000 when the system was started. Survey weights are used in all regressions and the constant is excluded from the presentation. Standard errors in parenthesis, and one, two and three asterisks denote significance at the 10, 5, and 1% level, respectively.

	In default fund			**Rebalanced**		
		Attentive			Attentive	
		No	Yes		No	Yes
VARIABLES	(1)	(2)	(3)	(4)	(5)	(6)
Fin. Lit.	-0.019**	-0.011	-0.027**	0.041***	0.029	0.046***
	(0.008)	(0.010)	(0.013)	(0.013)	(0.019)	(0.018)
Revised up	-0.002	-0.017	0.011	-0.039	-0.104*	0.013
	(0.025)	(0.032)	(0.036)	(0.038)	(0.060)	(0.048)
Revised down	0.005	-0.033	0.047	0.007	-0.007	0.018
	(0.023)	(0.030)	(0.034)	(0.034)	(0.052)	(0.044)
Moved left	0.047	0.047	0.031	0.062	0.079	0.035
	(0.029)	(0.039)	(0.044)	(0.044)	(0.069)	(0.056)
Moved right	0.001	-0.006	0.009	-0.008	0.003	-0.011
	(0.008)	(0.011)	(0.012)	(0.012)	(0.019)	(0.016)
Left $\times$ Right	-0.005	-0.005	-0.002	-0.016	-0.015	-0.011
	(0.007)	(0.009)	(0.010)	(0.010)	(0.016)	(0.013)
Cohort FE	Yes	Yes	Yes	No	No	No
Observations	2,521	1,182	1,339	1,436	557	879
R-squared	0.285	0.316	0.213	0.093	0.138	0.083

Figure F.1: SPA Fund Choice Interface

This figure shows a screen print of the SPA web tool for searching, filtering and ranking funds based on Fund type (e.g. industry, geographic area), Fund category (e.g. stocks, bonds, mixed, target), Fund company, Risk level (from very low to very high) and Exclusions. The tool allows for choosing actively managed or index funds as well as sustainable funds and funds with the Morningstar low carbon indicator. Funds can be sorted by category, fee, Morningstar climate risk, financial risk and past returns. Website http://pensionsmyndigheten.se/mina-tjänster/fondtorg/sok accessed on January 25, 2023.

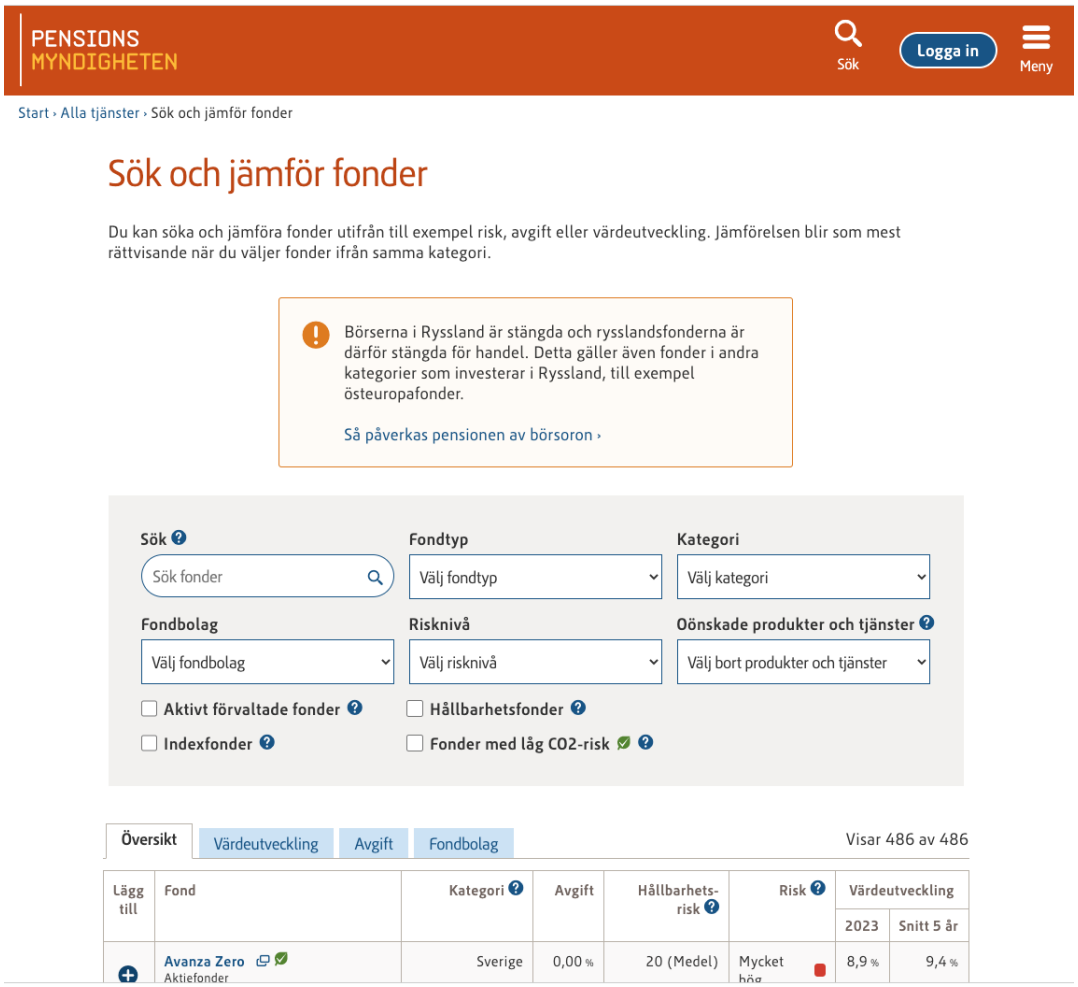


Figure F.2: Morningstar Climate Risk Scores

This figure presents the frequency distribution of Morningstar Climate Risk score for the sample of 466 funds (out of a total of 499) available in the pension system as of 2021 ("Fund offering" marked in light grey). Dark grey shows the weighted score for the sample of individuals ("Sample"). The orange area shows the weighted score distribution for all individuals in the Swedish pension system. The Morningstar Climate Risk score data is collected from the Swedish Pension Authority website.