

UNIVERSITÀ DEGLI STUDI DI VERONA
SCUOLA DI ECONOMIA E MANAGEMENT

Corso di Laurea magistrale in
ECONOMICS AND DATA ANALYSIS

Environmental attitude and political orientation

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Anno Accademico 2021/22

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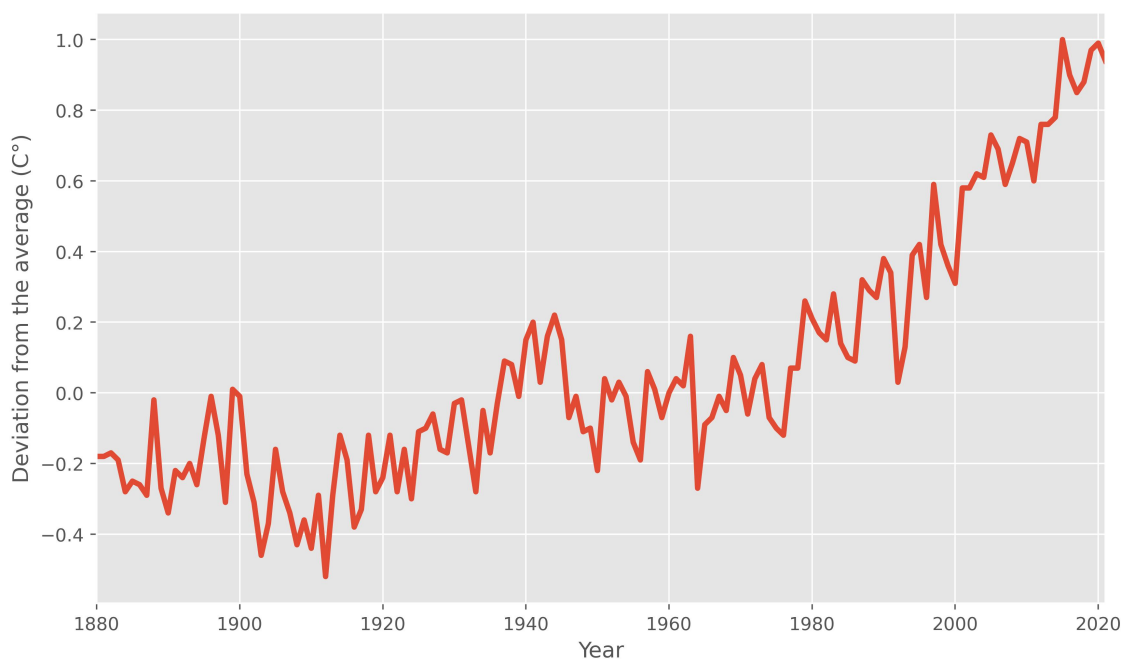
Introduction

The impact of climate change is being felt more keenly by the countries and their respective populations as a result of more severe and frequent weather disruptive events that harm and devastate both people and the environment. Many of these consequences, despite scepticism, could certainly be attributed to the earth going through a long-term environmental change. In this regard, it is simple to come up with a number of examples that could explain the current trend; in fact, by focusing only on the most recent time frame, the following instances could be made:

- the situation that occurred in various parts of England, particularly the incredible heat wave that reached and surpassed 40° Celsius and caused evacuations of the local populace as well as disruptions to transportation systems (UK Government, 2022);
- the worrying drought that affected the River Po, in Italy, as a result of a combination of several factors, including an increase in temperature of 6-8° Celsius relative to the average for the same period, a reduction in precipitation levels, the melting of snow in Piedmont and Lombardy, and very low water levels observed in lakes that are unable to support the river (Autorità di Bacino Distrettuale del Fiume Po, 2022a,b);
- the fires that affected Spain and Portugal. In particular, as of July 2022, fires in Spain have caused the destruction of 70,000 hectares, almost double the average of the last decade. In July alone, the Spanish authorities had to manage 11 major fires, which, as in the case above, represent two times the average for the period of the last 10 years (Gobierno de España, 2022).

It is possible to consider a large number of indicators that show how climate is currently changing in order to better understand the overall picture without having to look at individual events that may or may not be statistically relevant, although useful in order to give context to the problem. The line plot of the average yearly temperature anomalies with data gathered by NASA is presented

below (see Figure 1) for this purpose (GISTEMP Team, 2022; Lenssen et al., 2019). In particular, the data provides the estimate of the global surface temperature change through the combination of Land-Surface Air and Sea-Surface Water Temperature Anomalies. In this plot, it is taken as a base line the mean value of the temperatures from 1951 to 1980. The graph itself clearly shows the current trend; in fact, there has been a dramatic rise in temperature anomalies starting just before 1980, which has so far resulted in an increase of about 1° Celsius. Although there were positive trends prior to 1980, they were not as significant as the present one, and it is important to note, as well, how consistent and prolonged the current curve is in comparison to the earlier ones.



Source: own elaborations from <https://go.nasa.gov/3LNaiA7>

Figure 1: Average annual temperature anomalies from 1880 to 2021.

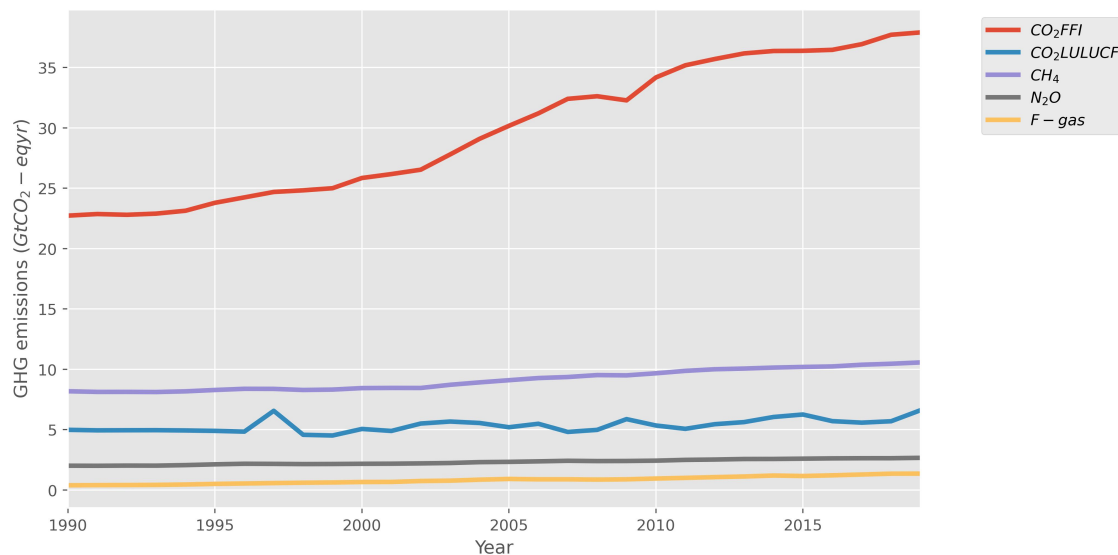
As previously indicated, there has been a noticeable increase in temperatures, so, now the earth is about 1° Celsius warmer than it was at the end of the nineteenth century, with the last decade that has been the warmest of all. Consequences of these changes will result in warmer seasons causing greater water scarcity, significant fires, sea-level rise, melting of ice at the poles, and more frequent weather-destructive events, causing increasing destruction to the detriment of affected populations (European Commission, 2022).

To look at the origins of climate change the topic will now shift the focus to one of the most important publications from international organisations working on this issue, in particular, the one provided by the United Nations along

with IPCC¹ who regularly publish detailed analyses, as the recent climate report called “Climate Change 2022: Mitigation of Climate Change” (P.R. et al., 2022). It is abundantly clear from this paper and other reports they have provided that human activity is primarily responsible for the rapid emergence of these anomalies. In fact, since the nineteenth century, human activity has been the main driver of climate change, especially as a result of the burning of fossil fuels like coal, oil, and gas. The plot shown below (see Figure 2) offers one indication of how emissions, classified by group of gases, have increased over the past decades, continuing a trend that started in 1850 and that has led thus far to enormous levels of pollution, despite recent efforts to slow the rate of growth. This plot uses as reference GHG emissions, which are a common unit that represents a series of many greenhouse gases such as emissions from the traditional road transport system, the industrial sector, and heating, as well as from other factors such as clearing land and forests, or indiscriminate construction that could aggravate existing hydro-logical situations while also generating new emissions. As seen in the plot, fossil fuels (CO_2FFI) are the primary contributors to this continuous rise, with their share increasing from 59% in 1990 to 64% in 2019, while other elements’ percentages have stayed largely stable. The remaining gases considered are $CO_2LULUCF$, which represents emissions from land use, CH_4 , which represents methane, and $F - gas$, which are potent greenhouse gases utilized in a variety of industrial applications and have an impact on global warming up to 25000 times larger than carbon dioxide (European Commission, 2015).

Therefore, It is essential the adoption of policies that should encourage a major increase in the use of cleaner energy sources and greener approaches in order to limit global warming. It is possible to observe that, individuals, corporations, and public institutions in several countries are pushing themselves to reduce emissions as a result of increasing the amount of energy production covered by renewable sources or improved behaviour in terms of savings and efficiency. This represents a critical aspect, indeed, if states really want to achieve the goal of net zero emissions, which means limiting greenhouse gas emissions to as close to zero as possible in order to mitigate the effect of global warming, as stated in the Paris Agreement, the individual governments must keep putting up greater efforts to pursue this course of action (United Nations Framework Convention on Climate Change (UNFCCC), 2015). In this regard, it is important and relevant to keep in mind the responsibility of western nations,

¹The Intergovernmental Panel on Climate Change (IPCC) is the United Nations body for assessing the science related to climate change. The objective of the IPCC is to provide governments at all levels with scientific information that they may use to develop climate policies (Intergovernmental Panel on Climate Change (IPCC), 2022).



Source: own elaborations from <https://bit.ly/ipcc-database>

Figure 2: Global net anthropogenic emissions over 1990-2019 by group of gases. Inside the plot GHG emissions estimates are converted to CO_2 -equivalents based on Global Warming Potentials with a 100-year time horizon. The Global Warming Potential (GWP) allow the comparisons of the global warming impacts of different gases. Specifically, it is a measure of how much energy the emissions of 1 ton of a gas will absorb over a given period of time. The larger the GWP, the more that a given gas warms the Earth compared to CO_2 over that time period (United States Environmental Protection Agency, 2022b).

the richest on the planet, to take action in limiting the worst effects of climate change, as less developed nations, those who contributed less to the current situation when considering cumulative emissions, will be most directly affected by the increase in temperature above 1.5° Celsius (King and Harrington, 2018).

The previously stated topics have been useful in providing context about the general situation that characterizes and will increasingly characterize all states with respect climate change, a topic that has now become central to the political and economic landscapes of numerous countries. The following essay will concentrate especially on how climate change is viewed and perceived within the nations under consideration, paying particular attention to how political orientation is associated with support for specific climate change beliefs, attitudes and policies. Since public attitudes and behaviours are important drivers of policy change in democracies, and, political parties transmit these values at institutional levels, they have the power to influence both the actions and inaction of governments on the problem of climate change (Anderson, Böhmelt, and Ward, 2017; Schaffer, Oehl, and Bernauer, 2022). However, various factors other than political will be considered, such as individual-level determinants, contextual factors, as well as the influence of social trust, norms,

participation, geographical factors, and certainly climate change variables including attitudes, perceptions, policy and energy preferences. The selection of this particular topic is motivated by the fact that national and international political debates on climate change are becoming more polarized, in the midst of a period of growing political division, with some parties generally associated with scepticism about climate change and specific positions on climate-related policies, and others more concerned about future effects from environmental change. Therefore, this paper will attempt to determine, as well, whether there are notable differences within the European region and between Europe and other countries in the world (US, Canada and Australia).

Chapter 1

Literature review

1.1 Introduction

This section will focus on the findings of prior research that focused on climate change related topics in order to comprehend the impact and significance of political influence on various countries.

There has been an increase in interest in climate change in recent years, and numerous studies have been conducted to try to understand the relationships between it and other factors. Over time, this has resulted in a sizeable empirical literature examining this issue from a variety of perspectives. Despite the fact that there is still much to learn, social science researchers have already identified a number of critical factors that affect people's willingness to take action on climate change. One of the most crucial factors to take into account is how political influence is linked with beliefs, attitudes, and policy preferences regarding this specific issue.

Although political influence is a significant factor, for instance, in determining whether a carbon tax or an expansion of funds for renewable energies is accepted or rejected, as will be apparent from the papers cited in this section, other factors, such as social, demographic, economic, and contextual factors, need to be considered.

Why is it important this type of research? Mainly because climate change is becoming a pressing global issue, and it is crucial to understand why some people are more likely to address it than others. However, this essay will primarily focus its efforts on understanding how political factors may play a role in this regard, looking at its general impact within the European region, and highlighting differences or similarities with respect countries described along this chapter.

1.2 The role of political influence across countries

In various research and surveys, political effect has been utilized and described as a main feature. As a result, this section will now concentrate on this, starting with the United States due to the abundance of data available regarding this country, that will be thoroughly analysed to highlight the significance of politics in determining the course of climatic policies and its polarisation (McCright et al., 2016)². Following this country, other developed economies in which has been conducted significant research on the subject will be taken into consideration to further extend the topic.

Why starting from the US? In addition to the extensive data and research, the United States is an important country to explore when assessing the role of politics in climate change, as it is one of the world's largest emitters of greenhouse gases. However, this is not the only significant characteristic. Indeed, in the United States, polarization on the issue of climate change has reached extremely high levels; it is one of the most notable examples of how politics has influenced climate policy and vice versa. Moreover, the US will be used as a case study to show the connections between politics and climate change, therefore more time will be spent on it compared to other nations.

1.2.1 United States

As mentioned above, the focus of many studies and surveys has been the United States. Due to this emphasis, the chapter will make use of the fact that it allows for more consistent results. The essay divides this portion essentially into two pieces; the first one will focus on the surveys that were collected in the last 20 to 30 years, leading so to a descriptive and more general analysis; the second will concentrate on the empirical analysis that have been conducted thus far, focusing more on connections between political influence and climate related topics.

After having described the structure of this document's portion, before examining US' unique facts and contemporary trends related to climate change and political orientation, it would be beneficial to explore historical political traits as a sort of preamble before discussing results coming from past studies.

²In 2016, three-quarters of the 140 studies they looked at were solely based on the United States, with the remaining studies focusing more on other English-speaking countries while very few papers considered cross-country analysis.

Historical political division on climate change

Until a few decades ago, support for pro-environmental legislative policies in the United States was seen openly and without polarization. This issue was seen as non-partisan, without particular political affiliation. However, by analysing the actions taken by subsequent presidents, it is perceivable how it has become polarised over time.

For example, Theodore Roosevelt's interventions with the creation of national parks helped to establish support for the environment. And Delano Roosevelt's inclusion of soil conservation policy within the "New Deal" helped to combat soil erosion and preserve natural resources (United States House of Representatives, 2022). After that, several political measures were enacted by the Nixon administration, such as the establishment of the national agency on environment, which helped to make the issue more relevant at the political level (United States Environmental Protection Agency, 2022a).

However, since Reagan's election, things have shifted significantly. Specifically, he saw environmental regulation as an impediment to economic development, and thus he tried to relax these regulations. In the years since, there have been many crucial moments, such as the Kyoto Protocol. This treaty aimed to cut the level of emissions, however, George W. Bush decided to reject it in favour of a largely voluntary approach to combating climate change, despite previous announced support by its predecessor Bill Clinton (Brewer, 2012). This decision created frictions within the American electorate and led to a growing political divide, with republicans typically showing less interest in climate change than democrats. Moreover, as the global understanding of the importance of environmental protection has grown, so too has the republican party's bitterness towards any efforts to address climate change. This is most clearly demonstrated by a coordinated anti-environmental movement, which aims to cast doubt on the validity of climate change as a problem; indeed, this movement was found to be closely linked with conservative organisations and republican politicians (Austin, 2002; Dunlap and McCright, 2000, 2003). The motives behind are clear: republicans are trying to protect their own interests. That is because, by denying the existence of climate change, they are able to avoid taking any action that might hurt their poll numbers or damage the economy. This could be seen of course as a cynical plan since this behaviour puts short-term goals of the party ahead of the long-term health of their country, highlighting strong connections between politicians and lobbyists around climate change.

In recent years, the gap between those who call themselves republicans and

democrats has widened considerably. This could be seen in several ways; for example, since the 2008 elections there has been a surge in climate denier activism and lobbying against climate legislation by the conservative movement and fossil fuel industry. In some cases, a majority of climate sceptics have occupied key positions on committees, accompanied as well by strong polarizing influences from the media, which plays a significant role in US politics (Dunlap and McCright, 2008, 2011; Germain, T., R. Koronowski, and J. Spross, 2022). Considering Obama's measures, there were problems in winning approval for his cap-and-trade proposal, indeed it never had the vote in the senate due to a lack of support among democrats and republicans. In particular, he tried to call for a policy that place mandatory limits on carbon dioxide emissions, with auctions that allow for the buying and selling of these emissions.

Donald Trump's victory in 2016 as the Republican nominee for president may be used to further describe the political environment around climate beliefs and actions. While it is true that many people who voted for Trump identified themselves as republicans, it is also fair to say that they voted for him because of his stances on certain issues. For example, Trump has repeatedly stated that he does not believe in climate change, and that he would pull the United States out of the Paris Agreement. This was clearly in contrast to Hillary Clinton, who repeatedly stated the opposite. In this regard, it is worth to mention that Trump additionally expressed his support for the coal industry, and resistance to environmental regulation within his presidential campaign (Bomberg, 2017). Further, as soon as he was elected president, all of Donald Trump's environmental beliefs were put into practice through political decisions made by his administration. This included the withdraw from the Paris Agreement and the cancellation of Barack Obama's Climate Action Plan, an instrument introduced to cut CO_2 emissions within the electricity sector (David Robinson, 2013; Dunlap and McCright, 2011). These decision polarised once again even more politics around climate change, with supporters of the Trump administration arguing that these decisions were necessary and are necessary to protect American jobs and businesses, and claiming that the Paris Agreement would have cost the US economy billions of dollars whereas critics argued that these decisions will have disastrous consequences for the environment and later also on the economy.

If the most recent president elected, Joe Biden, is taken into account, it is clearly visible a significant shift in the climate policy in the United States, as seen in previous administrations. In terms of the environment, one of Joe Biden's first actions as the new president was to rejoin the Paris Agreement and define a number of significant environmental goals, such as reducing green-

house gas emissions by 50-52% by 2030 compared to 2005, reaching carbon-free electricity by 2035, and creating a carbon-free society no later than 2050. These statements simply derive from the fact that environmental catastrophes cause harm that gets worse with each passing year; for example, last year, the United States had to deal with a number of extreme weather events that resulted in losses of more than 145 billion dollars. However, difficulties and delays in implementing these reforms persist. In fact, the new administration is particularly concerned about the absence of support from the republican party in this sensitive matter since the democratic party currently lacks the majority required to adopt extensive measures³ (Dan Lashof, 2022; The White House, 2021, 2022).

As this series of examples suggest, political leaders sent out a lot of signals to their electorate. As a result, republicans are less likely than democratic citizens to believe in climate change issues and support pro-environmental legislation; thus, voters are split between supporting the Republican Party, which has rigid ideas about climate change, or the Democratic Party, which has opposing views⁴.

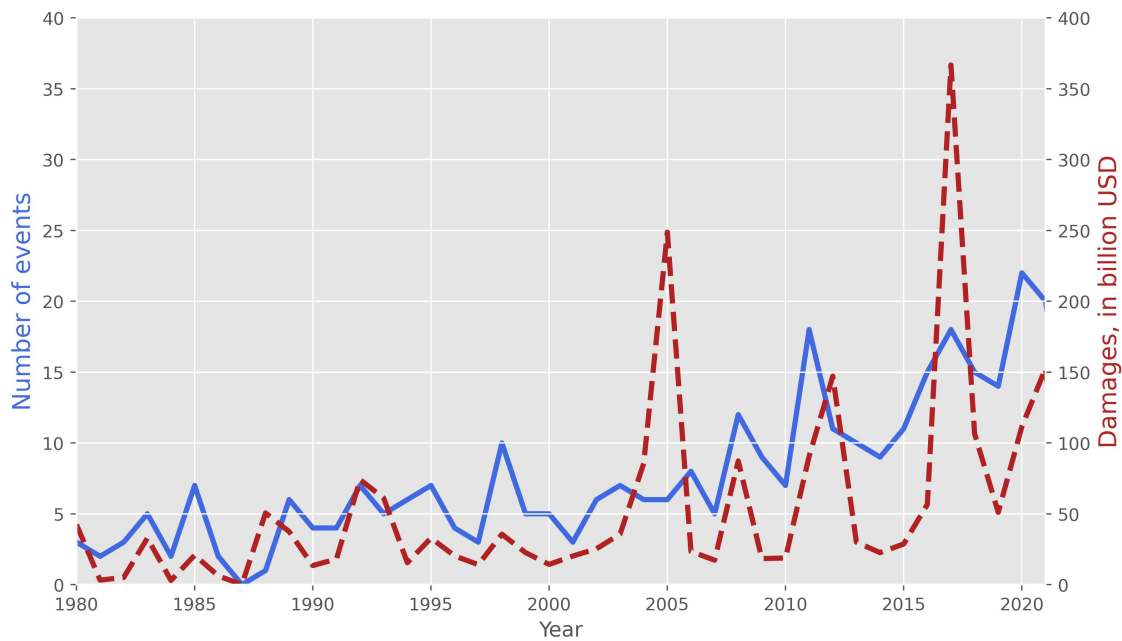
Therefore, it is clear that the issue of climate change has become increasingly controversial over time, leading to significant divisions within the American political landscape, as clearly demonstrated by constant shifts in environmental policies between opposite administrations. It is crucial to keep in mind that the issue of global warming was basically not-polarised until the moment at which the adoption of environmental restrictions started to be viewed simply as an economic constraint, in combination with the expansion of an increasing number of extreme events (see Figure 1.1). This has, however, resulted in significant disparities in perspectives between the two major parties as opposed to a single movement supporting politics in response to these events, for instance, in the Kyoto Protocol and then in the Paris Agreement.

Public opinion about climate change and related policies

Contrasts at party level should also be reflected among public opinions, which represent the main goal that it is going to be explored in this section, where are collected information from a report entitled “Climate Insights 2020: Surveying American Public Opinion on Climate Change and the Environment”, created using data from numerous surveys conducted over the years by a variety of spe-

³More precisely, the Democratic Party now holds a substantial majority in the House of Representatives, in contrast to the Congress, where every bill must receive the support of all party members in order to succeed.

⁴Due to their limited political weight within the US, independents' positions are not taken into account.



Source: own elaborations from <https://bit.ly/ncei-data>

Figure 1.1: Number of weather destructive events that occurred, along with damages, in the US between 1980 and 2021. The following events are considered in the count: drought, flooding, freeze, severe storm, tropical cyclone, wildfire and winter storm.

cialized organizations, including Gallup and the Pew Research Center (MacInnis and Krosnick, 2020).

Looking at results, when asked for the existence of global warming and the role of human activities, the gap between republicans and democrats is found to be quite significant. This difference started to increase till the beginning of the survey's recording, reaching then very high values in the subsequent years of measurement⁵. In relation to the first question, it was found that prior to 2000 the partisan gap was only the 8% on average, reaching the highest peak of 30% in 2011 after which it started to level-off. Even though this difference is still in place, is important to point out that the majority of democrats and republicans think the Earth is currently undergoing a climate transformation; however, it seems relevant to emphasize as well that public's opinions really started to move in different paths around 2005, indeed, democrats has begun to show a higher willingness in relation to the statement (94% in 2020) whereas in the other hand republicans a more conservative position (67% in 2020). In relation to the role of human activities, over the years more and more democrats have started to think that humans are responsible for the global warming (94% in

⁵Given that several questions utilize 1997 and 2020 as their starting and ending points for measurements, it is feasible to infer patterns in climate change over time.

2020), while a positive trend has not been found so far in the republican's side (69% in 2020), even though, the majority of them share the same belief.

A similar pattern, along with a similar gap, is replicated in several questions, since democrats are generally more concerned about the future consequences of climate change and who would like to see a higher commitment from the government, businesses and individuals toward this issue, such as reducing greenhouse gas emissions into the atmosphere.

Looking at policies, both sides generally support government efforts to increase energy production from renewables sources (91% democrats and 73% republicans in 2020) and to reduce carbon emissions from power plant (94% democrats and 64% republicans in 2020), but with key differences. In addition, majorities on both sides do not approve government efforts in increasing the amount of nuclear power plants (33% democrats and 44% republicans in 2020) while gasoline taxes are seen clearly better by democrats compared to republicans (65% democrats and 18% in 2020).

Going further, the seriousness of the situation is seen differently by these parties, with 43% of democrats thinking it is now a relevant personal issue while only 4% of republicans are of the same opinion, validating the disparities revealed in earlier questions, and pointing out how crucial the role of political orientation could be when looking at this particular and sensitive issue.

Accordingly, the majority of Americans believe that human activities and emissions are causing the Earth to change, representing one shared characteristic between political parties from which differences in views begin to be strong. In fact, as previously described, there are significant discrepancies along several concepts, as gaps shown among parties in almost all matters, highlighting how political influence appears to be at work.

Empirical studies

As mentioned earlier, various statistical analyses have been conducted using the United States as the primary source or even the sole subject. These analyses have been based on surveys or other datasets, trying to define the extent to which politics, along with other determinants, could play a significant role about various environmental issues and policies.

Findings from studies conducted on the United States in recent years and decades will be summarized in this section in an effort to dive deeper in the examination started before through the use of the survey analysis.

According to research by Aaron M. McCright in "The Social Bases of Climate Change Knowledge, Concern, and Policy Support in the Us General Public" (Mc-

Cright, 2008)⁶, political influence via ideology and party identification has an effect on understanding and concern about climate change. In particular, it was discovered that liberals and democrats exhibit more concern and hold more accurate ideas about timing (whether it has started or not) and cause (whether it depends on human activities or not) of global warming than conservatives and republicans. Instead, being in line with the identity of an environmental movement is the only characteristic in this study that happened to play a more significant role than political influence.

Looking at the control variables it was discovered that participants:

- with higher education express a higher belief about timing and less concern about climate change;
- with higher self-reported understanding express higher belief and concern;
- with higher income express higher belief about timing and less concern about climate change;
- that are older have a lower belief. However, this coefficient appears to be really close to zero meaning that is not particularly useful in explaining such kind of relationship;
- being non-white have a lower belief and a higher concern about climate change;
- being male leads either to a lower belief and concern about climate change;
- that identify themselves as being more religious express either a lower belief and concern about climate change;
- who live in urban areas express more concern about climate change⁷.

⁶The data being used within the paper comes from a Gallup survey poll that looked at environmental issues between 2001 and 2008.

⁷The findings just mentioned are supported by B. Dan Wood and Arnold Vedlitz which based their work on a 2004 survey (Wood and Vedlitz, 2007). In particular, they found that political ideology and party identification are significant in predicting global warming concern, with conservatives and republicans less worried compared to liberals and democrats. Other control variables were found to be not always uniform across models. Indeed, income was not significant, age was found to be not consistent across all the settings considered, being religious and whites were found to be linked with a lower concern, whereas a higher education was found to be associated with a lower concern. In addition, higher knowledge about the issue was found to strongly increase concern about global warming.

Further, a deeper analysis was conducted on political influence by considering the moderating role it may play; especially, it was given consideration to the combination of either party ideology⁸ and party identification⁹ with self-reported understanding and education. From this focus it was found that greater self-reported understanding translates into increased knowledge¹⁰ and concern for liberals and democrats, and decreased knowledge and concern for conservatives and republicans (it has an effect either political ideology and party affiliation)¹¹, whereas a greater education was linked with a higher concern for liberals and vice-versa for conservatives (it has a modest role only through political ideology) with an effect just on belief about cause of climate change. This means that those with more conservative political ideologies, and those that identified themselves as republicans are less likely to believe in climate change and that political orientation may play a role in determining how much someone understands and cares about climate change, not just directly, but also through the joint effect with other variables.

Findings of this study are supported by a later research conducted by Aaron M. McCright, Riley E. Dunlap, and Chenyang Xiao, on a 2006 and 2012 survey, which found that political ideology and party identification are significant and quite important features for all the dependent variables under consideration (global warming beliefs, support for government action on climate change, and perceived scientific agreement) directly and/or indirectly either in 2006 and 2012, whereas the control variables were in line with the description provided before (McCright, Dunlap, and Xiao, 2014). Relevant to the discussion started earlier, even here is observed an indirect effect provided by global warming beliefs on support for government through political ideology and party identification. In addition, political orientation has a direct effect as well on perceived scientific agreement, although not as powerful as for climate change beliefs¹². Another study used timing and seriousness of climate change as factors to test people's perceptions, eventually seeing that climate conditions do not represent a significant factor (Marquart-Pyatt et al., 2014). However, it is confirmed the importance of political ideology and party identification (see Table 1.1 to

⁸This variable is coded as a scale that goes from 1 (very conservative) to 5 (very liberal).

⁹This variable is coded as a scale that goes from 1 (republican) to 5 (democrat).

¹⁰It includes either belief about timing and cause of climate change.

¹¹These findings are supported by Ariel Malka, Jon A. Krosnick, and Gary Langer in "The Association of Knowledge with Concern About Global Warming: Trusted Information Sources Shape Public Thinking" (Malka, Krosnick, and Langer, 2009). Researchers based their findings on surveys conducted in 2006 and 2007, as well as on a panel survey from 1997-1998. They found that an increase in knowledge about climate change is generally associated with a small increase in concern among republicans.

¹²Further, this study found that republicans in 2012 were more sceptical about climate change compared to 2006 suggesting an increase of polarization.

look at the complete summary statistics).

Ind./Dep. variable	Belief about timing	Belief about cause	Concern
Education	+	N.S.	-
Understanding about CC	+	+	+
Income	+	N.S.	-
Age	-	-	N.S.
Non-white	-	-	+
Gender (male)	+	+	+
Religion	-	-	-
Urban area	N.S.	N.S.	+
Environmental movement	+	+	+
Political ideology	+	+	+
Party identification	+	+	+
Political ideology * Understanding	+	+	+
Party identification * Understanding	+	+	+
Political ideology * Education	N.S.	+	+
Party identification * Education	N.S.	+	N.S.

Table 1.1: Results from the first cited empirical study based on US regarding perception about climate change belief, cause and concern.

The initial report continues to analyse American public opinion while focusing on support for particular environmental policies, employing questions included in the survey. Participants were asked to express their support or opposition for or against the following four policy proposals:

- setting higher auto emissions standards;
- setting high emissions and pollution standards for business;
- spending more government money to develop solar and wind power;
- spending government money to develop alternative sources of auto fuels.

The first two proposals might be considered as broadening the scope of environmental legislation, whereas the last as increasing current investments in renewable energy sources. The challenges related to climate change that governments typically consider before acting are generally described by these climate policies (see Table 1.2 to look at the whole findings).

These proposals were analysed using previous response variables as features (belief about timing and cause as well as concern about climate change), and were found to be statistically significant along all the settings. Among the main results, those individuals expressing more accurate climate change beliefs and greater climate change concern more strongly support both increased

government regulations (the first two policies) and investments (the last two policies), compared to their counterparts.

In this setting, political identification has a smaller direct role, whereas political ideology is not relevant. However, these last features were found to be strongly affected by political influence within the first analysis, meaning that political ideology and political identification still play a role in determining the support for these environmental policies, even though it is mainly done through an indirect effect. Additionally, it supporting environmental causes increases support for policy proposals, whereas a greater understanding of climate change does not behave in a consistent way across all models. Considering remaining features, there is a general mixed effect, indeed:

- being non-white is linked with a lower support for these policies contrasting partially the previous situation in which being non-white was associated with a higher concern and a lower belief;
- gender has not a consistent effect along all the policies. Indeed, it is significant just for the first two (with a quite strong impact), with women that express a higher support compared to men;
- age is not consistent across models, and its effect is smaller compared to other variables;
- education is relevant just for the first policy, where a higher level is associated with a higher support;
- higher income is linked with a higher support for the first three policies contrasting the previous situation in which being richer was associated with a lower concern;
- religiosity and location are not significant across all the proposals.

It has been demonstrated how political orientation through ideology and identification in political parties has a significant impact. Moreover, political influence appears to manifest itself not only directly with regard to factors that affect climate change, whether it exists or not, the reasons behind its manifestation, or the concern with its effects, but also indirectly when the proposals that governments might decide to implement in order to contrast climate change are taken into consideration, which generally include a broadening of current environmental regulations or resources designated for investments in alternative energy sources.

Ind./Dep. variable	First policy	Second policy	Third policy	Fourth policy
Education	+	N.S.	+	N.S.
Understanding about CC	N.S.	-	+	N.S.
Income	+	+	+	N.S.
Age	N.S.	-	N.S.	-
Non-white	-	-	-	-
Gender (male)	-	-	N.S.	N.S.
Religion	N.S.	N.S.	N.S.	N.S.
Urban area	N.S.	N.S.	N.S.	N.S.
Environmental movement	+	+	+	N.S.
Political ideology	+	N.S.	N.S.	N.S.
Party identification	N.S.	+	N.S.	N.S.
Belief about timing	+	+	+	+
Belief about cause	+	+	+	+

Table 1.2: Results from the empirical study based on US regarding perception about climate change policies; specifically, higher auto emission standards, higher emissions and pollution standards for business, more funds to renewables and more funds to alternative fuels.

Therefore, based on the analyses previously mentioned, it is clear that political influence in the United States is relevant, confirming suggestions and facts connected with the historical political division on climate change and the multi-survey analysis.

1.2.2 Other western developed nations

Introduction

This section will expand on the effect of political influence taking into account other nations, with the use of empirical research, to clarify trends occurring in countries other than the United States. The data should not be utilized to draw definite conclusions because there aren't many evaluations that concentrate heavily on industrialized nations other than the US. However, additional research may be helpful to provide a more global context. Here, two English-speaking countries, Canada and Australia, will be further reported and analysed.

Australia

Similarly to US, in Australia political partisanship over climate change has been found to be quite strong, and, one of its causes may be found looking at its high dependency from fossil fuels on which this country bases several foundations of

its economy; indeed, looking at per-capita emissions Australia ranks among top emitters globally, as shown in the plot reported below (see Figure 1.2). Moreover, leaders, as seen in the US, communicate clearly with their electorates about the topic, since conservatives frequently use it to highlight the disparities between their party from the others and to polarise public's perceptions on them.

A study by Bruce Tranter, "The Great Divide: Political Candidate and Voter Polarization over Global Warming in Australia" (Tranter, 2013), focuses on several aspects, including party affiliation, using three surveys from 2010 and 2011.

Looking at surveys considered within the study, emerges that Australians put climate change among the top priorities for their country, validated as well by a recent survey on climate change (The Ipsos, 2022); however, interestingly, in Australia around just 50% think climate change is caused by human activities, and as seen in the case of United States large differences are observed when political parties are used to filter results. Indeed, large gaps are shown along several dimensions, as in the case of alternative sources (within the study), and when considering the measures adopted by the Federal government (within the more recent survey)¹³.

Similarities to US appear even looking at the results of the analysis performed; indeed, women, younger, those with a degree, and those that are self-identified on the left are associated with a higher concern regarding global warming compared to the coalition (conservatives). Moreover, an increase in knowledge leads toward a lower concern for conservatives, as shown in the previously cited papers focused on US.

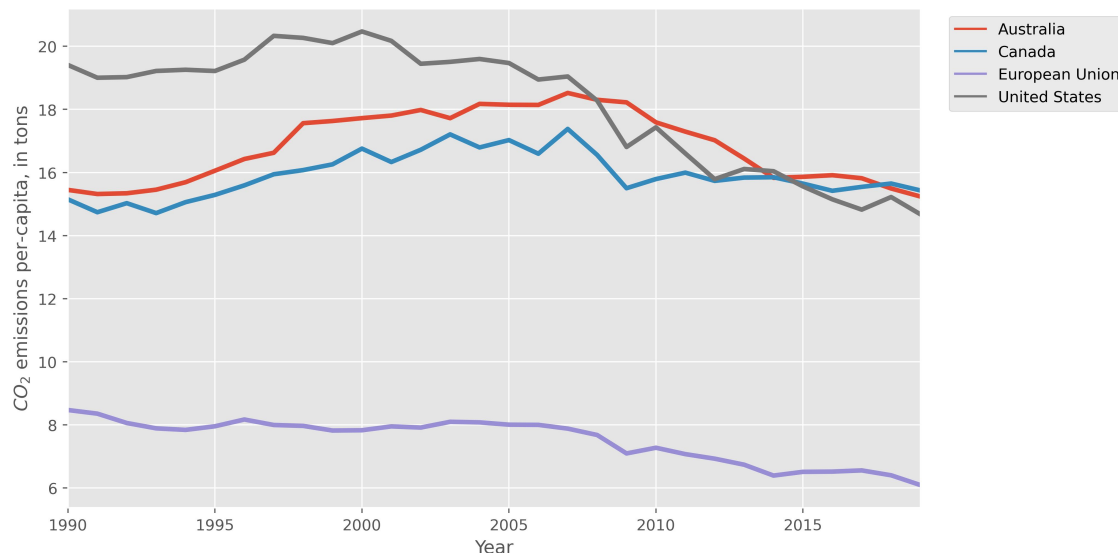
The study pointed as well on the perception toward specific policies regarding climate change, in particular, green energy sources, the implementation of a carbon tax and whether nuclear power is seen as a dangerous threat or not; from results emerges that social level determinant have mixed effect and are not always consistent across models. However, it appears important to note that people who reside in high-income cities are significantly more likely than persons who live elsewhere to support a carbon tax policy.

Moreover, the role played by political influence is significant, particularly, it reaffirms a strong partisanship within policies, since it was observed that conservatives are strongly opposed toward the implementation of all the previously mentioned approaches, especially when they are directly put in relation

¹³In 2022, nearly half of Australians believe that the Federal Government's existing climate change initiatives are insufficient. This is substantially influenced by underlying political party preferences, as would be expected, with those who have a preference for the ALP (leftist party) being significantly more critical regarding the policies of the current government.

to those identified as green supporters¹⁴. Among possible policies, carbon tax seems to increase largely the gap among political parties, since in this specific setting differences between conservatives on side and labour and greens on the other are quite huge.

As found in the study, and on surveys, these results may suggest an environment that is even more politically polarized compared to the US in climate related issues and confirm the role played by political predictors.



Source: own elaborations from <https://bit.ly/world-bank-database>

Figure 1.2: Annual CO_2 per-capita emissions from 1990 to 2019 considering US, European Union, Australia and Canada.

Canada

After looking at public's perceptions on climate change in Australia, this section will conclude by taking into account Canada, considering results coming from one study that based its efforts on this country (Lachapelle, Borick, and Rabe, 2012).

In particular, although there are regional variations, Canada could be seen as the opposite of Australia in that a very large majority of people believe that global warming is happening. However, in regions with high emissions (Canada is in line with US and Australia in term of average per-capita emissions as shown in Figure 1.2), belief is significantly lower than the national average, suggesting that there may be a connection between the amount of per-capita emissions at

¹⁴The distinction between this study and those that focused on US is that political party identification has a direct and significant impact on both attitudes and policies related to climate change.

the local level and the belief that climate change is not real¹⁵.

In this regard, it could be important to keep in mind that Canada, as the United States, is a decentralized federation, which could lead to variations in local regulations (thus, even laws concerning emissions) since local authorities are able to handle such issues. In Canada, this has actually resulted in the concentration of high emitter industries in certain regions, while other regions have shown to be ready to adopt restrictive environmental policies. This inverse relationship between belief and emissions may be caused by a variety of factors. For instance, residents of high-emission areas may be more sceptics of global warming because they perceive it as a significant obstacle or threat to their way of life as well as they may fear that stricter regulations will result in the loss of local jobs. Additionally, people in these regions could be more likely to believe in this way also because they may be influenced by industrial or political lobbyists against climate change actions.

In this regard, the report continues considering demographic variables and party affiliation, with results that seem to lead to the same pattern seen so far in other countries; indeed, republicans generally oppose the statement “From what you have read and heard, is there solid evidence that the average temperature on Earth has been getting warmer over the past four decades?” compared to democrats and greens.

Thus, it would appear that political orientation affects one’s attitude toward climate change in Canada, and may have even a stronger influence in areas with higher pollution levels.

1.2.3 European countries

Introduction

Perceptions of Europeans regarding climate change and related issues will be explored here, first through surveys and then through statistical analyses in order to assess the relevance of certain determinants to the challenges posed by climate change.

However, only a small number of empirical studies viewed Europe to be the primary subject; indeed, Europe is generally considered in cross-country analyses or international studies, and within these, it is frequently the case that only segments of the prior settings are examined. One of the goals of this essay is to investigate the role of political influence on climate change and specific policies that could be implemented to mitigate global warming. Consequently,

¹⁵This relationship seems to be not in place in the US

this methodology will be applied to empirical analyses, gathering studies that focused on these aspects.

Surveys

This section will look at the results of four polls that were conducted in European countries¹⁶. Specifically, the Eurobarometer on climate change (European Commission, 2021), the European Investment Bank survey on climate change (European Investment Bank, 2022), and the Peritia poll on public opinions on climate change (Peritia, 2022), as well as the general findings of the 2016 European Social Survey (Poortinga et al., 2018) will be analysed.

Some of the discrepancies in the findings should be attributed to the fact that the questions asked to participants in the various polls were framed in a variety of different ways. With this in mind, the fundamental figures will be employed to emphasize the perspectives and trends in Europe.

Specifically, the Eurobarometer is extremely informative because it allows to look at the evolution of several questions posed to respondents from 2011 to 2021¹⁷. The EIB survey was conducted in 2021 and permits comparisons with the United States and China¹⁸. The survey from Peritia is interesting since it focuses on a limited number of European nations, including Norway and the United Kingdom, which were not included within the surveys just mentioned. Finally, the general results of the 2016 ESS8 allow to expand the research either because it covers many European nations and contains a substantial part on climate change. In spite of these four surveys, none of them focus on political orientation¹⁹; however, empirical research will be of help in this regard later during next part.

Since this essay is going to be conducted on ESS8, it should be consistent to start from this survey²⁰ and then expanding the discussion using others.

¹⁶The aim of this paper is to analyse the trend in Europe, thus, also considering those countries that are not member of the European Union.

¹⁷Unfortunately, general trends prior to 2011 regarding Europe as a whole or European Union are not available on this specific topic.

¹⁸However, for the purpose of this part, only results from the EU will be mentioned.

¹⁹Only the Peritia survey has little information on the UK, whereas the 2016 ESS8 dataset would have allowed for this assessment but the report did not pay attention to this specific aspect.

²⁰Consequently, when not specified, the data taken into account will be exactly provided by the data drawn up on the basis of the study based on the ESS8. Moreover, the data used in this report about ESS8 were re-organized in order to ensure that they are entirely compatible with the results of the statistical analysis that are going to be produced. Specifically, the report takes into account all observations, without any specific recoding of the dimensions under consideration and applies the so-called “post-strat” weight to the data, whereas in this thesis, the weight suggested by the ESS8 itself (“anweight”) will be used in conjunction with a specific recoding of the variables (those observations defined as “missing values” by ESS8 are excluded). Regarding recoding, report’s structure serves as a guideline.

The first criteria to analyse are those associated with the reality of climate change, its causes, its effects, and the overall level of worry. As depicted in Figure 1.3, it is possible to emphasize regional variances throughout Europe. Specifically, the 96% of Europeans agree that global climate is changing. However, the data reveals that four of the eight countries below the average are located in Eastern Europe (there are seven Eastern European countries in total, of which two are in line with the European average and only one shows a higher value).

This should imply that the majority of European countries recognize climate change as an issue, and as expected, the human cause is taken into account as the major one (98%). Similar findings appeared here too, since countries observed to be under the average belong to Eastern Europe. In Peritia's survey, only those who viewed human activity as the primary source are mentioned, whereas in the ESS8 general results those who viewed human activity as playing at least some part are also considered. In particular, the average value within Peritia's survey stands at 74%, still quite high considering what is included, and among the countries mentioned, a noticeably low value could be seen when looking at Norway. The results just reported suggest that a large proportion of Europeans attribute climate change events to human activity.

Moreover, while the vast majority of Europeans agree that the world's climate is changing and that it is driven by human activity, the number of respondents in different nations who feel that climate change will have negative implications is considerably lower, indeed, the mean is found to be at 72% with a great variation compared to previous dimensions (7.2% vs 1% found previously), indicating the belief that future consequences will be not as bad as reported by the scientific consensus; as mentioned, here are present more variations since are observable averages around 60%, such as in the case of Estonia, Ireland, Netherlands and Russia. In addition, once again it is noticeable a major concentration in the lower bound of those countries that belong to East Europe (5 out of 7 are below the observed average).

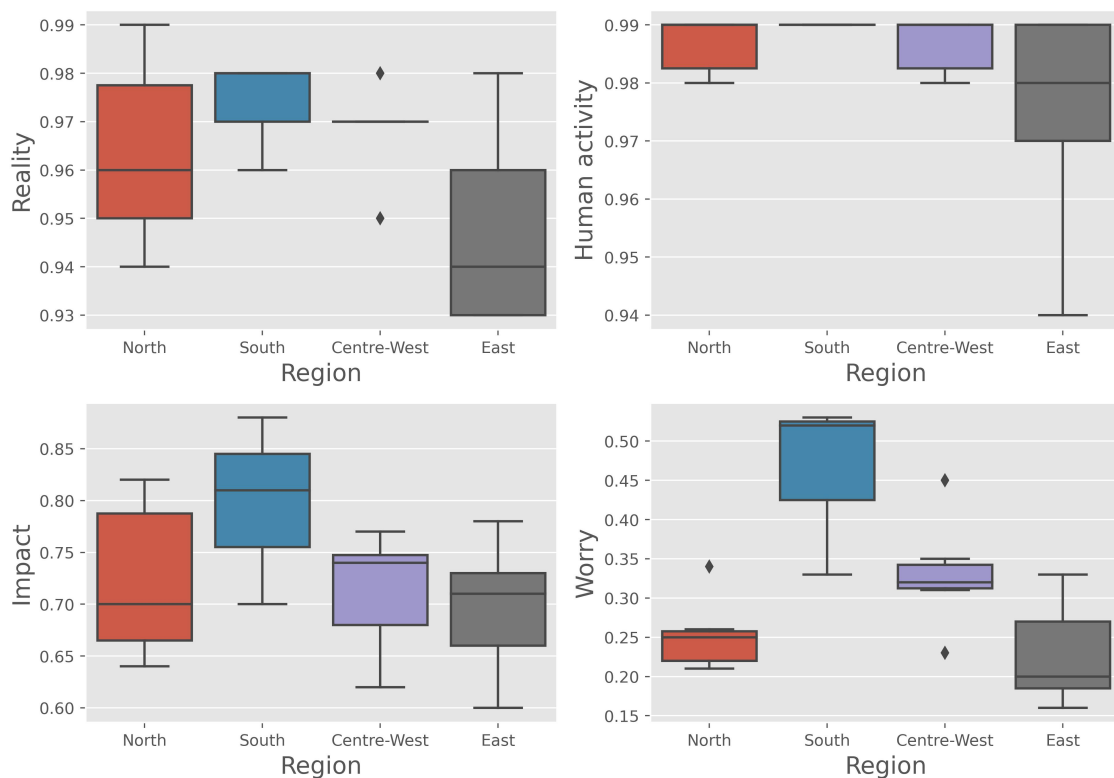
Before looking at perceptions regarding policies, another important dimension is available within the report. That is the one related to climate change concern, which is defined as an assessment of the seriousness of the impacts of climate change and it should reflect a personal relevance, preoccupation, and feelings of worry regarding the issue of climate change. Specifically, the mean is at the level of 20%, which could be seen as quite a modest level, even though it takes into account only those very or extremely concerned. Here, only countries that belong to Southern Europe appear to be concerned whereas other regions settle on quite lower values. The general result is supported by

a question posed by the EIB, which might be viewed as a proxy for the one just cited since respondents were asked what are the most important issues affecting European citizens in 2022, and it was discovered that the 39% cited climate change as the main problem affecting them directly (there were observed lower levels among Eastern countries), whereas in the Eurobarometer, respondents were asked two different questions about their perception of climate change, precisely whether they believe it to be the world's most important problem and how severe they believe it to be (which could be seen as a proxy of climate change impact). In the first question, only the 18% of respondents considered climate change to be the most important issue to be addressed globally (as found within EIB even here a lower level is observed among Eastern European countries), whereas in the second question, the trend over the past few years is also available, and based on it, it seems Europeans are quite concerned about the impact of climate change, as the percentage of those who felt this way increased consistently from 68% in 2011 to 78% in 2021. A similar finding is found within Peritia's survey, where on average the 62% think climate change is currently having an impact or will have an impact in the next few years in their own country, whereas the percentage reaches the 64% looking at the personal level (these findings appear to confirm previously observed values regarding the impact of climate change).

Despite widespread knowledge regarding the existence and causes of climate change, it appears that worry about climate change itself is within a range that goes from modest to low, based on the available data. This may be related to the fact that impacts of global warming are not taken into account, at least as emphasized in scientific reports, which result then in a lower level of concern.

Regarding energy preferences and policies, there is a definite preference for non-fossil energy sources (see Figure 1.4) such as solar (78.5%), wind (75%), hydro (70%), and biomass (47%), while coal (8%), nuclear power plants (15%) and natural gas (23%) receive a lower support. There are also substantial disparities across European nations in this regard (see Figures A.1, A.2, A.3, A.4, A.5, A.6 and A.7 within Appendix to get a detailed picture). In fact, coal, natural gas and nuclear power are more popular in Eastern European nations, whereas a higher support is found in Centre-West and Northern Europe with respect renewables.

The European Investment Bank (EIB) conducted a survey in which they specifically questioned, "In order to combat the climate catastrophe, which source of energy do you believe your country should rely on the most?". This survey confirms there is widespread support for renewable energy, indeed, it was found that in 2021, 63% of Europeans believe that renewable should be the



Source: own elaborations from <https://bit.ly/eu-energy-preferences>

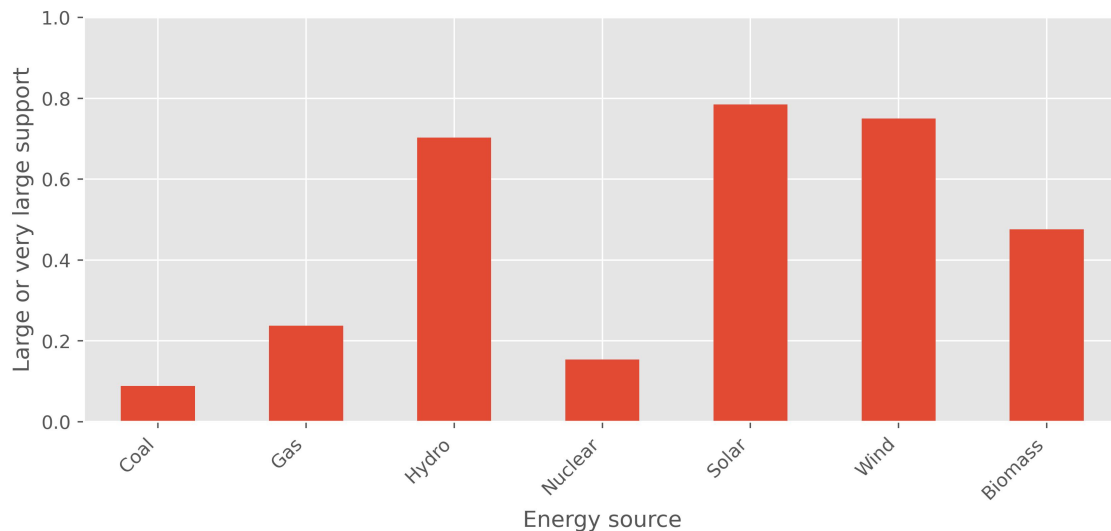
Figure 1.3: Using data from ESS8's general results, this graph examines the European opinion, across regions, of climate change along four dimensions: reality, causes, future impact and worry.

energy source that their government should rely on the most, with countries facing the Mediterranean being the most likely to do so. In contrast to earlier findings, nuclear is found to be in the middle between alternative sources and gas. Therefore, it appears that Europeans favour renewable energies and are generally opposed to fossil fuels.

It is now necessary to assess response to specific environmental policies. So, in order to assess people's preferences for different types of environmental policies to reduce climate change, it is possible to look at three questions that were included within the questionnaire regarding the extent to which respondents are in favour or against:

- preferences to increase fossil fuel taxes;
- preferences to subsidise renewable energy sources;
- preferences to ban least energy-efficient appliances.

Regarding the first policy (see Figure 1.5), thus, the preference to increase fossil fuel taxes, there is a clear lack of support (35.5%). In contrast, a huge



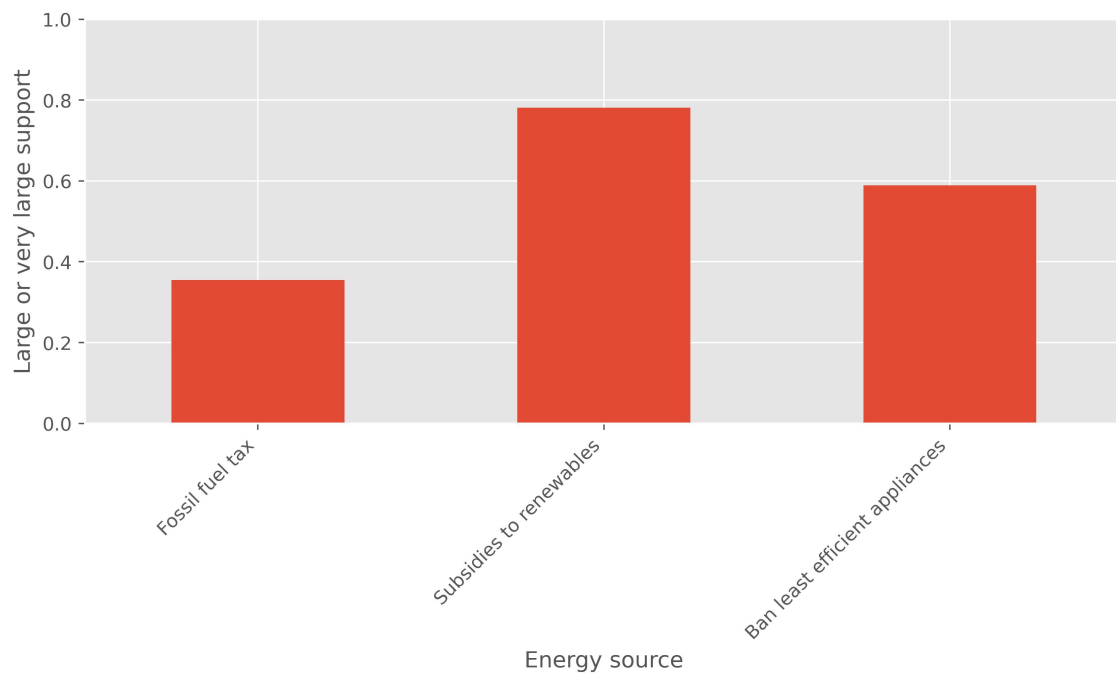
Source: own elaborations from <https://bit.ly/eu-energy-preferences>

Figure 1.4: Using data from ESS8's general results, this graph examines the European opinion regarding different type of energy sources.

majority of Europeans support subsidies for green energy sources, with three-quarters in favour (78%). With respect the third policy, more than half of the European population supports a ban on the sale of the least energy-efficient household appliances (58.9%).

Specifically, a tax on fossil fuels appears to be popular within Western European nations (North and Centre-West), especially the Nordic countries, but it has a majority just in Sweden (62%) and Finland (53%). As found in other dimensions, the support is lower within several Eastern European countries such as Poland (17%) and Russia (24%), as well as in certain southern European countries like Spain (28%) and Portugal (28%). Instead, there aren't strong regional differences regarding renewable energy subsidies whereas lower averages are found with respect ban on energy-inefficient appliances in Southern and Eastern European countries (see Figures A.8, A.9 and A.10 within the Appendix to check regional differences in more detail).

Compared to the first policy, significant differences were identified in another survey. Indeed, in Peritia's survey, roughly half of respondents believe governments should increase taxation of those fuels that damage the environment. Considering countries, 73% of Italians approve this policy (29% in ESS8), compared to 44% in Germany (39% in ESS8) and 39% in Norway (country not available in ESS8). Since Peritia's survey was done five years later, the difference just found in this dimension may lead to suggest that the support for



Source: own elaborations from <https://bit.ly/eu-energy-preferences>

Figure 1.5: This graphs show the average support for three different policies that are usually used by government to combat climate change. Specifically, policies that aim to increase fossil fuel taxes, subsidies to renewables or to ban those least-efficient appliances.

this type of instrument has increased over time²¹. Within the EIB, a proxy to the first two policies was posed as follows: “To what extent do you agree or disagree with each of the following statements? More public financial support should be given to the transition to clean energies even if it means subsidies to fossil fuels should be reduced”. With a consistent trend over time, slightly more than eight in ten Europeans (81% in 2021) feel that more public financial support should be given to clean energies even if it means reducing fossil fuel subsidies (Eastern nations account for six of the ten nations below the European average). The significant distinction between this question and the last two is that resources previously dedicated to fossil fuels would be just shifted to renewable energies without the need to increase taxes. This latter aspect may therefore account for this considerable support and may confirm findings within the original setting as described in the two preceding surveys, thus, this should suggest a moderate to low support for an environmental policy that raises taxes on fossil fuels.

Therefore, support for renewable energy sources is very broad, while sup-

²¹Due to the consideration of two distinct surveys, this assumption should be treated with caution since very few countries were considered within the Peritia’s survey. In addition, Italy could be defined as an outlier within Peritia’s survey.

port for more conventional sources of energy is considered to be lower, whereas some fluctuation is observed with respect gas and nuclear power. In contrast, when it comes to environmental measures, there is less support for a policy that raises taxes on fossil fuels, while the opposite approach, through the use of subsidies, is preferred for renewable sources. Even the ban of least efficient appliances receives widespread support, presumably because it does not directly influence the behaviour of European citizens or simply because it is perceived as a policy that could help combating climate change while also having the least negative impact on their daily lives.

These results confirm what has been observed, namely that Europeans are not yet fully willing to combat climate change with strict environmental policies, specifically when this means increase current taxes, even though it is generally seen as the most effective, whereas, adopting a slighter different approach seems to receive a higher support in this regard. However, It could also be the case that support for less restrictive environmental policies at this time may exacerbate the future European context resulting then in the implementation of even more stringent and expensive laws in order to really tackle climate change.

Although polls were extremely helpful to evaluate public's perception on climate change and possible environmental policies, they did not permit to draw specific conclusions regarding the role of political orientation in Europe; thus, empirical analyses that paid attention on this aspect are also necessary to further extend results.

Empirical studies

In an effort to continue the preceding section's emphasis on climate change and to analyse the impact of politics, this section will rely primarily on cross-country empirical research. However, relevant international studies or other country-specific empirical researches when available will be provided to either confirm or deny what is stated at the European level.

This section will be separated essentially into two subcategories; the first part will examine the determinants that lead to have a certain level of attention to climate change issues whereas the second part will examine the perceptions of the European population in relation to specific environmental policies, expanding on what the survey analysis reported earlier. Despite this, empirical research has so far, primarily concentrated on single years, making difficult to draw definitive conclusions and visualize the trend of the variables utilized over time, as instead was to some extent the case with the use of surveys.

The first article to be utilized is “Climate change attitudes and their individual-level determinants: A cross-European analysis” by Wouter Poortinga, Lorraine Whitmarsh, Linda Steg, Gisela Böhm, and Stephen Fisher (Poortinga et al., 2019). This study, based on ESS8, focuses on variables that may have an effect on the fundamental dynamics underlying climate change, specifically:

- is global warming occurring?
- is climate change a result of human activity?
- what consequences will climate change events have?
- how concerned are people about climate change?

Here, then, it is possible to examine what, at least in part, drives Europeans to hold various attitudes toward the aforementioned factors²². The following dependent variables were utilized to capture these dimensions:

- trend scepticism;
- attribution scepticism;
- perceived climate change impacts;
- climate change concern.

According to how these features were coded, the first variable highlights those who do not believe in climate change, the second focuses on human impact and highlights those who do not believe this has a significant impact, whereas the third and fourth represent perceptions regarding climate change’s consequences and concern. Keeping this in mind, the study employs certain indices and variables pertaining to the aforementioned issues. Specifically, those of our interest are:

- political orientation, particularly, right versus left;
- gender, male versus female;
- age;
- educational level.

²²The analysis verifies prior findings through a descriptive analysis, namely that the vast majority of Europeans believe that climate change is occurring and is at least partially caused by human activity, as highlighted in the previous section.

Similarly to what is observed in previously cited empirical studies, these factors capture the respondent's political inclination toward the right, their gender, their age, and their level of education, respectively.

Looking at the variable receiving the greatest attention, namely the influence of political orientation, it is not analysed in detail in this study as was the case within the empirical research that focused on US; in fact, either identification with political parties and environmental values (or green parties) are not mentioned. However, this paper is beneficial to improve our context.

The research confirmed predictors are useful in almost all models to explain, at least to some extent, the explored aspects of climate change. The most noteworthy findings obtained through a general cross-country analysis, are the following:

- as in the United States, identifying with the right sphere appears to be associated with particular traits. For instance, data indicate an increase in scepticism, as well a greater concern about the effects of climate events but a lower concern about climate change itself. In this analysis, it appears to be a very useful variable to explain these attitudes, since it is significant and generally consistent with previous expectations;
- other control variables are statistically significant in all settings examined, and are similar to those observed within the US. Specifically, men are far more sceptical, perceive fewer dangers, and express less concern over climate change. Regarding scepticism, the same tendency is evident, but less strongly, among older individuals, whereas the influence of negative events is felt more heavily. Lastly, results show that knowledge decreases scepticism, but leads to a less severe impression of the impacts of climate change, while concern remains essentially unchanged.

Ind./Dep. variable	T. scepticism	A. scepticism	Perceived CC impacts	CC concern
Age	+	+	+	-
Gender	+	+	-	-
Education	-	-	-	+
Right-wing ideology	+	+	+	-

Table 1.3: Principal findings from the empirical studies concerning perception about climate change fundamental dimensions.

Having summarized these data (see as well Table 1.3), it appears that political orientation along with control variables is indeed useful to explain a portion of the European public's attitude towards some aspects of climate change. In particular, certain effects are similar to those observed in the past, such as

political orientation and degree of education, whereas control variables in this study were found to be significant and to some extent useful to clarify specific views (at a European level) unlike in earlier studies.

Specifically, the study demonstrates that those with a low level of education and those with a right-wing political orientation are more likely to perceive climate change differently, i.e., to hold sceptical views, perceive fewer negative impacts, and be less concerned about climate change²³.

Although the significance of political orientation has not been explored as fully as in previous studies, it is obvious from these results that it influences Europeans' perceptions.

In the final segment of this section, two distinct and recent studies based on ESS8 examining the influence of political predictors on the acceptance of proposals to increase taxes on fossil fuels will be examined. As a matter of fact, they decided to focus on a single policy, likely because it is the one that dominates discussions around policies to be implemented to reduce emissions. Specifically, the articles considered here are "Political trust and the relationship between climate change beliefs and support for fossil fuel taxes: Evidence from a survey of 23 European countries" by Malcolm Fairbrother, Ingemar Johansson Sevää and Joakim Kulin (Fairbrother, Johansson Sevää, and Kulin, 2019) and "Nationalist ideology, right-wing populism, and public views about climate change in Europe" by Joakim Kulin, Ingemar Johansson Sevää and Riley E. Dunlap (Kulin, Sevää, and Dunlap, 2021).

In addition, these two publications are extremely useful not only because they explored perception regarding a specific climate policy in Europe but also because they allow for the expansion of the role of political orientation and, more generally, political variables by considering a larger set of factors as opposed to the standard left-right political scale or party identification. Since these particular independent variables were not utilized in prior readings, it is useful to explain why they are being used in this context and what outcomes are expected from a theoretical point of view.

As indicated by surveys, the implementation of a tax on fossil fuels is not among the policies that enjoy widespread public support; however, it is one of the tools that governments may decide to use, and one of the tools that may be

²³Similar results are observed by a study that focused on the United Kingdom (Huber, 2020), which found that political orientation has indeed an effect on the fundamental perceptions regarding climate change, and by a research that look at French attitudes toward climate change (Douenne and Fabre, 2020), which found political orientations variables to be strong predictors. A particular result was observed within an international study (Smith, Kim, and Son, 2017), that used 2010 data from The International Social Survey Programme (ISSP) which observed that Ex-socialist countries are less prone to consider climate change has the most important issue compared with non Ex-socialist countries.

used in order to begin truly tackling climate change, despite, it may cause economic disruptions since it would directly impact the ability to pollute through consumption. Therefore, it is possible to expect from the economic impact to be the most significant and negative factor in a possible rejection of this type of legislation, but not the only one (here, the economic impact does not represent the main point in this discussion). Indeed, among those who reject this form of policy, it is conceivable to find people who simply reject climate change, and as a result, they would not wish a government involvement toward this direction. However, as previously discovered, the vast majority of Europeans believe that climate change is occurring; therefore, climate deniers should play a minor role here, but it is possible to expect a negative relationship. Another determinant could be trust, particularly trust in the political system; thus, trust on those who will be in charge of determining the design of such a policy, which could take several different forms, for instance, an increase of taxes on polluters, a reduction of the incentives to use damaging technologies, a mixed tool through a redistributive tax that lead toward an increase in the level of green sources and green technologies and conversely a reduction of pollution, as well as many other possible solutions as the cap-and-trade system cited within the US's section. Therefore, it could be assumed that indeed whoever is able to put its political influence onto these policies could determine whether or not this kind of tool could be or not could be successful, thus, it is essential to have confidence in people who are able to make decisions that could have a direct impact on one's way of life through the implementation of this mechanism.

This leads to the conclusion that a person's level of trust in the political system (considered as a whole, from the individual politician to the entire parliament and other political institutions) in which he or she resides should play a role in determining positive or negative support for this type of policy. These arguments arise from the fact that no one wants taxpayer money to be spent inefficiently; therefore, it is apparent that politics in this sense might considerably affect the rate of policy approval. This is concisely summarized in the first paper as follows:

"In sum, then, being concerned about climate change should be a necessary condition for believing in the merits of such a tax, but it may not be sufficient."

The second predictor, which might be seen as an extension of the right-left scale, measures nationalism. Specifically, this variable examines the influence of those parties, primarily right-wing parties and in Western European countries, who emphasize what is defined as a nationalist ideology or, maybe more accurately, what is known as "neo-nationalism", a phenomena that has been

expanding throughout Europe during the last two decades.

Precisely, for “neo-nationalism” it is intended a party or movement that either supports nationalist themes and goes against globalist policies or international treaties. Among the policies advocated by nationalist parties, for instance, the majority tend to conserve and prioritize their own culture over foreign cultures and influences. This as a reflection is also conveyed and could have an effect on climate change policies, which, in order to be effective, require global coordination, thereby clashing with party ideologies that favour a national approach to problems that spill over into one’s own country. As a general behaviour, nationalism could be expected to reduce beliefs connected with climate change (thus, it may have an impact also on those who consider climate change to be real), especially either future consequences and concern, then consequently directly and/or indirectly policies to combat it.

After having discussed the introduction of two new types of predictors, here below are reported findings that refer specifically to research’s control variables (refer to Table 1.4):

- in both the first and second studies, age is found to be significant, but not a particularly effective predictor. Specifically, it is observed that the amount of support decreased;
- in the first and second studies, gender is found to be significant, but not a particularly effective predictor. Specifically, males are marginally more likely than females to have a lower degree of support;
- education is found to be a significant, and modest predictor either in the first and second study. Specifically, a higher level of education is associated with a higher level of support;
- income is a significant but not particularly useful predictor in the first study. Specifically, a larger income result in a greater level of support.

Consequently, results coming from the control variables are consistent across the two research and generally confirm what has been seen about the European countries. In light of that, the following represents key findings on the dimensions relevant to this topic:

- political trust is identified as a strong and critical factor in both the first and second studies. In particular, the greater the amount of political trust, the greater the level of support²⁴;

²⁴Political interest was also included in the first paper in order to capture disaffection with politics; however, despite being found to be significant, this predictor was not incredibly valuable in explaining the dependent variable.

- right-wing scale is found to be a significant, and important, predictor either in the first and the second study. Specifically, those that identify themselves in the right side of the scale are more likely to have a lower level of support;
- in either the first and second study, climate change is shown to be a significant and relevant predictor. Specifically, those who express a stronger belief regarding climate change (as an index in the first study and as individual predictors in the second) are associated with a higher degree of support;
- in the first study was further analysed the influence of political trust and climate change belief through an interaction term which was found to be significant, but with a small impact, that leads toward a stronger support for this policy;
- finally, nationalist ideology is found to be a significant, and important, predictor in the second study. Specifically, those that identify themselves with a nationalist ideology are more likely to have a lower level of support.

Ind./Dep. variable	Support for fossil fuel tax
Age	-
Gender	+
Education	+
Income	+
Political trust	+
Political trust * CC belief	+
Right-wing ideology	-
Nationalist ideology	-
Climate change belief	+

Table 1.4: Principal findings from the two empirical studies concerning support for a taxation policy on fossil fuels.

As reported, it seems clear once again how political predictors have an impact on policies; however, compared to US here political factors seem to be at work not only indirectly but either directly on policies (as seen in Australia), whereas in the case of US it was observed almost only an indirect role toward policies. Moreover, climate change dimensions have an impact on preference toward a fossil fuel taxation, thus, these results seem to suggest that political influence may have either a direct and an indirect role within the European set-

ting. However, in these studies wasn't at all or fully explored the role regarding basic climate change dimensions²⁵.

These studies in particular confirmed the significance and relevance in terms of strength of those predictors that were used also to analyse other countries, specifically, right-left scale and education, and to some extent also other control variables. In addition, these papers gave the opportunity to further investigate and extend the political role by considering other two potential important factor as trust in political institutions and nationalism, founding an extremely important role played by these variables and confirming as well that the standard right-left scale continue to play a role even in this context, meaning that these variable are useful to capture different traits.

Going further, it has been observed throughout this section on Europe, that indeed similarities exist with other countries when considering certain dynamics, as climate change and political factors, as well as other control variables, either with respect to basic dimensions and policies that could be implemented; even more importantly, this has applied not only within the survey, but also within the statistical analysis based on the results obtained to date. Despite these similarities, there are major differences between Europe and other countries, such as the United States, Australia, and Canada, in terms of some dimensions and the strength of specific predictors (even when looking at surveys), which in some instances result in different outcomes.

In spite of this, the focus on Europe has not been fully addressed through the use of detailed predictors for political factors (particularly related to climate change dimensions) nor by the inclusion of more possible policies. In particular, this last aspect may give other interesting insights, since only one type of policies was considered with respect the European region.

Consequently, the essay will now focus on expanding the previously discussed issues by giving more space to variables of interest via a broader analysis of ESS8.

²⁵Just the second paper considered some dimensions and, after having explored policies it found either a direct and indirect role through the use political predictors.

Chapter 2

Data explanation

The data used in this thesis, as previously mentioned, comes from the European Social Survey (ESS). This organisation collects data in so-called “waves” every two years through face-to-face interviews, with the aim of gathering information regarding specific attitudes, beliefs and behaviours within several European nations.

In this specific case, wave number 8 will be used, which, unlike the others conducted, contains a part on climate change. In particular, this module explicitly mentions questions concerning many attitudes, behaviours and preferences that refer to this issue. The reason behind the use of this specific wave derives essentially from the possibility of being able to conduct an in-depth analysis on the subject that is simply not possible using other waves.

Despite the fact that the dataset used is precisely from 2016, and therefore not very recent, I believe it could still be useful in 2022 to explore many dynamics related to climate change, and to verify certain patterns highlighted previously.

Within this wave a number of European countries are included, but since this thesis focuses on countries belonging to the European region I will exclude Israel from the list of nations considered within the analysis that will be carried out. Consequently, the countries analysed will be the following: Austria, Belgium, Switzerland, Czechia, Germany, Estonia, Spain, Finland, France, United Kingdom, Hungary, Ireland, Iceland, Italy, Lithuania, Netherlands, Norway, Poland, Portugal, Russian Federation, Sweden and Slovenia.

The original dataset contains a total of 44,387 observations, however, after removing all those values considered by ESS classification as missing values the final number of observation is found at 26,324. Moreover, the data is weighted according to the methodology suggested by ESS itself, in order to have either a sample that represents better respective countries and to avoid biased estimates, using “anweight” as the weighting variable within the analysis. See

Table 2.1 to look at the observations being used within the analysis grouped by country.

Country	Observations
Austria	1410
Belgium	1588
Czechia	1475
Estonia	1428
Finland	1653
France	1604
Germany	2405
Hungary	780
Iceland	554
Ireland	1553
Italy	1076
Lithuania	773
Netherlands	1219
Norway	1185
Poland	795
Portugal	863
Russian Federation	601
Slovenia	840
Spain	955
Sweden	1084
Switzerland	1088
United Kingdom	1395

Table 2.1: Frequency table of observations by country.

2.1 Independent variables

Now will be described the independent variables employed to carry out the analysis. These variables are essentially divided into two groups:

- control variables;
- political variables.

The next two sections will explain which variables were chosen to perform the analyses, what they capture and how they were coded.

2.1.1 Control variables

Control variables include the following: gender, age, years of education, presence of children at home, level of religiosity, level of comfortability based on current income, employed status, rural area, quality of air (PM2.5), regions, personal trust (index), self-transcendence (index), self-enhancement (index), openness to change (index) and conservation (index).

Starting with the first variable, gender, defined within the dataset as “gndr”, it is found that, after applying the weight as indicated in the introduction, is divided as follows:

- those identifying as male represents basically 52%;
- whereas females represent the remaining 48%.

This variable is coded as a dummy that is equal to 1 when the respondent wrote “male” within its questionnaires, while it is equal to 0 when the respondent answered “female”. All other possible values, as classified by the ESS, are considered missing and therefore removed from the dataset²⁶. Regarding the variable age, defined as “agea” within the dataset, the average is observed around 46 (see Table 2.1 to look at this dimension). As it shown here below, the majority of those that participated within the survey are essentially related to two main categories, adults and elderly.

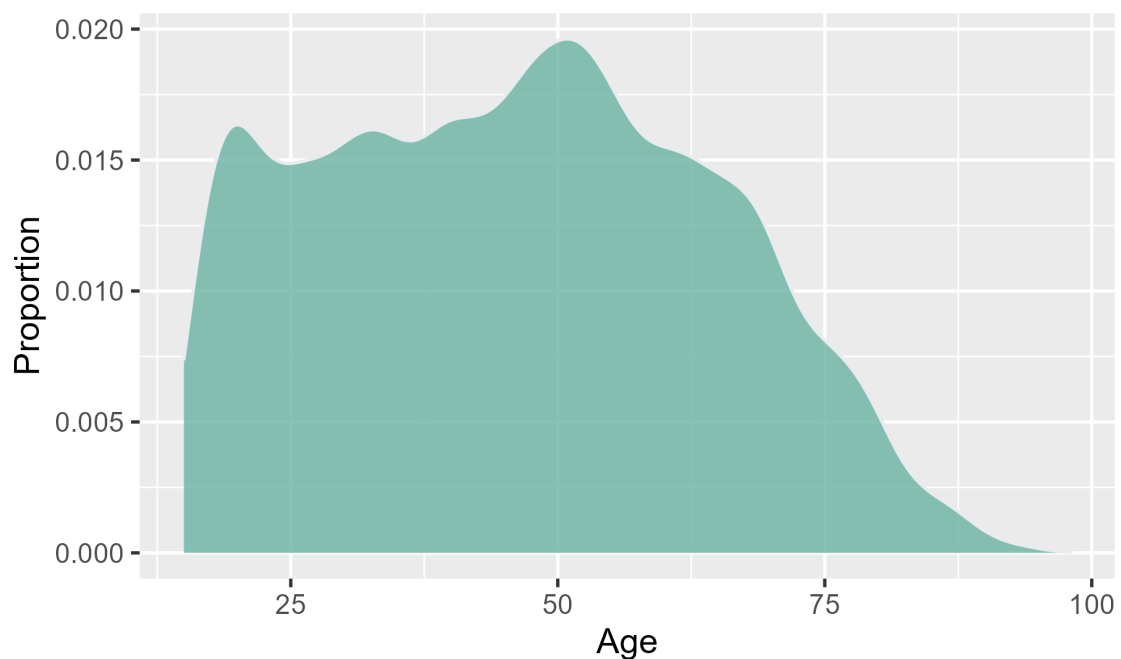


Figure 2.1: Distribution of the sample being used according to age.

²⁶This method applies to all variables being used in the analysis.

The variable called “eduyrs” captures the information regarding the number of years the respondent did in relation to the years of education. This variable was found to be relevant in previous study so, that is why it will receive specific attention in the next chapter. Here below (see Table 2.2), it is shown the distribution within the dataset. It shows that an average participant did approximately 13 years of education till the moment of the interview. This variable does not receive any particular codification, indeed, it is being used as it was originally intended.

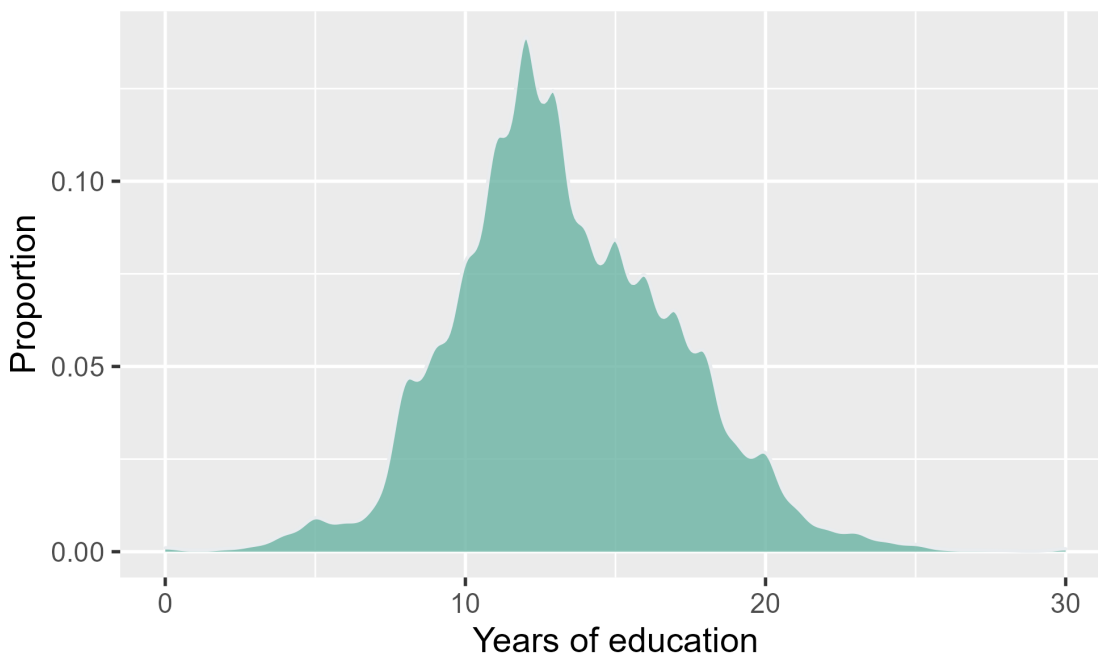


Figure 2.2: Distribution of the sample being used by years of education. Because of the small number of observations, the distribution is truncated after 30 years.

The presence of children at home is used as an additional control variable, it is captured through “chldhm” and is coded as a dummy variable where 1 is associated with the presence of children at home and 0 when they are not (thus, those that had children in the past are classified as 0). This variable is used as just explained and will not be given much relevance (36% have at least one children at home).

Other relatively more useful and interesting variables (non-index) include level of religiosity, level of comfortability according to current income, employment status, air quality (PM2.5), area of residence and regions.

Specifically, the level of religiosity is captured through “rlgdgr” and it originally ranged from 0 (not at all religious) to 10 (very religious). It is re-arranged as a dummy variable where 1 is used to identify those that expressed a very

high level of religiosity (≥ 7) within the questionnaires. The mean value for this specific variable was found to be at 17%, meaning that only about a quarter of Europeans express at least high level of religiosity.

Level of comfortability tries to capture how the respondent currently feels about its household's income, through "hincfel". This variable was originally defined as a categorical variable that goes from 1 (living comfortably on present income) to 4 (very difficult on present income), however, this is re-coded as a dummy variable that divides those who are living in good economic conditions (as 1) from those who do not live comfortably or have difficulties (as 0). The mean value was found to be at the level of 36%, meaning that only above a quarter of Europeans replied to this specific question saying they are currently living in a comfortable way.

In order to capture the respondents' current employment status, it is being used a variable provided by ESS called "mnactic" which categorises several possible conditions, among these are:

- paid work (coded as 1);
- education (coded as 2);
- unemployed, looking for job (coded as 3);
- unemployed, not looking for job (coded as 4);
- permanently sick or disabled (coded as 5);
- retired (coded as 6);
- community or military service (coded as 7);
- housework, looking after children, others (coded as 8);
- other (coded as 9).

In order to collect information only on those who work as an employee, entrepreneur or in a similar work activity, it is created a dummy variable called "employed status" with value 1 when "mnactic" has value 1 and value 0 otherwise. In this way, the percentage of respondents defined as employed within the dataset amounts to approximately 56%.

The next three variable are used to capture differences at the local and regional level. Specifically, these are:

- quality of air (PM2.5²⁷);
- rural area;
- regions.

The first variable is added to the main dataset as a consequence of a specific finding explored within Section 1.2.2. In particular, this data comes from OECD statistics regarding the quality of air recorded in 2016 within all the European regions being explored (OECD.Stat, 2022b). It is included in this analysis as a proxy of the level of emissions registered in every region. This variable goes essentially from 0, although, the minimum record was found at the level of 9.503 in Eastern Switzerland (Switzerland) till the maximum of 987.652 registered in North West England (United Kingdom).

The second variable attempts to divide those living in or near large cities from those living in rural areas. To capture this effect, a dummy variable named “rural area” was created with value 1 when the reference variable “domicil” within ESS has a value of 4 or 5, representing a rural resident, and 0 otherwise. It could be seen that among those respondents included within the dataset, about 35% live in rural areas.

Regions are actually three dummy variables that are meant to capture the effects that specifically refer to a respondent being from one European area instead of another. Specifically, the variables created are:

- North;
- South;
- East;

When all these dummy variables are equal to 0, this means that the Centre-West region is being referred to. Specifically, the European countries have been divided as shown in Table 2.2.

In addition to these variables are added some indexes:

- personal trust;
- self-transcendence;

²⁷Fine particulate matter (PM2.5) is the air pollutant that poses the greatest risk to health globally, affecting more people than any other pollutant. Chronic exposure to PM2.5 considerably increases the risk of respiratory and cardiovascular diseases in particular. Data refer to population exposure to more than 10 micrograms/m³ and are expressed as annual averages (OECD.Stat, 2022a).

	Centre-West	East	North	South
Austria	1410			
Belgium	1588			
Czechia		1475		
Estonia		1428		
Finland			1653	
France	1604			
Germany	2405			
Hungary		780		
Iceland			554	
Ireland			1553	
Italy				1076
Lithuania		773		
Netherlands	1219			
Norway			1185	
Poland		795		
Portugal				863
Russian Federation		601		
Slovenia		840		
Spain				955
Sweden			1084	
Switzerland	1088			
United Kingdom			1395	

Table 2.2: This table shows how countries within the dataset are divided according to regions. In addition, it is displayed the number of observations.

- self-enhancement;
- openness to change;
- conservation.

The first index, “personal trust”, tries to capture the level of trust on other people according to three variable recorded within ESS. The three variable being used to construct this index are:

- “ppltrst”, where is being asked if people can be trusted or not, and it goes from 0 (you can’t be too careful) to 10 (most people can be trusted);
- “pplfair”, where is being asked if people try to take advantage of him/her or not, and it goes from 0 (most people try to take advantage of me) to 10 (most people try to be fair);
- “pplhlp”, where is being asked if people most of the time try to be helpful or not, and it goes from 0 (people mostly look out for themselves) to 10 (people mostly try to be helpful).

The index is simply computed as the mean value of these variables. Thus, this index is now a continuous variable that ranges from 0 up to 10 depending on the respondent. The mean value is observed at 5.3232, meaning people have generally a moderate level of social trust.

The other indices (self-transcendence, self-enhancement, openness to change, conservation) are built to include within the analysis characteristics identified as human values. Specifically, these three indices attempt to capture respectively the ability to transcend one's concerns and promote the well-being of others, the attitude to mainly promote personal interests, broad intellectual interests and emotional range, and the tendency not to change personal environment. These indices pertain to a total of 21 questions recorded in the dataset, that have been re-coded so that they now range from 1 (respondent does not identify with the characteristic being asked at all) to 6 (respondent fully identifies with the characteristic being asked). For more information on how these indices were constructed, please refer to the article and appendix A of "Climate change: Personal responsibility and energy saving" by David Boto-García, Alessandro Buccioli (Boto-García and Buccioli, 2020). The mean values are respectively 4.899, 3.483, 4.1279, and 4.2455, indicating that respondents generally describe themselves as people who promote the well-being of others, who moderately promote personal interests, who are quite open to changes, and who are not always stucked according to conformity, tradition, and security.

2.1.2 Political variables

Within the ESS dataset, several questions refer to political dimensions. The variables and indices used within the analysis are the following: political scale, political interest, green identification, political trust (index) and nationalism (index). The choice of these variables derives from the documents described within Chapter 1.

As suggested by variable's name, political scale, through "Irscale", attempts to capture how survey's participant identifies him/herselves on a political scale ranging from left (0) to right (10). The average value is around 4.9083, meaning that Europeans as a whole do not have a well-defined ideological identification. Here below is shown how political scale is distributed according to respondents (see Figure 2.3). Furthermore, the data show some differences, as the Eastern region registers a rightward value (5.30), whereas Southern countries a leftward value (4.68). The remaining two regions, North and Centre-West, have mid-level scores of 5.00 and 4.88, respectively. The lowest value is found in Spain (4.29)

whereas the highest in Hungary (5.85).

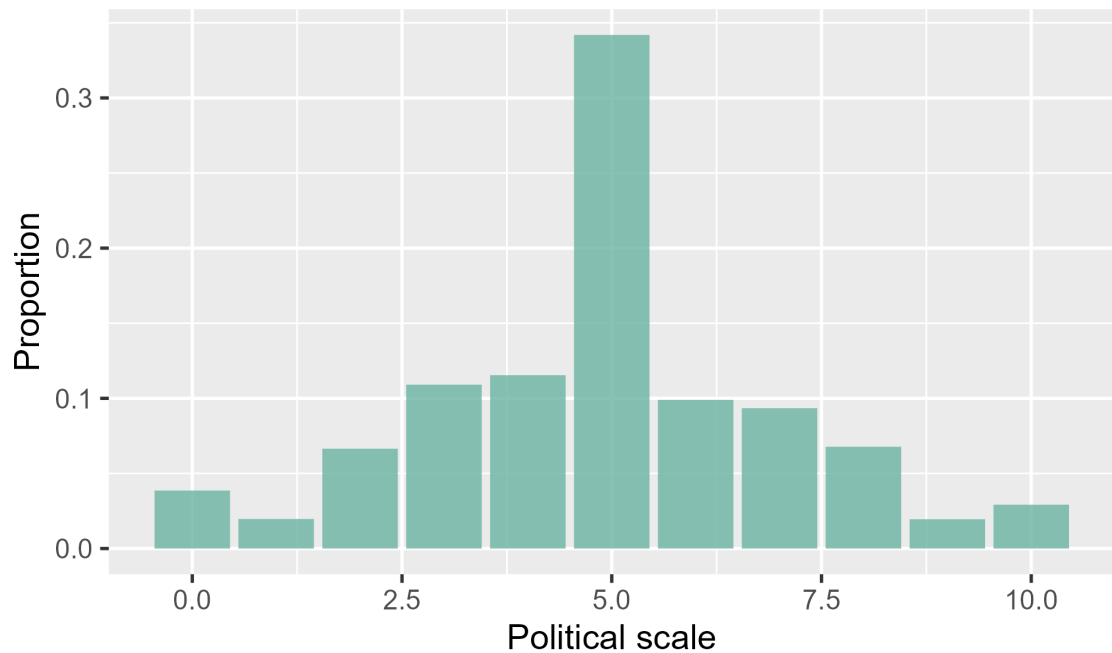


Figure 2.3: Distribution of the sample being used according to political scale (from left to right).

This variable is used to distinguish from the “centered sphere” those that are more in line with the left or the right through two dummies called “left” (≤ 2) and “right” (≥ 8).

Political interest, despite it was found to be a smaller predictor within the analysis reported in Section 1.2.3. Thus, this variable is included as a sort of control variable and to check its behaviour under this analysis. Specifically, this variable is called “polintr” and it is originally classified as a categorical variable that goes from 1 (very interested) to 4 (not at all interested). This feature is recoded as a dummy in order to identify those that have at least some interest in politics (as 1) from those that are hardly or not interested (as 0). The mean value is found at 55.87%, meaning that above half of Europeans express to have at least some interest in political matters.

In this case, one of the regions under consideration has a clear positive deviation from the average. Indeed, interest in political issues is significantly higher in Northern countries, with an average value of 66.9%. In contrast, Southern European countries have the lowest interest (43.34%), while remaining regions register intermediate levels (East at 47.82% and Centre-West at 53.30%). The lowest value is found in Italy (36.77%) whereas the highest in Sweden (69.48%).

The variable “green identification” is added to the dataset after having analysed strong effects within papers in Chapter 1. In particular, it was repeatedly

found that being identified with parties classified as “green” is largely associated with certain energy preferences, environmental policies and attitudes regarding climate change. This variable serves in principle to capture environmental values and green ideologies that people may express. These attitudes could be captured through an identification in ecologically and environmentally inspired parties. However, within ESS there are not variables capturing exactly these values, hence the reason for the “construction” of this predictor within the dataset.

This variable is created using the closeness of the respondent to parties (variable called “prtcl_countrycode” within ESS8) classified as “Green” through the use of a database external to ESS8 which carries out this type of evaluation (Lehmann et al., 2022). Basically, political proximity with “Green” parties is identified for every country based on this dataset, then, a dummy variable “green_identification_country” (parties within ESS were not subject to classification in the original database) is created for each country, defined as 1 in the event respondent feels close to that party. Once this data had been collected for each country, a general dummy variable called “green_identification” is created, which is simply the sum of the previous “green_identification_country” variables (each row under previous considered variables could give a maximum value of 1). At the end of the creation of this variable, it is observed that only 3.42% expressed a specific closeness to those parties defined as “Green”²⁸. The country that expresses the highest support toward “Green” parties is Iceland (followed then by Austria and Finland) with its 12.17%.

The two indexes being used within the analysis were introduced within this essay in the last section of Chapter 1, specifically Section 1.2.3. Within those paragraphs it was found how significant and relevant were observed to be political trust and nationalism, and how they were useful to capture different traits compared to standard political predictors.

The first index, political trust, aims to capture the general feeling of the respondent regarding the political system within its country. Moreover, this index is given by the average of several variables included within ESS8 that try to capture these characteristics:

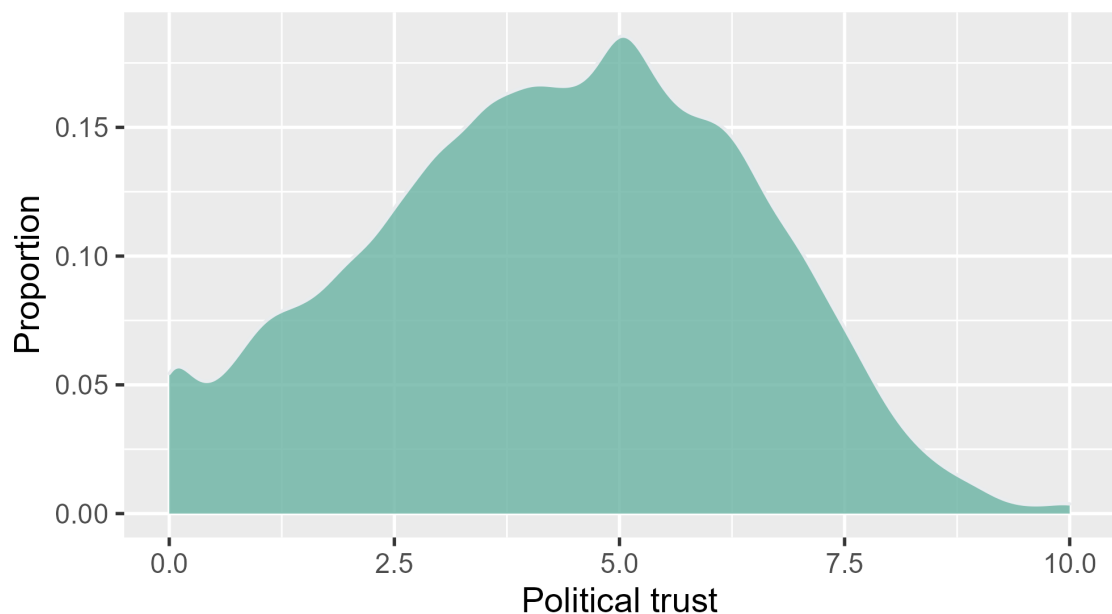
- trust in legal system (“trstlgl”);

²⁸This value may appear to be very low at first glance. However, at least two aspects need to be considered. The first is that it refers to 2016, and thus one could indeed expect at least an increase in this value in recent years due to greater pressure regarding climate change events, then, only parties whose main leitmotiv is related to the environment are considered explicitly “Green” parties. As a result, this variable serves to separate those who theoretically have a very strong environmental understanding from those who may have some level of environmental feeling. Due to this type of classification, some countries are found to not have so called “Green” parties, such as Czechia, Poland, Italy, Russia, Slovenia and Spain.

- trust in politicians (“trstplt”);
- trust in political parties (“trstprt”);
- trust in parliament (“trstprl”).

All these predictors range between 0 (no trust at all) and 10 (complete trust). However, these variables are recoded before computing the average value to be attributed to the index. Moreover, a reverse classification is applied, so, now as the variable scale increases the trust in the system increases too. The mean value of this index is found at 4.31, meaning that Europeans have quite a modest level of trust in their political system (see Figure 2.4 to check the distribution of this variable among the dataset). Northern countries stand on generally higher average values (4.90), while Southern European countries on the contrary on significantly lower values (3.30). Centre-West and Eastern countries stand at intermediate levels, 3.86 and 4.17. The highest figure is associated with Norway (6.27) while the lowest level of trust in the political system is observed in Slovenia (3.18).

This variable is eventually passed as a dummy variable in order to distinguish those that express a really high political trust from those who do not, thus, “political trust” equals 1 when is observed a value higher or equal than 8.



Source: own elaborations European Social Survey Round 8, 2016-2017.

Figure 2.4: Distribution of the sample being used according to political trust (from no trust to complete trust).

The reason behind the inclusion of the last index, namely nationalism, follows the same pattern used for political trust; thus, it is possible to check again

why this index was included within Section 1.2.3. This index is created as a result of the following variables used in ESS8 that try to express nationalism traits:

- immigration impact for country's economy ("imbgeco");
- country's cultural life undermined or enriched by immigrants ("imueclt");
- immigrants make country worse or better place to live ("imwbcnt");
- european unification go further or gone too far ("euftf");
- trust in the European Parliament ("trstep");
- trust in United Nation ("trstun");
- not satisfied with democracy ("stfdem");
- attachment to Europe ("atcherp").

All these variable are recoded in a reverse way, from 0 to 10, so now as the variable increases the impact of immigrants on our country or the level of trust in the specific institution is seen worsen. The mean value of this index is found at 4.89, meaning that Europeans have a moderate level of nationalism (see Figure 2.5 to check the distribution of this variable within the dataset). In this setting, countries of the Centre-West and South stand at values very close to the observed average (4.96 and 4.83). There is a lower level of nationalism in Northern countries (4.59), while on the contrary countries belonging to the Eastern bloc stand out with significantly higher values (5.70).

This variable is then coded as a dummy variable, which tries to distinguish those that express a really high level of nationalist traits from those who do not, thus, "nationalism" equals 1 when is observed a value higher or equal than 8.

2.2 Dependent variables

Now will be described those dependent variables, specifically the dimensions that will be effectively explored. These variables are essentially divided into three groups:

- climate change dimensions;
- energy preferences;
- environmental policies.

The next three sections will explain which variables are chosen to perform the analyses, what they capture and how they are coded.

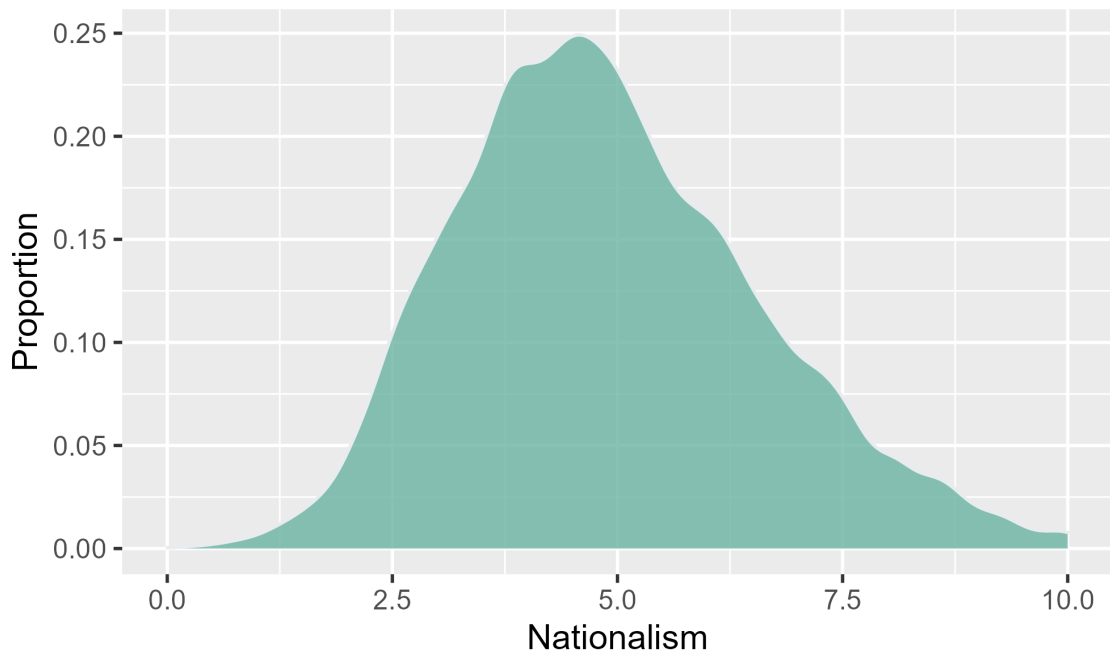


Figure 2.5: Distribution of the sample being used according to nationalism (from no at all nationalism to really strong sense of nationalism).

2.2.1 Climate change dimensions

As described throughout the data review chapter, the starting point for the coming analysis will be those variables that refer to basic dimensions of climate change. Many of these have already been introduced previously:

- world's climate is changing ("clmchn");
- climate change is caused by human activity ("ccnthum");
- the impact of climate change will be bad on people across the world ("ccgdbd");
- high level of concern about climate change ("wrclmch");
- feel a strong personal responsibility to contribute to reduce climate change ("ccrdprs").

The first variable, world's climate is changing, is originally coded as a categorical one that goes from 1 (climate is definitely changing) to 4 (climate is definitely not changing). This variable is then re-coded in order to try to highlight differences between those that think climate is probably or definitely changing from those that could be defined as "climate deniers". Thus, it becomes a dummy variable that is equal to 1 when the respondent marks the first or second box, and 0 otherwise. The mean value is observed at 96.02%.

The next four variables were as well originally coded as categorical variables; they were defined again as dummy variable in order to highlights difference in beliefs regarding diverse climate change dimensions. Specifically, climate change is caused by human activity, split the sample between those that think climate change is caused by human activity from those who belief is actually not the case. To highlights differences, only those who strongly belief the role of human activity is really significant is coded as 1 and 0 otherwise. The mean value is found at 49.16%²⁹.

The third variable, impact of climate change will be bad on people across the world, is set as a dummy equal to 1 when the respondent thinks the impact of climate change will be significant or really significant. This variable was originally coded from 0 (extremely bad impact) to 10 (very good impact), then, it is re-classified as a dummy that it is equal to 1 when 0, 1, 2 or 3 is chosen and 0 otherwise. The mean value is observed to be at 60.80%³⁰.

The fourth variable, high level of concern about climate change, is set in the same way as defined within the report described within Section 1.2.3, meaning that this dummy is classified as 1 when the respondent is very or extremely worried about climate change and 0 otherwise. The mean value is found to be at 34.69%, which is at a notably higher level than identified in the report.

The last variable regarding climate change dimensions, feel a strong personal responsibility to contribute to reduce climate change, is a newcomer in this essay since it was not mentioned before. This variable try to categorise the level of responsibility the respondent feels regarding the need to contribute to reduce climate change, from 0 (not at all) to 10 (a great deal). It is included in order to explore a further dimension that could be useful within this type of analysis. This variable becomes a dummy that is equal to 1 when the respondent chose 7, 8, 9 and 10, thus, feeling a high sense of responsibility and 0 otherwise. The mean value is observed at 52.35%, meaning that half of Europeans feel a medium level of responsibility regarding climate change.

²⁹This variable was found to be at 98% within Section 1.2.3, that is because it included as well those that think climate change is equally cause either by natural processes and human activities. Indeed, when that option is included the mean values reaches the 92% (still this difference is caused by the removal of more missing values compared to the report described within the section, generating then a loss of observations).

³⁰This variable was found to be at 72% within Section 1.2.3, that is because it included as well those that chose the box number 4. Indeed, when that option is included the mean value reaches the 73.31%. It was decided to apply this coding in order to distinguish those who think more definitively that climate change is expected to be more devastating.

2.2.2 Energy preferences

The second set of variables that are going to be explored are related to perceptions regarding different type of energy sources. Precisely, are taken into account the following:

- large support or very large support toward the production of electricity through the use of coal (“elgcoal”);
- large support or very large support toward the production of electricity through the use of nuclear power (“elgnuc”);
- large support or very large support toward the production of electricity through the use of gas (“elgngas”);
- large support or very large support toward the production of electricity through the use of biomass (“elgbio”);
- large support or very large support toward the production of electricity through the use of hydro power (“elghydr”);
- large support or very large support toward the production of electricity through the use of wind power (“elgwind”);
- large support or very large support toward the production of electricity through the use of solar power (“elgsun”);

Originally all these variable were coded as categorical ones, ranging from 1 (very large support) to 5 (none at all) plus 55 (never heard of this energy source). Following the procedure being applied in previous sections, these variable are re-coded as dummy variable in order to differentiate those that express a large or very large support toward the use of a specific type of energy source from those that express a low support or from those that did not even hear about the specific source taken into consideration. Thus, it is created a dummy that it is equal to 1 when there exists a large or very large support and 0 otherwise. Here below is plotted the average support toward these specific type of energy sources (see Figure 2.6)³¹. The same considerations written in Section 1.2.3 still remain valid also here.

However, in order to reduce the dispersion due to the high number of dimensions that are going to be explored, these set of variables is going to be summarised through the use of two different indexes, namely:

³¹After applying the weight (“anweight”) and removing the missing values, the results obtained remain very close to those described within the report in Section 1.2.3, with a maximum deviation in the order of 2%.

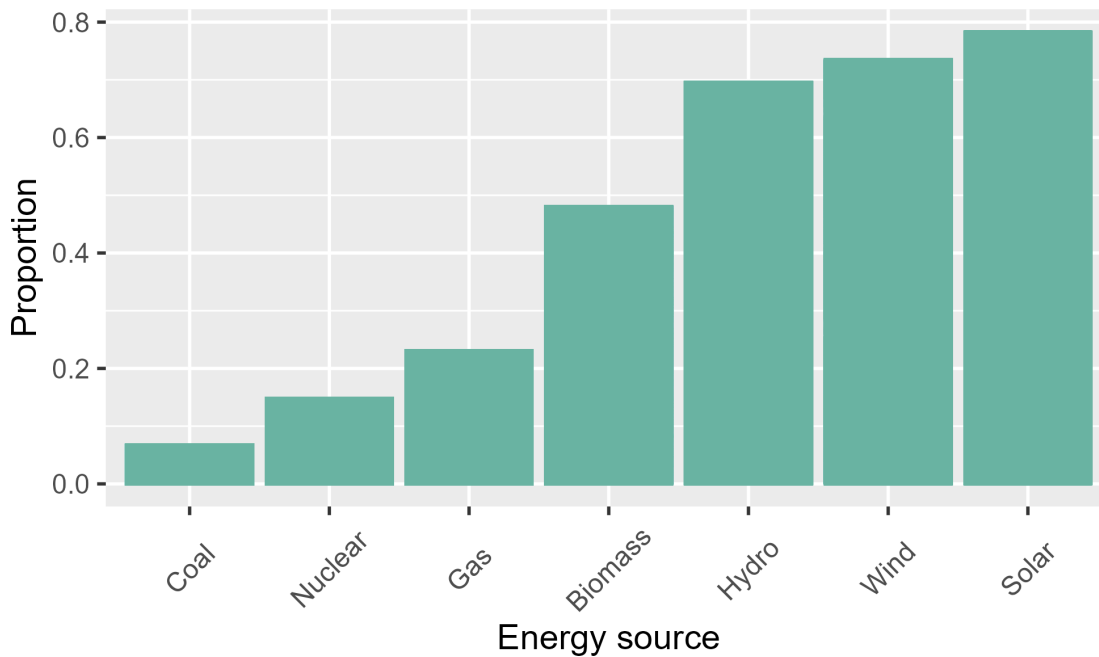


Figure 2.6: This graphs shows the proportion of respondents that expressed a large or a very large support toward a specific source of energy.

- fossil fuel preference (coal, gas and nuclear);
- renewable energy preference (biomass, hydro, wind and solar).

As suggested by the name of these variables, they will be used to capture the preference regarding the two main classification regarding energy sources. As done with previous indexes they represent the mean value of the predictors being employed. The average support regarding fossil fuel is found at 16.57% whereas renewables settle at 68.34%.

2.2.3 Environmental policies and attitude

The final dimensions that will be investigated are policies that governments currently use or may decide to use to contrast the negative consequences of climate change in addition to a specific attitude toward climate change itself from the respondent's point of view. These policies were firstly seen within Section 1.2.3 whereas the specific attitude is a newcomer in this analysis. Particularly, these are the dimensions that are going to be included:

- support or strongly support increase of taxes on fossil fuels to reduce climate change ("rdcenr");
- support or strongly support subsidises toward renewable energies to reduce climate change ("inctxfr");

- support or strongly support the ban from sale of those least energy efficient appliances to reduce climate change (“sbsrnen”);
- often or very often do things to reduce energy use (“banhhap”).

Also these variables are re-coded in order to capture large differences between those that favour green policies or a green attitude from those who do not. Specifically, the first three dimensions originally ranged from 1 (strongly in favour) to 5 (strongly against). Then, these are re-classified as dummies that are equal to 1 when the respondent expresses a large or a very large favour toward the policy under consideration and 0 otherwise. Instead, the last dimension originally ranged from 1 (never) to 6 (always) plus 55 (it is not possible to reduce consumption). This predictor becomes a dummy variable that equals 1 when the respondent at least often reduces its energy consumption and 0 otherwise. Here below is plotted the average support toward these dimensions (see Figure 2.7)³².

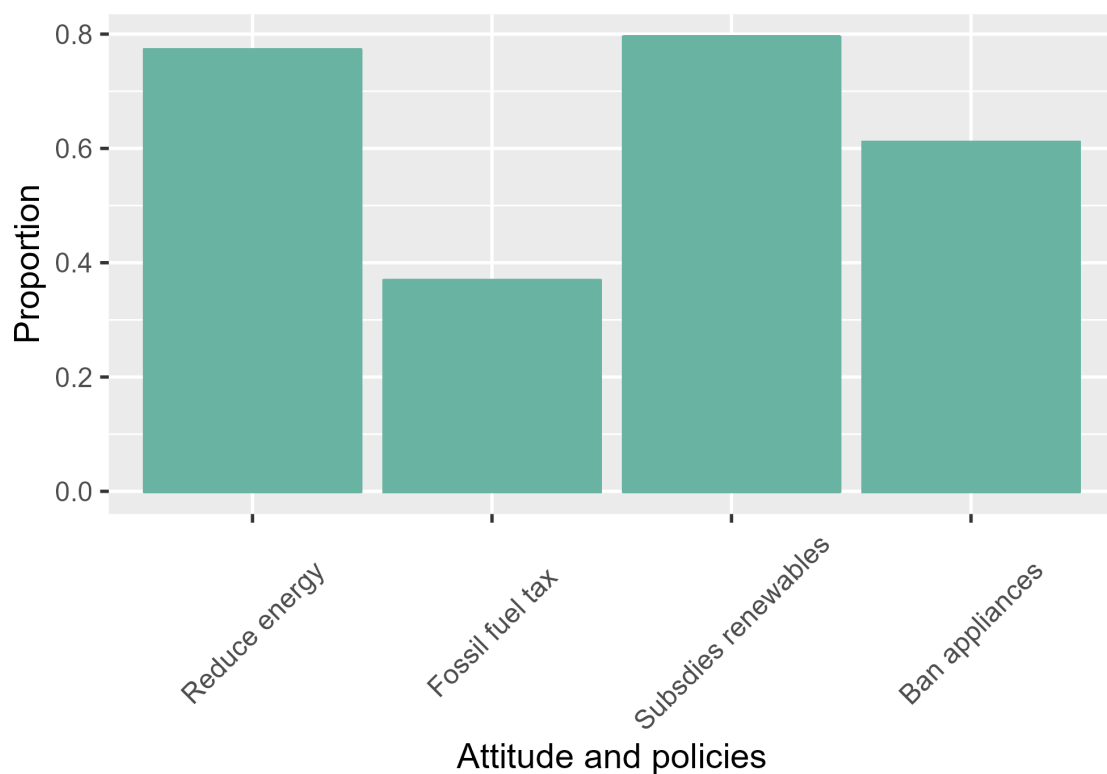


Figure 2.7: This graphs shows the proportion of respondents that expressed a large or a very large support toward a specific attitude and a set of policies that could be adopted to contrast climate change.

³²After applying the weight (“anweight”) and removing the missing values, the results obtained remain very close to those described within the report in Section 1.2.3, with a maximum deviation in the order of 2% except for the ban of least efficient appliances that is observed within this dataset to be at 62.52% compared to 58.9% observed within the report.

Chapter 3

Empirical analysis

Concerning the purpose of this essay, the goals to be checked are related to what has been mentioned throughout the text. General goals include:

- the verification of patterns detected at the European level within Section 1.2.3;
- extend previous studies utilizing what ESS8 provides for this topic, thus, considering more climate change related dimensions;
- the comparison of results with other countries, namely US, Canada and Australia as described along Chapter 1.

Specifically, this analysis aims to verify these points:

- examine the extent to which the impact of political variables influences climate change beliefs, attitudes and policies;
- check the roles played by classical “control variables” as age, education and gender;
- check if political predictors are playing a moderating role on education regarding base climate change dimensions as emerged in Section 1.2.1;
- check if the level of emissions play a role in determining beliefs regarding dimensions that are going to be explored, as suggested from the study conducted in Canada within Section 1.2.2;
- examine European regional disparities that emerged within Section 1.2.3.

Therefore, this chapter will pick up and extend the thread begun with Chapter 1. Specifically, the ESS8 data will be used to carry out an analyses taking into consideration those political predictors explained within Chapter 2 that

were found to be systematically useful to differentiate perceptions, beliefs and specific preferences regarding climate change issues.

Following Chapter 2, this will be the structure used within this part:

- analysis of base climate change dimensions;
- analysis of indexes regarding energy preferences;
- analysis of policies and one specific attitude regarding climate change.

Given the number of dimensions considered in this chapter, only the most relevant results will be included and thoroughly described; see the Appendix to look at complete results.

3.1 Climate change dimensions

Climate change dimensions are the first dependent variables that are going to be explored. Within Tables A.1, A.3, A.4, A.5 and A.6 are shown the models that are employed along this part. Specifically:

- within the base model are included those base control variables, as gender, age, years of education, the presence of children at home, the level of religiosity, the current level of comfortability based on income, the employed status, the quality of air, the rural area dummy and regions dummies;
- within the base indexes model are added those indexes that are used to further extend control variables, as personal trust, self-transcendence, self-enhancement, openness to change and conservation;
- within the base political model are explored the simplest political predictors, as right, left and political interest;
- within the full political model are added political indexes and predictors to further extend the analysis regarding political orientation, as political trust, green identification and nationalism;
- within the education terms model is explored the moderating role it may be played by political predictors through their interaction with years of education.

In this chapter is going to be taken as the reference model the one that takes into account all the political predictors, called as well “Full political model”.

3.1.1 Humans are the cause of climate change

The first dimension, existence of climate change, as highlighted within the part on European regions, see Section 1.2.3, and also as reported again within Chapter 2, essentially united the vast majority of Europeans, representing probably one of the reasons why the statistical analysis does not produce relevant results, especially from a political standpoint. Thus, these results are probably a consequence of the fact that this dimension is not able to highlight great differences among the observations within the dataset, with no particular traits and strong effects that could be attached to this belief.

Then, the first dimension to be explored in this part relates to the causes of climate change, which tries to differentiate those that strongly blame human activities to be the main cause of this issue from those who do not.

In the Full political model, among control variables are significant age, years of education, gender and quality of air. This means that at this stage these variables seem to be related with the belief that climate is caused by human activities. In particular, the impact of age seems, to negatively influence this type of orientation as the older the person is, the less human activity is identified the main cause of climate change, as opposed to natural causes, or to the controversial belief that climate change is not actually happening. Moreover, it reduces the probability by -0.4% for each year of age. Thus, younger as oppose to elderly, statistically shown a greener thinking toward the cause of climate change.

Years of education also show an effect on this dimension, in this case positive, with an increase in the probability of having this type of support of +0.5% for each year, and as the average respondent in the dataset has completed 13 years of education, the average impact is in the order of +6.5%. The third control variable, gender, has a smaller but still positive effect indicating that males tend to blame more human activity for climate change compared to women. In contrast, although air quality is observed to be statistically correlated, it has a null impact on this dimension³³.

Then looking at region's dummies, being in the North, South and East is observed to be significant, with respectively -10.7%, +11.8% and -7.7% compared to Centre-West. This suggest that are noticeable regional differences within the European region, with remarkable results associated with those countries in the North and East that are more likely to deny the role attributed to human activities as the main cause of climate change.

³³This variable has been found also in coming analyses to often have a statistically significant role, but always with zero impact. Consequently, it will not be reported in the following descriptions.

Looking at human values indexes, all of them are observed to be significant. Particularly, self-transcendence is positively associated (+8.2%) whereas openness to change (-1.7%) and conservation (-3.7%) are negatively associated with this belief. Thus, those that identifies themselves to have a greater spiritual trait are more likely to blame humans of current situation.

When political predictors are included, not the whole set is found to be significant. Specifically, those associated with the rightest political sphere (vs. the centre) are linked with a slightly reduction in this belief (-3.6%) whereas a higher interest in political matters is associated with the belief that human activities are causing climate change (+3.1%), although with a modest effect. In addition, those that express to be in line with the left and with nationalist traits are not found to have a systematically different approach toward this dimension. Most importantly, green identification leads to a significant increase in probability on the order of +17%. These findings show that, among political predictors, only green identification could lead to having a definite and clear thought, implying that holding strong environmental values eventually leads to follow a specific path.

Within the education model it is observed to be relevant just *education * left*, as shown in Table 3.1.1. Although, since here are reported results from a Probit model, the table showing marginal effects does not report results coming from these interaction terms. However, other coefficients are incorporating these interactions, and there are noticeable very small changes, apart from green identification which is reported to have a noticeable smaller coefficient, suggesting that the inclusion of education terms led this coefficient to have a lower impact on the dependent variable. This suggest that education should not have a particular role on this dimension at the highest level, even though it may be possible a moderating effect either in specific regions and countries. Even though this turns out to be very limited, a higher level of education measured by the number of years would combine with political leftists to increase the belief that human activity is to blame for climate change.

3.1.2 Future events connected with climate change will be really bad

The next dimension involves the future impact of climate change, through which are captured those that express a great concern regarding the future impact of those events connected with global warming.

In the Full political model, age, education, gender and level of comfortability based on current income appeared to be significant. As opposed to previous

	Full political model	Education terms model
agea	-0.004*** (0.000)	-0.004*** (0.000)
chldhm	-0.002 (0.011)	-0.002 (0.011)
conservation	-0.037*** (0.008)	-0.035*** (0.008)
east	-0.077*** (0.021)	-0.078*** (0.021)
eduyrs	0.005*** (0.001)	0.004*** (0.001)
employed	-0.012 (0.011)	-0.012 (0.011)
gndr	0.024** (0.011)	0.025** (0.011)
green_identification	0.170*** (0.026)	0.147*** (0.030)
hincfel	0.017 (0.011)	0.018 (0.011)
left	0.018 (0.016)	0.016 (0.016)
nationalism	0.028 (0.035)	0.013 (0.035)
north	-0.107*** (0.015)	-0.109*** (0.015)
openness_to_change	-0.017** (0.009)	-0.017* (0.009)
personal_trust	0.005 (0.003)	0.005 (0.003)
PM2.5	0.000** (0.000)	0.000** (0.000)
polintr	0.031*** (0.012)	0.032*** (0.012)
political_trust	0.039 (0.032)	0.039 (0.031)
right	-0.036** (0.016)	-0.038** (0.016)
rlgdgr	-0.005 (0.014)	-0.005 (0.014)
rural_area	-0.017 (0.012)	-0.017 (0.012)
self_enhancement	-0.006 (0.007)	-0.006 (0.007)
self_transcendence	0.082*** (0.011)	0.081*** (0.011)
south	0.118*** (0.017)	0.116*** (0.017)

* p < 0.1, ** p < 0.05, *** p < 0.01

Table 3.1: Marginal effects regarding the causes of CC.

scenario, age shows half of its magnitude, with older people being negatively associated with this kind of belief, with -0.2% per year whereas education by +0.9% per year. Being male, also in this case shows a slightly higher support, even though modest, with its +2.8%. In contrast to the dimension analysed above, being in a solid financial situation seems to positively influence the concern about future climate events, specifically by +3.3%. This suggests that the wealthier classes are slightly more worried about possible negative economic effects they may be exposed to in the near future.

Looking at regional dummies, only Northern and Southern regions are observed to be statistically different from Centre-West, respectively with a negative (-6.2%) and a positive association (+7.8%). This suggest countries that will probably face the greatest impact due to their geographical position are indeed more concerned toward the future impact of climate change events (European Commission, 2020).

Among human value traits, only self-transcendence is observed to have a great role increasing the likelihood by +10.6%. Even though, other human values indexes and personal trust are found to be significant they show a modest impact, in the order of 3%, with negative effects.

Within political predictors the greatest effect is given by green identification which increases the belief by about +14.3% whereas being linked with the left increases the probability by +3.7% while political interest is associated with a higher belief (+4.1%). No effects are found for nationalism and political trust. These findings show that, among political predictors, again only green identification could lead to have a clear thought, however, in contrast to previous dimensions left has some role whereas political interest is observed to be stronger.

Within the education model, see Table A.4, in this case none of the interactions terms are observed to be significant. This results suggest that no moderating role is actually happening.

3.1.3 High concern regarding climate change

Perception regarding worry about climate change, the next dimension being explored, tries to divide those that express a really high concern toward climate change from those who do not..

Among base control variables, age, education, employed status and gender are observed to be significant. Here, compared to previous settings are noticeable some differences, indeed, gender has a different direction whereas for the first time employed status is found to have an impact. Starting from age, also in this model it negatively affects this kind of belief, although its impact is moderate (-0.1% per year) whereas education by +0.4% per year. The employed status suggests that those that are employed in some paid activities have a slightly lower probability of showing a high worry about climate change, -2.4%. Gender, being male, show a similar magnitude since it reduces the likelihood by -2.8%. This suggest that compared to females, males are actually less personally concerned toward climate change.

All regions are found to be significant and with a high impact, indeed, being in Northern and Eastern countries is linked with a lower probability of -12% and -7.2% whereas being in the South with a higher probability of +12.8%, suggesting that those in the latter are really more concerned compared to other regions.

The effect associated with human values indexes differs since conservation and self-enhancement are negatively related with worry about CC (-2.2% and -

	Full political model	Education terms model
agea	-0.002*** (0.000)	-0.002*** (0.000)
chldhm	-0.017* (0.010)	-0.016* (0.010)
conservation	-0.029*** (0.008)	-0.029*** (0.008)
east	-0.017 (0.019)	-0.017 (0.019)
eduyrs	0.009*** (0.001)	0.009*** (0.001)
employed	0.016 (0.011)	0.016 (0.011)
gndr	0.028*** (0.009)	0.028*** (0.009)
green_identification	0.143*** (0.030)	0.146*** (0.037)
hincfel	0.033*** (0.010)	0.033*** (0.010)
left	0.037** (0.015)	0.036** (0.015)
nationalism	-0.024 (0.027)	-0.038 (0.027)
north	-0.062*** (0.015)	-0.062*** (0.015)
openness_to_change	-0.026*** (0.007)	-0.026*** (0.007)
personal_trust	-0.013*** (0.003)	-0.013*** (0.003)
PM2.5	0.000 (0.000)	0.000 (0.000)
polintr	0.041*** (0.011)	0.040*** (0.011)
political_trust	-0.026 (0.027)	-0.026 (0.026)
right	-0.018 (0.015)	-0.020 (0.014)
rlgdgr	-0.019 (0.012)	-0.019 (0.012)
rural_area	0.004 (0.011)	0.003 (0.011)
self_enhancement	-0.016*** (0.006)	-0.016*** (0.006)
self_transcendence	0.106*** (0.010)	0.106*** (0.010)
south	0.078*** (0.016)	0.078*** (0.016)

* p < 0.1, ** p < 0.05, *** p < 0.01

Table 3.2: Marginal effects regarding the future impact of CC.

3%) while self-transcendence and openness are found to have a positive effect, particularly stronger in the former case (+14.8% and +1.8%).

With respect this dimension, almost the whole set of political predictors is useful to explain a relationship with this belief. Indeed, only political trust is found to not have an impact. In terms of magnitude, as in other settings, green identification is the most important political predictor (+18.6%), followed by left (+6.4%), political interest (+5.9%), nationalism (+5.7%, but only at 10% of significance) and right (-5.4%). These results seem to show that there is a more significant direct political effect within this dimension.

Within the education model in this case it is relevant just *years of education* * *political interest*. However, it does not greatly affect coefficients, although, several coefficients are a bit higher in this specific model. This should suggest that, some moderating role is played by the inclusion of these interaction terms, specifically the one mentioned earlier. Also here, a greater level of education

in combination with a great level of interest in political affairs leads toward a higher worry regarding climate change.

	Full political model	Education terms model
agea	−0.001*** (0.000)	−0.001*** (0.000)
chldhm	−0.003 (0.011)	−0.003 (0.011)
conservation	−0.022*** (0.007)	−0.020*** (0.007)
east	−0.072*** (0.022)	−0.072*** (0.022)
eduyrs	0.004*** (0.001)	0.004*** (0.001)
employed	−0.024** (0.011)	−0.024** (0.011)
gndr	−0.028*** (0.010)	−0.028*** (0.010)
green_identification	0.186*** (0.023)	0.171*** (0.027)
hincfel	−0.005 (0.010)	−0.004 (0.010)
left	0.064*** (0.015)	0.062*** (0.015)
nationalism	0.057* (0.033)	0.039 (0.032)
north	−0.120*** (0.014)	−0.122*** (0.014)
openness_to_change	0.018** (0.007)	0.019** (0.007)
personal_trust	−0.003 (0.003)	−0.003 (0.003)
PM2.5	0.000 (0.000)	0.000 (0.000)
polintr	0.059*** (0.011)	0.061*** (0.011)
political_trust	0.013 (0.034)	0.011 (0.031)
right	−0.054*** (0.016)	−0.062*** (0.015)
rigdgr	0.019 (0.012)	0.019 (0.012)
rural_area	−0.016 (0.012)	−0.017 (0.012)
self_enhancement	−0.030*** (0.006)	−0.031*** (0.006)
self_transcendence	0.148*** (0.010)	0.146*** (0.010)
south	0.128*** (0.016)	0.125*** (0.016)

* p < 0.1, ** p < 0.05, *** p < 0.01

Table 3.3: Marginal effects regarding worry about CC.

3.1.4 High responsibility to reduce climate change

The last analysis captures the role of predictors in relation to the responsibility to reduce climate change, particularly are explored variables that may lead toward a high sense of responsibility.

Among base control variables, are found to be significant age, gender and religion. This represents a main change, compared to previously seen dependent variables, since for the first time education is no longer significant whereas the opposite is true for the level of religiosity. Age in this model positively affects a high personal responsibility toward climate change, although its impact is moderate (+0.1% per year). Gender, being male, show a similar magnitude

since it increases the likelihood by +3.4%. This suggest that compared to females, males tend to feel a higher sense of responsibility. As mentioned earlier, having a higher level of religiosity seems to increase this kind of belief, although with a moderate impact, +3.4%.

All regions are found significant, however, compared to previous dimensions the impact observed within these predictors is smaller, North reduces the probability by -3.4%, East increases the probability by +5.8%, while South decreases the probability by -5%.

All human value indexes and personal trust are significant. However, as observed in previous situations, only self-transcendence has an important role in this regard (+7.8%).

The inclusion of political variables leads to have five predictors to be statistically relevant, namely green identification, left, right, nationalism and political trust, whereas political interest is found to not have a role in this scenario. All of them seem to have indeed a quite significant role here. They tend to increase the probability, thus, showing surprisingly the same direction. Here are reported results: +18.5%, +6.4%, +3.2% (significant at 10%), +6.1% and +7.3%. For the first time, political trust seems to have an important role. Indeed, those that express a higher trust in political institutions (MP, parliament, political parties) tend to show a greater sense of responsibility. Consequently, this together with the dimension that captures a high level of concern is very much influenced by political variables, directly.

Despite political interest does not have a role when taken alone, its interaction with years of education is found to be statistically significant with a positive impact on this dimension. However, almost all variables were not significantly affected by the inclusions of these interactions terms suggesting that a limited role may be played in this sense.

3.2 Energy preferences

Energy preferences are the next dependent variables that are going to be explored. Within Tables A.7 and A.8 are shown the models employed in the analysis. There are five settings:

- in the base model are included those base control variables, as gender, age, years of education, the presence of children at home, the level of religiosity, the current level of comfortability based on income, the employed status, the quality of air, the rural area dummy and regions dummies;

	Full political model	Education terms model
agea	0.001*** (0.000)	0.001*** (0.000)
chldhm	0.006 (0.012)	0.006 (0.012)
conservation	-0.027*** (0.008)	-0.026*** (0.008)
east	0.058*** (0.021)	0.059*** (0.021)
eduyrs	0.002 (0.001)	0.001 (0.001)
employed	-0.003 (0.012)	-0.002 (0.012)
gndr	0.034*** (0.011)	0.033*** (0.011)
green_identification	0.185*** (0.028)	0.188*** (0.032)
hincfel	0.001 (0.011)	0.001 (0.011)
left	0.064*** (0.016)	0.063*** (0.016)
nationalism	0.061** (0.029)	0.055* (0.029)
north	-0.034** (0.017)	-0.035** (0.017)
openness_to_change	0.014* (0.008)	0.015* (0.008)
personal_trust	-0.014*** (0.003)	-0.014*** (0.003)
PM2.5	0.000 (0.000)	0.000 (0.000)
polintr	0.013 (0.012)	0.014 (0.012)
political_trust	0.073** (0.035)	0.073** (0.034)
right	0.032* (0.017)	0.030* (0.017)
rigdgr	0.034** (0.014)	0.034** (0.014)
rural_area	-0.007 (0.012)	-0.008 (0.012)
self_enhancement	-0.014** (0.007)	-0.015** (0.007)
self_transcendence	0.078*** (0.011)	0.077*** (0.011)
south	-0.050*** (0.017)	-0.052*** (0.017)

* p < 0.1, ** p < 0.05, *** p < 0.01

Table 3.4: Marginal effects regarding responsibility to reduce CC.

- in the base indexes model are added those indexes that are used to further extend control variables, as personal trust, self-transcendence, self-enhancement, openness to change and conservation;
- within the base political model are explored the simplest political predictors, as right, left and political interest;
- within the full political model are added political indexes and predictors to further extend the analysis regarding political orientation, as political trust, green identification and nationalism;
- within the full model are added those climate change dimensions explored in the previous section, namely, climate change existence, causes, impact, worry and responsibility.

As a reference is going to be used the full political model, which will then be

expanded considering the impact of climate change dimensions later through this part.

3.2.1 Large preference toward renewable energy sources

The first dimension to be explored is related to the preference toward renewable energy sources, an index that tries to divide those that express a great preferences toward green energy sources (biomass, hydro-power, wind and solar power) from those who do not.

Among base control variables, age, employed status, gender and level of comfortability based on income are significant. Age in this model negatively affects preference toward green sources, -0.2% per additional year. The employed status suggests that those working in some paid activities have a slightly higher probability of showing strict preference, +3.1%. Gender, being male, show a similar but negative magnitude since it reduces the likelihood by -2.8%. This suggest that compared to females, males are actually less inclined toward renewables sources. The dummy variable connected with a good financial status is found to negatively affect this type of relation, -2.1%.

All regions are found to be significant and with strong effect in two out of three, indeed, being in Northern and Eastern countries is linked with a lower probability of -3.8% and -13.8% whereas being in the South with a higher probability of +12.5%, suggesting that those in the South are really more inclined toward green sources, compared to all other regions, especially Eastern Europe.

Among additional indices, only self-transcendence proves to have some impact by increasing the probability of having a large preference by +7.2%.

With respect this dimension, almost the whole set of political predictors is found to be not relevant in this kind of setting. Indeed, only nationalism have an impact statistically significant. In terms of magnitude, those that identify themselves with nationalist traits are less likely to have a great preference toward renewables (-9%). Results within the reference model seem to show that there is quite a small direct political influence going on here.

When climate change dimensions are added, all have some sort of relationship with a strong preference toward renewables energy sources. They work as expected since they increase the probability toward a preference of renewables sources, except for responsibility which slightly decreases the belief (however, it is significant just at 10%). Among dimensions, the greatest impact is observed with the belief that climate change is actually changing (+12.9%), followed by worry (+5.3%), future impact (+4.2%) and causes of CC (+3.7%). The inclusion of this variables led toward a slightly reduction in the magnitude

and/or significance of some predictors, especially region's dummies. Instead, the magnitude of nationalism increased by 0.3% to 9.3%.

In this scenario, it is useful to recall what predictors were found to be relevant within climate change dimensions (except for responsibility). Specifically:

- in the first dimension (existence), green identification was found to be the only political predictor to have a role, even though, with a modest impact;
- in the second dimension (causes), green identification (great impact), political interest (modest impact) and right (modest impact) were found to be the political predictors to have a role;
- in the third dimension (future impact), green identification (great impact), political interest (modest impact) and left (modest) were found to be the political predictors to have a role;
- in the fourth dimension (worry), green identification (great impact), political interest (moderate impact), left (moderate impact), right (moderate impact) and nationalism (moderate impact) were found to be the political predictors to have a role.

These findings may imply that, in the end, political predictors, particularly green identification, play a primarily indirect role. Those who are not generally associated with climate denial express a clear preference for renewable energy sources, as expected. Furthermore, it is possible to observe how only nationalism plays a direct and significant role in this sense, despite the fact that its indirect role is modest, especially when compared to green identification. In addition, it is noticeable the impact regarding the belief in the existence of climate change, a dimension without particularly strong traits. This suggests that, while political indirect influence exists, it is not as strong as it could be, apart from green identification. Instead, the main role in this scenario is played by how someone feels about climate change, as something real or not, since sceptics definitely tend to prefer less alternative resources.

3.2.2 Large preference toward fossil fuel energy sources

The second dimension to be explored is related to the preference toward fossil fuel energy sources, an index that includes, coal, gas and nuclear power, which tries to differentiate those that express a great preference in these sources from those who do not.

Within control variables, age, children at home, education, employed status, level of comfortability based on current income and religion are relevant,

	Full political model	CC model
agea	−0.002*** (0.000)	−0.002*** (0.000)
chldhm	0.022* (0.012)	0.023* (0.012)
conservation	0.006 (0.008)	0.009 (0.008)
east	−0.138*** (0.022)	−0.126*** (0.021)
eduysr	0.002 (0.001)	0.001 (0.001)
employed	0.031** (0.012)	0.031*** (0.012)
gndr	−0.028*** (0.011)	−0.027** (0.011)
green_identification	0.010 (0.026)	−0.012 (0.026)
hincfel	−0.021** (0.011)	−0.024** (0.010)
left	0.022 (0.016)	0.018 (0.016)
nationalism	−0.090*** (0.031)	−0.093*** (0.030)
north	−0.038** (0.016)	−0.023 (0.016)
openness_to_change	0.015* (0.008)	0.017** (0.008)
personal_trust	−0.009** (0.004)	−0.008** (0.003)
PM2.5	0.000 (0.000)	0.000 (0.000)
polintr	−0.001 (0.011)	−0.009 (0.011)
political_trust	−0.031 (0.028)	−0.030 (0.029)
right	0.000 (0.016)	0.008 (0.015)
rlgdgr	−0.001 (0.014)	−0.002 (0.014)
rural_area	0.019 (0.013)	0.020* (0.012)
self_enhancement	0.000 (0.007)	0.003 (0.007)
self_transcendence	0.072*** (0.011)	0.055*** (0.011)
south	0.125*** (0.019)	0.108*** (0.019)
ccgdbd		0.042*** (0.013)
ccnthum		0.037*** (0.011)
ccrdprs		−0.018* (0.011)
clmchnng		0.129*** (0.027)
wrcmch		0.053*** (0.012)

* p < 0.1, ** p < 0.05, *** p < 0.01

Table 3.5: Marginal effects regarding preferences over renewables energies.

although, with some differences in the level of significance and magnitude. Among these control variables, age (+0.1% per year), having children at home (+1.4%, although only significant at 10%) and religion (+1.6%, at 10%) express

a positive effect on this dimension. In contrast, education and being in a good financial situation are negatively related to this preference. In fact, an extra year of education decreases the probability by -0.3% (-3.9% with 13 years of completed education) while income by -2%.

All regions dummies are useful to differentiate Europe, however, Southern countries express a similar behaviour compared to Centre-West since it increases the probability just by +2% (10% of significance), whereas being in the North or Eastern regions increases respectively by +5% and +13.8%. This suggest that those in Eastern European countries are significantly more likely to prefer fossil fuels sources compared to other regions.

In this setting human values indexes have a small role; although, all of them are significant. The greatest effect is found with self-transcendence which decreases the probability by -3.5%.

Here, only green identification and being associated with the right are observed to be relevant. Specifically, being identified with green parties decreases the likelihood by -12.3% whereas being associated with the rightest political sphere increases the likelihood by a modest +2.3%. At this stage, only green identification express a really strong effect, whereas other political traits seem to be not particularly useful. This implies, that only having a strong ecological value could lead toward a decisive direction, at least directly.

When are added climate change dimensions as independent variables, only future impact and causes are seen as significant. Both of them reduce the likelihood, even though with a modest impact in the order of 2%. In these two dimensions were found:

- in the first case, green identification (great impact), political interest (modest impact) and right (modest impact) to have a role;
- in the second case, green identification (great impact), political interest (modest impact) and left (modest) to have a role.

This suggests that political predictors beside green identification have quite a modest if not a negligible role in this type of analysis. Thus, it is fair saying that political traits do not express a relevant indirect influence whereas a direct and strong effect is only associated with those that are close to ecological parties.

3.3 Environmental policies and attitude

Environmental policies represent the next dependent variables that are going to be explored. Within Tables A.9, A.10, A.11 and A.12 are shown the models employed in the analysis. Specifically, there are six models where:

	Full political model	CC model
agea	0.001*** (0.000)	0.001*** (0.000)
chldhm	0.014* (0.007)	0.014* (0.007)
conservation	0.017*** (0.006)	0.016*** (0.006)
east	0.138*** (0.012)	0.136*** (0.012)
eduysr	-0.003*** (0.001)	-0.003*** (0.001)
employed	-0.013* (0.008)	-0.012 (0.008)
gnr	0.006 (0.007)	0.007 (0.007)
green_identification	-0.123*** (0.020)	-0.117*** (0.020)
hincfel	-0.020** (0.008)	-0.018** (0.008)
left	-0.003 (0.011)	-0.004 (0.010)
nationalism	0.013 (0.017)	0.012 (0.016)
north	0.050*** (0.010)	0.047*** (0.010)
openness_to_change	0.015*** (0.005)	0.014*** (0.005)
personal_trust	-0.002 (0.002)	-0.003 (0.002)
PM2.5	0.000 (0.000)	0.000 (0.000)
polintr	-0.005 (0.008)	-0.004 (0.008)
political_trust	0.015 (0.021)	0.014 (0.021)
right	0.023*** (0.009)	0.023** (0.009)
rlgdgr	0.016* (0.008)	0.015* (0.008)
rural_area	0.007 (0.008)	0.007 (0.008)
self_enhancement	0.014*** (0.005)	0.013*** (0.005)
self_transcendence	-0.035*** (0.007)	-0.031*** (0.007)
south	0.020* (0.012)	0.023** (0.012)
ccgdbd		-0.028*** (0.008)
ccnthum		-0.022*** (0.008)
ccrdprs		-0.001 (0.007)
clmchn		-0.024 (0.016)
wrcmch		0.014 (0.009)

* p < 0.1, ** p < 0.05, *** p < 0.01

Table 3.6: Marginal effects regarding preferences over fossil fuels.

- in the base model are included those base control variables, as gender, age, years of education, the presence of children at home, the level of religiosity, the current level of comfortability based on income, the employed

status, the quality of air, the rural area dummy and regions dummies;

- in the base indexes model are added those indexes that are used to further extend control variables, as personal trust, self-transcendence, self-enhancement, openness to change and conservation;
- within the base political model are explored the simplest political predictors, as right, left and political interest;
- within the full political model are added political indexes and predictors to further extend the analysis regarding political orientation, as political trust, green identification and nationalism;
- within the CC model are added those climate change dimensions explored in the first section, namely, climate change existence, causes, impact, worry and responsibility;
- then the last model includes as well preferences regarding renewables and fossil fuels energy sources as additional predictors.

As a reference is going to be used the full political model, which will be expanded then considering the impact of climate change and preferences regarding energy sources.

Dimensions described within this section are:

- how often things are done with the aim of reducing own energy consumption;
- wide support towards increasing taxes on fossil fuels;
- wide support towards renewable energies through the instrument of subsidies;
- wide support for banning the use of those least efficient appliances.

3.3.1 How often people do thing to reduce energy consumption

As anticipated the first dimension refers to how often people do thing to reduce their energy consumption, through a variable that differentiates those who often do this kind of things from those who do not.

In the reference's model, just two base control variables are observed to have a role. Indeed, only age and education are positively linked with this specific attitude. Specifically, age at increase the probability by 0.2% per year,

whereas those with 13 years of completed education by an overall effect of +5.75%. Thus, elderly and those that expressed a higher level of education are significantly more likely to follow this kind of approach. Instead, apart from the East region dummy variable which is found to decrease the probability by -7.8%, North and South do not express great differences from the Centre-West. These results suggest that, besides Eastern countries, Europeans show almost the same attitude. Among human values indexes, only two out of four predictors are found to be relevant, namely self-enhancement and self-transcendence which have the following effects: -3.1% and +7.2%.

Among political predictors, only political interest seems to have a role in this specific setting, increasing the likelihood by a moderate +4.8%. Green identification is surprisingly not related with a reduction of energy consumption.

When climate change dimensions are included, just having a high responsibility and high concern are associated with this dimension, leading to respectively +2.4% and +6.9% and a general decrease in other coefficient's values. Within the last predictors, were found to have a role green identification (great impact), political interest (moderate impact), left (moderate impact), right (moderate impact) and nationalism (moderate impact). These results suggest, due to the magnitude shown within these two dimensions, that political traits do not have a strong role, at least directly, with respect this dimension whereas some indirect effect exists here.

The inclusion of preferences regarding energy sources, as happened with climate change dimensions, are found to be quite modest, since only a preference toward renewables sources is observed to be significant although with a really low coefficient, +2.5%.

In the end this dimension seems not highly influenced by the predictors included in these models, even though, some sort of indirect political effect is working behind this dimensions through climate change predictors.

3.3.2 Large preference toward the increase of taxes on fossil fuels

The second dimension to be explored refers to have at least a large support toward the increase of taxes on fossil fuels. This is captured through a variable that differentiates those who express at least a large support toward an increase of taxes on fossil fuels from those who do not.

In the reference model, several control variables seem to have a role. In contrast to the previous setting, a certain effect is given by having children at home, which seems to have an impact on sensitivity to this dimension, albeit

	Full political model	CC model	Full model
agea	0.002*** (0.000)	0.002*** (0.000)	0.002*** (0.000)
chldhm	0.007 (0.010)	0.008 (0.010)	0.007 (0.010)
conservation	0.005 (0.007)	0.007 (0.007)	0.007 (0.007)
east	-0.078*** (0.016)	-0.076*** (0.016)	-0.069*** (0.015)
eduyrs	0.005*** (0.001)	0.005*** (0.001)	0.005*** (0.001)
employed	0.009 (0.010)	0.011 (0.010)	0.010 (0.010)
gndr	-0.007 (0.009)	-0.006 (0.009)	-0.005 (0.009)
green_identification	0.019 (0.025)	0.000 (0.024)	0.000 (0.024)
hincfel	-0.005 (0.009)	-0.006 (0.010)	-0.005 (0.009)
left	0.019 (0.014)	0.011 (0.014)	0.011 (0.014)
nationalism	0.023 (0.027)	0.018 (0.028)	0.020 (0.028)
north	-0.025* (0.013)	-0.016 (0.013)	-0.015 (0.013)
openness_to_change	0.010 (0.007)	0.009 (0.007)	0.009 (0.007)
personal_trust	-0.002 (0.003)	-0.001 (0.003)	-0.001 (0.003)
PM2.5	0.000** (0.000)	0.000** (0.000)	0.000** (0.000)
polintr	0.048*** (0.009)	0.043*** (0.009)	0.043*** (0.009)
political_trust	0.029 (0.026)	0.026 (0.026)	0.027 (0.026)
right	-0.022 (0.014)	-0.020 (0.014)	-0.020 (0.014)
rigdgr	0.014 (0.012)	0.012 (0.012)	0.013 (0.012)
rural_area	-0.013 (0.010)	-0.012 (0.010)	-0.013 (0.010)
self_enhancement	-0.031*** (0.006)	-0.028*** (0.006)	-0.028*** (0.006)
self_transcendence	0.072*** (0.008)	0.061*** (0.008)	0.059*** (0.008)
south	0.025* (0.014)	0.015 (0.014)	0.013 (0.014)
csgdbd		0.014 (0.010)	0.013 (0.010)
ccnthum		-0.002 (0.009)	-0.003 (0.009)
ccrdprs		0.024*** (0.009)	0.025*** (0.009)
clmchnng		-0.007 (0.023)	-0.011 (0.023)
wrcmch		0.069*** (0.011)	0.068*** (0.011)
fossil_fuel_preference			-0.016 (0.017)
renewables_preference			0.025** (0.010)

* p < 0.1, ** p < 0.05, *** p < 0.01

Table 3.7: Marginal effects regarding how often things to reduce energy use are done.

representing a minor predictor (-2.8%). Age reduces the likelihood toward this type of policies by -0.2% per year, the number of years of education (+1% per year of study, taking into account that the average level of years is 13) is observed to have a quite an important effect, the economic status (+6.2%) is found to have for the first time with quite a significant impact whereas living in a rural location is associated with a lower probability of support (-3.2%). Taking into consideration geographical areas, those living in the Eastern region are

slightly less inclined to this type of policy (-4.2%), those living in the Northern region are on the contrary more inclined (+6.1%) while the variable related to the South is not observed to be significant.

Among human values indexes, three out of four predictors are found to be relevant, precisely, conservation (-3.9%), self-enhancement (+1.5%) and self-transcendence (+6.8%), while personal trust despite being relevant is not so useful (+1.2%).

Regarding this dimension, political variables show a particularly strong impact, in fact green identification, but also left, political interest and political trust have a certain weight. Specifically, green identification increases the probability of having a broad support by +23.1%, while being affiliated with the left by +4.1%. Political interest is observed at a slightly higher value, increasing the probability by +4.8%, whereas political trust is found to be another strong predictor since it positively affects the perception by +9.7%. This policy seems then to be strongly related with the political sphere as whole, directly, since several predictors besides nationalism are found to be significant and with at least a moderate role.

When including the dimensions of climate change, all of them are found to be statistically significant, responsibility too. Their effect is consistent with expectations, as they increase the probability of having this type of belief. However, the magnitude differs across coefficients. In particular, the greatest impact is associated with a high level of worry (+8%), followed by the belief that CC is real (+7.5%), that human activities are the main source of CC (+6.2%) whereas having a high sense responsibility and concern about future events settle at lower levels (+3.6% and +2.9%). In addition, some variables are found to have a greater magnitude as South and North, whereas remaining predictors are generally smaller.

In this scenario, it is once again useful to recall what predictors were found to be relevant within climate change dimensions. Specifically:

- in the first dimension (existence), green identification was found to be the only political predictor to have a role, even though, with a modest impact;
- in the second dimension (causes), green identification (great impact), political interest (modest impact) and right (modest impact) were found to be the political predictors to have a role;
- in the third dimension (future impact), green identification (great impact), political interest (modest impact) and left (modest) were found to be the political predictors to have a role;

- in the fourth dimension (worry), green identification (great impact), political interest (moderate impact), left (moderate impact), right (moderate impact) and nationalism (moderate impact) were found to be the political predictors to have a role;
- in the fifth dimension (responsibility), green identification (great impact), political trust (important impact), left (moderate impact), right (modest impact) and nationalism (moderate impact) were found to be those political predictors to have a role.

Thus, at this stage is clearly visible either a direct and direct role played by political predictors. This suggest that a really large political influence is happening here, directly and indirectly.

As one may expect, those that express a high preference toward renewables and those that express a low preference toward fossil fuels show a greater support toward an increase of taxes to fossil fuels. Specifically, in the former case it increases the probability by +3.6% whereas having a great preference toward fossil fuels decreases the support by +5.8%. Despite the addition of these two variables, the remaining coefficients remain significant, albeit with a little general reduction, even though in some cases it led toward an increase (North, South, political trust and self-enhancement). However, its important to recall that these two predictors were only moderately connected with political influence.

Thus, the complete model highlights again previous findings suggesting a strong direct and indirect political influence on this specific environmental policy, becoming the dimension with the highest political impact seen so far.

3.3.3 Large preference toward subsidies over renewables energy sources

The third dimension to be explored refers to have at least a large support toward the use of subsidies for renewables energy sources. This is captured through a variable that differentiates those that expressed at least a large support from those who do not.

In the reference's model, only two base control variables are observed to have a role, namely age and education. Both of them are observed to have a positive impact, with the following effect: +0.1% per year and +7.8% (13 years of education). For what concern regions, being in a Southern region decreases the probability by -3.1%, being in a Northern region by -8.9% whereas being in

	Full political model	CC model	Full model
agea	-0.002*** (0.000)	-0.001*** (0.000)	-0.001*** (0.000)
chldhm	-0.028*** (0.010)	-0.027*** (0.010)	-0.027*** (0.010)
conservation	-0.039*** (0.007)	-0.033*** (0.007)	-0.032*** (0.007)
east	-0.042** (0.019)	-0.029 (0.019)	-0.013 (0.019)
eduyrs	0.010*** (0.001)	0.009*** (0.001)	0.009*** (0.001)
employed	-0.014 (0.011)	-0.013 (0.011)	-0.015 (0.011)
gnr	0.016 (0.010)	0.015 (0.010)	0.017* (0.010)
green_identification	0.231*** (0.023)	0.195*** (0.023)	0.194*** (0.022)
hincfel	0.062*** (0.011)	0.060*** (0.011)	0.060*** (0.010)
left	0.041*** (0.016)	0.031* (0.016)	0.030* (0.016)
nationalism	-0.016 (0.033)	-0.021 (0.034)	-0.017 (0.033)
north	0.061*** (0.015)	0.083*** (0.015)	0.086*** (0.015)
openness_to_change	-0.013 (0.008)	-0.012 (0.008)	-0.012 (0.008)
personal_trust	0.012*** (0.003)	0.013*** (0.004)	0.013*** (0.004)
PM2.5	0.000 (0.000)	0.000 (0.000)	0.000 (0.000)
polintr	0.048*** (0.011)	0.039*** (0.011)	0.039*** (0.011)
political_trust	0.097*** (0.027)	0.093*** (0.028)	0.095*** (0.028)
right	-0.007 (0.017)	0.000 (0.017)	0.002 (0.017)
rlgdgr	-0.017 (0.013)	-0.019 (0.013)	-0.018 (0.013)
rural_area	-0.032*** (0.011)	-0.029*** (0.011)	-0.029*** (0.011)
self_enhancement	0.015** (0.007)	0.019*** (0.006)	0.020*** (0.006)
self_transcendence	0.068*** (0.011)	0.043*** (0.011)	0.039*** (0.011)
south	-0.015 (0.018)	-0.033* (0.018)	-0.035** (0.018)
ccgdbd		0.029** (0.013)	0.026** (0.013)
ccnthum		0.062*** (0.011)	0.060*** (0.011)
ccrdprs		0.036*** (0.010)	0.036*** (0.010)
clmchn		0.075** (0.032)	0.067** (0.032)
wrcimch		0.080*** (0.011)	0.079*** (0.011)
fossil_fuel_preference			-0.058*** (0.021)
renewables_preference			0.036*** (0.012)

* p < 0.1, ** p < 0.05, *** p < 0.01

Table 3.8: Marginal effects regarding support over the increase of taxes on fossil fuels.

a Eastern region by -5.4%, compared to Centre-West. This suggest that compared to Centre-West all European regions are systematically seen with a lower attitude toward subsidies over renewables.

Among human values indexes, only one out of four is relevant, precisely, self-transcendence which increases the belief by +8.6%, whereas outside human values indexes, personal trust despite being relevant is almost useless.

Regarding this dimension, political variables show again a high impact, in

fact green identification and nationalism, in particular, but also political interest show a certain weight. Green identification increases the probability of having a broad support by +11.3%, while being affiliated with nationalist traits reduces it by almost the same level, -9.6%. Political interest is observed at lower values, increasing the probability by +3.8%. Thus, political influence has a large impact even this time, although is smaller compared to previous policy.

When including the dimensions of climate change, four out of five are statistically significant: existence of climate change, causes, future impact and concern. Their effect is consistent with expectations, as they increase the probability of having this type of belief. The greatest impact is associated with the belief that climate change is occurring (+11.3%), followed by human causes (+6.5%), future impact (+5.5%) and concern (+3.6%). In addition, some variables are found to have a greater effect, as nationalism (-10%) and South (-4.9%) while green identification falls to +8.3%.

In this specific scenario, it is useful to recall what predictors were found to be relevant within climate change dimensions (except for responsibility). Specifically:

- in world's climate is changing, green identification was found to be the only political predictor to have a role, even though, modest;
- in climate change is caused by human activity, green identification (great impact), political interest (modest impact) and right (modest impact) were found to be the political predictors to have a role;
- in impact of CC will be bad, green identification (great impact), political interest (modest impact) and left (modest) were found to be the political predictors to have a role;
- in high concern about CC, green identification (great impact), political interest (moderate impact), left (moderate impact), right (moderate impact) and nationalism (moderate impact) were found to be the political predictors to have a role.

This suggest, that political predictors show either a direct and indirect effect, with the leading role given to green identification. However, the indirect role seems at this stage moderate since the greatest impact among climate change dimensions is linked with the dimension connected with its existence where a non-partisan political landscape is observed.

The inclusion of preferences regarding energy sources is found to have a great impact in this regard, as opposed to previously seen dimensions. As one

may expect, those that express a high preference toward renewables and those that express a low preference toward fossil fuels show a large support toward subsidies to green sources. Specifically, in the former case it increases the probability by +12.4%, representing the most important predictor, whereas the latter decreases the probability by -7.5%. Despite the addition of these two variables, the remaining coefficients remain significant, albeit with a general reduction.

Looking at the complete model, a strong direct political influence on this environmental policy appears to be clear, whereas the inclusion of energy preferences remark once again the moderate role expressed by political predictors in an indirect way.

3.3.4 Large support toward the ban of least efficient appliances

The last dimension to be explored refers to have at least a large support toward the ban of least efficient home appliances. This is captured through a variable which differentiates those that expressed at least a large support toward this ban from those who do not.

In the reference's model, four base control variables are observed to have a role, apart from the region dummy variables. Indeed, as the age increases the probability toward the support of the ban increases, by +0.2% per additional year. A similar trend is linked with education, since it is associated with an increase toward this dimensions, but given the average number of years is around 13, the final effect is in the order of +1% (0.091). In addition, there is a certain preference for this type of policy either by the female sex as the gender variable decreases the probability by -3.9% and by those that are employed, by -2.4%.

As for the variables referring to the region of belonging, they seem to have some relevance. In particular, being in the South increases the probability by +6.9%, while in the North decreases it by -6.6% whereas in the East by -8.8%, compared to the Centre-West. This means, there are some discrepancies regarding the support toward this specific policies within Europe, especially when South and East are directly compared.

Among human values indexes, only two out of four predictors are relevant, precisely, self-transcendence (the largest one) increases the belief toward this dimension by +6.9% while conservation is evidenced to have a relatively small impact (+2.2%), whereas outside human values indexes, personal trust is observed to be not statistically significant.

	Full political model	CC model	Full model
agea	-0.001*** (0.000)	-0.001*** (0.000)	-0.001** (0.000)
chldhm	0.005 (0.010)	0.006 (0.009)	0.004 (0.009)
conservation	-0.012 (0.008)	-0.007 (0.008)	-0.008 (0.007)
east	-0.054*** (0.016)	-0.041*** (0.015)	-0.009 (0.016)
eduyrs	0.006*** (0.001)	0.005*** (0.001)	0.005*** (0.001)
employed	0.002 (0.010)	0.002 (0.010)	-0.003 (0.010)
gndr	0.007 (0.009)	0.006 (0.008)	0.010 (0.008)
green_identification	0.113*** (0.031)	0.083*** (0.030)	0.079*** (0.030)
hincfel	0.003 (0.010)	0.000 (0.010)	0.001 (0.010)
left	0.009 (0.015)	0.006 (0.015)	0.004 (0.014)
nationalism	-0.096*** (0.023)	-0.100*** (0.023)	-0.085*** (0.021)
north	-0.089*** (0.014)	-0.071*** (0.013)	-0.064*** (0.013)
openness_to_change	0.003 (0.007)	0.005 (0.007)	0.005 (0.006)
personal_trust	0.007** (0.003)	0.008*** (0.003)	0.009*** (0.003)
PM2.5	0.000 (0.000)	0.000 (0.000)	0.000 (0.000)
polintr	0.038*** (0.010)	0.030*** (0.010)	0.031*** (0.009)
political_trust	0.004 (0.027)	0.003 (0.026)	0.009 (0.026)
right	-0.011 (0.013)	-0.003 (0.012)	-0.002 (0.012)
rigdgr	-0.008 (0.011)	-0.008 (0.011)	-0.008 (0.011)
rural_area	-0.006 (0.010)	-0.005 (0.010)	-0.006 (0.010)
self_enhancement	-0.002 (0.006)	0.001 (0.006)	0.002 (0.006)
self_transcendence	0.086*** (0.008)	0.067*** (0.009)	0.057*** (0.009)
south	-0.031** (0.015)	-0.049*** (0.015)	-0.062*** (0.014)
ccgdbd		0.055*** (0.011)	0.046*** (0.010)
ccnthum		0.065*** (0.010)	0.057*** (0.009)
ccrdprs		-0.006 (0.009)	-0.003 (0.009)
clmchnng		0.113*** (0.022)	0.092*** (0.020)
wrclmch		0.036*** (0.011)	0.031*** (0.011)
fossil_fuel_preference			-0.075*** (0.016)
renewables_preference			0.124*** (0.009)

* p < 0.1, ** p < 0.05, *** p < 0.01

Table 3.9: Marginal effects regarding subsidies toward renewables energy sources.

In this context, political variables, are seen to have some influence, particularly green identification, followed by right and political interest. In the reference model, green identification represents the variable with the greatest magnitude, +11.7%, while the other two variables settle at lower values, around 4%. These two variables have opposite effects; indeed, expressing a certain level of interest in political affairs increases support by +3.7%, while identifying with the right-wing political sphere decreases it by -4.3%.

Adding the five basic dimensions of climate change to the reference model reveals that four of them are eventually observed to have a relationship with this policy. Only having some responsibility to reduce one's energy consumption is noted to be unrelated. The variable that captures the very existence of climate change is identified as the predictor with the greatest impact, +11.7%, surpassing even green identification which decreased to +8.3%. The other three variables settle on lower values but still remain with notable, specifically, thinking that the future impact of CC is extremely negative increases support by +7.7%, those who are extremely concerned by +7.3%, whereas those who believe that the causes of CC are due to human activities by +4.2%.

As mentioned earlier, variables generally had a reduction in the values expressed by their coefficients, but all remain significant.

In this specific scenario, it is useful to recall what predictors were found to be relevant within climate change dimensions (except for responsibility). Specifically:

- in world's climate is changing, green identification was found to be the only political predictor to have a role, even though, modest;
- in climate change is caused by human activity, green identification (great impact), political interest (modest impact) and right (modest impact) were found to be the political predictors to have a role;
- in impact of CC will be bad, green identification (great impact), political interest (modest impact), left (modest) were found to be the political predictors to have a role;
- in high concern about CC, green identification (great impact), political interest (moderate impact) and left (moderate impact), right (moderate impact) and nationalism (moderate impact) were found to be the political predictors to have a role.

Since, in all these dimensions, political influence has had more or less a direct impact. It could be said that these predictors therefore play either a direct and indirect role in this dimension when basic climate change variables are included.

The addition of the two dimensions expressing preference for fossil fuels and renewable energies are characterised by moderate effects on this variable. In detail, the former shows the greatest magnitude, decreasing the probability by -6.1% while the latter increases it by +4.4%. Despite the inclusion of these two variables, the other coefficients remain significant, albeit with a small general

reduction, suggesting that indeed these variables are capturing different traits and are then useful to explain this dimension.

As done as before, it is useful to briefly report how political predictors behaved with respect these two dimensions:

- in fossil fuel preference, among political predictors green identification is found to have a great impact by reducing the support, followed then by a modest role given by being identified with the right. In addition, also being in the East appeared to have a really strong impact whereas the others, shown a lower impact;
- in renewables preference, among political predictors only nationalism appeared to have a quite relevant role by reducing the support. However, the strongest impact is connected with regional predictors.

Consequently, the inclusion of these two dimensions also seems to confirm a direct and indirect role of political variables towards the ban on less efficient appliances. Nevertheless, it is also worth noting the impact that regional variables seem to have, albeit in a less consistent way.

	Full political model	CC model	Full model
agea	0.002*** (0.000)	0.002*** (0.000)	0.002*** (0.000)
chldhm	0.019* (0.011)	0.020* (0.011)	0.020* (0.011)
conservation	0.022*** (0.008)	0.028*** (0.008)	0.028*** (0.008)
east	-0.088*** (0.019)	-0.076*** (0.019)	-0.059*** (0.019)
eduyrs	0.007*** (0.001)	0.005*** (0.001)	0.005*** (0.001)
employed	0.024** (0.012)	0.025** (0.012)	0.023* (0.012)
gnr	-0.039*** (0.010)	-0.039*** (0.010)	-0.038*** (0.010)
green_identification	0.117*** (0.030)	0.083*** (0.029)	0.082*** (0.029)
hincfel	0.001 (0.011)	-0.003 (0.011)	-0.003 (0.011)
left	-0.005 (0.017)	-0.014 (0.016)	-0.014 (0.016)
nationalism	0.015 (0.032)	0.010 (0.032)	0.016 (0.032)
north	-0.066*** (0.016)	-0.045*** (0.015)	-0.042*** (0.015)
openness_to_change	-0.003 (0.008)	-0.001 (0.008)	-0.001 (0.008)
personal_trust	0.005 (0.003)	0.006* (0.003)	0.006* (0.003)
PM2.5	0.000*** (0.000)	0.000*** (0.000)	0.000*** (0.000)
polintr	0.037*** (0.011)	0.028** (0.011)	0.028** (0.011)
political_trust	0.026 (0.031)	0.025 (0.032)	0.028 (0.032)
right	-0.043*** (0.016)	-0.034** (0.016)	-0.033** (0.016)
rlgdgr	-0.006 (0.013)	-0.006 (0.013)	-0.005 (0.013)
rural_area	0.001 (0.012)	0.003 (0.012)	0.003 (0.011)
self_enhancement	-0.011 (0.007)	-0.007 (0.007)	-0.006 (0.007)
self_transcendence	0.069*** (0.010)	0.043*** (0.010)	0.038*** (0.010)
south	0.069*** (0.018)	0.047** (0.018)	0.044** (0.018)
ccgdbd		0.077*** (0.013)	0.074*** (0.013)
ccnthum		0.042*** (0.012)	0.039*** (0.012)
ccrdprs		0.008 (0.010)	0.009 (0.010)
clmchn		0.117*** (0.025)	0.109*** (0.025)
wrcimch		0.073*** (0.012)	0.072*** (0.012)
fossil_fuel_preference			-0.061** (0.024)
renewables_preference			0.044*** (0.012)

* p < 0.1, ** p < 0.05, *** p < 0.01

Table 3.10: Marginal effects regarding support over the ban of least efficient appliances.

Chapter 4

Analysis and comparison of results

Before reaching the conclusions, an attempt will be made here to focus on the results of previous chapter. Furthermore, as stated along the thesis and as implied by its structure, these findings will be compared with those given in the first chapter (see Chapter 1) in an effort to have an overview and to determine whether congruencies exist at an international level, among Western countries.

Before proceeding, it is useful to briefly report the structure of this chapter; again here, sections employed in Chapter 3 will be used, namely climate change, energy preferences, and environmental policies. Firstly, each section will be examined as a whole, reporting the most interesting results. Secondly, whenever possible findings will be compared with other studies and countries³⁴.

4.1 Climate change dimensions

4.1.1 Review of empirical results

Before reporting the most interesting observations as highlighted in Chapter 3, it is useful to recall those five indicators related to these dependent variables, as highlighted in Chapter 2. Within the European region, there appears to be a high level of perception regarding the very existence of climate change, but despite this, respondents are characterised by lower levels when are considered other aspects that have a link with this topic. While about 96% of Europeans think that climate change is real, only about a half strongly belief that this is due to human activities, and even though just over half support that the effects of these events will be very adverse, only a third express a real and strong

³⁴The most complete model will be the only employed within each of the following sections.

concern. This at the outset, even before moving on and looking at the results obtained, shows that for sure, Europeans as a whole could not be defined as climate change sceptics, but at the same time they do not seem to show great concern, just a moderate interest, which could certainly be defined as worrying given the environmental and economic effects associated.

The analysis of the first dimension under evaluation, that of the very existence of climate change, leads to the conclusion that the transversality of thought observed in relation to this variable is, in fact, associated with a broad non-partisan view shared by the majority of the European population. In fact, as the marginal effects show, there are no specific patterns at work behind this high level of belief.

The remaining dimensions will be considered in two blocks, those explored and mentioned several times in Chapter 1 while the one related to responsibility for climate change will be analysed in its separate part. The variables in the first block are, respectively, the causes of climate change, its future impact and the level of concern associated.

These three variables shown common patterns, as evidenced by the analyses performed. In fact, classic control variables appear to play a role. In detail, those who are older actually seem to blame humans less for their footprint in terms of emissions along with a smaller concern either about future events and on a personal level. At the contrary, those more well-educated appear to blame human for CC. Consistent with this result, having a higher level of studies result in greater concern. A specific mention should also be made regarding the impact of the gender variable, which appears to associate men more strongly with human causes and concern about future events, whereas women are slightly more personally concerned about this issue.

A large role is played by regional dummy variables, which give the opportunity to differentiate the European region into macro groups and to associate certain characteristics with specific areas. Empirical analyses seem to show similarities between Northern and Eastern regions whereas Southern countries are characterised by a completely opposite attitude. Indeed, the Southern countries tend to blame CC on human activities, to have a higher level of concern, and to be more personally concerned compared to Centre-West. These findings denote a substantial disparity of views on this issue within Europe, and confirm those primary suggestions related to base climate change dimensions as highlighted in Section 1.2.3.

Regarding the variables of greatest interest, it could be emphasized that a specific political tendency leads to strong environmentalist beliefs; in fact, those who identify themselves with “Green” parties tend to have defined po-

sitions, across all dimensions considered. In terms of consistency, the second variable is interest in political issues, which appears to have a moderate effect; specifically, a strong interest decreases climate change scepticism and raise concerns.

Remaining political variables are less consistent, but show a significant impact. Indeed, those associated with the right-wing and far-right political spheres tend to be more sceptics, though, more concerned about CC. Although, this seems incoherent since eventually they are associating a higher priority to economic rather than environmental well-being. Instead, those in line with the left and extreme left, on the other hand, are only more concerned. Eventually, among these dimensions a great political influence is in place, particularly, worry about climate change which is observed to be really linked with political predictors.

In addition, it does not seem to be at work a great moderating effect played by education in connection with political variables. In fact, just a limited impact is noted at a general level. Nevertheless, this combination may exist in specific countries or regions when taken individually.

The decision not to include the last dimension of this section and thus to treat responsibility for climate change on its own, derives from the fact that this variable was not dealt within Chapter 1, but also because unlike the others, different behaviours and trends are observed for some predictors.

In particular, an increase in age is associated with a reduction in the perceived sense of responsibility, which may cynically derive from being in the final part of one's life, and thus a problem to be primarily addressed by the younger generation. Nevertheless, this predictor is not as strong as observed in other cases. In this setting, women seem to be less associated with a greater sense of responsibility than their male counterparts, but it is more interesting notice that for the first time education does not turn out to be helpful, while being with a strong sense of religion increases too this belief, albeit only slightly.

Great differences are found looking at regional variables, indeed, their effects do not seem as strong as in the previous situations, but they are still useful in this type of analysis, highlighting how Eastern countries are more sensitive to this kind of issue compared to other regions.

This dimension is interesting to explore individually because in addition to what has just been indicated, two indices, one capturing nationalistic traits and the other capturing the level of trust in political institutions, are significant for the first time. This probably means that in fact responsibility turns out to be something that is influenced in a different way. This may suggest that this belief is not structurally similar to those explored earlier. Returning to political

variables, all of them are found to have some level of effect and even more surprisingly all increase, albeit to varying degrees, sense of responsibility. Thus, this variable along with worry about climate change represents one dimension in which there is a strong political influence.

Before moving on to a direct comparison with other countries, it is noticeable that certain variables are not particularly useful, or at least had little impact in these settings. These certainly include the index of nationalistic traits, which plays a role only in the last dimension. A similar situation is linked with remaining political predictors which are not so useful to explain some relationships, especially when compared to green identification.

4.1.2 Comparison with studies concerning the European region

Having briefly analysed what has been observed through Probit regressions, it is now time to move on to a comparison with the data related to the European region, as described in Chapter 1.

It must first be mentioned that one of the reported dimensions was not analysed within the data review chapter, hence the check will cover only the other climate change variables.

Within Chapter 1, several predictors were reported to affect basic dimensions of CC. However, far fewer variables were used by those studies, consequently due to this limited coverage in terms of variable. Thus, the comparison of results should be taken cautiously. Nevertheless, more interesting than the magnitude is the impact on the trend that these variables appear to bring in relation to the underlying perceptions.

From the study reported in Section 1.2.3, all the variables employed turned out to be significant in almost all models with respect to the dimensions under evaluation. Specifically, it was observed that older people are generally more sceptical, expressing a lower level of personal concern but a high sensibility to future events related to CC. Concerning gender, it was observed to have a large effect, in that the male gender is much more likely to express sceptical tendencies as well as to perceive a lower level of concern. The last control variable explored within that research refers to education. In this case, different effects were evident in that an increase in the level of education is associated with a lower level of scepticism, a higher level of concern about future impacts as well as an essentially unchanged personal level of concern.

As also noted along the chapter, this study did not examine in detail the role played by political influence as it is assessed through the single predictor

right vs. left, which seems to lead those who identify themselves with the right-wing political sphere, towards an increased level of scepticism, and a mix effect towards concern, observed to be higher in relation to future events but lower on a personal level compared to the opposite ideology. See Section 1.2.3 and Table 1.3 for more details.

In order to allow an easier comparison, see Table 4.1 which summarises main results as reported in Section 1.2.1 and Chapter 3. Consequently, some inconsistencies between papers could be noted. In particular, there is a significant difference within the gender variable, since as reported in Chapter 3, males are less sceptical and thus appear to have the opposite sign compared to the study concerning the European region, however, it has just a modest effect within the analysis performed in this essay. The other variables show some differences too, as in the case of age, where some incongruence emerged regarding the type and level of concern. In contrast, education and political variables are in line, as predictors share the same trend.

Despite some dissimilarities, especially the first two control variables, it should be noted as well that these analysis present important differences, starting from the subset used in this thesis, which is smaller due to the numerous variables considered as well as the type of analysis performed. Apart from these, main findings are supported by the study just mentioned.

Predictor	Data review chapter EU	Empirical analysis (Full model)
Age	More scepticism and more concern regarding future events but a lower level of personal preoccupation (modest predictor).	More scepticism and a smaller concern regarding future events but a higher level of personal preoccupation (important predictor).
Gender	More scepticism and less concern (important predictor).	Less scepticism and higher concern about future events but a lower level of personal preoccupation (modest predictor).
Education	Less scepticism and higher concern about future events (modest predictor).	Less scepticism and higher concern (quite important predictor).
Political scale	More scepticism and more concern regarding future events but a lower level of personal preoccupation is associated with those aligned with the right compared to the left (important predictor).	More scepticism and higher concern with those aligned with the right compared to the centre whereas those identified with the left are more concerned compared to the centre (modest predictor).

Table 4.1: This table reports main results as highlighted in Section 1.2.3 and Chapter 3, concerning the European region and base climate change perceptions.

4.1.3 Comparison with studies concerning US and other developed nations

Turning to a direct comparison with other developed countries, important similarities could be highlighted. Check out Table 4.2 for an easier comparison.

Indeed, in the United States main control variables are in most cases at least important predictors. However, unlike in Europe, being older does not have much of an impact, since it is one of those few basic variables that is practically useless (essentially zero). Nevertheless, in this variable, older people are observed to be more sceptical. After that, gender has an important role, with males being much more sceptical and less concerned about climate change, unlike females. The role expressed by education is only partly in line with those results as identified in the European region as both the level of scepticism and the level of concern tend to decrease. With regard to the level relative to one's income, it is observed in the US to have an impact mainly on the level of concern with respect to CC, decreasing it, whereas results described in Chapter 3 suggest instead that this dimension does not have, in any case, a great effect within the European region.

Moreover, two additional differences are found looking at geographical areas and level of religiosity. These in the US tend, to increase the level of concern when one lives in urban areas, whereas to express more scepticism and less concern when the respondent is religious. In the European region, these two variables do not have any kind of effect, except for responsibility, where religiosity seems to have a positive impact.

As anticipated, a similar trend appears for political variables, at least in those that are employed in both studies, particularly those capturing environmentalist values and ideological sides. On the contrary, it is not possible to report similarities as well as inconsistencies with regard to party identification as in Europe in most cases there are a multitude of parties within every country. Returning to the two common variables, environmental values had been observed in the US to be the most important predictor, leading to a lower scepticism and a higher concern, as also reported for Europe. Thus, environmental values, captured as such in the US and as a proxy in Europe either show the same trend and turned out to be a key feature. Instead, the remaining variable, the one capturing ideological orientation is found to substantially increase scepticism and decrease the level of concern in those who are aligned with the right (conservative area) as noticed as well in Europe, albeit with a lower magnitude.

Thus, the outcomes presented thus far show striking similarities not only in terms of direction expressed by the variables attempting to capture traditional

and environmental political traits, but also in magnitude, especially for those who reflect themselves in environmentalist parties that are significantly less sceptical and more concerned than their counterparts. Even though, Canada and Australia were not explicitly reported along this part, common similarities are present. Indeed, concerning Australia it was found a political situation similar to the one observed in the US (more polarised), that is replicated in terms of trends even in Europe (although with a lower magnitude), since predictors behave in a close fashion in terms of trends. Instead, in Canada was pointed out the relevance pollution could have in relation to these belief, however, no connection is found in Europe at the general level. Although, country or regional links may instead be at work.

Predictor	Data review chapter US	Empirical analysis (Full model)
Age	Almost useless.	More scepticism and a smaller concern regarding future events but a higher level of personal preoccupation (important predictor).
Gender	More scepticism and less concern (important predictor).	Less scepticism and higher concern about future events but a lower level of personal preoccupation (modest predictor).
Education	Less scepticism and less concern events (quite important predictor).	Less scepticism and higher concern (quite important predictor).
Political scale	More scepticism and less concern compared to those aligned with the left (important predictor).	More scepticism and higher concern with those aligned with the right compared to the centre whereas those identified with the left are more concerned compared to the centre (modest predictor).
Green predictor	Less scepticism and higher concern (most important predictor).	Less scepticism and higher concern (most important predictor).

Table 4.2: This table reports main results as highlighted in Section 1.2.1 and Chapter 3, concerning either the European and US regions in relation to base climate change perceptions.

4.2 Energy preferences

4.2.1 Fossil-fuel sources

Regarding preference towards the two types of energy that could be used, generally divided into renewables and fossil fuel energies, an overwhelming preference towards the former (68.34%) is recorded, as expected, while a fairly low level of support towards the latter (16.57%) is noted, as shown in Chapter 2 (as indices). Subsequent analysis led to unexpected results.

In fact, with regard to fossil fuels, elderlies unlike more educated people tend to prefer them, while no gender differences are observable. On the contrary,

although to a limited extent, those with a certain level of economic prosperity seem to prefer this type of energy. Despite the fact that this variable is not particularly useful, it is partially at odds with expectations, as renewable energies tend to be more expensive, so, they should receive more support from those wealthier social classes that are able to afford it; on the other hand, a slight preference toward fossil fuels may be at work to keep energy costs down at the expense of a higher pollution.

As for the regional differences captured by the dummy variables, there is a certain similarity to the Centre-West except for Eastern countries, which seem to systematically prefer this type of energy quite strongly, being very much in line with the data provided in Section 1.2.3. Several factors, both political and economical, may be at play here at an underlying level, as these countries are characterised by a very similar past. Indeed, all Eastern European countries were planned economies, and they share the same characteristic of being less developed compared to other European regions. Therefore one could associate this significantly greater preference for this type of energy precisely with the need for their economic development, in addition to a limited financial budget, decreasing then the possibility for them of being able to afford a larger use of renewable sources.

Surprisingly, it does not seem to be a dimension particularly linked to political variables, in fact only identification with those nationalist traits appears to be the one with an important role in reducing its support. Moreover, the dimensions related to climate change were not found to be particularly useful in defining patterns. This suggests that having a strong support for fossil fuels is not particularly linked to political traits. This could be due to the fact that, while less preferred than its renewable counterpart, this type of resource is still perceived as something necessary to sustain European economies, as well as the realization regarding the de facto impossibility of an extensive and rapid energy transition at the time of the interview.

4.2.2 Renewable energies sources

Equally surprising are findings observed with regard to renewable energies, where political variables have only a moderate role, either directly and indirectly.

In detail, it was observed that those who are older, males and those with a good financial situation are associated with less support (again in contrast to expectations). Here, a main difference with fossil fuels appears to be clear, indeed, there are strong links with certain regions, albeit in completely differ-

ent directions. In particular, Eastern regions are strongly associated with less support, while Southern regions with a stronger support, as described as well in Section 1.2.3, confirming previous suggestions regarding Eastern region.

Political predictors in this case show mainly an indirect effect through climate dimensions (positive effects). Nevertheless, in this setting having nationalistic traits seem to indicate less support for renewable energy, actually representing something that may be not explained by this kind of variable as European countries tend to be net importers of energy and thus dependent on foreign countries, contrasting in principle the belief captured by this type of predictor (although, increasing the current level of investment in renewables sources means a higher dependencies toward those foreign nations that are great producers of specific raw materials used in this sector). Nonetheless, because price is a very sensitive variable when it comes to energy, it could mean that, while these types of people prefer a certain level of independence from other countries, eventually in the energy field this type of compromise is possible, especially for those that are unable to be fully independent.

4.3 Environmental policies and attitude

Similarly to the first section, the remaining dimensions will be divided into two blocks to reflect the different approaches expressed, specifically environmental policies and a specific attitude towards energy reduction.

Before beginning to highlight major congruencies along with the most significant results, it is useful to recall some descriptive data from Section 1.2.3. As pointed out there, only one of the possible policies actually received wide support within this dataset. Specifically, the support of renewable energy (subsidies toward renewables energy sources). This type of support may essentially be traced back to a mere economic fact (although the question posed in ESS8 does not specify the type of funding), since, at least directly, there might not be an increase in terms of taxation, but only a transfer of resources between different policies in force, for instance, from a cut in subsidies for fossil fuels. In addition, it was shown that energy policies that have a direct impact (increased taxation on fossil fuels) are more supported in those countries that tend to be recognised as more developed, the Northern bloc, while policies that could expand renewables without explicitly leading to increased taxation are viewed similarly across regions.

Since the data just expressed only concern energy policies, these will be the first to be taken up in this part while attitude will be analysed separately later.

4.3.1 Environmental policies

Specifically, these three dimensions (fossil fuel taxation, subsidies toward renewables and ban of least efficient appliances) either show some similarities as well as differences. In fact, already starting with the control variables, certain divergences are noticeable. Results speak for themselves: older generations show a preference either for higher taxes and ban of less efficient household appliances, whereas younger generations tend to support more renewable energy subsidies. The effects of this variable differ depending on the policy considered, but the magnitude remains almost the same.

Significant differences are also perceived with respect to the impact of education, with the more educated tending to be inclined toward fossil fuel taxation (very strongly), while being less impactful in the remaining two cases, although, with a certain role.

Increase in taxation makes a clear signal of an increase in the tax burden on taxpayers, clearly making the wealthier social classes the ones in a possible position to support this type of energy policy. This is also reflected in those results expressed by statistical analysis since having a certain level of economic well-being is found to have a positive effect. In addition, increased taxation tends to be viewed negatively by those living in rural areas, thus, from that part of the population that tends to use this type of energy more, whether for transports, heating or other less energy-efficient economic activities.

As far as geographical differences are concerned, marked differences are noted depending on the policy considered. Specifically, Centre-West is the region most in favour of subsidies for renewables, while with regard to the ban on less efficient devices, opposite effects are visible among regions, as countries from the South tend to support it in contrast to those either in the North and East. However, regional identification does not seem to show any role regarding subsidies in the South, whereas Northern (positive) and Eastern (negative) countries behave differently in this respect.

Here, political variables seem to express their greatest influence, being in line with expectations, since this kind of decisions could have a strong impact on people's daily lives and be really divisive depending on the side. Despite this, the ban appears to be less prone to an influence of this nature. As also observed in the previous cases, being identified with the green parties turns out to be decisive in expressing a favourable position for each of these proposals. However, other significant influences are at work, such as belonging to nationalist positions that strongly reduce support for renewable subsidies.

The addition of climate and energy preference's variables help to support

previous suggestion even more, as the former are found to have a very clear and consistent effect across settings, increasing toward this kind of policies (except for fossil-fuel preference, as expected). An effect is also noticeable when energy preferences are considered, with an impact ranging from moderate (tax) to very significant (subsidies and ban). Moreover, the inclusion of this type of variables tend to increase differences expressed by the regional ones, highlighting even more the extent to which each region could express great and different tendencies from the others.

Regardless of the general impact these variables have, in terms of their expressed strength some differences emerged, although, political variables are really important when it comes to increased taxation on fossil fuels and subsidies. That said, the effect is less strong in the latter case, both directly and indirectly, whereas in relation to the ban on less efficient appliances political influence is observed to be just moderate (directly and indirectly).

4.3.2 Attitude to reduce energy consumption

The dimension that captures the attitude of frequently reducing one's own energy consumption is quite different from those previously mentioned. In fact, although some similarities are present, such as in the case of age which tends to increase this kind of approach as one becomes older, and with respect education which increases this behaviour for those who appear to have completed more years of study (in both cases quite important), there exist several divergences.

Indeed, despite common findings regarding classic control variables, there is no particular affinity with environmental policies, as the political variables do not seem to significantly influence this attitude, either directly or indirectly. Nevertheless, there is some sort of influence, even though just to those showing a high interest in political issues directly, while indirectly through only two out of five variables capturing climate dimensions beside a specific preference for renewable energy sources. It is clear, therefore, it is more independent at the political level, whereas no particular regional differences are found, except for Eastern countries, which tend to be less supportive of consistent reductions in their energy consumption.

4.3.3 Comparison with studies concerning the European region

After having briefly analysed what was observed through the statistical tables produced with regard to this part, a comparison could be made with the data obtained in relation to the European region through the use of studies described in Section 1.2.3.

Before doing so, it is worth noting to mention that only one of the dimensions reported was analysed within the data review chapter, so, the check will only cover support for an increase in fossil fuel taxation. It should be noted that as a result of the two studies employed for the analysis of this energy policy, two indices were specifically introduced, the one capturing nationalist traits and the one capturing the level of trust in key political institutions. Before turning to the analysis of the political variables, a short recap of the relationship between control and taxation variables is necessary.

Starting with age (see Table 4.3), it was not found to be particularly relevant in reducing the level of support, although, this pattern was detected. As in the previous case, no huge gender differences are visible, although unlike the female gender, males tend to be less supportive. In contrast to these two variables, the impact of education is greater although not so strong, suggesting that a higher level of education is associated with a greater support for a fossil fuel taxation. In addition, control variables also included income level, a proxy for the predictor being used within the analyses conducted and reported in this thesis, specifically, comfort based on current income. In that model, it is significant, relating those with higher incomes with a higher support.

In terms of political variables, within these two studies, a broad set is employed, specifically, standard political orientation, level of trust in political institutions and level of nationalism. In detail, those who feel more in line with a right-wing orientation and who have a strong sense of nationalism tend to express a lower support in contrast to those who identify themselves with a left-wing political orientation and have a higher level of trust in political institutions. Furthermore, both reports examined the impact of climate change as a predictor, discovering a relevant and positive effect, as expected from this kind of variable. Although a large set of variables was used, a possible sensitivity to parties defined as environmentalists was not at all taken into account.

These studies suggest that several findings are indeed in line with expectations, except in the case of two political variables, namely nationalism and classical political scale, which are not relevant within the results expressed by the Probit analyses. On the contrary, although there are some differences in

the magnitude expressed, variables behaved in the same way.

Predictor	Data review chapter EU	Empirical analysis (Full model)
Age	Almost useless.	Lower support (modest predictor).
Gender	No particular gender differences.	No particular gender differences.
Education	Higher support (quite important predictor).	Higher support (important predictor).
Income	Higher support (modest predictor).	Higher support (modest predictor).
Political scale	Lower support (quite important predictor).	Not significant.
Nationalism	Lower support (important predictor).	Not significant.
Political trust	Higher support (important predictor).	Higher support (important predictor).
Interest in politics	Higher support (modest predictor).	Higher support (modest predictor).
Green predictor	Not explored.	Higher support (most important predictor).
Climate change	Higher support (important predictor).	Higher support (important predictors).
Fossil-fuel preference	Not explored.	Lower support (modest predictor).
Renewables preference	Not explored.	Higher support (modest predictor).

Table 4.3: This table reports main results as highlighted in Section 1.2.3 and Chapter 3, concerning the European region in relation to an increase of fossil-fuel taxation.

4.3.4 Comparison with studies concerning US

Unfortunately, it is not possible to compare results with those countries as reported in Chapter 1, since there was no focus on perception regarding fossil fuel taxation. Nevertheless, it is viable to compare the analysis of public perceptions toward investment in renewables (this was not carried out with other studies at European level as they focused only on increased taxation on fossil fuels), see Table 4.4.

The reference policy within the data review chapter is defined as “Third policy”, see Table 1.2 to get more details. Referring to that data, certain evidence appear clear. Indeed, among the classical control variables, only education was found to have some relationship with a further development of solar and wind energy, increasing its support, although only significant at 10%. In addition, a relationship appears between income and support, in fact, the higher the income the greater the support, although again only at a 10% level of significance.

Turning to variables closely connected with political influence, it was found that directly either ideological and political identification have no effect whatsoever, but only indirectly through the inclusion of climate variables, where an important impact is observed. In spite of a strong indirect political influence, the predominant variable in this case too is linked with the possession of certain environmental values, which, together with climatic variables (in particular the belief that the CC is real), decisively increase the level of support.

These results thus indicate that there are two main similarities based on what has been said so far. The first relates to the extraordinarily strong impact that environmental values reflect on the preference for renewable energy sources in terms of higher subsidies, while the second is that in both cases there is a strong indirect influence from political variables across basic dimensions of climate change, although this is actually greater in the US based on the magnitudes observed in the reference study. This greater influence may originate from the inclusion of multiple political variables, such as the one attempting to capture nationalistic traits, which is found to be particularly active in this context, reducing the level of support. Furthermore, in Europe the leading role comes from preference toward renewables energy sources. Despite this difference, at the European level, as in the United States, it remains quite evident how political variables significantly influence this type of energy policy, making clear how holding specific side could lead toward a high degree of polarisation.

Predictor	Data review chapter US	Empirical analysis (Full model)
Age	Almost useless.	Lower support (modest predictor).
Gender	No particular gender differences.	No particular gender differences.
Education	Higher support (quite important predictor).	Higher support (modest predictor).
Income	Higher support (modest predictor).	Not significant.
Political scale	Not significant.	Not significant.
Nationalism	Not explored.	Lower support (important predictor).
Political trust	Not explored.	Not significant.
Interest in politics	Not explored.	Higher support (modest predictor).
Green predictor	Higher support (really important predictor).	Higher support (important predictor).
Climate change	Higher support (really important predictors).	Higher support (modest and important predictors).
Fossil-fuel preference	Not explored.	Lower support (important predictor).
Renewables preference	Not explored.	Higher support (most important predictor).

Table 4.4: This table reports main results as highlighted in Section 1.2.1 and Chapter 3, concerning either the European and US regions in relation to higher subsidies toward renewables energy sources.

Chapter 5

Conclusion

The work in this thesis sought to expand on the findings highlighted in the studies reported through this essay. The primary goal was to examine the impact of political variables on three major topics related to climate change, the basic dimensions, preferences for fossil and renewable energies, and lastly, support expressed for certain environmental policies and attitudes.

Probit analyses confirmed the importance of political factors in shaping certain positions. It was particularly noted how these influences could differ significantly depending on the dimension under consideration. In fact, a strong impact is notable only on personal concern and responsibility for climate change, whereas in other basic dimensions these relationships are less pronounced, especially when the set of predictors is considered as a whole. This is an important point to make, as the impact of one variable in particular, identification with parties defined as environmentalists, is evident throughout the text. This element always behaved as expected, thus reducing scepticism and increasing support for certain energy preferences as well as climate change policies.

In contrast, classic variables used to capture certain political standpoints, the left and right dummy variables, are not always useful to express some degree of relationship, as instead they were observed within previous studies. Specifically, these tend to be more effective in a direct manner when related to the basic dimensions of climate change, while their impact is indirect in the remaining reported analyses.

In this research, two other political variables are added, an index capturing nationalistic traits and an index capturing the level of trust in one's political institutions. As reported, some inconsistencies are visible as the index capturing the level of nationalism is found to be not relevant when compared to the same dimension reported within past studies (increased taxation on fossil fuels). Indeed, Probit analyses did not report any degree of significance. Nevertheless, this trait is useful in other dimensions, with respect to support for renewable

energies and subsidies directed towards them, substantially reducing their support. The remaining index is observed to be very much in line with the evidence from the empirical analyses since a high level of trust in one's own institutions decisively leads toward support for increased taxation on fossil fuels.

Statistical tables revealed the extent to which political influence is extremely large when used to explore certain environmental policies, specifically the increase in taxation and the use of subsidies, thus determining a high degree of political polarisation, particularly within the former. The inclusion of climate and energy variables helped to extend and support these results, especially as they made it possible to highlight the indirect role expressed by political variables, although in many cases the dominating effect is expressed by identification with parties defined as "Green".

A further goal was to define whether regional differences are present. In this respect, dummy variables are helpful, as they allow discordant trends within the European region to emerge in several cases. Indeed, within basic variables of climate change there is a marked tendency on Southern countries towards a high level of concern and a lower level of scepticism. On the other hand, a certain gap is noted within Eastern countries in terms of their preference for the use of certain energy sources. It is clear that these countries have a strong link to fossil fuels, while their preference for renewable energies tends to be lower, probably due to the intrinsic characteristics of their economies. Differences are found as well in energy policies, where a greater propensity for taxation is evident in richer countries, those in the North, while subsidies tend to be less appreciated either by the North and the South. Turning to attitudes towards energy consumption, only Eastern regions tend to express a greater propensity to reduce their consumption.

Going towards the conclusion, no clear moderating effects emerged from the interaction of the education variable with political predictors. Consequently, education does not appear, at least on a general level, to increase or reduce the level of polarisation regarding climate change. Nevertheless, it is possible that these effects are instead measurable and clear when specific regions or countries are considered.

Living in more polluted areas did not determine any influence, but previous reasoning could also apply here, as several European areas have really high values of pollution which, when analysed specifically, might lead to more interesting results.

Finally, it would be very interesting to expand these analyses to include specific regions and countries, and then integrate this kind of work with future waves of the European Social Survey (albeit with less detail) in order to conduct

multi- and intra-regional comparisons and track the trend over time.

Appendix

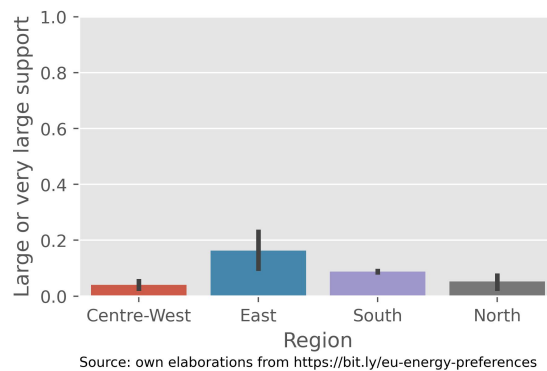


Figure A.1: This graph shows the perception regarding production of energy coming from coal power plants. Specifically, it was asked how much electricity should be generated through the use of coal. Size of confidence intervals (95%) is drawn around the mean.

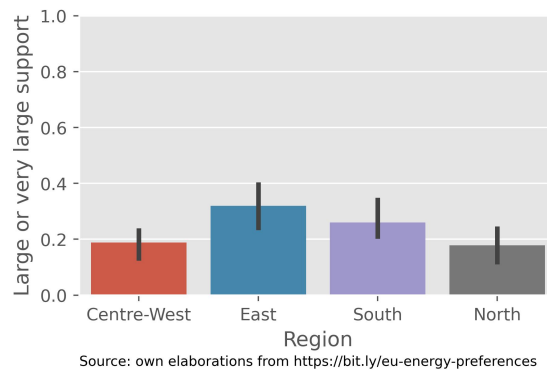


Figure A.2: This graph shows the perception regarding production of energy coming from gas power plants. Specifically, it was asked how much electricity should be generated through the use of gas. Size of confidence intervals (95%) is drawn around the mean.

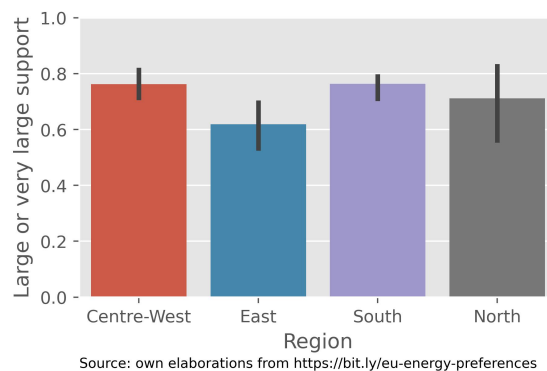


Figure A.3: This graph shows the perception regarding production of energy coming from hydro power plants. Specifically, it was asked how much electricity should be generated through the use of hydro power. Size of confidence intervals (95%) is drawn around the mean.

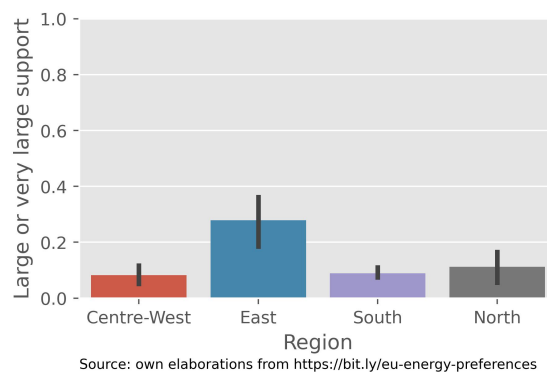


Figure A.4: This graph shows the perception regarding production of energy coming from nuclear power plants. Specifically, it was asked how much electricity should be generated through the use of nuclear power. Size of confidence intervals (95%) is drawn around the mean.

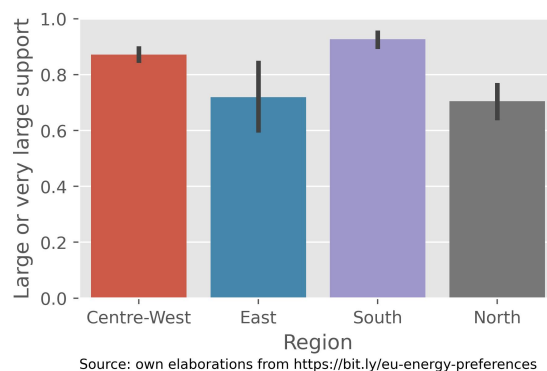


Figure A.5: This graph shows the perception regarding production of energy coming from solar power plants. Specifically, it was asked how much electricity should be generated through the use of solar power. Size of confidence intervals (95%) is drawn around the mean.

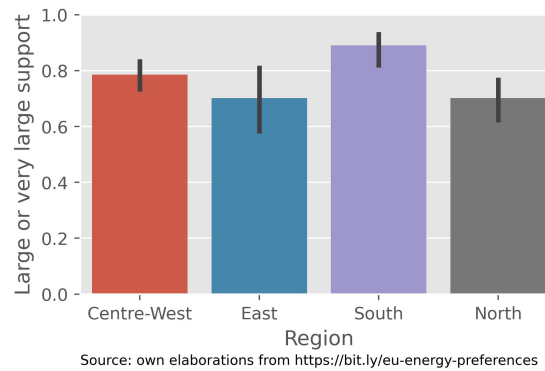


Figure A.6: This graph shows the perception regarding production of energy coming from wind power. Specifically, it was asked how much electricity should be generated through the use of wind power. Size of confidence intervals (95%) is drawn around the mean.

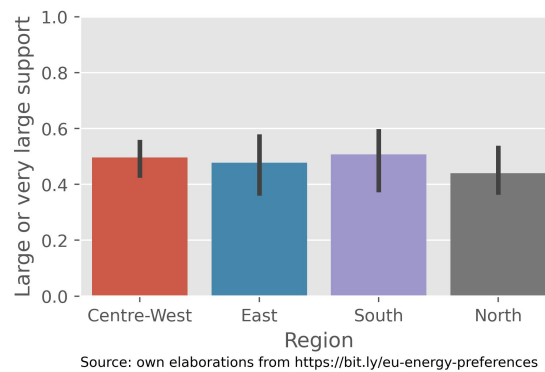


Figure A.7: This graph shows the perception regarding production of energy coming from biomass. Specifically, it was asked how much electricity should be generated through the use of biomass. Size of confidence intervals (95%) is drawn around the mean.

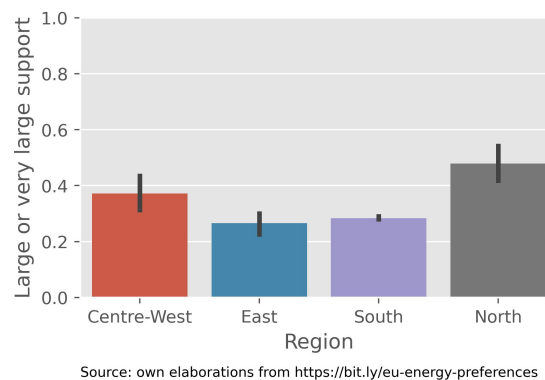


Figure A.8: This graph shows the perception regarding the support for a fossil fuel tax. Size of confidence intervals (95%) is drawn around the mean.

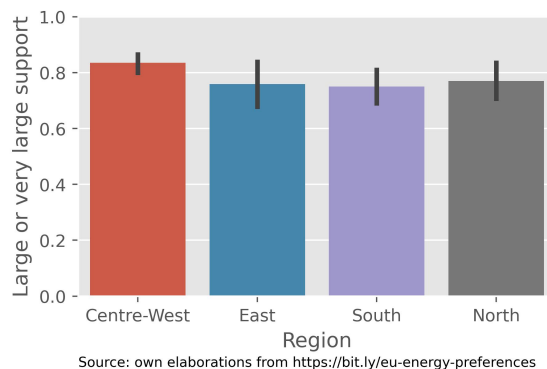


Figure A.9: This graph shows the perception regarding the support of subsidies to renewables. Size of confidence intervals (95%) is drawn around the mean.

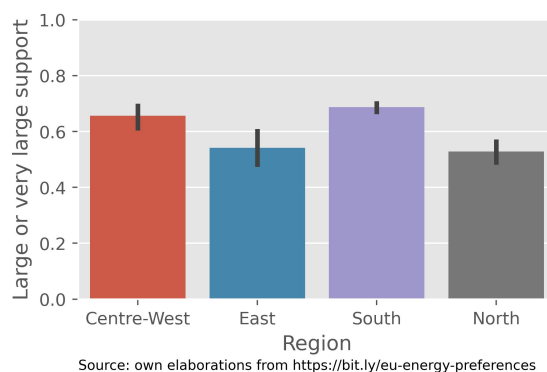


Figure A.10: This graph shows the perception regarding the support of a ban toward least-efficient appliances. Size of confidence intervals (95%) is drawn around the mean.

Table A.1: Different fits regarding actual existence of CC

	Dependent variable:				
	Climate change is real				
	Base model (1)	Base indexes model (2)	Base political model (3)	Full political model (4)	Education terms model (5)
gndr	-0.137*** (0.052)	-0.094* (0.052)	-0.099* (0.053)	-0.099* (0.052)	-0.097* (0.053)
agea	-0.002 (0.002)	-0.003* (0.002)	-0.003* (0.002)	-0.003** (0.002)	-0.004** (0.002)
edyyrs	0.016** (0.007)	0.011 (0.007)	0.009 (0.007)	0.008 (0.007)	0.013 (0.011)
chldhm	0.036 (0.056)	0.018 (0.057)	0.019 (0.057)	0.017 (0.057)	0.021 (0.057)
rlgdgr	0.061 (0.067)	0.030 (0.069)	0.041 (0.068)	0.044 (0.069)	0.046 (0.069)
hincfel	0.061 (0.053)	0.066 (0.055)	0.065 (0.055)	0.066 (0.055)	0.066 (0.055)
employed	0.042 (0.060)	0.053 (0.061)	0.053 (0.061)	0.053 (0.061)	0.052 (0.061)
PM2.5	0.00001 (0.0001)	-0.00002 (0.0001)	-0.00003 (0.0001)	-0.00002 (0.0001)	-0.00002 (0.0001)
rural_area	-0.039 (0.055)	-0.043 (0.056)	-0.035 (0.056)	-0.035 (0.056)	-0.040 (0.056)
north	-0.273*** (0.072)	-0.232*** (0.073)	-0.232*** (0.075)	-0.226*** (0.075)	-0.234*** (0.075)
south	0.102 (0.089)	0.121 (0.090)	0.137 (0.090)	0.150* (0.090)	0.143 (0.090)
east	-0.399*** (0.075)	-0.296*** (0.075)	-0.286*** (0.074)	-0.276*** (0.075)	-0.279*** (0.075)
personal_trust		-0.030* (0.018)	-0.032* (0.017)	-0.029 (0.018)	-0.029 (0.018)
self_transcendence		0.308*** (0.041)	0.300*** (0.042)	0.295*** (0.042)	0.292*** (0.042)
self_enhancement		-0.048 (0.034)	-0.046 (0.034)	-0.046 (0.034)	-0.047 (0.034)
openness_to_change		-0.064 (0.042)	-0.064 (0.042)	-0.064 (0.042)	-0.062 (0.042)
conservation		-0.056 (0.045)	-0.051 (0.046)	-0.046 (0.046)	-0.043 (0.046)
left			-0.015 (0.092)	-0.032 (0.092)	-0.076 (0.255)
right			-0.144* (0.078)	-0.142* (0.078)	0.145 (0.231)
polintr			0.089 (0.060)	0.088 (0.060)	0.073 (0.186)
political_trust				-0.044 (0.129)	0.174 (0.336)
green_identification				0.510** (0.206)	-0.200 (0.402)
nationalism				0.132 (0.117)	1.015** (0.401)
edyyrs:left					0.003 (0.018)
edyyrs:right					-0.023 (0.016)
edyyrs:nationalism					-0.072** (0.033)
edyyrs:green_identification					0.052** (0.022)
edyyrs:polintr					0.001 (0.013)
edyyrs:political_trust					-0.017 (0.023)
Constant	1.795*** (0.149)	1.232*** (0.275)	1.267*** (0.275)	1.241*** (0.278)	1.180*** (0.298)
Observations	26,324	26,324	26,324	26,324	26,324
Log Likelihood	-3,859.609	-3,778.425	-3,770.105	-3,759.582	-3,749.586
Akaike Inf. Crit.	7,745.218	7,592.849	7,582.209	7,567.165	7,559.172

Note:
*p<0.1; **p<0.05; ***p<0.01
The model was run through a Probit analysis.

	Full political model	Education terms model
agea	0.000** (0.000)	0.000** (0.000)
chldhm	0.001 (0.005)	0.002 (0.005)
conservation	−0.004 (0.004)	−0.003 (0.004)
east	−0.023*** (0.006)	−0.023*** (0.006)
eduyrs	0.001 (0.001)	0.001 (0.001)
employed	0.004 (0.005)	0.004 (0.005)
gndr	−0.008* (0.004)	−0.008* (0.004)
green_identification	0.042** (0.017)	0.038** (0.018)
hincfel	0.005 (0.005)	0.005 (0.005)
left	−0.003 (0.008)	−0.003 (0.008)
nationalism	0.011 (0.010)	0.007 (0.010)
north	−0.019*** (0.006)	−0.019*** (0.006)
openness_to_change	−0.005 (0.003)	−0.005 (0.003)
personal_trust	−0.002 (0.001)	−0.002 (0.001)
PM2.5	0.000 (0.000)	0.000 (0.000)
polintr	0.007 (0.005)	0.007 (0.005)
political_trust	−0.004 (0.011)	−0.003 (0.010)
right	−0.012* (0.006)	−0.012* (0.006)
rlgdgr	0.004 (0.006)	0.004 (0.006)
rural_area	−0.003 (0.005)	−0.003 (0.005)
self_enhancement	−0.004 (0.003)	−0.004 (0.003)
self_transcendence	0.024*** (0.004)	0.024*** (0.004)
south	0.012* (0.007)	0.012 (0.007)
* p < 0.1, ** p < 0.05, *** p < 0.01		

Table A.2: Marginal effects regarding the existence of CC.

Table A.3: Different fits regarding the causes of CC

	Dependent variable:				
	Climate change is caused by human activities				
	Base model	Base indexes model	Base political model	Full political model	Education terms model
	(1)	(2)	(3)	(4)	(5)
gndr	0.038 (0.029)	0.069** (0.029)	0.061** (0.030)	0.064** (0.030)	0.066** (0.030)
agea	-0.011*** (0.001)	-0.011*** (0.001)	-0.011*** (0.001)	-0.011*** (0.001)	-0.011*** (0.001)
edyurs	0.022*** (0.004)	0.015*** (0.004)	0.013*** (0.004)	0.012*** (0.004)	0.007 (0.006)
chldhm	-0.005 (0.029)	-0.007 (0.030)	-0.004 (0.030)	-0.006 (0.030)	-0.005 (0.030)
rlgdgr	-0.015 (0.038)	-0.017 (0.038)	-0.012 (0.038)	-0.012 (0.038)	-0.012 (0.038)
hincfel	0.066** (0.030)	0.050* (0.030)	0.049 (0.030)	0.046 (0.030)	0.047 (0.031)
employed	-0.042 (0.030)	-0.037 (0.030)	-0.035 (0.030)	-0.032 (0.030)	-0.032 (0.030)
PM2.5	-0.0001** (0.0001)	-0.0002** (0.0001)	-0.0002** (0.0001)	-0.0002** (0.0001)	-0.0001** (0.0001)
rural_area	-0.055* (0.032)	-0.054* (0.032)	-0.045 (0.032)	-0.045 (0.032)	-0.046 (0.032)
north	-0.310*** (0.040)	-0.294*** (0.040)	-0.294*** (0.040)	-0.285*** (0.040)	-0.290*** (0.039)
south	0.235*** (0.044)	0.285*** (0.046)	0.295*** (0.046)	0.314*** (0.046)	0.309*** (0.046)
east	-0.329*** (0.056)	-0.224*** (0.057)	-0.217*** (0.058)	-0.206*** (0.056)	-0.208*** (0.056)
personal_trust		0.016* (0.009)	0.014 (0.009)	0.013 (0.009)	0.013 (0.009)
self_transcendence		0.244*** (0.030)	0.228*** (0.030)	0.219*** (0.030)	0.217*** (0.030)
self_enhancement		-0.014 (0.019)	-0.013 (0.019)	-0.016 (0.019)	-0.016 (0.019)
openness_to_change		-0.049** (0.023)	-0.048** (0.023)	-0.046** (0.023)	-0.045* (0.023)
conservation		-0.116*** (0.021)	-0.107*** (0.022)	-0.098*** (0.022)	-0.094*** (0.022)
left			0.066 (0.043)	0.047 (0.044)	-0.222 (0.140)
right			-0.100** (0.042)	-0.097** (0.042)	-0.111 (0.152)
polintr			0.091*** (0.032)	0.083*** (0.032)	0.030 (0.109)
political_trust				0.103 (0.084)	0.115 (0.319)
green_identification				0.452*** (0.070)	-0.096 (0.320)
nationalism				0.075 (0.093)	0.423 (0.264)
edyurs:left					0.020** (0.010)
edyurs:right					0.001 (0.011)
edyurs:nationalism					-0.029 (0.020)
edyurs:green_identification					0.037* (0.020)
edyurs:polintr					0.004 (0.008)
edyurs:political_trust					-0.001 (0.021)
Constant	0.288*** (0.075)	-0.173 (0.155)	-0.134 (0.156)	-0.139 (0.156)	-0.076 (0.167)
Observations	26,324	26,324	26,324	26,324	26,324
Log Likelihood	-16,076.710	-15,911.860	-15,887.990	-15,840.590	-15,827.590
Akaike Inf. Crit.	32,179.420	31,859.730	31,817.980	31,729.180	31,715.180

Note:

*p<0.1; **p<0.05; ***p<0.01
The model was run through a Probit analysis.

Table A.4: Different fits regarding the future impact of CC

	Dependent variable:				
	Climate change impact will be really bad				
	Base model	Base indexes model	Base political model	Full political model	Education terms model
	(1)	(2)	(3)	(4)	(5)
gndr	0.046 (0.028)	0.099*** (0.029)	0.084*** (0.030)	0.090*** (0.030)	0.091*** (0.030)
agea	−0.005*** (0.001)	−0.006*** (0.001)	−0.007*** (0.001)	−0.007*** (0.001)	−0.007*** (0.001)
edyrs	0.039*** (0.004)	0.033*** (0.004)	0.030*** (0.004)	0.028*** (0.004)	0.034*** (0.007)
chldhm	−0.039 (0.031)	−0.057* (0.031)	−0.055* (0.031)	−0.054* (0.031)	−0.053* (0.031)
rigdgr	−0.042 (0.037)	−0.062 (0.038)	−0.060 (0.038)	−0.062 (0.038)	−0.061 (0.038)
hincfel	0.101*** (0.033)	0.111*** (0.034)	0.109*** (0.034)	0.106*** (0.034)	0.107*** (0.034)
employed	0.037 (0.036)	0.048 (0.037)	0.052 (0.036)	0.052 (0.036)	0.052 (0.036)
PM2.5	0.0001* (0.0001)	0.0001 (0.0001)	0.0001 (0.0001)	0.0001 (0.0001)	0.0001 (0.0001)
rural_area	0.001 (0.036)	−0.0005 (0.037)	0.012 (0.037)	0.012 (0.037)	0.011 (0.037)
north	−0.252*** (0.047)	−0.208*** (0.047)	−0.208*** (0.047)	−0.199*** (0.047)	−0.201*** (0.047)
south	0.188*** (0.053)	0.229*** (0.052)	0.241*** (0.052)	0.254*** (0.052)	0.251*** (0.052)
east	−0.205*** (0.058)	−0.079 (0.060)	−0.072 (0.061)	−0.055 (0.060)	−0.054 (0.060)
personal_trust		−0.037*** (0.010)	−0.039*** (0.010)	−0.042*** (0.010)	−0.041*** (0.010)
self_transcendence		0.371*** (0.031)	0.351*** (0.031)	0.342*** (0.031)	0.342*** (0.031)
self_enhancement		−0.053*** (0.019)	−0.052*** (0.019)	−0.053*** (0.019)	−0.052*** (0.019)
openness_to_change		−0.083*** (0.023)	−0.084*** (0.023)	−0.083*** (0.023)	−0.083*** (0.023)
conservation		−0.115*** (0.026)	−0.105*** (0.026)	−0.094*** (0.026)	−0.093*** (0.026)
left			0.126*** (0.048)	0.118** (0.048)	0.146 (0.152)
right			−0.069 (0.047)	−0.059 (0.047)	0.056 (0.157)
polintr			0.136*** (0.035)	0.131*** (0.035)	0.172 (0.110)
political_trust				−0.084 (0.086)	0.005 (0.320)
green_identification				0.463*** (0.096)	0.580 (0.445)
nationalism				−0.079 (0.086)	0.362 (0.266)
edyrs:left					−0.002 (0.011)
edyrs:right					−0.009 (0.011)
edyrs:nationalism					−0.037* (0.021)
edyrs:green_identification					−0.008 (0.028)
edyrs:polintr					−0.003 (0.008)
edyrs:political_trust					−0.007 (0.022)
Constant	0.331*** (0.086)	−0.186 (0.173)	−0.135 (0.177)	−0.125 (0.175)	−0.195 (0.189)
Observations	26,324	26,324	26,324	26,324	26,324
Log Likelihood	−13,503.480	−13,182.820	−13,144.430	−13,109.010	−13,102.560
Akaike Inf. Crit.	27,032.950	26,401.650	26,330.870	26,266.030	26,265.120

Note:

*p<0.1; **p<0.05; ***p<0.01

The model was run through a Probit analysis.

Table A.5: Different fits regarding worry about CC

	Dependent variable:				
	Extremely worried about climate change				
	Base model	Base indexes model	Base political model	Full political model	Education terms model
	(1)	(2)	(3)	(4)	(5)
gndr	-0.126*** (0.027)	-0.068** (0.029)	-0.086*** (0.029)	-0.084*** (0.030)	-0.083*** (0.029)
agea	-0.002*** (0.001)	-0.003*** (0.001)	-0.003*** (0.001)	-0.003*** (0.001)	-0.004*** (0.001)
eduysr	0.029*** (0.004)	0.019*** (0.004)	0.014*** (0.004)	0.013*** (0.004)	0.002 (0.006)
chldhm	-0.027 (0.032)	-0.013 (0.033)	-0.007 (0.033)	-0.010 (0.033)	-0.008 (0.033)
rigdgr	0.084** (0.036)	0.046 (0.037)	0.055 (0.037)	0.058 (0.037)	0.058 (0.037)
hincfel	0.002 (0.029)	-0.011 (0.030)	-0.012 (0.030)	-0.015 (0.031)	-0.013 (0.031)
employed	-0.087** (0.034)	-0.078** (0.034)	-0.075** (0.035)	-0.073** (0.034)	-0.072** (0.034)
PM2.5	0.0001 (0.0001)	-0.00003 (0.0001)	-0.00003 (0.0001)	-0.00002 (0.0001)	-0.00002 (0.0001)
rural_area	-0.065* (0.035)	-0.067* (0.036)	-0.048 (0.036)	-0.049 (0.035)	-0.051 (0.035)
north	-0.425*** (0.043)	-0.369*** (0.043)	-0.370*** (0.043)	-0.359*** (0.043)	-0.367*** (0.043)
south	0.270*** (0.047)	0.343*** (0.048)	0.359*** (0.048)	0.384*** (0.048)	0.375*** (0.048)
east	-0.461*** (0.063)	-0.247*** (0.068)	-0.231*** (0.069)	-0.217*** (0.067)	-0.216*** (0.067)
personal_trust		-0.007 (0.010)	-0.011 (0.010)	-0.010 (0.010)	-0.010 (0.010)
self_transcendence		0.491*** (0.032)	0.455*** (0.032)	0.443*** (0.032)	0.441*** (0.032)
self_enhancement		-0.090*** (0.018)	-0.088*** (0.018)	-0.091*** (0.018)	-0.093*** (0.018)
openness_to_change		0.049** (0.022)	0.051** (0.023)	0.054** (0.022)	0.057** (0.022)
conservation		-0.101*** (0.022)	-0.078*** (0.022)	-0.065*** (0.022)	-0.059*** (0.022)
left			0.215*** (0.043)	0.192*** (0.044)	0.007 (0.140)
right			-0.167*** (0.048)	-0.163*** (0.048)	0.092 (0.165)
polintr			0.185*** (0.032)	0.178*** (0.032)	-0.078 (0.109)
political_trust				0.038 (0.101)	0.271 (0.402)
green_identification				0.558*** (0.069)	0.236 (0.319)
nationalism				0.170* (0.100)	0.538** (0.272)
eduysr:left					0.013 (0.010)
eduysr:right					-0.021* (0.012)
eduysr:nationalism					-0.031 (0.020)
eduysr:green_identification					0.021 (0.020)
eduysr:polintr					0.020** (0.008)
eduysr:political_trust					-0.018 (0.027)
Constant	-0.445*** (0.078)	-2.212*** (0.177)	-2.142*** (0.177)	-2.173*** (0.177)	-2.047*** (0.191)
Observations	26,324	26,324	26,324	26,324	26,324
Log Likelihood	-15,063.430	-14,378.590	-14,268.260	-14,186.510	-14,163.250
Akaike Inf. Crit.	30,152.860	28,793.180	28,578.530	28,421.020	28,386.500

Note:
*p<0.1; **p<0.05; ***p<0.01
The model was run through a Probit analysis.

Table A.6: Different fits regarding responsibility to reduce CC

	Dependent variable:				
	High responsibility toward climate change				
	Base model (1)	Base indexes model (2)	Base political model (3)	Full political model (4)	Education terms model (5)
gndr	0.067** (0.028)	0.094*** (0.028)	0.085*** (0.028)	0.086*** (0.028)	0.085*** (0.028)
agea	0.003*** (0.001)	0.003*** (0.001)	0.003*** (0.001)	0.003*** (0.001)	0.003*** (0.001)
edyrs	0.009*** (0.004)	0.005 (0.004)	0.005 (0.004)	0.004 (0.004)	-0.005 (0.006)
chldhm	0.008 (0.029)	0.016 (0.030)	0.019 (0.030)	0.016 (0.030)	0.017 (0.030)
rigdgr	0.095*** (0.034)	0.092*** (0.035)	0.087** (0.035)	0.087** (0.035)	0.086** (0.035)
hincfel	-0.0004 (0.029)	0.005 (0.029)	0.006 (0.029)	0.002 (0.029)	0.003 (0.029)
employed	-0.018 (0.030)	-0.014 (0.030)	-0.011 (0.030)	-0.007 (0.030)	-0.005 (0.030)
PM2.5	0.0001 (0.0001)	0.0001 (0.0001)	0.0001 (0.0001)	0.0001 (0.0001)	0.0001 (0.0001)
rural_area	-0.030 (0.029)	-0.024 (0.029)	-0.019 (0.030)	-0.019 (0.030)	-0.020 (0.030)
north	-0.144*** (0.043)	-0.101** (0.043)	-0.097** (0.043)	-0.088** (0.043)	-0.090** (0.043)
south	-0.165*** (0.043)	-0.145*** (0.044)	-0.152*** (0.044)	-0.130*** (0.044)	-0.134*** (0.044)
east	0.047 (0.052)	0.143*** (0.053)	0.141*** (0.053)	0.149*** (0.053)	0.151*** (0.053)
personal_trust		-0.036*** (0.009)	-0.036*** (0.009)	-0.036*** (0.009)	-0.036*** (0.009)
self_transcendence		0.224*** (0.028)	0.209*** (0.028)	0.201*** (0.028)	0.199*** (0.028)
self_enhancement		-0.035** (0.018)	-0.034* (0.018)	-0.036** (0.018)	-0.038** (0.018)
openness_to_change		0.036* (0.021)	0.034* (0.020)	0.036* (0.021)	0.038* (0.021)
conservation		-0.085*** (0.021)	-0.078*** (0.021)	-0.070*** (0.021)	-0.067*** (0.021)
left			0.188*** (0.041)	0.164*** (0.042)	0.159 (0.146)
right			0.082* (0.044)	0.082* (0.044)	0.148 (0.148)
polintr			0.041 (0.031)		-0.197** (0.100)
political_trust				0.032 (0.031)	0.271 (0.346)
green_identification				0.189** (0.089)	0.609** (0.297)
nationalism				0.476*** (0.073)	0.271 (0.265)
edyrs:left				0.157** (0.076)	0.0001 (0.010)
edyrs:right					-0.005 (0.010)
edyrs:nationalism					-0.010 (0.020)
edyrs:green_identification					-0.009 (0.019)
edyrs:polintr					0.017** (0.007)
edyrs:political_trust					-0.006 (0.023)
Constant	-0.212*** (0.077)	-0.798*** (0.160)	-0.786*** (0.160)	-0.805*** (0.162)	-0.697*** (0.172)
Observations	26,324	26,324	26,324	26,324	26,324
Log Likelihood	-16,617.410	-16,425.520	-16,394.680	-16,328.980	-16,319.770
Akaike Inf. Crit.	33,260.820	32,887.040	32,831.370	32,705.960	32,699.540

Note: *p<0.1; **p<0.05; ***p<0.01
The model was run through a Probit analysis.

Table A.7: Different fits regarding preferences about renewable energy sources

	Dependent variable:				
	At least a large support over renewables				
	Base model	Base indexes model	Base political model	Full political model	Full model
	(1)	(2)	(3)	(4)	(5)
gndr	-0.104*** (0.030)	-0.086*** (0.031)	-0.085*** (0.031)	-0.081*** (0.031)	-0.078** (0.031)
agea	-0.006*** (0.001)	-0.006*** (0.001)	-0.006*** (0.001)	-0.006*** (0.001)	-0.005*** (0.001)
eduyrs	0.009** (0.004)	0.005 (0.004)	0.005 (0.004)	0.004 (0.004)	0.002 (0.004)
chldhm	0.053 (0.033)	0.059* (0.034)	0.060* (0.034)	0.063* (0.034)	0.066* (0.034)
rlgdgr	0.040 (0.039)	-0.001 (0.040)	0.001 (0.040)	-0.004 (0.040)	-0.005 (0.041)
hincfel	-0.060** (0.030)	-0.061** (0.030)	-0.059* (0.031)	-0.061** (0.030)	-0.070** (0.030)
employed	0.084** (0.034)	0.089** (0.035)	0.090*** (0.035)	0.089** (0.035)	0.091*** (0.035)
PM2.5	0.00002 (0.0001)	-0.00000 (0.0001)	-0.00000 (0.0001)	-0.00001 (0.0001)	0.00000 (0.0001)
rural_area	0.047 (0.036)	0.053 (0.036)	0.054 (0.036)	0.055 (0.036)	0.060* (0.036)
north	-0.142*** (0.045)	-0.114** (0.046)	-0.111** (0.046)	-0.109** (0.047)	-0.066 (0.047)
south	0.382*** (0.052)	0.368*** (0.056)	0.365*** (0.056)	0.363*** (0.056)	0.315*** (0.055)
east	-0.462*** (0.063)	-0.411*** (0.063)	-0.410*** (0.064)	-0.399*** (0.063)	-0.368*** (0.062)
personal_trust		-0.020* (0.010)	-0.020* (0.011)	-0.026** (0.010)	-0.024** (0.010)
self_transcendence		0.216*** (0.033)	0.212*** (0.033)	0.209*** (0.034)	0.161*** (0.034)
self_enhancement		-0.002 (0.020)	-0.001 (0.020)	-0.001 (0.020)	0.008 (0.020)
openness_to_change		0.043* (0.024)	0.043* (0.024)	0.044* (0.024)	0.049** (0.024)
conservation		0.010 (0.023)	0.012 (0.023)	0.017 (0.023)	0.027 (0.023)
left			0.055 (0.048)	0.064 (0.047)	0.052 (0.047)
right			-0.009 (0.045)	0.0004 (0.045)	0.022 (0.045)
polintr			-0.002 (0.033)	-0.004 (0.033)	-0.025 (0.033)
political_trust				-0.089 (0.082)	-0.087 (0.085)
green_identification				0.030 (0.074)	-0.034 (0.075)
nationalism				-0.260*** (0.089)	-0.272*** (0.086)
climchg					0.378*** (0.078)
ccnthum					0.109*** (0.033)
ccgdbd					0.124*** (0.037)
wrcimch					0.156*** (0.036)
ccrdprs					-0.054* (0.031)
Constant	0.640*** (0.083)	-0.493*** (0.171)	-0.493*** (0.172)	-0.458*** (0.174)	-0.867*** (0.195)
Observations	26,324	26,324	26,324	26,324	26,324
Log Likelihood	-14,780.510	-14,598.520	-14,595.780	-14,571.210	-14,416.470
Akaike Inf. Crit.	29,587.020	29,233.050	29,233.570	29,190.420	28,890.930

Note:

*p<0.1; **p<0.05; ***p<0.01
The model was run through a Probit analysis.

Table A.8: Different fits regarding preferences about fossil fuel energy sources

	Dependent variable:				
	At least a large support over fossil fuels				
	Base model (1)	Base indexes model (2)	Base political model (3)	Full political model (4)	Full model (5)
gndr	0.087* (0.045)	0.042 (0.045)	0.041 (0.045)	0.037 (0.045)	0.045 (0.045)
agea	0.003** (0.001)	0.005*** (0.001)	0.005*** (0.001)	0.005*** (0.001)	0.004*** (0.001)
edurs	-0.030*** (0.006)	-0.024*** (0.006)	-0.022*** (0.006)	-0.021*** (0.006)	-0.019*** (0.007)
chldhm	0.070 (0.048)	0.093** (0.047)	0.093* (0.048)	0.092* (0.048)	0.090* (0.048)
rlgdgr	0.113** (0.053)	0.115** (0.052)	0.101* (0.053)	0.103* (0.053)	0.098* (0.053)
hincfel	-0.136*** (0.048)	-0.126** (0.051)	-0.129** (0.051)	-0.128** (0.052)	-0.121** (0.051)
employed	-0.073 (0.050)	-0.082 (0.050)	-0.084* (0.051)	-0.083* (0.051)	-0.079 (0.051)
PM2.5	-0.0001 (0.0001)	-0.0001 (0.0001)	-0.0001 (0.0001)	-0.0001 (0.0001)	-0.0001 (0.0001)
rural_area	0.040 (0.053)	0.055 (0.053)	0.046 (0.053)	0.046 (0.052)	0.048 (0.053)
north	0.359*** (0.067)	0.336*** (0.067)	0.336*** (0.068)	0.326*** (0.068)	0.307*** (0.068)
south	0.228*** (0.076)	0.150* (0.077)	0.145* (0.078)	0.132* (0.077)	0.154** (0.077)
east	1.050*** (0.069)	0.925*** (0.074)	0.918*** (0.075)	0.899*** (0.074)	0.896*** (0.075)
personal_trust		-0.019 (0.015)	-0.018 (0.015)	-0.016 (0.015)	-0.021 (0.015)
self_transcendence		-0.245*** (0.043)	-0.238*** (0.044)	-0.230*** (0.044)	-0.207*** (0.044)
self_enhancement		0.092*** (0.030)	0.090*** (0.031)	0.091*** (0.031)	0.088*** (0.030)
openness_to_change		0.102*** (0.035)	0.100*** (0.035)	0.099*** (0.035)	0.094*** (0.035)
conservation		0.124*** (0.037)	0.118*** (0.038)	0.109*** (0.038)	0.104*** (0.038)
left			-0.023 (0.070)	-0.019 (0.070)	-0.023 (0.068)
right			0.160*** (0.059)	0.152*** (0.059)	0.150** (0.059)
polintr			-0.038 (0.051)	-0.034 (0.051)	-0.023 (0.050)
political_trust				0.095 (0.136)	0.091 (0.136)
green_identification				-0.802*** (0.127)	-0.770*** (0.128)
nationalism				0.086 (0.109)	0.081 (0.108)
clmchnng					-0.160 (0.107)
ccnthum					-0.145*** (0.050)
ccqgbd					-0.182*** (0.051)
wrcimch					0.094 (0.060)
ccrdprs					-0.008 (0.046)
Constant	-1.438*** (0.128)	-1.551*** (0.245)	-1.562*** (0.247)	-1.565*** (0.247)	-1.291*** (0.263)
Observations	26,324	26,324	26,324	26,324	26,324
Log Likelihood	-7,097.576	-6,964.896	-6,951.247	-6,928.978	-6,871.484
Akaike Inf. Crit.	14,221.150	13,965.790	13,944.490	13,905.950	13,800.970

Note: *p<0.1, **p<0.05, ***p<0.01
The model was run through a Probit analysis.

Table A.9: Different fits regarding how often are done things to reduce energy use

	Dependent variable:					
	Base model (1)	Base indexes model (2)	At least often Base political model (3)	Full political model (4)	CC model (5)	Full model (6)
gndr	0.087* (0.045)	-0.003 (0.031)	-0.024 (0.031)	-0.025 (0.031)	-0.022 (0.031)	-0.019 (0.031)
agea	0.003** (0.001)	0.009*** (0.001)	0.008*** (0.001)	0.008*** (0.001)	0.008*** (0.001)	0.008*** (0.001)
eduyrs	-0.030*** (0.006)	0.024*** (0.004)	0.019*** (0.004)	0.020*** (0.004)	0.018*** (0.004)	0.018*** (0.004)
chldhm	0.070 (0.048)	0.025 (0.035)	0.027 (0.035)	0.026 (0.035)	0.027 (0.035)	0.026 (0.035)
rladgr	0.113** (0.053)	0.050 (0.043)	0.050 (0.043)	0.050 (0.043)	0.045 (0.043)	0.046 (0.043)
hincfel	-0.136*** (0.048)	-0.012 (0.034)	-0.018 (0.034)	-0.018 (0.034)	-0.020 (0.035)	-0.019 (0.034)
employed	-0.073 (0.050)	0.026 (0.036)	0.030 (0.036)	0.032 (0.036)	0.040 (0.037)	0.036 (0.037)
PM2.5	-0.0001 (0.0001)	-0.0001** (0.0001)	-0.0001** (0.0001)	-0.0001** (0.0001)	-0.0001** (0.0001)	-0.0001** (0.0001)
rural_area	0.040 (0.053)	-0.061* (0.035)	-0.047 (0.035)	-0.047 (0.035)	-0.044 (0.036)	-0.046 (0.036)
north	0.359*** (0.067)	-0.085* (0.046)	-0.090* (0.047)	-0.089* (0.047)	-0.060 (0.047)	-0.055 (0.048)
south	0.228*** (0.076)	0.065 (0.050)	0.084* (0.050)	0.089* (0.050)	0.055 (0.050)	0.047 (0.050)
east	1.050*** (0.069)	-0.285*** (0.056)	-0.277*** (0.056)	-0.279*** (0.056)	-0.273*** (0.057)	-0.249*** (0.056)
personal_trust		-0.005 (0.011)	-0.008 (0.011)	-0.007 (0.011)	-0.005 (0.011)	-0.004 (0.011)
self_transcendence		0.280*** (0.029)	0.260*** (0.029)	0.280*** (0.029)	0.219*** (0.030)	0.212*** (0.030)
self_enhancement		-0.109*** (0.021)	-0.110*** (0.021)	-0.111*** (0.021)	-0.103*** (0.021)	-0.102*** (0.021)
openness_to_change		0.036 (0.024)	0.036 (0.024)	0.036 (0.024)	0.032 (0.024)	0.031 (0.024)
conservation		0.005 (0.025)	0.018 (0.025)	0.017 (0.025)	0.026 (0.025)	0.026 (0.025)
right			-0.078 (0.050)	-0.081 (0.050)	-0.072 (0.050)	-0.072 (0.050)
left			0.074 (0.051)	0.067 (0.051)	0.041 (0.052)	0.040 (0.052)
polintr			0.173*** (0.034)	0.171*** (0.034)	0.157*** (0.034)	0.157*** (0.034)
political_trust				0.103 (0.095)	0.095 (0.093)	0.099 (0.095)
green_identification				0.068 (0.090)	-0.0001 (0.088)	0.0004 (0.088)
nationalism				0.084 (0.096)	0.064 (0.100)	0.073 (0.100)
climchn					-0.026 (0.083)	-0.041 (0.082)
ccnthum					-0.007 (0.033)	-0.013 (0.034)
ccgdbd					0.052 (0.037)	0.045 (0.037)
wrlcmch					0.249*** (0.038)	0.247*** (0.038)
ccrdprs					0.087*** (0.032)	0.089*** (0.032)
fossil_fuel_preference						-0.057 (0.062)
renewables_preference						0.091** (0.036)
Constant	-1.438*** (0.128)	-0.946*** (0.169)	-0.886*** (0.170)	-0.894*** (0.172)	-0.877*** (0.192)	-0.888*** (0.192)
Observations	26,324	26,324	26,324	26,324	26,324	26,324
Log Likelihood	-7,097.576	-11,920.510	-11,866.880	-11,859.930	-11,774.390	-11,764.610
Akaike Inf. Crit.	14,221.150	23,877.010	23,775.750	23,767.860	23,606.770	23,591.220

Note:

*p<0.1; **p<0.05; ***p<0.01
The model was run through a Probit analysis.

Table A.10: Different fits regarding the support to increase fossil fuel taxes

	Dependent variable:					
	Base model	Base indexes model	At least large support		CC model	Full model
	(1)	(2)	Base political model	Full political model	(5)	(6)
gndr	0.041 (0.028)	0.062** (0.029)	0.042 (0.029)	0.048 (0.029)	0.046 (0.030)	0.051* (0.030)
agea	−0.005*** (0.001)	−0.004*** (0.001)	−0.005*** (0.001)	−0.005*** (0.001)	−0.004*** (0.001)	−0.003*** (0.001)
eduyrs	0.043*** (0.004)	0.034*** (0.004)	0.030*** (0.004)	0.029*** (0.004)	0.027*** (0.004)	0.026*** (0.004)
chldhm	−0.089*** (0.030)	−0.081*** (0.031)	−0.078** (0.031)	−0.081*** (0.031)	−0.081*** (0.031)	−0.082*** (0.031)
rlgdgr	−0.043 (0.037)	−0.042 (0.038)	−0.043 (0.038)	−0.051 (0.038)	−0.058 (0.038)	−0.054 (0.038)
hincfel	0.225*** (0.030)	0.193*** (0.031)	0.190*** (0.031)	0.182*** (0.031)	0.178*** (0.031)	0.179*** (0.031)
employed	−0.054 (0.033)	−0.051 (0.033)	−0.047 (0.033)	−0.041 (0.034)	−0.037 (0.034)	−0.044 (0.034)
PM2.5	0.00004 (0.0001)	0.00001 (0.0001)	0.00001 (0.0001)	0.00002 (0.0001)	0.00002 (0.0001)	0.00002 (0.0001)
rural_area	−0.110*** (0.032)	−0.106*** (0.032)	−0.093*** (0.032)	−0.093*** (0.032)	−0.086*** (0.033)	−0.088*** (0.033)
north	0.153*** (0.047)	0.161*** (0.045)	0.161*** (0.045)	0.180*** (0.045)	0.247*** (0.046)	0.257*** (0.046)
south	−0.144*** (0.051)	−0.092* (0.052)	−0.080 (0.053)	−0.044 (0.053)	−0.099* (0.054)	−0.106** (0.053)
east	−0.251*** (0.056)	−0.154*** (0.056)	−0.147*** (0.056)	−0.124** (0.056)	−0.087 (0.057)	−0.038 (0.058)
personal_trust		0.045** (0.010)	0.042*** (0.010)	0.035*** (0.010)	0.038*** (0.011)	0.039*** (0.011)
self_transcendence		0.241*** (0.031)	0.215*** (0.031)	0.199*** (0.031)	0.127*** (0.033)	0.117*** (0.033)
self_enhancement		0.045** (0.019)	0.046** (0.019)	0.043** (0.019)	0.057*** (0.019)	0.059*** (0.019)
openness_to_change		−0.040* (0.022)	−0.040* (0.023)	−0.037 (0.023)	−0.036 (0.023)	−0.035 (0.023)
conservation		−0.142*** (0.021)	−0.129*** (0.021)	−0.114*** (0.022)	−0.098*** (0.022)	−0.097*** (0.022)
right			−0.029 (0.050)	−0.020 (0.050)	−0.0003 (0.051)	0.005 (0.052)
left			0.146*** (0.045)	0.120*** (0.046)	0.092* (0.047)	0.091* (0.048)
polintr			0.159*** (0.032)	0.142*** (0.032)	0.117*** (0.032)	0.118*** (0.032)
political_trust				0.285*** (0.079)	0.277*** (0.084)	0.283*** (0.083)
green_identification				0.679*** (0.066)	0.583*** (0.067)	0.581*** (0.067)
nationalism				−0.046 (0.096)	−0.064 (0.101)	−0.052 (0.100)
clmching					0.224** (0.094)	0.201** (0.095)
ccnthum					0.185*** (0.034)	0.178*** (0.034)
ccgdbd					0.088** (0.038)	0.078** (0.038)
wrcldmch					0.239*** (0.035)	0.237*** (0.034)
ccrdprs					0.106*** (0.031)	0.107*** (0.031)
fossil_fuel_preference						−0.173*** (0.064)
renewables_preference						0.107*** (0.036)
Constant	−0.738*** (0.078)	−1.486*** (0.160)	−1.427*** (0.160)	−1.411*** (0.162)	−1.718*** (0.191)	−1.727*** (0.193)
Observations	26,324	26,324	26,324	26,324	26,324	26,324
Log Likelihood	−14,678.050	−14,489.670	−14,433.510	−14,310.840	−14,068.940	−14,033.350
Akaike Inf. Crit.	29,382.090	29,015.350	28,909.020	28,669.680	28,195.890	28,128.700

Note:

*p<0.1; **p<0.05; ***p<0.01
The model was run through a Probit analysis.

Table A.11: Different fits regarding the perception toward the use subsidies for renewable energy sources

	Dependent variable:					
	At least large support					
	Base model (1)	Base indexes model (2)	Base political model (3)	Full political model (4)	CC model (5)	Full model (6)
gndr	-0.001 (0.031)	0.035 (0.031)	0.017 (0.031)	0.026 (0.032)	0.021 (0.032)	0.039 (0.033)
agea	-0.004*** (0.001)	-0.004*** (0.001)	-0.005*** (0.001)	-0.005*** (0.001)	-0.003*** (0.001)	-0.002* (0.001)
eduylrs	0.036*** (0.004)	0.027*** (0.005)	0.023*** (0.005)	0.022*** (0.005)	0.019*** (0.005)	0.019*** (0.005)
chldhm	0.009 (0.035)	0.015 (0.035)	0.016 (0.035)	0.020 (0.035)	0.022 (0.036)	0.016 (0.036)
rlgdgr	0.025 (0.042)	-0.018 (0.042)	-0.019 (0.042)	-0.030 (0.042)	-0.032 (0.043)	-0.032 (0.044)
hincfel	0.056 (0.034)	0.025 (0.036)	0.019 (0.036)	0.011 (0.036)	-0.001 (0.037)	0.006 (0.037)
employed	-0.003 (0.038)	0.004 (0.038)	0.006 (0.038)	0.007 (0.038)	0.008 (0.039)	-0.013 (0.040)
PM2.5	-0.00003 (0.0001)	-0.0001 (0.0001)	-0.0001 (0.0001)	-0.0001 (0.0001)	-0.0001 (0.0001)	-0.0001 (0.0001)
rural_area	-0.034 (0.037)	-0.036 (0.037)	-0.024 (0.037)	-0.022 (0.037)	-0.017 (0.037)	-0.025 (0.037)
north	-0.350*** (0.051)	-0.334*** (0.050)	-0.338*** (0.051)	-0.329*** (0.051)	-0.267*** (0.050)	-0.249*** (0.050)
south	-0.171*** (0.054)	-0.143*** (0.055)	-0.125** (0.055)	-0.115** (0.055)	-0.187*** (0.055)	-0.241*** (0.056)
east	-0.359*** (0.058)	-0.225*** (0.057)	-0.220*** (0.057)	-0.198*** (0.058)	-0.156*** (0.057)	-0.035 (0.061)
personal_trust		0.040*** (0.010)	0.037*** (0.010)	0.025** (0.010)	0.030*** (0.011)	0.035*** (0.011)
self_transcendence		0.341*** (0.031)	0.328*** (0.032)	0.319*** (0.032)	0.253*** (0.034)	0.221*** (0.034)
self_enhancement		-0.006 (0.020)	-0.006 (0.020)	-0.007 (0.021)	0.003 (0.021)	0.007 (0.022)
openness_to_change		0.010 (0.024)	0.008 (0.024)	0.010 (0.024)	0.020 (0.025)	0.019 (0.025)
conservation		-0.061** (0.029)	-0.054* (0.029)	-0.043 (0.029)	-0.028 (0.029)	-0.030 (0.028)
right			-0.057 (0.048)	-0.040 (0.048)	-0.013 (0.047)	-0.007 (0.046)
left			0.030 (0.055)	0.033 (0.055)	0.022 (0.055)	0.016 (0.056)
polintr			0.149*** (0.037)	0.139*** (0.037)	0.115*** (0.036)	0.120*** (0.036)
political_trust				0.013 (0.099)	0.011 (0.097)	0.035 (0.100)
green_identification				0.420*** (0.113)	0.315*** (0.115)	0.307*** (0.117)
nationalism				-0.356*** (0.084)	-0.377*** (0.085)	-0.333*** (0.083)
clmchg					0.427*** (0.084)	0.357*** (0.079)
ccnthum					0.244*** (0.036)	0.222*** (0.037)
ccgdbd					0.206*** (0.040)	0.179*** (0.041)
wrlmch					0.136*** (0.041)	0.121*** (0.042)
ccrdprs					-0.023 (0.035)	-0.011 (0.036)
fossil_fuel_preference						-0.293*** (0.064)
renewables_preference						0.483*** (0.036)
Constant	0.701*** (0.091)	-0.804*** (0.181)	-0.748*** (0.181)	-0.695*** (0.182)	-1.260*** (0.190)	-1.362*** (0.193)
Observations	26,324	26,324	26,324	26,324	26,324	26,324
Log Likelihood	-12,128.650	-11,816.560	-11,784.200	-11,722.510	-11,464.250	-11,138.250
Akaike Inf. Crit.	24,283.290	23,669.110	23,610.390	23,493.010	22,986.500	22,338.500

Note:

* p<0.1; ** p<0.05; *** p<0.01
The model was run through a Probit analysis.

Table A.12: Different fits regarding the support over the ban of least efficient appliances

Dependent variable:						
	Base model	Base indexes model	At least large support		CC model	Full model
			Base political model	Full political model		
	(1)	(2)	(3)	(4)	(5)	(6)
gndr	−0.125*** (0.029)	−0.098*** (0.029)	−0.109*** (0.029)	−0.107*** (0.029)	−0.111*** (0.029)	−0.107*** (0.029)
agea	0.006*** (0.001)	0.005*** (0.001)	0.005*** (0.001)	0.005*** (0.001)	0.006*** (0.001)	0.007*** (0.001)
eduyrs	0.026*** (0.004)	0.021*** (0.004)	0.018*** (0.004)	0.018*** (0.004)	0.015*** (0.004)	0.014*** (0.004)
chldhm	0.056*** (0.029)	0.052* (0.029)	0.053* (0.029)	0.052* (0.029)	0.056* (0.030)	0.056* (0.030)
rigdgr	0.031 (0.036)	−0.021 (0.036)	−0.016 (0.036)	−0.017 (0.036)	−0.018 (0.037)	−0.015 (0.037)
hinctel	0.016 (0.031)	0.008 (0.031)	0.005 (0.031)	0.002 (0.032)	−0.008 (0.032)	−0.008 (0.032)
employed	0.054* (0.033)	0.062* (0.032)	0.064** (0.032)	0.067** (0.032)	0.069** (0.033)	0.063* (0.033)
PM2.5	−0.0002*** (0.0001)	−0.0002*** (0.0001)	−0.0002*** (0.0001)	−0.0002*** (0.0001)	−0.0002*** (0.0001)	−0.0002*** (0.0001)
rural_area	−0.004 (0.033)	−0.007 (0.032)	0.003 (0.032)	0.003 (0.032)	0.008 (0.033)	0.008 (0.032)
north	−0.195*** (0.043)	−0.185*** (0.043)	−0.187*** (0.043)	−0.181*** (0.043)	−0.128*** (0.043)	−0.118*** (0.043)
south	0.166*** (0.049)	0.160*** (0.051)	0.176*** (0.051)	0.189*** (0.051)	0.132** (0.051)	0.123** (0.051)
east	−0.327*** (0.051)	−0.261*** (0.052)	−0.252*** (0.053)	−0.244*** (0.052)	−0.214*** (0.054)	−0.165*** (0.055)
personal_trust		0.016* (0.010)	0.014 (0.010)	0.013 (0.010)	0.017* (0.010)	0.018* (0.010)
self_transcendence		0.210*** (0.028)	0.198*** (0.028)	0.191*** (0.028)	0.120*** (0.029)	0.108*** (0.029)
self_enhancement		−0.029 (0.019)	−0.029 (0.019)	−0.030 (0.019)	−0.019 (0.019)	−0.017 (0.019)
openness_to_change		−0.010 (0.022)	−0.009 (0.022)	−0.008 (0.022)	−0.003 (0.022)	−0.002 (0.022)
conservation		0.046** (0.023)	0.054** (0.023)	0.061*** (0.023)	0.078*** (0.023)	0.079*** (0.023)
right			−0.120*** (0.044)	−0.117*** (0.044)	−0.096** (0.044)	−0.092** (0.044)
left			−0.001 (0.046)	−0.014 (0.046)	−0.039 (0.046)	−0.039 (0.046)
polintr			0.109*** (0.031)	0.103*** (0.031)	0.078** (0.032)	0.079** (0.032)
political_trust				0.071 (0.086)	0.069 (0.089)	0.078 (0.089)
green_identification				0.323*** (0.084)	0.234*** (0.082)	0.230*** (0.082)
nationalism				0.041 (0.087)	0.028 (0.091)	0.045 (0.090)
clmchn					0.328*** (0.070)	0.306*** (0.070)
ccnthum					0.118*** (0.033)	0.109*** (0.033)
ccgdbd					0.217*** (0.037)	0.207*** (0.037)
wrlcmch					0.205*** (0.034)	0.203*** (0.034)
ccrdprs					0.023 (0.029)	0.025 (0.029)
fossil_fuel_preference						−0.171** (0.067)
renewables_preference						0.123*** (0.032)
Constant	−0.194** (0.081)	−1.259*** (0.155)	−1.216*** (0.154)	−1.220*** (0.153)	−1.652*** (0.165)	−1.662*** (0.166)
Observations	26,324	26,324	26,324	26,324	26,324	26,324
Log Likelihood	−15,520.430	−15,333.010	−15,306.670	−15,281.270	−15,046.350	−15,001.700
Akaike Inf. Crit.	31,066.860	30,702.010	30,655.330	30,610.530	30,150.710	30,065.390

Note:

*p<0.1; **p<0.05; ***p<0.01
The model was run through a Probit analysis.

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