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# Introduction

Climate policies have often encountered many obstacles that made them difficult to pass. Indeed, those policies often imply a profound redefinition of our current ways of life. Moreover, the differentiated distributional impacts – both at the national and international levels – can lead different groups of citizens or countries to support or oppose the policy at the same time and consequently prevent the implementation of such policy. Therefore, the design of climate policies needs to account for the political economy and public acceptability of the policy. Those resistances to climate policies arise largely from legitimate concerns about distributional and lifestyle impacts, as well as misconceptions about the impacts of climate change and the effects of climate policies on the economy and the environment.

With this project, we aim to contribute to construct country-specific advice on policies to deal with the transition to a low-carbon economy. Our goal is to understand people’s perceptions about climate change and preferences over available climate policies, through the use of large-scale surveys to answer several questions. How social attitudes, values, and perceptions drive support or opposition for climate policies across socio-economic groups? How social preferences on climate change mitigation policies differ between countries? How perceptions may change after receiving new information on the effects of policies/climate change (in a video format) and how it translates into beliefs and support?

## Related Literature

Our work adds to a literature that has studied people's preferences for climate policies and policy characteristics. The literature usually distinguishes “pull” measures, that are noncoercive and reward pro-environmental behaviors (e.g., subsidies), from “push” measures, that are coercive and punish environmentally unfriendly behaviors (e.g., taxes). For instance, when asked directly people usually support subsidies over taxes (Cherry et al. (2012); de Groot and Schuitema (2012); Kallbekken and Aasen (2010); Steg et al. (2006)). Steg et al. (2006) find push measures to be more acceptable if revenues are allocated to energy-related measures, while the funding of pull measures does not affect their acceptability. However, Fischer et al. (2011) find that if people think other people are selfish and consumption-oriented, only strict regulations can achieve widespread behavioral change and that voluntary behavioral changes are insufficient. Jagers and Hammar (2009) study the Swedish carbon tax study and insist on the role of perceived costs, they show that people tend to overestimate the costs of taxes, while underestimating the costs of subsidies or investments in public transport. More importantly, people often reject a policy because they perceive it as ineffective. This is particularly the case for carbon tax as noted by Hsu et al. (2008) in North America or Baranzini and Carattini (2017) in Switzerland. Fairness concerns are also at play when it comes to climate policies, Brannlund and Persson (2012) show that in Sweden, people preferred an instrument with progressive cost distribution rather than a regressive one. Regarding international burden-sharing, Gampfer (2014) insists on aspects such as vulnerability, historical responsibility or ability to pay. A lot of attention has been drawn on carbon pricing, while few studies focus on other climate policies, this work looks to fill those gaps.

Apart from the policy's characteristics, people's own views are also a main factor regarding the support of climate mitigation policies. Drews and van den Bergh (2016) underline the role of socioeconomic and psychological factors on the support or not of climate policies. In the U.S. context Leiserowitz et al. (2013) uses a large-scale survey (conducted from November 2002 to February 2003) and finds that an identification to the Democrat and a liberal political ideology lead to stronger support for climate policies. However, Drews and van den Bergh (2016) underline that the driving factor might not be political orientation but rather the personal views of people. Dietz et al. (2007) with a survey on people from Michigan and Virginia find that the strong effect of political orientation is only indirect as it relates to people's values and worldviews. Clearly, the perception of the negative consequences of climate change is an important factor as well. DeBono et al. (2012) using data from a telephone survey in Malta show that perceptions about the negative effects of climate change on health and well-being (e.g., disease, standard of living, water shortages) are a very strong driver for supporting climate change mitigation policy. However, Krosnick et al. (2006) point out that increasing knowledge about climate change will not necessarily translates into a broader support for policies, and that it will do so only if the required beliefs and attitudes about climate change are in place. According to Stoutenborough and Vedlitz (2014), it is also important to distinguish between the subjective perception of knowledge and objectively assessed knowledge. McCright (2008) finds that self-reported knowledge of global warming has no robust effect on support for climate policies. Finally, government motives are often questioned as people perceive carbon taxes as just another way for the government to raise more revenue. This concern must be linked to the previous one about the belief that carbon taxes are not effective at reducing emissions.

Few studies have focused on cross-country comparisons, yet it is worth mentioning some of them. Ipsos (2020) has created a barometer of the public opinion on climate change in 30 countries, with a sample size around 24,000 respondents (500 or 1,000 per country) with people age 16+. The study also took place in 2019 (Ipsos (2019)). They show that most concerned countries about climate change are some European countries, Canada, Australia, China and India. A recent survey from the UNDP (UNDP (2021)) with 1.2 million respondents from 50 countries aims to provide reliable information to policymakers on people's considerations about climate change and how they would like their countries to respond. The survey identifies the most popular policies (e.g., conservation of forests and land, investing more in green business and jobs) and socio-demographic drivers of belief in climate emergency (e.g., educational background, age). Leiserowitz et al. (2021) using Facebook data study climate change beliefs, attitudes and policy differences in 31 countries and territories.

The literature seems inconclusive regarding the impact of psychological distance (i.e. the extent to which an object is distant from someone, either geographically, socially, or in time) on support for climate change mitigation policies. Owen et al. (2012) show that experiencing extreme weather events immediately affect supports for environmental policies. However, Park and Vedlitz (2013) find no evidence for this hypothesis in the U.S. for people who live in areas that suffered from Hurricanes Katrina and Rita, and that it is rather the information about risks that contributes to fostering proactive climate responses.

The key contributions of our study to this literature will be to offer comparable cross-country evidence covering at the same time OECD and non-OECD countries. Previous work has mostly focused on single countries, making it less clear how generalizable the evidence is for other countries. This study aims to identify country-specific preferences for matters such as policy design, compensation mechanisms or level of ambition, as well as the effect of information treatments on them. Moreover, the study will also include an incentive compatible payment element (in the form of a lottery). Most previous studies do not have such item, therefore our study will be more credible in expressing people's willingness to support climate change mitigation policies.

# Methodology

## Survey design - Data collection

Our data come from surveys we administered in 3 countries since February 2020 and that collectively cover more than 6,000 respondents. The countries already covered are the United States, France, and Denmark. Surveys are still ongoing and will cover 17 more countries for a final sample of more than 40,000 respondents (2,000 respondents per country). The additional countries that we will cover are Australia, Brazil, Canada, China, Germany, India, Indonesia, Italy, Japan, Mexico, Poland, Spain, South Africa, South Korea, Turkey, Ukraine, and the United Kingdom (see Figure XXX). Those 20 countries cover around three quarters of global CO2 emissions (Crippa et al., 2020). We contracted with the commercial company *Dynata* to distribute the surveys across the different countries.

Those kind of companies have a large pool of survey respondents and typically work with consulting firms for “consumer surveys”. Each respondent who completes the survey is rewarded . Compensations can either be cash or discount, which allow to cover respondents in the higher percentiles. To avoid selection bias, when the link to the survey is sent to participant, neither the topic nor the organization that has sent it are mentioned. On the first page of the survey, we then inform the respondents that this is an academic research survey, destined solely for research purposes, and run by non-partisan researchers.

To ensure the quality and representativeness of our samples, respondents are channelled through screening questions that ensure that the final sample are nationally representative along gender, age, income, region, and education or rural/urban categories. The national samples are finally reweighted in order to correct for small differences between the sample and national population characteristics. Table XX shows the characteristics of our samples, weighted samples, and national population statistics. We also exclude inattentive and quickest respondents. The median time for completion of the survey was 28 minutes.

## Survey design - Survey overview

The full questionnaires are available in Appendix XX, with link to web interfaces of each of them. The survey was translated into the different official languages of each country by native speakers. It contains several random informational branches and is split in blocks. We summarize the content of the more important ones in this section.

**Background socio-economic questions:** We collect information on respondents' gender, age, income, wealth, place of residence, highest level of education achieved, ethnicity, marital status, number of children, employment status, sector of occupation, and political orientation among others. For the latter, we explore several dimensions. First, we ask respondents if themselves or relatives are environmentalists. Then, we ask them for whom they voted in the last main national election. Finally, respondents are asked to classify themselves in terms of their views on economic policy, along a spectrum ranging either from “very liberal” or “very left”, to “very conservative” or “very right.”

**Household energy characteristics:** In addition to the primary socio-economics characteristics, we also collect information on energy characteristics. This blocks allows us to estimate carbon emissions and consuming behaviors of the households, and therefore the effects of different climate policies on the households' consumption and behaviors. Questions relate to gas and heating expenditures, transportation and heating habits, as well as accommodation insulation and public transport availability. This block is followed by an open-ended question on the respondents' main considerations regarding climate change.

**Informational Treatment:** Respondents are then randomly split into four different groups, who are either shown one of two instructional videos, both videos, or neither. The “Climate” video focuses on explaining the impacts of climate change in the respondent's country and provides results from the current scientific consensus about climate change. The “Policy” video contains information about our three main climate policies, namely a ban of combustion engine cars by 2030, a green infrastructure investment program, and a carbon tax with cash transfers. Both videos are short (2-5 minutes), pedagogical and provide information in a neutral manner. The goal of this informational treatment is to understand how perceptions may change after receiving new information and how it translates into policy support.

**Knowledge:** In this block, we assess the respondent's knowledge about climate change. In particular, questions refer to the anthropogenic dimension of climate change, the dynamics of climate change, the elements that contribute to climate change, and the possible consequences of climate change. Moreover, respondents are asked to relatively rank items in terms of greenhouse gases emissions for different topics, including food, mode of transportation, source of electric energy, and regional emissions (either total or per capita).

**Attitudes and Risks:** Here, we ask respondents about their views on what should be done to stop climate change, on the perception of climate change and climate policies on themselves and others, and what they are really to do in order to stop climate change as well as the factors that shape this.

**Preferences for climate policies:** First, we have a set of detailed questions on each of our three main policies. Questions tackle issues such as the effects of the policy, the perceived distributional impacts (“Who will win or lose”), the fairness, as well as the respondent's support for the policy. Respondents are then asked questions about their support for different climate policies (e.g., a tax on flying, subsidies for low-carbon technologies) and their support for a carbon tax depending on the revenue recycling (e.g., equal cash transfers to all households, cash transfers to the poorest households).

**Willingness to Pay and real stake questions:** In this block we ask respondents how much they are willing to pay annually to limit global warming to safe levels. The question is in the form of a yes or no question and the amount we ask them to pay is randomize (with possible values ranging from the equivalent of $10 to the equivalent of $1,000). Moreover, we also inform respondents that in entering the survey they were automatically enrolled in a lottery to win the equivalent of $1,00. We then ask them how much of this prize they are willing to forfeit and donate to a charity that acts to reduce global greenhouse gases emissions through reforestation. This allows us to extract a willingness to pay for limiting climate change.

**International burden-sharing:** This block contains questions about international climate policies and how countries should split the burden of limiting climate change. Questions relates to the intervention of the respondent's national government depending on what other countries do, as well as how countries should bear the costs of fighting climate change depending on their income or emissions. Finally, we ask respondents if they support several international climate policies.

**Housing and cattle products:** In this section, we measure preferences for ban policies through the lens of mandatory insulation and consumption of cattle products.

**Final questions:** Eventually, we ask people about their level of trust in other people and in the government, as well as about their views on inequality.

**Petition:** At the very end of the survey, respondents are asked if they are willing to sign a petition to “stand up for real climate action.” We inform them that this petition will be sent to the highest governmental authority (either President or Prime Minister office) by ourselves.

Map

Description automatically generated





# References

Crippa, M., Guizzardi, D., Muntean, M., Schaaf, E., Solazzo, E., Monforti-Ferrario, F., Olivier, J. and Vignati, E., “Fossil CO2 emissions of all world countries - 2020 Report”, EUR 30358 EN, Publications Office of the European Union, Luxembourg, 2020, ISBN 978-92-76-21515-8, doi:10.2760/143674, JRC121460.