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Does information impact acceptability and support for green policies? Rhetoric *vs.* Action

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Abstract

Surveys show that among European countries there is high citizens' awareness and large support for green policies. But these policies have a cost that needs to be borne by taxpayers. This link is not captured in most surveys. By conducting a RCT on two countries highly vulnerable to climate change – Italy and Portugal – we show that providing information on climate is an effective way of increasing support, even if the policies come at a cost. This exercise is particularly timely, given that the recent increases in energy prices, weighing on the cost of living, have prompted a backlash against costly green policies

Keywords: public finance; environment; economics; environmental policy; climate change; information; acceptability; randomized controlled trials

JEL Classification: Health, Education and Welfare

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The ultimate test of man's conscience may be his willingness to sacrifice something today for future generations whose words of thanks will not be heard.

Gaylord Nelson

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1. Introduction

In human history, there have been hundreds of challenges that humankind had to go through to reach the level of development that we have today. Refugees' crisis, malnutrition and poverty, world wars, epidemics such as the plague or AIDS, and even the latest COVID-19 pandemic, just to name a few. All these challenges have been also a driver for humans to overcome their initial limits. However, if we take a closer look at these tragic events, we notice that they all had a common denominator that pushed men and women to overcome them: the concrete possibility to personally observe their direct effects in the everyday life. Today, humans find themselves in front of a more recent challenge that does not have this characteristic: climate change. Climate change is recognized by many as the biggest challenge of the 21st century not only for the magnitude of the phenomenon but also because its consequences are genuinely hard to recognize in the short term. While in the last few years, the younger generations seem to have taken the environmental problem more into consideration, the path to preserve the planet and build a greener future is still very tortuous.

The seriousness and size of the matter are almost unprecedented. This is why, in order to tackle the issue, a worldwide common effort must be undertaken. What is then stopping us? The lack of reliable information and the direct costs of the introduction of green policies certainly play a crucial role. For example, studies show that the introduction of a carbon tax has a negative effect on the overall economy if not accompanied by government measures to reinvest the additional revenues in high unit GDP content (for instance in research and development or human capital). Therefore, without the introduction of investment policies we would have an additional cost for the overall economy (Dias 2017). Specifically, the burden of such cost is generally carried out by the citizens (or voters) with their own finances. This is why the introduction of environmental policies is still today a tough issue to deal with. However, in the following years, information campaigns on the importance of climate change and its future costs could be a driver to increase acceptability among voters.

From a political point of view, starting from the assumption of the median-voter theory, politicians will carry forward environmental policies only whenever they will gain political support from voters. Every policy has its costs and benefits, however, when we specifically study environmental policies, we notice that they are characterized by certain costs today while benefits only in future times. Such a situation makes acceptability harder since the policy seems less beneficial. One of the main problems of a green transition is that it comes at higher costs for consumers and firms, while the benefits are less visible and only accrue in the future. In some cases, these problems arise due to a generation gap (where the payer is not the beneficiary), however, in other situations it is a matter of supporting a sector (or a class) at the expense of another one. For example, a government might tax a "non-clean" industry (such as cruises/airplanes) to invest in cleaner and sustainable sectors (for example trains), or differently, it could tax firms to support consumers. While the generation gap might be easier to overcome due to the payer's concern for her future family, the case in which the government picks sides between sectors or classes is instead a very harsh situation to solve, also due to the multiple and different interests at stake in the game.

Another issue, that should be taken into account when analyzing the costs and benefits of the introduction of environmental policies, is certainly the one of not having a clear picture of the cost to benefit ratio. In fact, the feasibility of some projects depends upon the different country scenarios (such as weather conditions), making the predictability of all costs involved quite difficult and increasing the complexity of the sensitivity analysis. Additionally, evaluating all the potential benefits may result in a hard task to accomplish since externalities are not always easy to grasp and value in this context. This is why it is often complicated to have a full and limpid picture of the costs to benefits ratio. An obstacle that can also slow down a fast transition to a more sustainable economy is the "just one in a million" ratio. In our modern society, radical changes happen only when largely accepted and adopted in the everyday life by the large majority of citizens. Regarding green actions, past surveys show a lack of incentives to change due to the idea to be just one in a million to attempt to modify their lifestyle. We will follow up on this idea in the survey review.

From multiple EU data sources such as Eurobarometer (2021) and EIB (2021), it is clear that

in most EU countries there is strong support for these policies. However, it is not clear if this "theoretical" support translates into support for concrete action, in particular when it comes at a cost. Movements like the Gilets Jaunes in France, amid rising fuel prices in 2018, or, most recently, the strong reaction to the surge in energy prices in Europe, cast doubt on the possibility to move forward with the EU ambitious climate goals, when the short-term costs of those policies start weighing on taxpayers' pockets. The goal of this paper is thus to understand how information, aiming at increasing awareness of the importance of environmental policy and the associated benefits, can shape not only the broad support for green policies but actually the support for policies that came at a cost ("costly policies"). Unlocking public acceptability of those costs is a critical element of the EU green strategy. Our research question is therefore:

"Does information impact the support and acceptability of those green policies that directly weigh on taxpayers' pockets? And what type of policies will it impact the most?"

In our research, we will mainly concentrate on the EU Member States with a particular focus on Italy and Portugal. In order to analyze this crucial topic, we have organized the papers as follows: Chapter 2 will deal with the current environmental situation in the EU with a specific focus on the Fit for 55 package, the Environmental Implementation Review (EIR) and the Recovery and Resilience Plan (RRP). In Chapter 3, we will first analyze the previous literature on the relationship between green policies acceptability and information, and then past surveys concerning climate and environment to understand the level of knowledge and awareness across the different European nations. We will then move on to describing the model, data, and treatments that we used for our analysis (Chapter 4). In Chapter 5, we will discuss the main empirical findings from our data analysis and finally, in Chapter 6, we will go through the conclusions and final remarks, trying to understand possible policy implications arising from our results.

2. EU Plans for a Green Transition

2.1. Fit for 55 package

One of the most recent environmental goals that the European Union is aiming to achieve by 2050 is climate neutrality. The term climate neutrality describes a situation in which an economy has net-zero greenhouse gas emissions. Already by 2030, the EU's objective is to cut down these emissions by 55 percent. It is in this perspective, that the EU introduced the "Fit for 55 package". This package contains various policy proposals to enhance the achievement of the green goals and to update and revise the current EU environmental legislation. Additionally, it aims at ensuring that all Member States are moving in the same common direction with regard to environmental policy implementation. Fit for 55 was also introduced to strengthen the EU's position as a worldwide leader in fighting climate change and to secure a fair green transition through the innovation of the EU industries. The policies and proposals included in this package are explained by EU Council (2022):

i. A complete revision of the EU emissions trading system (ETS) with the final objective to reduce emissions by 61 percent before 2030 with respect to the 2005 emission levels;
ii. Increasing the Member states' emissions reduction targets from 29 to 40 percent by 2030;
iii. Reducing emissions and removals associated with land use and forestry;
iv. Increasing the renewable energy EU target from 32 to 40 percent by 2030;
v. Raising the EU energy efficiency target from 32.5 to 36 and 39 percent for final and primary energy consumption;
vi. Investing in alternative fuels infrastructure to speed up a greener transition;
vii. Stop the sales of cars or vans with an internal combustion engine in the EU by 2035;
viii. Revise the energy taxation;
ix. Carbon border adjustment mechanism to prevent that after the EU emissions reduction there is an increase in emissions in non-EU countries;
x. Reducing aircraft emissions;

xi. Introducing greener and more sustainable fuels in shipping;
xii. Proposing a social climate fund for buildings and road transport.

Fit for 55 package is, therefore, a relevant tool to predict how the future of the European Union will be shaped: greener, with lower emissions, and more sustainable. The only question that arises is whether policymakers among the Member States will succeed in overcoming the huge obstacle of maintaining high support for these green policies even when they will be introduced at the financial expense of the voters.

2.2. Environmental Implementation Review (EIR)

2.2.1. EU General Situation

In order to completely understand the direction in which the European Union seems to be following with regard to environmental actions, additionally to the Fit for 55, it is of crucial importance to have a clear idea of the Environmental Implementation Review (EIR). The EIR "*is a tool to improve implementation of EU environmental law and policy. It aims to address the causes of implementation gaps and try to find solutions before problems become urgent*" (European Commission 2021). By using this tool, the European Commission is, therefore, able to supervise and address all the EU Member States' specific country situations concerning environmental legislation. Its main responsibility is to monitor the correct implementation of environmental policies and laws around the EU taking into consideration the country-specific characteristics. The long-term goal consists of closing up the current gaps between the different nations in order to enhance a common European green strategy. To achieve such a thing, the European Commission will conduct the EIR to:

i) inform the Member States with regards to their gaps following the pre-agreed EU policy objectives;

ii) provide support and feedback in the implementation of the environmental policies;

iii) strengthen the EU compliance with environmental obligations in order to decrease the current gaps among the various EU Member States.

Without a homogeneous EU environmental common legislation among the Member States, the idea of building a greener European future seems very far from reality. In this European framework, every two years the country-specific reports are published. They highlight the main challenges that each Member State will have to deal with, as well as the policies that should be implemented to overcome these challenges. However, in order for policymakers to be able to introduce environmental policies, citizens' acceptability is strictly necessary, and when these policies create relevant burdens on the taxpayers' wallets such a condition is not often met. In the next section, we will move on to specifically take analyze two countries' reports: the Italian and the Portuguese ones.

2.2.2. Italian and Portuguese Situations

Starting from the 2019 Italian report, we notice right away how, while this country has a large natural capital (due to the many natural areas), it is also connotated by a high density population that creates relevant environmental concerns. Additionally, to the presence of 60 million citizens in a relatively small territory, the Italian public administrations seem to strongly differ in their capacity to deal with environmental problems across regions, creating additional pressure on the possibility to pursue the EU guidelines. While respect to the previous years it is possible to observe some signs of progress (for example with the introduction of Natura sites 2000 to preserve habitats and species), Italy still has a long path to follow in order to reduce its gaps with respect to the EU objectives and obligations (EC 2019a). The main EIR challenges still remain:

1. Waste management

One of the main problems regarding waste management is the fact that it varies significantly across the different Italian regions. The region Campania seems to be performing the worst, even obtaining multiple fines for its poor waste management. Without reducing the efficiencies gaps inside its territory, Italy will struggle to keep up with the EU green agenda. While it is true that recycling has slightly increased in the latest years, a bigger effort is needed in order to be able to follow the EU objectives (EC 2019a).

2. Urban waste water

With regards to urban wastewater, Italy is in strong need of investment to keep up with the EU obligations. Even though the country appointed a specific commissioner to deal with water waste very small improvements have been made over the last years. For this reason, the EU Court of Justice fined Italy a number of times (EC 2019a).

3. Air pollution

Air pollution is also another important problem the Italian government should take into account in the next years. The number of private cars circulating in Italy makes up for 80 percent of the total travel creating a relevant level of pollution. Specifically, in the report, we read that "*according to the European Environment Agency, air pollution was responsible for about 74 000 premature deaths in Italy in 2015*". This country must therefore increase its efforts to safeguard the environment and the health of its citizens (EC 2019a).

This information should be taken into consideration by the Italian government and policymakers. In order for Italy to fit into the EU green strategy and close the gaps with the other EU Member States, it is of crucial importance that the government will opt for green-targeted investments in the above-mentioned areas. We will use the EIR country report information when developing the survey for the analysis of our research question.

Moving on to the Portugal country report, we notice how this country has a large biodiversity and marine environment. Over the past years, even though Portugal has been receiving relevant amounts of funding from the EU in order to preserve its natural domain, the implementation of reliable policies still remains a significant issue for this country. On a positive note, the latest government seemed to have started following a greener direction, at least in the public administration: lowering the use of fossil fuels and the reduction of single-use plastic products definitely show the willingness to aim at a more sustainable use of public resources (EC 2019b). Nevertheless, Portugal still needs further improvement to pursue the EU green objectives, and the EIR report highlights two main challenges that the country should overcome in the next years:

1. Waste and water management

Similarly, to the Italian case, Portugal struggles with waste management. The EU recycling objective requires 50 percent of waste to be recycled and Portugal seems still far from reaching the EU target (just below 30 percent of the waste is recycled). Another issue for this country is water management. The level of investments in this sector is considerably low and, despite the improvements achieved in the last years, water management is still in need of a complete reorganization to meet the EU standards (EC 2019b).

2. Nature protection

Another challenge that the Portuguese government must overcome is the protection and conservation of nature and biodiversity in its territory. This country is missing the implantation of multiple EU regulations (for example the EU Invasive Alien Species Regulation) Policies to tackle this issue and to decrease the gaps with the EU targets are, therefore, necessary (EC 2019b).

Portuguese policymakers must therefore try to keep up with the EU plans and try to implement the main regulations and policies in the areas highlighted by the EIR. As mentioned earlier, to do so a variable that must be taken into account is the citizens' willingness to pay for the extra costs deriving from the introduction of new green policies (policy acceptability). We will try to understand whether, if provided with the right amount of information, citizens would be willing to bear the policy costs today to enjoy benefits in the future (or assure benefits for future generations).

2.3. Recovery and Resilience Facility (RRF)

After the COVID-19 pandemic, the European Commission introduced the Recovery and Resilience Facility (RRF) with the goal of fostering economic activity and reducing the social impact of the pandemic. In the RRF, the direction in which the European Commission seems to be heading is quite clear: enhance green and digital transitions. Thanks to this mechanism, Member States can now rely on the Commission to raise funds in order to be in line with the EU country-specific objectives and carry out the so-called "twin transitions" (green and digital). Now that a general picture of the RRF has been given, we will focus on the two country subjects of our research: Italy and Portugal.

2.3.1. Italy

Taking into consideration the Italian Recovery and Resilience Plan (RRP), its goal is to foster and increase the levels of investments to reform the Italian system, rendering it greener and more digitized after the COVID pandemic. Specifically, we observe how the highest share of allocations of investments (37 percent of the total) is directed to enhance the green transition. This shows the importance for this country to become more sustainable in the near future. Specifically, the RRP considers three main areas in which the Italian government should implement policies and regulations. These are: i) fostering sustainable mobility by increasing high-speed rail lines and developing green local transport through the introduction of new cycle lanes, metros, and green buses. Almost C32.1 billion were allocated for these policy actions; ii) increasing buildings' energy efficiency and financing renovation of constructions. More than C12 billion were made available for this plan.; iii) developing renewable energy, circular economy and water management. Around C11.2 billion were provided for this program (EC 2021).

2.3.2. Portugal

If we take a look at the Portuguese situation, we notice that the Portuguese RRP contains eight main policy areas connected to the enhancement of a climate transition: i) fostering buildings' energy efficiency; ii) sponsoring the production of green renewable gasses, and increasing the storage capacity of renewable energy sources; iii) fostering decarbonization of the industrial sector through the use of low-carbon resources; iv) promotion of the bioeconomy from biological resources in textiles and clothing, footwear and resin; v) enhancing sustainable mobility and promote public transport; vi) forests protection implementing an integrated management system; vii) enhancing the implementation of water management processes; viii) increasing the protection of the marine environment (Agência Transparência 2022).

With the introduction of the RRF, both Italy and Portugal finally have the opportunity to carry out a green transition and catch up with the previously mentioned EU's objectives. The European Commission has designed a sustainable path for these two countries, highlighting all those policy areas in which reforms and funds are needed. Italian and Portuguese policymakers should try to exploit the opportunities provided by the EU, making sure to preserve the citizens' support acceptability for these green actions. We will later analyze whether information can play a role in increasing this support and, additionally, what is the most effective format in which information campaigns should be carried out.

3. Previous works

3.1. Literature Review

In this section, we will try to shed light on the previous literature regarding the relationship between environmental policies and information provided to citizens. The approaches used by the various papers to analyze this relation have differed through time and the results found diverge depending on the treatment dispensed and the demographic components of the respondents' sample.

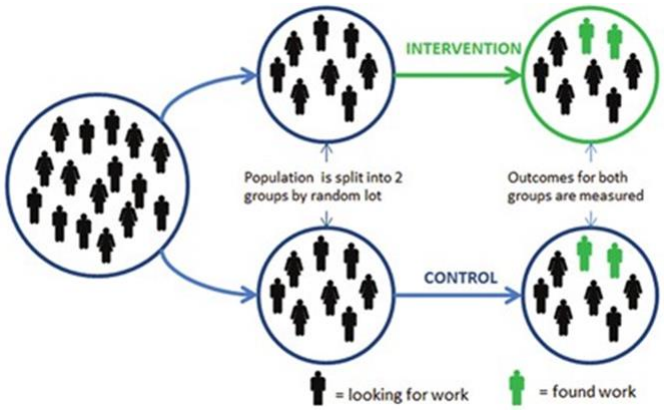
3.1.1. Environmental Framework

When considering environmental-related topics, it is of crucial importance to highlight the fact that due to the recency of the events studied, a complete and sound framework is still today absent. In fact, the foundations for the study of this topic are still a work in progress. Nonetheless, public concern for climate change and, more broadly, for environmental protection is exponentially increasing in importance in today's societies around the world. This is why, over the last years, a relatively large number of papers have been trying to deal with environmental policies and find possible ways to enhance them. The path to creating a common scientific framework has, therefore, been traced by researchers and if future works will follow the same direction, the chances of setting down empirical foundations for environmental policy strategies are very probable.

In such a "young" and new sector for research, very recent analysis approaches have been setting their base on the use of randomized controlled trials (RCT). An RTC is "*an experimental form of impact evaluation in which the population receiving the programme or policy intervention is chosen at random from the eligible population, and a control group is also chosen at random from the same eligible population*" (White, Sabarwal, and de Hoop 2014). The RCTs allow the researcher to compare a situation where a specific

intervention or policy has been introduced with a case in which this action has not been done. They are therefore crucial tools to determine whether certain treatments or policies concretely work and, they can be applied without needing a vast number of resources. This is why in public policy, the literature has been largely using them over the last few decades (Haynes, Service, Goldacre, and Torgerson 2012). Specifically, in environmental economics, the RTCs have been used to test the impact of various information treatments on the environmental outcomes subject of the research. The outcomes can regard specific sectors such as the energetic one or can more broadly concern public support for certain policies.

Figure 1: The basic design of a randomized controlled trial (RCT) (Source: Haynes et al. (2012))



3.1.2. Behavioral Economics Approach

When dealing with environmental economics, most economists seem to be leaning towards the use of norm-based information treatments. Following the standard economic assumptions where agents are rational and perfectly informed (absence of asymmetric information) these approaches should be completely ineffective. However, in a young sector of research such as that of environmental policies, results suggest that behavioral approaches can actually have significant impacts on individual behaviors and policy responses due to agents' bounded rationality and personal preferences. This is the reason why most papers apply a norm-based approach in their information treatment. For example, Costa and Kahn (2013), using a randomized control trial, studied how political views and orientations can have an impact on the respondents' reaction to energy conservation nudges. Specifically, they found that, in the United States, providing feedback on household energy consumption and comparing it with the neighbors' one (treatment) was two to four times more effective with liberals (Democrats, Green, Peace and Freedom) than with conservatives (Republicans). Therefore, in order to achieve the same results across the territory independently of the political orientation, the energy conservation nudges should be directly targeted to the peculiar characteristics of the different households (Costa and Kahn 2013). The effect of a program (treatment) based on comparing residents' electricity use with the one of their neighbors was also studied by Allcott (2011). In this paper, the author tried to understand how giving information on energy consumption could have an impact on energy usage. Specifically, he found that the program decreased energy consumption by 2 percent on average. Results, however, were heterogeneous and largely differed depending on the pre-treatment energy usage. In fact, households with high energy consumption levels decrease their usage by 6.3 percent while the ones with a lower energy consumption only by 0.3 percent (Allcott (2011)).

Another paper that used RCT to study the relationship between providing information and the respondents' change in environmental behavior is Ferraro and Miranda (2013). Their goal was to try to analyze heterogeneous responses depending on the respondents' characteristics. A particularity of their paper is the use of three heterogeneous treatments to sensibilize the respondents on the water consumption using social norms as leverage to stimulate a reaction. They found that, while the pure information and the weak social norm treatments did not have a relevant and strong effect on heterogeneous responses, the strong social norm message did. They additionally found that wealthier respondents and those with higher water usage are more responsive if compared to the others (Ferraro and Miranda 2013). Ferraro and Price (2013) also confirmed that, after the treatment was provided, people with higher water consumption were found to have higher behavioral changes if compared to the ones with lower usage. In this paper, the authors studied the impact of norm-based messages on individuals' behaviors, and, similarly to the above-mentioned papers, they found how comparison information had a stronger effect if compared to all

the other forms of messages. Specifically, this paper states that those people that were considered having a less price sensitive behavior, and therefore had higher levels of water consumption, were the ones on which the treatment was the most effective (Ferraro and Price 2013).

In conclusion, environmental economics seems to rely less on the classic economic assumptions of rational agents and its study focuses more on understanding the respondents' behavior post-norm-based treatments.

3.1.3. Tailored Information

Multiple papers dealing with environmental economics and policies used the approach of pro-viding tailored information as their main treatment. Such an approach consists of providing the respondents with different information depending on their personal characteristics. The characteristics on which the treatment is based can be of different nature: social-economic, demographic, political, personal values, knowledge or even a mix of them. The ratio behind the choice of providing tailored information lies in the fact that, by being able to classify the respondents on specific traits, we would be able to provide information that could have greater effects on the behavior of the specific agent surveyed. For example, Nilsson, Hansla, Heiling, Bergstad, and Martinsson (2016) conducted a research in Sweden in order to understand whether tailored information had an impact on respondents' individual behavior and policy acceptability. The tailored information was provided based on people's values: "*by matching ecocentric arguments to biospherically value-oriented participants, and anthropocentric arguments to those who endorsed egoistic values*" (Nilsson *et al.* 2016). The authors found that agents with egoistic values were more positively affected by anthropocentric arguments with respect to pro-environmental information while non-egoistic agents were more touched by pro-environmental arguments. The results found by Nilsson *et al.* (2016) showed the importance of providing different treatments depending on the agents' characteristics in order to maximize the effectiveness of the treatment on individuals' behaviors. Abrahamse, Steg, Vlek, and Rothengatter (2007) also stressed the importance of providing tailored information in order to have a greater impact on respondents' behavior. Additionally, to tailored information, the authors also provided tailored feedback and goal setting at 5 percent. Once again, the results showed how, by providing tailored information and feedback, there was a significant reduction in energy consumption: in the treatment group -5.1 percent while in the control group the consumption levels were pretty much the same. Additionally, the authors found that households in the treatment group had higher energy consumption knowledge when compared to the control group (Abrahamse *et al.* 2007).

In conclusion, in order to modify agents' behavior information plays a crucial role. Adjusting information campaigns depending on the final agent target is of crucial importance. Policymakers should take this into consideration.

3.2. Surveys Review

In order to fully comprehend whether the introduction of new green policies in the EU member states is likely in the near future, it is of crucial importance to analyze existing surveys concerning public opinion on the environment, climate change and policy preferences of EU citizens. From past surveys in the European Union, we clearly notice that knowledge regarding climate change is quite spread in the population, even though with some differences among the various nations. For example, while in Germany, the leading country, 77 percent of the respondents (Leiserowitz *et al.* 2021) state to have at least some amount of knowledge regarding climate change, in countries such as Italy or Spain (that are in the lower end), we notice a much lower percentage, respectively 67 and 60 percent (Leiserowitz *et al.* 2021). These data show how, even though the majority of the EU population is aware of the problem, there are still large gaps depending on the home country. Regarding concerns and awareness, the picture is even clearer: almost 93 percent of Europeans believe that climate change is an important issue and 78 percent state that it is a very serious problem, as problematic as world hunger and poverty (Eurobarometer 2021). Specifically, there has been a constant positive trend in these percentages over the last 13 years. Figure 2 shows that from 2009 to 2021 the percentage of people concerned about climate change increased by 6 percent and those that see it as a very serious issue even more, from 63 to 78 percent (15 percent increase in the last 13 years) (Eurobarometer 2009,

Eurobarometer 2011, Eurobarometer 2015, Eurobarometer 2017, Eurobarometer 2021). Understanding how climate change is perceived in the different countries across the EU is also very important. By analyzing the Eurobarometer data across time (2015-2021), we notice how concerns vary across Europe. Specifically, by looking at Figure 3, we notice that, while countries such as Portugal (higher level of concern in the EU) and Italy have high percentages of people stating that they are very concerned regarding climate change, these levels are significantly lower for Finland and Estonia (lowest percentage in the EU after Latvia) (Eurobarometer 2009, Eurobarometer 2011, Eurobarometer 2015, Eurobarometer 2017, Eurobarometer 2021). Overall, it clearly stands out how awareness and concern regarding environmental issues are increasing over the last few years, however, there are still significant gaps depending on the EU country taken into consideration.

Awareness, knowledge, and concerns about environmental issues also vary depending on socio-economic and demographic characteristics and on political views. The European Investment Bank (EIB) Climate Survey, EIB (2021), found that when asked whether climate change was the biggest challenge for humanity in the 21st century, 81 percent of the respondents agreed.

Figure 2: Respondents' concern about climate change through the years 2009-2021 (Source: Author's work, data taken from Eurobarometer (2009), Eurobarometer (2011), Eurobarometer (2015), Eurobarometer (2017), Eurobarometer (2021))

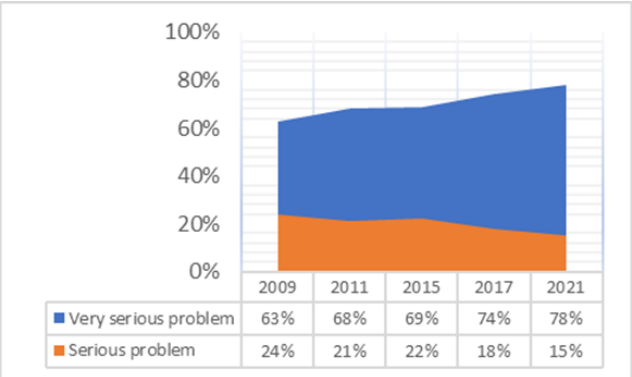
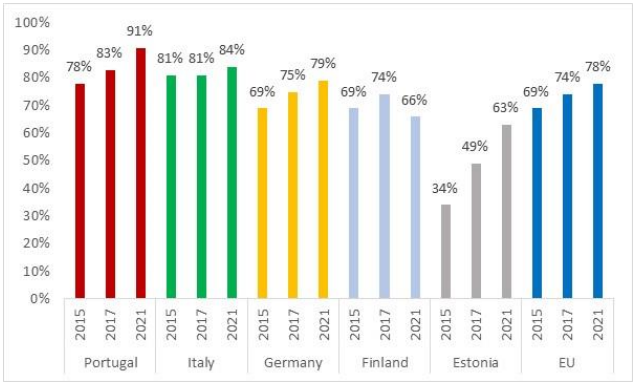


Figure 3: Percentage of EU citizens stating that climate change is a very serious problem by country over the period of time 2015-2021 (Source: Author's work, data taken from Eurobarometer (2009), Eurobarometer (2011), Eurobarometer (2015), Eurobarometer (2017), Eurobarometer (2021))



Looking at the demographic component, the data shows that, the older population (65+), even though it will not be directly affected by the consequences of climate change, seems to be as concerned as the younger generations (15-19) for the future. This is not the case for the 50-64 age range which seems slightly less concerned and for the 20-29 age range which is the group most sensitive to the topic. Focusing instead on socio-economic characteristics we notice that both social class and occupation do not seem to play a role in shaping the respondents' concerns (Figure 4). Climate change is therefore one of the few topics on which the interests of the different social classes follow the same path. What stands out the most is the fact that, as Figure 5 shows, people who defined themselves as more politically "right" have a higher percentage of "No" as an answer to the previous question. On average, while almost 90 percent of the left-leaning respondents agree with the fact that climate change is the biggest challenge of the 21st century, only less than 75 percent of the right-leaning respondents agree as well (creating a relevant 15 percent gap between the respondents based just on political preferences).

Figure 4: Response by occupation and age to the question "is climate change was the biggest challenge for humanity in the 21st century" (Source: Author's work, data taken from EIB (2021))

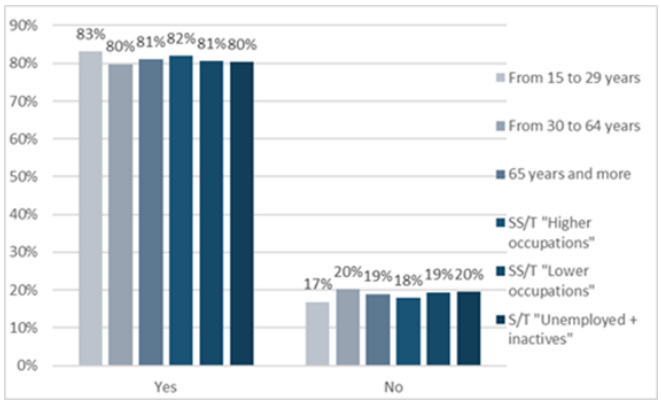
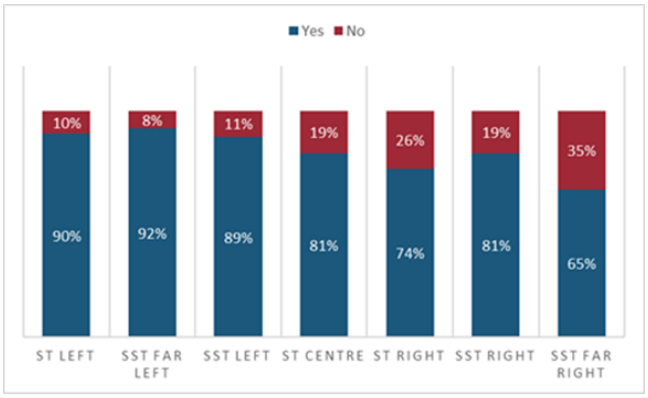


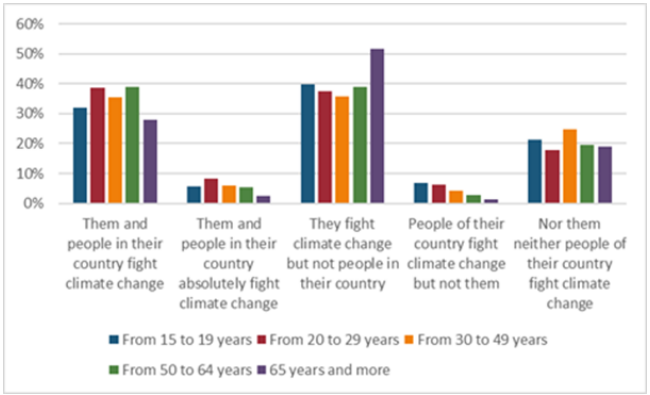
Figure 5: Response by political view to the question "is climate change was the biggest challenge for humanity in the 21st century" (Source: Author's work, data taken from EIB (2021))



A crucial point to understand if the long-term sustainable goal will be met is to look into the habits of the younger generations that will most likely impact the way we will shape our future society. A research conducted by Credit Suisse in 2022 shows how the new generations are aware of the environmental problems, and around 70 percent state to be concerned or very concerned about the future. Since consumption choices of the younger generations will most likely determine whether the long-term emission goals will be reached, such a result gives hope for the future (Klerk, Longworth, Kharbanda, Jiang, and Ziffer 2022). Specifically, Europeans are quite likely to undertake an environmentally friendly diet, own an electric or hybrid vehicle, and conduct a more sustainable lifestyle in the near future. For example, 67 percent of Europeans say that their next car will be electric or hybrid and almost 1/3 are open to modifying their food habits by eating more organic food and consuming lower amounts of meat (EIB 2021, Eurobarometer 2021). Transforming knowledge and awareness into concrete action is however sometimes quite challenging. If we look more closely at the respondents' personal efforts to tackle climate change, we find that 75 percent of the respondents believe that changing their behavior could make a difference to fight climate change and, 78 percent state that they are doing all they can to tackle climate change in their day-to-day life. However, the majority think that the other citizens are not putting the same effort to change their habits (EIB 2021). The most common practices that Europeans are introducing in their routines are reducing and recycling waste (75 percent) and lowering the consumption of disposable products (almost 60 percent) (Eurobarometer 2021).

Moreover, almost 70 percent of the respondents state to take into consideration climate change when traveling, even though the vast majority will probably still use planes for their next holidays. Additionally, 2/3 declare to take into account climate change when voting, however, in today's political picture green parties or parties aiming at concretely increasing green policies are still in large minorities (even though there is a positive growth trend in multiple nations' polls). It was also found that the vast majority of respondents (75 percent) seem to be very careful and take into consideration climate change when buying a product or purchasing a service (EIB 2021).

Figure 6: Response by age to the question "Would you say that you and people in your country are doing all you can to fight climate change in your lives?" (Source: Author's work, data taken from EIB (2021))



Shifting our focus on the government's role in environmental policies, we notice how most adults believe that climate change should be a "high" or "very high" priority on the government agenda. In

countries such as Italy and Spain the percentages are particularly high compared to other EU countries, in fact, more than 85 percent of the respondents would like to prioritize policies to address it (in the Netherlands only 56 percent) (Leiserowitz *et al.* 2021). Specifically, 63 percent of Europeans believe that the government is responsible for tackling climate change, and ¾ state that their national government is not doing enough to face it (Eurobarometer 2021). The majority think to be more concerned about the climate emergency than their government is. Additionally, 7 citizens out of 10 would be in favor of stricter measures (similar to the ones used to fight the COVID-19 pandemic) to enhance changes in people's behavior to fight climate change (EIB 2021). From a policy point of view, these results show that there are large majorities understanding the need to act and support actions in favor of tackling climate change and, that most would agree to undergo stricter political maneuvers to save the environment. From these data, if green policies were to be implemented, they would be accepted by most citizens in the European Union. However, one of the most difficult challenges that policymakers have in the future is to convert this "theoretical" support for a green transition into real support for concrete action. In these surveys, we are still not taking into consideration the effect that the personal costs (that arise with the introduction of green policies) would have on the citizens' acceptability. This is exactly the final goal of this paper, and we will discuss our results in the following sections.

4. Previous works

4.1. Treatments, Survey and Data Collection

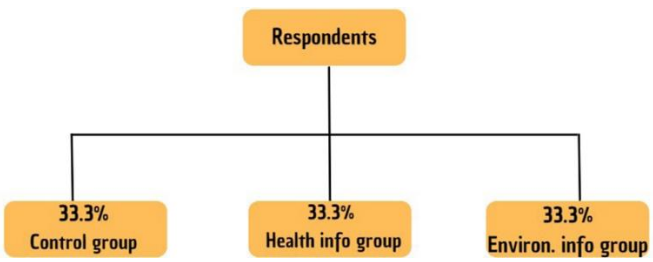
As previously stated the goal of this paper is to understand how information can have an impact on the acceptability of those green policies that weigh directly on taxpayers' pockets. In order to do so, we will use a randomized control trial (RCT). As previously introduced in the literature review, an RCT consists of an evaluation in which both the population receiving a certain treatment and the control group are chosen randomly from the same eligible population. We decided to be consistent with the past literature on this topic and use this tool for four main reasons: firstly since it allows us to determine whether our treatment can have a direct effect on the final outcome and gives us the chance to size the impact of our information campaign; secondly because it helps us minimizing allocation and selection biases which are of crucial importance when assessing a policy question; thirdly since it decreases the requirements for the sample size and finally due to its low-costs and compatibility with the resource constraints of our research.

For our treatment, we followed the approach taken by Ferraro and Miranda (2013). This paper is built upon a treatment based on providing heterogeneous information to various groups of respondents. In our research we go one step further from the approach used by Ferraro and Miranda (2013), in fact, we categorized our treatment depending on the type of information provided with a specific focus either on health or environmental issue associated to climate change. The treatments are the tools to study whether the information will increase respondents' willingness to pay higher prices for environmental policy today, resulting in higher acceptability for "costly policies". In our specific case, we had a total of three groups:

- a control group that did not receive any treatment;
- a health information group that received a treatment based on the effects of climate change on human health;
- an environment information group that received a treatment concerning the impact of climate change strictly on the environment.

Regarding the format of the treatments, we decided to use infographics due to their user-friendly visualization. Figure 7 shows how the two types of treatments were provided to respondents.

Figure 7: Treatments tree graph (Source: Author's work)



In this way, we were able to capture: (a) whether information treatment had an impact on the results and (b) if respondents were more sensitive to information regarding their own health or to the actual impact of climate change on the environment and biodiversity. Following the approach used in this paper, policymakers will be able to understand:

i) whether investing money in information campaigns can ensure support for an actual transition;

ii) on which type of policies information campaigns can have a greater impact;

iii) what type of information will have a more relevant impact on respondents;

iv) if the infographic can be an effective format for the presentation of information.

By using the above-mentioned approach, we were able to size the effect of heterogeneous information among the three different groups, while at the same time, providing a concrete result on the effectiveness of environmental information campaigns. This type of analysis is unprecedented in the environmental policy literature, in fact, to our knowledge, previous works have not discussed the effects of health and environmental information treatments in Italy and Portugal. With regards to the survey, 20 questions were asked to the three previously mentioned groups. In order to gather the data and the results, we compared the differences in the answers of these groups to understand whether the given treatment had an impact on the respondents' choices and policies' acceptability. With the goal of reaching a vaster audience, we published the survey and the treatments in three different languages: English (EN), Portuguese (PT) and Italian (IT). For the design of the survey, and in particular to elicit the support for "costly policies", we followed OECD (2021) and EIB (2021), adapting them to our setting of the green transition. Specifically, the various questions fall within six broad categories:

i. Background questions: to understand the socio-demographic characteristics of the different respondents;

ii. Personal environmental concerns: aimed at analyzing how concerned about the environment our sample is;

iii. Satisfaction with government and social policy;

iv. Social policy preferences: personal respondents' preferences;

v. Willingness to support policies with and without taxes;

vi. Type of policies: to assess the acceptability of the various policy measures that can be introduced by the government.

To understand if people were willing to support a tax increase to finance a green transition, we defined a limit of 1 percent. Such an assumption was based on basic math calculations: we firstly divided the EC (2022) estimates for a green transition (EUR 520 billion each year) by the 2020 EU GDP EUR 145.09 trillion (World Bank 2022) obtaining 3.6 percent. Assuming the IRS to be the main funding source for a government, accounting for around 24 percent of the total public funding, we multiplied 3.6 percent by 24 percent obtaining an approximated increase in tax of 1 percent. Therefore, as previously introduced, the variable DiffTaxNotax shows the drop in policy acceptability once the tax is introduced.

The software used for the creation of the survey was Qualtrics and the distribution was done through social media, emails and other technological platforms. Before the distribution stage, the survey was tested on a sample of 20 people in order to check the full functioning of the software and to gather further insights and feedback. The collection of the data was carried out from the 28th of April to the 22nd of May 2022.

4.2. Model and Methodology

In order to analyze the gathered data, we decided to use the Stata software. This analysis was conducted through the use of an Ordinary Least Squares regression (OLS). In this way, we were able to describe the relationship between the independent variables and the dependent variable. Our OLS model was set as follows:

$$y_i = \beta_0 + \beta_1 T + \beta_j controls_i + E_i \quad (1)$$

Where y represents the dependent variable[4] (respondents' answers to policy questions) and T the dummy variable identifying whether the respondent was treated. Controls contains all the variables used as controls in the regressions. These variables are: age, political preference, gender, education level, having kids, concern for the environment and belief on whether the government is doing enough to face the environmental problem[5]. $\beta = [\beta_0, \beta_1, \beta_j]$ is, instead, the vector of coefficients. From a theory point of view, the use of randomized control trial would exempt us from having to use control variables. Indeed, the randomization process should balance our covariates. However, when introducing controls in our regression we notice an improvement of the estimations. The main reason for this improvement is the reduction of sampling noise (that is created by the imbalances[6] between the treatment and control groups). If the controls explain, at least partially, our results then we will be able to reduce sampling noise by controlling for them in the regressions.

In addition to the simple regressions (following both the continuous and binary model), interactions were also taken into consideration and studied. In this way, we were able to capture whether the treatments had different impacts on respondents with different specific characteristics (such as social class or education). The model applied for the interaction regression was the following:

$$y_i = \beta_0 + \beta_1 T + \beta_2 Z + \beta_3 * T * Z + E_i \quad (2)$$

Where Z stands for the variable that we are interacting with. In our case, we used social class, education levels and having or not kids. With this in mind, we will now move on to the following section, in which we will analyze the studied sample and the main results found in our analysis.

5. Previous works

In this section, we will go through the main results found in our study. Specifically, we will first provide a general picture of the different characteristics of our sample (dividing it between Italian and Portuguese). We will then move on to comparing the differences in results between the control group, the environment group and the health group in order to size the impact of our information treatments on green policy acceptability and advice future policymakers.

5.1. Italian Descriptive Statistics

5.1.1. Demographic Components

We received a total of 1264 answers for the Italian survey. Specifically, 1255 stated to have lived most of their life in Italy while only 9 did not (less than 1 percent). Gender-wise, the sample was quite balanced: around 53 percent defined themselves as female and 46 percent as male (less than 1 percent stated to see themselves in another way). The predominant age range was the one between 35 and 60 years old accounting for almost 47 percent of the sample. While the young people were also quite well represented (37 percent), the older generation (over 60 years old) was instead only 16 percent of our sample. Additionally, the majority of the respondents did not have kids (56 percent). Table 1[7] shows these variables' sub-categories, their respective share and the total averages (std deviation).

If we now take a look at the social and educational components (Table 1) we see that, for the level of education, our sample resulted in being more educated than the average population. In fact, more than 55 percent of respondents completed either a bachelor's degree, a master's degree, or a PhD program. Around 38 percent stated to have finished high school and only 7 percent just middle or elementary school.

With regards to the respondents' occupations[8], 35 percent stated to be an employee, 26 percent a student, and 15 percent an independent worker. Interns, retired people, people unable to work, and

[4] To fully grasp the results, the dependent variables will be used following both a continuous and a binary model. Further explanation for these models will be done in the results section.
[5] See Appendix for further information.
[6] Due to limited sample sizing and resource constraints.
[7] It is important to highlight that, differently from the percentages written in the text, in this table, the values are measured without considering the options "I would rather not answer", "I do not know" or "I would rather not answer". This ratio is applied to all the following tables in this paper.
[8] We are dividing our respondents based on whether they are currently paying taxes (employee, independent worker, retired and intern) or not (student and unable to work).

other situations accounted (all together) for 24 percent of the sample. Most respondents belong to the middle or middle higher classes (1158 out of 1264) while only 3 percent and 2 percent state to come from a lower and higher class.

With regards to political orientation, our Italian sample is skewed to the left. In fact, 60 percent of the respondents consider themselves to be either center-left or left political oriented, while only 14 percent state to be more leaning toward the right or center-right views. Additionally, 7 percent believe in more centered ideals while almost 19 percent preferred not to reveal their preferences.

Table 1: Demographic and Socio-Economic: Total Italian Sample

Variable	Sub-category (Value assigned)	Share in the sample	Tot average (Std Dev)
Gender	Male (0) Female (1)	0.46 0.54	0.54 (0.50)
Age	Younger (1) Middle-age (2) Older (3)	0.37 0.47 0.16	1.79 (0.70)
Education	Not higher education (0) Higher education (1)	0.44 0.56	0.56 (0.50)
Occupation	Pay taxes (0) No taxes (1)	0.70 0.30	0.30 (0.46)
Social Class	Lower or Middle (0) Middle-higher or higher (1)	0.67 0.33	0.33 (0.47)
Political	Left (1) Center-left (2) Center (3) Center-right (4) Right (5)	0.38 0.36 0.09 0.13 0.04	2.10 (1.17)
Kids	No (0) Yes (1)	0.56 0.44	0.44 (0.50)

5.1.2. Concerns, Personal Preferences and Type of Policies

After the demographic and socio-economic questions we asked respondents to answer a few questions regarding their concerns and policy preferences concerning the environmental topic.

Our sample stated to be quite concerned regarding the environment: the average of the 1264 answers was 8.24 out of 10[9]. Specifically, as Table 2[10] shows, the respondents' concern for climate change is higher nowadays than it was five years (63 percent states so). Similar results are also found when asking our sample how likely will it be that the next generation will be affected by environmental issues. In fact, around 63 percent of respondents stated that it is highly probable that the next generation will suffer the negative effects of the deterioration of the environment. This percentage goes up to almost 91 percent if we consider also those respondents that believe that the next generation will probably be affected.

Table 2: Concern and Personal Preferences: Total Italian Sample

Variable	Sub-category (Value assigned)	Share in the sample	Tot average (Std Dev)
Concern 5 years	Much weaker (1) Weaker (2) Same (3) Stronger (4)	0.13 0.51 0.32 0.04	2.28 (0.73)
Nextgen	Very unlikely or unlikely (1) Likely (2) Very likely (3)	0.07 0.29 0.64	2.56 (0.63)
Gov. Enough (Q12a)	Strong disagree(1) Disagree (2) Neither agree nor disagree (3) Agree (4) Strongly agree (5)	0.23 0.55 0.15 0.06 < 0.01	2.07 (0.84)
Need more costs (Q12b)	Strong disagree(1) Disagree (2) Neither agree nor disagree (3) Agree (4) Strongly agree (5)	0.05 0.14 0.18 0.47 0.16	3.56 (1.07)
Willigness to pay	Never (1) Up to 1 percent (2) Always (3)	0.17 0.48 0.35	2.17 (0.70)

[9] Concern: from 0 = not concerned at all to 10 = very concerned.
[10] 7Nextgen: concern for the next generation. Q12a: "I feel that the government is doing enough to face the environmental problem". Q12b: "The higher costs caused by the government environmental policies are justified by a more important cause: granting a sustainable future for our families".

Variable	Sub-category (Value assigned)	Share in the sample	Tot average (Std Dev)
Government	Much less (1)	< 0.01	4.60
	Less (2)	< 0.01	(0.56)
	Same (3)	0.02	
	More (4)	0.36	
	Much more (5)	0.62	
What intervention	Reduce non-clean energy (0)	0.19	0.81 (0.39)
	Increase renewable energy sources (1)	0.81	

If we instead take a look at the sample's satisfaction with the government's environmental actions, we notice how almost 98 percent believe that the government should do more or much more to tackle the environmental issue. According to the respondents, the most important field in which the government should be acting is the energy sector (1070 out of 1264 pointed it out, 85 percent) followed respectively by industry (decarbonization), tourism and transportation, food, and constructions sectors that were respectively indicated by 45, 35, 26 and 21 percent of the sample (Table 3).

Another interesting result regarding government intervention lies in the fact that our Italian sample agrees more on prioritizing a government intervention aimed at increasing the production of renewable energy with respect to an intervention to reduce the use of polluting sources of energy (again Table 2). More than 70 percent of the sample would be in favor of increasing taxes to finance the introduction of green policies. Specifically, 42 percent would be willing to pay higher taxes if this increase did not exceed 1 percent of current taxes, while 30 percent would accept the raise unconditionally of the situation. However, when asked whether they would support a green transition financed through a tax increase, respondents decreased their acceptability: we recorded a drop in acceptability of almost 0.4 points[11] whenever the tax increase was introduced (DiffTaxNotax[12]) (Table 4). This drop clearly confirms that the introduction of burdens to the citizens' wallets will decrease the support for green policies.

Table 3: Concern and Personal Preferences: Total Italian Sample

Variable	Sub-category	Share of respondents indicating the sector
Sector	Energy sector	0.85
	Industry (decarbonization)	0.45
	Tourism and transportation	0.35
	Food sector	0.26
	Construction sector	0.21

Looking at policy preference for the total sample (Table 4[13]), we notice a clear trend among all the three different proposed policy topics: regardless of the type of policy and of being treated or not, it is possible to conclude that on average push measures are the ones with lower acceptability while pull measures seem to be connoted by the highest support rate. Mixed policies' acceptability (introducing a pull financed by a push policy) is exactly in the middle between the support of the other two policy measures. This result is of crucial importance for policy makers because it shows that, whenever the sample is aware of the link between the cost (push) and the benefit (pull), support increases (if compared to the push policy only).

Taking a closer look at the questions, we see how when talking about transportation policies, the average acceptability of push, pull and mixed policies are respectively 5.76, 7.76, and 6.91 out of 10 with similar standard deviations. If we instead analyze the results for those policies related to environmentally friendly goods, we notice how the averages are slightly higher than the transportation policies ones: 6.18 (push policy), 8.00 (pull policy), and 7.26 (mixed policy). In this case, the standard deviations are also quite similar. Even though the acceptability for these last policy measures increased, our sample showed the highest support for the last set of measures, the ones related to energy use and construction. On this matter, the average score response is particularly high for all three types of policy (7.19, 8.42, and 7.90), however, even in this situation the same trend in acceptability arises: pull

[11] Scale from 1 to 10

[12] DiffTaxNotax = Support score post tax - Support score before introducing the tax

[13] From 1 = lowest support for the policies to 10 = highest support for the policy

policies perform the best. They are followed by mixed measure, in second place, and push policy in last.

In Table 4, we also assess the previously introduced variable DiffTaxNotax. As mentioned earlier, we see a 0.4 drop in acceptability for a green transition when introducing a 1 percent increase in taxes.

Table 4: Type of policies: Total Italian Sample

Variable	Min-Max	Average (Std Dev)
Transportation Push Policy (Q18a)	1-10	5.76 (2.69)
Transportation Pull Policy (Q18b)	1-10	7.76 (2.07)
Transportation Mixed Policy (Q18c)	1-10	6.91 (2.49)
Env-Friendly Goods Push Policy (Q19a)	1-10	6.18 (2.84)
Env-Friendly Goods Pull Policy (Q19b)	1-10	8.00 (2.03)
Env-Friendly Goods Mixed Policy (Q19c)	1-10	7.26 (2.47)
Energy and Buildings Push Policy (Q20a)	1-10	7.19 (2.48)
Energy and Buildings Pull Policy (Q20b)	1-10	8.42 (1.83)
Energy and Buildings Mixed Policy (Q20c)	1-10	7.90 (2.24)
Drop in acceptability (DiffTaxNotax)	(-9)-7	-0.36 (1.70)

5.1.3. Control *vs.* Treatment Groups

Now that we have a clear general picture of the main responses for the entire sample, we will assess whether these responses vary depending on whether the respondent was assigned to the Control group, Health group, or Environment (Env) group. In this way, we will be able to notice whether treatments had an impact on the response of the various individuals. Before moving on, it is important to highlight the fact that this is just a first-glance analysis that does not take statistical significance into consideration. We will consider the statistical significance and we will go deeper into the analysis in the regression section.

The 1264 respondents were randomly assigned to the three groups. Specifically, the groups had a global number of 424 (Control), 422 (Health), and 418 (Env) people respectively. With this in mind, to understand whether the control and treatment groups had similar characteristics, we must take a look at the demographic and socio-economic components. Specifically, Table 5 shows the respondents' distribution within the groups with respect to these components (variables).

Table 5: Italy - Demographic and Socio-Economic results by groups

Variable	Group	Min-Max	Average (Std Dev)
Gender	Control	0-1	0.55 (0.50)
	Health	0-1	0.52 (0.50)
	Env	0-1	0.54 (0.50)
Age	Control	1-3	1.79 (0.69)
	Health	1-3	1.79 (0.70)
	Env	1-3	1.78 (0.70)
Education	Control	0-1	0.60 (0.49)
	Health	0-1	0.54 (0.50)
	Env	0-1	0.53 (0.50)
Occupation	Control	0-1	0.28 (0.45)
	Health	0-1	0.32 (0.47)
	Env	0-1	0.29 (0.46)
Social Class	Control	0-1	0.33 (0.47)
	Health	0-1	0.35 (0.48)
	Env	0-1	0.30 (0.46)
Political	Control	1-5	2.08 (1.11)
	Health	1-5	2.19 (1.26)
	Env	1-5	2.02 (1.12)
Kids	Control	0-1	0.43 (0.50)
	Health	0-1	0.45 (0.50)
	Env	0-1	0.44 (0.50)

Gender, age, social class and kids' distributions are quite similar across the different groups. With respect to these variables, the three groups are homogeneous with similar averages and standard deviations. The occupation variable is also quite well distributed among groups. As we would expect, when computing the Pearson's chi-square test[14] for these 5 variables, we find high p-values, confirming the absence of a statistically significant difference among the three groups. On the other hand, if we consider variables such as education and political views, we notice how the three groups slightly differ from one another. Specifically, the Control group accounts for the highest level of education if compared to the treatment groups. At the same time, however, the Health group is the least left-leaning group out of the three. While this difference is not statistically significant for political views (p-value is 0.13[15]), it is for the education variable at the 10 percent level

[14] Test computed on Stata.

[15] Computing the Pearson's chi-square test

(0.08 p-value). These differences must be taken into consideration due to their potential crucial role in justifying, at least partially, the results obtained. On this matter, in the next section, we will be studying the correlations between the different variables in order to understand whether these small differences in groups could partially explain those different results.

Moving on to Table 6, we can see the data with regard to the other variables used in our analysis (concern and personal preferences). Out of the three groups, the Control is more concerned about the environmental issue (Concern and Concern 5 years) but its willingness to pay higher taxes to introduce green policies is the lowest (Willingness to pay). Regarding concern for the next generation, the Health group scored the highest. Overall, concern-wise, the Env group has the lowest answers with respect to the other two groups. Besides this, all the groups tend to agree with the fact that bearing more costs now is justified by the importance of safeguarding future generations (Q12b). Additionally, all groups agree on the fact that the government should do more or much more concerning environmental policies (Q12a and Government) and this effort should be mainly focused on increasing the number of renewable sources of energy (What intervention variable).

Table 6: Italy - Concern and Personal Preferences results by groups

Variable	Group	Min-Max	Average (Std Dev)
Concern	Control	0-10	8.33 (1.61)
	Health	1-10	8.28 (1.56)
	Env	0-10	8.12 (1.68)
Concern 5 years	Control	1-4	2.30 (0.75)
	Health	1-4	2.29 (0.70)
	Env	1-4	2.24 (0.75)
Nextgen	Control	1-3	2.56 (0.66)
	Health	1-3	2.60 (0.60)
	Env	1-3	2.53 (0.63)
Gov. enough (Q12a)	Control	1-5	2.06 (0.82)
	Health	1-5	2.09 (0.88)
	Env	1-5	2.05 (0.82)
Need more costs (Q12b)	Control	1-5	3.48 (1.15)
	Health	1-5	3.58 (1.03)
	Env	1-5	3.63 (1.01)
Willingness to pay	Control	1-3	2.14 (0.72)
	Health	1-3	2.17 (0.69)
	Env	1-3	2.20 (0.69)
Government	Control	1-5	4.57 (0.55)
	Health	1-5	4.62 (0.58)
	Env	3-5	4.60 (0.53)
What intervention	Control	0-1	0.83 (0.37)
	Health	0-1	0.79 (0.41)
	Env	0-1	0.81 (0.39)

Considering the type of policies, Table 7 shows the min, max, average, and standard deviation of the answers regarding transportation policies divided by group (Control, Health, or Env). In this case, both health treatment and environmental treatment do not seem to have a strong impact on the results. For the push policy, the Health group has the highest acceptability while, for the pull policy, the Env group scores the best. However, with regard to the mixed policy, the Control group's acceptability is the highest. Overall, the trend of having the greatest support for the pull policy and the lowest for the push measure is also confirmed when separating our sample into the three groups. Besides this, however, we cannot clearly state that there is a relevant impact on information treatments on transportation policies.

Table 7: Italy - Transportation policy results by groups

Y	Group	Min-Max	Average (Std Dev)
Transportation Push Policy (Q18a)	Control	1-10	5.71 (2.72)
	Health	1-10	5.90 (2.58)
	Env	1-10	5.66 (2.76)
Transportation Pull Policy (Q18b)	Control	1-10	7.71 (2.14)
	Health	1-10	7.70 (2.01)
	Env	1-10	7.86 (2.05)
Transportation Mixed Policy (Q18c)	Control	1-10	7.01 (2.47)
	Health	1-10	6.90 (2.41)
	Env	1-10	6.81 (2.60)

The situation is instead completely different for environmentally friendly goods policies (Table 8): in this case, the Control group has the lowest acceptability for all three policy measures. The health treatment seems to have the biggest impact on the results: the Health group outperforms the Control group by +0.10 for the push policy, +0.20 for the pull policy, and +0.14 for the mixed policy. The environmental treatment has also a strong impact on the final results. In fact, the Env group acceptability scores particularly well in the pull policy support (+0.24 compared to the Control) and outperform the Control group also for the push and mixed measures. Differently from the transportation policies, in this case, we, therefore, size a strong impact of the information treatment on the general policy acceptability with the Health treatment per- forming

the best. Even in this case, the same trend is followed: push measures seem to be the least accepted while the pull ones are the ones on which our sample showed the highest support among the different groups.

Table 8: Italy - environmentally friendly goods policy results by groups

Y	Group	Min-Max	Average (Std Dev)
Env-Friendly Goods Push Policy (Q19a)	Control	1-10	6.13 (2.85)
	Health	1-10	6.23 (2.77)
	Env	1-10	6.17 (2.90)
Env-Friendly Goods Pull Policy (Q19b)	Control	1-10	7.86 (2.17)
	Health	1-10	8.06 (1.94)
	Env	1-10	8.10 (1.98)
Env-Friendly Goods Mixed Policy (Q19c)	Control	1-10	7.19 (2.61)
	Health	1-10	7.33 (2.30)
	Env	1-10	7.27 (2.49)

The last policy topic proposed to our sample concerned energy usage and buildings. Out of the three policy topics studied, this latter one received the respondents' highest support independently of the type of policy proposed (push, pull, or mixed) or of their group (Control, Health, or Env). Even in this case, similarly to the environmentally friendly goods policies, the Control group has the lowest acceptability independently from the policy measure used (Table 9). In fact, the Health group outperforms the Control for all the push, pull, and mixed measures. However, what stands out the most is the fact that the respondents that received the environmental treatment have the highest support out of the three groups for all the policy measures. Comparing the Env group with the Control we see that the policy support is higher by +0.30 (push), +0.25 (pull), and +0.12 (mixed).

Table 9: Italy - Energy and buildings policy results by groups

Y	Group	Min-Max	Average (Std Dev)
Energy and Buildings Push Policy (Q20a)	Control	1-10	7.06 (2.59)
	Health	1-10	7.15 (2.38)
	Env	1-10	7.36 (2.48)
Energy and Buildings Pull Policy (Q20b)	Control	1-10	8.29 (2.00)
	Health	1-10	8.43 (1.79)
	Env	1-10	8.54 (1.69)
Energy and Buildings Mixed Policy (Q20c)	Control	1-10	7.83 (2.37)
	Health	1-10	7.92 (2.14)
	Env	1-10	7.95 (2.22)

Looking at the total average of the answers, we notice that the Control group performs the worst in terms of policy support when compared to the two treatment groups. On the other hand, the Env and Health groups respectively perform the best.

Figures 8, 9, and 10 show the support results for the three policy measures (push, pull, and mixed) by separating the three different groups (Control, Env, or Health). Once again, all these graphs point out in the same direction: the Control group tends to underperform the other two in most of the policy measures. Additionally, we can highlight another important result from these figures: the fact that energy policies concerning seem to be the ones with the highest support in our sample. Policymakers should carefully consider these data when introducing new policies.

Looking at the drop in acceptability (Table 10), we notice that the group with the lowest drop is the Env group. Considering also the policy results, this can be further proof of the positive effect of the environmental information treatment. In this case, the Health and Control groups have instead a similar drop in acceptability (respectively -0.43 and -0.41) but the standard deviation of the Control is significantly larger (+0.19 more than the Health group).

Table 10: Italian drop in acceptability by groups

Y	Group	Min-Max	Average (Std Dev)
Drop in acceptability (DiffTaxNotax)	Control	(-9)-7	-0.41 (1.81)
	Health	(-7)-5	-0.43 (1.62)
	Env	(-9)-6	-0.25 (1.65)

Overall, these results seem to suggest that the effects of information treatments (both health and environmental) on green policy acceptability are strong and positive for most policies and that the drop in acceptability after introducing a tax seems to become smaller.

If we consider our policy questions (dependent variables) as binary[16] we find the percentage of respondents supporting the various policy questions (Table 11). In the table, we can also see the percentage of policy support by group (control, health, or env). Generally, support is high: it is the highest for energy/buildings pull policies (up to 87

[16] 1 to 6 = 0 (no support for the policy) and 7 to 10 = 1 (support for the policy).

percent) and the lowest for transportation push policies (as low as 42 percent). These results are also in line with Table 3: the sample considered the energy sector as of crucial importance for government intervention.

If instead, we take into consideration support within the same policy, we notice how push policies always get the lowest support. They are followed by mixed and pull measures, respectively. What stands out is the substantial difference between push and pull measures: from 20 to 35 percentage points. Therefore, even when considering the dependent variable as binary, we find a strong preference for pull policies and lower support for the push ones. The table also shows the percentage of respondents that would support measures in favor of a green transition with and without the introduction of a 1 percent tax increase (83 and 77 percent respectively). In this case, besides the introduction of that tax respondents still support green policies in a large majority. These results are of crucial importance because they constitute the baseline to size the treatment effect when computing the regression applying the previously introduced binary model.

Table 11: Italy - Support for policies by groups (Bin Dep Var)

Y	General support	Group	Min-Max	Support by group
Transportation Push Policy (Q18a)	0.42	Control	0-1	0.42
		Health	0-1	0.44
		Env	0-1	0.41
Transportation Pull Policy (Q18b)	0.77	Control	0-1	0.76
		Health	0-1	0.74
		Env	0-1	0.79
Transportation Mixed Policy (Q18c)	0.61	Control	0-1	0.64
		Health	0-1	0.59
		Env	0-1	0.61
Env-Friendly Goods Push Policy (Q19a)	0.50	Control	0-1	0.49
		Health	0-1	0.52
		Env	0-1	0.50
Env-Friendly Goods Pull Policy (Q19b)	0.81	Control	0-1	0.77
		Health	0-1	0.83
		Env	0-1	0.83
Env-Friendly Goods Mixed Policy (Q19c)	0.68	Control	0-1	0.66
		Health	0-1	0.69
		Env	0-1	0.67
Energy and Buildings Push Policy (Q20a)	0.67	Control	0-1	0.64
		Health	0-1	0.67
		Env	0-1	0.71
Energy and Buildings Pull Policy (Q20b)	0.87	Control	0-1	0.85
		Health	0-1	0.87
		Env	0-1	0.90
Energy and Buildings Mixed Policy (Q20c)	0.78	Control	0-1	0.77
		Health	0-1	0.78
		Env	0-1	0.80
General Green Transition	0.83	Control	0-1	0.81
		Health	0-1	0.84
		Env	0-1	0.84
General Green Transition with Tax	0.77	Control	0-1	0.74
		Health	0-1	0.77
		Env	0-1	0.79

5.2. Portuguese Descriptive Statistics

5.2.1. Demographic Components

With regards to the Portuguese survey, we received 400 total answers. 98 percent of the sample stated to have lived most of their life in Portugal while the rest in other countries. Even in this case, taking into consideration genders, females represent the majority of the sample (around 59 percent). The age range is instead very similar to the Italian case: around 49 percent of the respondents fall into the 35-60 years old category, 39 percent are under 35 and just 12 percent are over 60. The older generation is, therefore, under-represented in our sample. Additionally, the large majority of the sample (63 percent) does not have kids (Table 12).

Looking at the social and educational components, our sample is skewed toward high education levels: more than 84 percent have, at least, a Bachelor's degree. With regards to the sample's occupations, we notice how more than half stated to be an employee (57 percent), 23 percent a student, and 9 percent an independent worker. The remaining 11 percent said to be retired (or not working) or an intern. Almost 92 percent of our sample comes from the middle or middle- higher class, 3 percent from the lower class, and less than 2 percent from the higher class (the remaining 4 percent preferred not to answer).

Differently from the Italian sample, the Portuguese one is very well balanced from a political point of view. In fact, while the Italian respondents were leaning towards more left ideals, in the Portuguese case, 35 percent stated to be left or center left-oriented, 18 percent has center ideals and 37 percent prefers instead center-right or right views (the rest of the sample preferred not to answer). As previously mentioned, in the Italian case we found political orientation to be a very important variable to explain,

at least partially, our results. Specifically, we found that the more left our respondents are, the higher their support for green policies. Having, therefore, a sample considerably more balanced than the Italian one, could yield very interesting results.

Table 12[17] summarizes the main Portuguese sample characteristics.

Table 12: Demographic and Socio-Economic: Total Portuguese Sample

Variable	Sub-category (Value assigned)	Share in the sample	Tot average (Std Dev)
Gender	Male (0) Female (1)	0.41 0.59	0.59 (0.49)
Age	Younger (1) Middle-age (2) Older (3)	0.39 0.49 0.12	1.73 (0.66)
Education	Not higher education (0) Higher education (1)	0.15 0.85	0.85 (0.36)
Occupation	Pay taxes (0) No taxes (1)	0.76 0.24	0.24 (0.43)
Social Class	Lower or Middle (0) Middle-higher or higher (1)	0.63 0.37	0.37 (0.48)
Political	Left (1) Center-left (2) Center (3) Center-right (4) Right (5)	0.11 0.28 0.20 0.30 0.11	3.03 (1.21)
Kids	No (0) Yes (1)	0.63 0.37	0.37 (0.48)

5.2.2. Concerns, Personal Preferences and Type of Policies

Table 13 shows the results for what regards environmental concerns and personal preferences. Specifically, we notice that concern-wise the Portuguese sample is quite similar to the Italian one (8.08 PT, 8.24 IT). Even in this case, the environmental concern of the vast majority of our sample (63 percent) increased over the five last years and 91 percent believe that the next generation will, at least probably, have issues due to climate change.

Almost 67 percent of the respondents would be in favor to increase taxes to tackle climate change through the introduction of green policies. However, differently from the IT survey, the percentage of people who would support this introduction at all costs drops by 10 percent (30 percent in IT and 20 percent in PT). Portuguese respondents are, therefore, more willing to pay up to 1 percent addition in taxes for the environmental cause (+5 percent compared to IT) rather than support this increase unconditionally. As we would expect, the drop in acceptability when introducing a tax is much larger than the Italian one: -0.9 (while for Italy it was -0.4). Similarly, to the Italian survey, most respondents would want the government to do more to tackle environmental problems and most people indicate the energy sector (262 out of 400) and the decarbonization of the industry sector (212 out of 400) as the main field where the government should act. These sectors are followed by tourism and transport (139 out of 400), food sector (92 out of 400), and construction sector (43 out of 400) (Table 14). Around 52 percent state that the government should increase renewable sources of energy, 45 percent instead would prefer an effort in decreasing the consumption of polluted energy, while only around 3 percent believe that the government should not intervene[18].

Table 13: Concern and Personal Preferences: Total Portuguese Sample

Variable	Sub-category (Value assigned)	Share in the sample	Tot average (Std Dev)
Concern 5 Years	Much weaker (1) Weaker (2) Same (3) Stronger (4)	0.08 0.55 0.34 0.03	2.32 (0.67)
Nextgen	Very unlikely or unlikely (1) Likely (2) Very likely (3)	0.08 0.16 0.76	2.67 (0.63)
Gov. enough (Q12a)	Strong disagree(1) Disagree (2) Neither agree nor	0.16 0.57 0.18	2.22 (0.84)

[17] It is important to highlight that, as for the IT sample, the tables contain shares and values without considering the answers "I would rather not answer" or "I do not know". This is the reason why there might be small changes between the values reported in the text and those in the tables.

[18] In table 14, we did not consider the percentage of people that did not want the government to intervene. This was done because the purpose of the question was to understand what respondents would prefer in case of government intervention.

Variable	Sub-category (Value assigned)	Share in the sample	Tot average (Std Dev)
	disagree (3)		
	Agree (4)	0.09	
	Strongly agree (5)	< 0.01	
Need more costs (Q12b)	Strong disagree(1)	0.04	3.39 (1.04)
	Disagree (2)	0.19	
	Neither (3)	0.20	
	Agree (4)	0.46	
	Strongly agree (5)	0.11	
Willigness to pay	Never (1)	0.22	2.01 (0.68)
	Up to 1% (2)	0.54	
	Always (3)	0.24	
Government	Much less (1)	< 0.01	4.44 (0.64)
	Less (2)	< 0.01	
	Same (3)	0.03	
	More (4)	0.47	
	Much more (5)	0.49	
What intervention	Reduce non-clean energy (0)	0.46	0.54 (0.50)
	Increase renewable energy sources (1)	0.54	

Table 14: Concern and Personal Preferences: Total Portuguese Sample

Variable	Sub-category	Share of respondents indicating the sector
Sector	Energy sector	0.66
	Industry (decarbonization)	0.53
	Tourism and transportation	0.35
	Food sector	0.23
	Construction sector	0.11

If instead, we take a look at Table 15, we notice how the policy preferences are slightly different from the Italian case. In absolute values, we see that while the average scores of the transportation policies are quite similar to the Italian case, the ones concerning environmentally friendly goods and energy and buildings are significantly lower. In this case, the least performing policies (from a support point of view) are the ones related to environmentally friendly goods which score slightly less than the transportation policies. Similarly to the IT case, the most supported policy topic is the energy and buildings which accounts for the highest acceptability scores. Even in this case, the previously mentioned trend is followed: push policies perform the worst while pull policies are instead the most preferred ones. Like in the IT case, this applies to all three policy topics. Table 15 also shows that, as previously mentioned, the drop in acceptability for the PT sample is higher than in the IT one and it amounts to -0.9.

Overall, the general support for green policies is stronger in the Italian sample: these results could actually be explained by the fact that the PT sample is politically more right-leaning compared to the IT sample which is instead strongly left-oriented. Being political orientation a crucial variable in policy support, this could explain part of these results. We will look more into this relationship in the correlation subsection.

Table 15: Type of policies: Total Portuguese Sample

Variable	Min-Max	Average (Std Dev)
Transportation Push Policy (Q18a)	1-10	5.82 (2.82)
Transportation Pull Policy (Q18b)	1-10	7.58 (2.32)
Transportation Mixed Policy (Q18c)	1-10	6.92 (2.60)
Env-Friendly Goods Push Policy (Q19a)	1-10	5.68 (2.86)
Env-Friendly Goods Pull Policy (Q19b)	1-10	7.20 (2.31)
Env-Friendly Goods Mixed Policy (Q19c)	1-10	6.73 (2.58)
Energy and Buildings Push Policy (Q20a)	1-10	6.22 (2.59)
Energy and Buildings Pull Policy (Q20b)	1-10	7.69 (2.20)
Energy and Buildings Mixed Policy (Q20c)	1-10	7.28 (2.44)
Drop in acceptability (DiffTaxNotax)	(-9)-5	-0.90 (2.07)

5.2.3. Control *vs.* Treatment Groups

The Portuguese sample was divided into the control and treatment groups as follows: 132 did not receive any treatment (Control), 135 received the health treatment (Health) and 133 were provided with the environmental treatment (Env). As we did for the IT case, it is important to understand if the characteristics of the three groups were similar.

Table 16 shows exactly how demographic and socio-economic characteristics were distributed among groups. We notice straight away that our groups are quite homogeneous for most variables. Specifically, we see that respondents' characteristics are smoothly distributed with regards to age, education, occupation, and kids. As we would expect, when we compute the Pearson's chi-square test for these

variables, we do not find any statistically significant difference among the three groups. At a first glance, gender, social class and political ideals do not seem to have similar distributions among the groups. For example, political orientation looks like the variable for which the groups differ the most: the control group could seem the most left-leaning one, while the two treatment groups could be slightly more oriented toward right ideals. However, whenever computing the Pearson's chi-square test we do not find any statistical significance for any of these variables[19].

Table 16: Portugal - Demographic and Socio-Economic results by groups

Variable	Group	Min-Max	Average (Std Dev)
Gender	Control	0-1	0.64 (0.48)
	Health	0-1	0.53 (0.50)
	Env	0-1	0.60 (0.49)
Age	Control	1-3	1.77 (0.69)
	Health	1-3	1.70 (0.64)
	Env	1-3	1.72 (0.66)
Education	Control	0-1	0.86 (0.34)
	Health	0-1	0.82 (0.38)
	Env	0-1	0.85 (0.36)
Occupation	Control	0-1	0.22 (0.42)
	Health	0-1	0.25 (0.43)
	Env	0-1	0.24 (0.43)
Social Class	Control	0-1	0.32 (0.47)
	Health	0-1	0.40 (0.49)
	Env	0-1	0.38 (0.49)
Political	Control	1-5	2.92 (1.19)
	Health	1-5	3.08 (1.24)
	Env	1-5	3.08 (1.21)
Kids	Control	0-1	0.39 (0.49)
	Health	0-1	0.39 (0.49)
	Env	0-1	0.32 (0.47)

Table 17 shows the data regarding the concern and policy preference variables by groups. Overall, we notice how the Health group is the most concerned and the one with the highest willingness to pay. The Env group is instead the least concerned about the current situation and future generations. All three groups agree that bearing more costs today is justified to safeguard future generations (Q12b). Moreover, they also agree that the government should do more with regard to the introduction of environmental policies (Q12a). Respondents from all three groups believe that this effort should be mainly focused on increasing the number of renewable sources of energy. However, also reducing the use of polluted sources of energy seems to be important for all groups (more balanced with respect to the IT case).

Table 17: Portugal - Concern and Personal Preferences results by groups

Variable	Group	Min-Max	Average (Std Dev)
Concern	Control	0-10	8.06 (1.62)
	Health	4-10	8.25 (1.39)
	Env	1-10	7.93 (1.93)
Concern 5 years	Control	1-4	2.38 (0.73)
	Health	1-4	2.28 (0.61)
	Env	1-4	2.29 (0.68)
Nextgen	Control	1-3	2.72 (0.58)
	Health	1-3	2.71 (0.60)
	Env	1-3	2.59 (0.69)
Gov. enough (Q12a)	Control	1-5	2.27 (0.77)
	Health	1-5	2.19 (0.89)
	Env	1-5	2.20 (0.87)
Need more costs (Q12b)	Control	1-5	3.35 (1.04)
	Health	1-5	3.47 (0.96)
	Env	1-5	3.36 (1.13)
Willingness to pay	Control	1-3	1.92 (0.66)
	Health	1-3	2.10 (0.66)
	Env	1-3	2.02 (0.71)
Government	Control	2-5	4.38 (0.61)
	Health	3-5	4.48 (0.53)
	Env	1-5	4.44 (0.75)
What intervention	Control	0-1	0.57 (0.50)
	Health	0-1	0.52 (0.50)
	Env	0-1	0.52 (0.50)

Moving on, we now present the PT results for transportation policies by groups (Table 18). Differently from the IT sample, we notice a strong and positive impact of the health treatment. In fact, the Health group has the highest level of acceptability for all three measures: push, pull, and mixed. Especially, for the push policy the out-performance of this group with respect to the Control is enormous (+0.62). Looking at the Env group, it performs quite well in the push and pull measures but not as much in the mixed one. Overall, even when dividing the sample by groups we see that the trend is the same: the pull measures having the highest support while the push ones being ranked the last acceptability-wise.

[19] Variable (p-values): gender (0.197), social class (0.410) and political (0.712).

Table 18: **Portugal - Transportation policy results by groups**

y	Group	Min-Max	Average (Std Dev)
Transportation Push Policy (Q18a)	Control	1-10	5.53 (2.79)
	Health	1-10	6.15 (2.73)
	Env	1-10	5.77 (2.92)
Transportation Pull Policy (Q18b)	Control	1-10	7.53 (2.25)
	Health	1-10	7.69 (2.39)
	Env	1-10	7.51 (2.32)
Transportation Mixed Policy (Q18c)	Control	1-10	6.95 (2.59)
	Health	1-10	6.96 (2.56)
	Env	1-10	6.83 (2.65)

If we instead take a look at the policies concerning environmentally friendly goods (Table 19), we see that even in this case the Health group has the highest support for all policy measures. The differences with the Control group are, once again, very large: +0.27 (push), +0.56 (pull), and +0.39 (mixed). The Env group also outperforms the Control for both the push and pull measures but not for the mixed one. Looking at the results of this policy topic, we can clearly size the positive impact of our treatment on policy acceptability. In fact, similarly to the transportation policies case, the Control group is connoted by the lowest level of acceptability out of the three groups while the Health group performs the best. Once again, the pull measure is considered the best option for the majority of our sample (while the push is the worst).

Table 20 shows the results of our third (and last) policy topic: energy and buildings. Even for this policy theme, the health treatment works the best: the support scores of the Health group are the highest for all three policy measures. However, this time, the results for the Env and Control groups differ slightly from the previous policies. In fact, for the first time, the overall worst performing group is the Env group (which underperforms the other groups in all the policy measures) instead of the Control.

Table 19: **Portugal - Env-friendly goods policy results by groups (Source: Author's work)**

Y	Group	Min-Max	Average (Std Dev)
Env-Friendly Goods Push Policy (Q19a)	Control	1-10	5.53 (2.85)
	Health	1-10	5.80 (2.88)
	Env	1-10	5.70 (2.88)
Env-Friendly Goods Pull Policy (Q19b)	Control	1-10	6.94 (2.44)
	Health	1-10	7.50 (2.14)
	Env	1-10	7.15 (2.32)
Env-Friendly Goods Mixed Policy (Q19c)	Control	1-10	6.60 (2.53)
	Health	1-10	6.99 (2.61)
	Env	1-10	6.58 (2.60)

Table 20: **Portugal - Energy and buildings policy results by groups**

y	Group	Min-Max	Average (Std Dev)
Energy and Buildings Push Policy (Q20a)	Control	1-10	6.10 (2.58)
	Health	1-10	6.47 (2.46)
	Env	1-10	6.08 (2.74)
Energy and Buildings Pull Policy (Q20b)	Control	1-10	7.66 (2.20)
	Health	1-10	8.00 (2.08)
	Env	1-10	7.41 (2.28)
Energy and Buildings Mixed Policy (Q20c)	Control	1-10	7.32 (2.31)
	Health	1-10	7.52 (2.37)
	Env	1-10	6.98 (2.63)

From a more general point of view and considering the nine combinations of policy topics and measures, we find that the average score of the Health group is by far the highest 7.01 (as we would expect). With regards to the Env and Control groups, their scores are quite similar: 6.67 and 6.68 respectively.

In order to provide a general picture of the policy support for the various measures (push, pull, and mixed), we plotted the general results in Figures 15, 16, and 17. We, clearly, notice that, as previously mentioned, those respondents that received the health treatment have the highest acceptability levels when compare to the others. Additionally, those policies that do not have a direct impact on taxpayers' pockets are the ones with the highest support: pull policies outperform both push and mixed measures. It is also important to point out that, similarly to the Italian sample, the energy and buildings policies are the ones with the highest support from our respondents. Once again, policymakers should consider these results when introducing future policies.

On the other hand, if we take a look at the drop in acceptability after introducing a tax (Table 21), we notice how both treatment groups perform better than the Control. In fact, the drop for the Health and Env groups is significantly smaller when compared to the Control one. This result suggests that, besides not having extremely high support for specific policies,

the Env group is more likely to have higher acceptability after introducing a green tax. This is why, we argue that there is a positive impact of providing the environmental treatment to the sample, even though this effect is smaller than in the health case. We will be able to check this result only in the regression section.

Table 21: Portugal - Drop in acceptability by groups

Y	Group	Min-Max	Average (Std Dev)
Drop in acceptability (DiffTaxNotax)	Control	(-9)-4	-1.06 (2.25)
	Health	(-9)-5	-0.75 (1.97)
	Env	(-9)-3	-0.89 (1.98)

Similarly to the IT sample, if we take into consideration the policy questions (dependent variables) and treat them as binary[20], we find the percentage of respondents supporting these policy questions both totally and by group (Table 22). Comparing the PT data with the IT one, we see that for the transportation policies the support rates are quite similar for all three measures (push, pull, and mixed). However, for both the environmentally friendly goods and energy/buildings policies the percentage of respondents supporting the policies drops up to almost 20 percent for some measures in the PT case. Overall, support is lower compared to the IT sample but most policies are still accepted by the majority. Support is the highest for energy/buildings policies (up to 78 percent) and the lowest for environmentally friendly goods policies (as low as 44 percent). These results are also in line with the data in Table 14. The energy sector was, in fact, considered the one in which the government should immediately act. Similarly to the IT case, push policies always get the lowest support. They are, once again, followed by mixed and pull measures, respectively. The PT sample shows, therefore, a strong preference for pull policies. In the same table, it is possible to find the percentage of respondents that would support measures in favor of a green transition with and without the introduction of a 1 percent tax increase: 82 and 64 percent, respectively. Compared to the IT sample, the drop in acceptability is greater. Besides this, the support for green policies is shared by the large majority of respondents. These results constitute the baseline to fully grasp the effect of the provided treatment using the binary model.

Table 22: Portugal - Support for policies by groups (Binary Dep Var)

y	General support	Group	Min-Max	Support by group
Transportation Push Policy (Q18a)	0.45	Control	0-1	0.39
		Health	0-1	0.50
		Env	0-1	0.47
Transportation Pull Policy (Q18b)	0.75	Control	0-1	0.73
		Health	0-1	0.77
		Env	0-1	0.75
Transportation Mixed Policy (Q18c)	0.63	Control	0-1	0.62
		Health	0-1	0.64
		Env	0-1	0.63
Env-Friendly Goods Push Policy (Q19a)	0.44	Control	0-1	0.40
		Health	0-1	0.47
		Env	0-1	0.44
Env-Friendly Goods Pull Policy (Q19b)	0.70	Control	0-1	0.64
		Health	0-1	0.76
		Env	0-1	0.69
Env-Friendly Goods Mixed Policy (Q19c)	0.59	Control	0-1	0.58
		Health	0-1	0.64
		Env	0-1	0.56
Energy and Buildings Push Policy (Q20a)	0.48	Control	0-1	0.45
		Health	0-1	0.50
		Env	0-1	0.49
Energy and Buildings Pull Policy (Q20b)	0.78	Control	0-1	0.80
		Health	0-1	0.78
		Env	0-1	0.77
Energy and Buildings Mixed Policy (Q20c)	0.69	Control	0-1	0.70
		Health	0-1	0.71
		Env	0-1	0.66
General Green Transition	0.82	Control	0-1	0.83
		Health	0-1	0.83
		Env	0-1	0.81
General Green Transition with Tax	0.64	Control	0-1	0.64
		Health	0-1	0.67
		Env	0-1	0.62

[20] 1 to 6 = 0 (no support for the policy) and 7 to 10 = 1 (support for the policy).

5.3. Regression Results

When computing the regression analysis, we treated our dependent variables following two different models: continuous model and binary model. This separation is of crucial importance for the full understanding of the results. In the continuous model, the results show how the treatment affects all respondents linearly: assuming, therefore, that the effect is the same along the distribution of our dependent variable. In easier words, we do not separate the effect of the treatment on the respondents' policy-support level and, the found coefficient applies to the entire sample regardless of their current policy support (i.e: the coefficient is the same for two people that respectively voted 1 and 9 out of 10). However, in most cases, the treatment does not affect equally our respondents among the distributions of the dependent variable. With the continuous model, we can therefore understand the general treatment effect on the sample but it could smooth the overall results. The binary model (or probability), instead, is often used to study the support increase (percentage-wise) when providing treatment to the respondents (i.e. what additional percentage of respondents will support the policy if provided with the information treatment: moving from no support (0) to support (1)). Why is this relevant? For policymakers to act, what is relevant is the overall share of support for a certain policy. Therefore, in the second model (binary), we focus on the overall level of support for each policy[21].

Additionally, as previously introduced in the methodology section, we also present the results from the interaction regressions. The variables used for the interactions are the following: kids, education, and social class.

5.3.1. Italian Results

As previously introduced, to understand whether the treatment had a generally positive effect on policy support we started by using the continuous dependent variable model. In the Italian sample, we found multiple positive statistically significant coefficients, meaning that: providing respondents with information treatments does increase their overall support for policies[22]. Specifically, providing information closely related to the environmental problem (env) increases support for all pull policies regardless of the topic taken into consideration and also for the energy/buildings push policy[23]. In fact, in these cases, all the coefficients are significant and positive and ranged between 0.25 and 0.39 (baselines: 7.71, 7.86, 7.06, 8.29[24]). On the other hand, providing the health information treatment has also positive effects on the support of some policies: both environmentally friendly goods and energy/buildings pull policies (coefficients: 0.27 and 0.27; baselines: 7.86 and 8.29). Generally speaking, we can therefore conclude that the continuous model shows an increase in policy support once an information treatment is provided to our sample[25].

In order to understand the percentage of people that would start supporting a policy if provided with the information treatment, we used the binary dependent variable model. The regressions show a positive and statistically significant coefficient for various policies. Both treatments have a strong positive impact on environmentally friendly goods and energy/buildings pull policies. Specifically, providing health or env treatment increases the number of people supporting the policy by respectively 8 and 7 percent for the first policy topic and by 5 and 7 for the latter one. These percentages show the people that, if provided with the information treatment, will start supporting the policy (moving from no support to support). When analyzing this data, it is of crucial importance to consider the starting support baselines (previously introduced in Table 11). For these two specific policies, the baselines were 0.77 and 0.85 respectively (control group support). Interestingly, also the energy/building push policy is significantly affected by the env treatment: if provided with the treatment the additional share of respondents that would support the policy would be around 7 percent (baseline: 0.64). This result shows how an information treatment can increase policy support

[21] As previously introduced, a policy is considered supported when the score given by the respondent reaches at least 7 out of 10.
[22] Using the previously mentioned control variables.
[23] In the appendix, it is possible to find various coefficients and p-values.
[24] Transportation pull, environmentally friendly goods pull, energy/buildings push and energy/buildings pull policies.
[25] At least, for pull policies.

even for those policies that directly impact citizens through the introduction of a tax.

Still using the binary model, we find that both the health and env treatment have a positive and statistically significant impact on the general support for measures to foster a green transition with the direct introduction of a 1 percent tax increase. Specifically, providing health or env treatments would increase the share of supporters by more than 6 and 8 percent respectively. In this case, the initial baseline was 0.74.

When we analyze the results of the interaction regressions, we also find some statistically significant results[26]. As previously mentioned, we studied three variables:

i) Social class: we see that providing health or env treatment has a stronger impact if the respondents belong to the middle/lower social class. In fact, when comparing this impact with the treatment effect on higher class respondents, we find statistically significant coefficients[27] that point out a stronger increase in policy support for the segment of the population coming from lower or middle classes when provided with the treatment; targeting segments of the population that are expected to be less informed could, therefore, play a crucial role in increasing green policy support; we find these statistically significant[28] coefficients for five policies: transportation push and energy/buildings pull and mixed policies (env treatment), environmentally friendly goods mixed policy and general acceptability considering the introduction of a tax (health treatment);

ii) Kids: we find that providing the env treatment to a person with kids, with respect to a respondent with no kids, yields a stronger positive effect on the transportation mixed measure policy support; however, when analyzing the effect of providing the health information, we notice that the two treatments yield opposite results: administering the health treatment to a person with kids has smaller impacts on policy support than providing it to respondents without kids for both pull and mixed environmentally friendly goods policies[29];

iii) Education: differently from the previous two variables, we do not find as much evidence on the role of education in determining the size of the treatment effect; however, we do find one strong and statistically significant coefficient when interacting our treatments with the education variable. When providing the health information to respondents with higher levels of education, we notice a stronger effect of the treatment with respect to those without a higher education level for the energy/buildings mixed policy; nevertheless, since this result can be found only for one policy, we are not able to establish a constant role of education on the effectiveness of the treatment in the IT sample.

5.3.2. Portuguese Results

Similarly to the IT case, when analyzing the PT regression results we find an overall positive and statistically significant impact of providing an information treatment to the sample. However, what differs from the IT results is that only one treatment significantly increases support: the health one. In fact, differently from the IT sample (where both treatments had some positive results on the support of 2 out of 3 policies), the env treatment effect is not statistically significant in the PT sample. In the continuous model, when providing the health treatment, coefficients are strongly positive and significant for the transportation push policy, the environmentally friendly goods push and pull policies, and the energy/building push policy. These positive statistically significant coefficients range from 0.61 to 0.85[30] and are, therefore, higher if compared to the IT case (baselines: 5.53, 5.53, 6.94, and 6.10 respectively).

In the PT sample, what stands out the most are the results using the binary dependent variable model. In

[26] It is important to highlight that: (1) β_1 provides us with the treatment effect for a person assigned to 0 (in our case: not higher education, no kids or lower/middle class), compared to a person still assigned to 0 but non-treated; (2) β_2 gives us the effect of being 1 (higher education, kids or higher class) for two non-treated respondents; (3) β_1 plus β_3 provides us with the effect of being treated when the respondent is 1 compared to someone being 1. If β_3 is not statistically significant, it implies that the treatment effect is similar for a person on the assigned to 0 and one assigned to 1.

[27] $beta_3 + beta_1 - beta_1 = beta_3$

[28] Effect on higher class with respect to lower/middle class. All ranging between -0.08 and -0.21.

[29] Effect on people with kids with respect to respondents with no kids. Both ranging between -0.11 and -0.12.

[30] Full table can be found in the Appendix.

this case, when providing the health treatment, we found an impressive and statistically significant support increase: an additional 14 percent of respondents would shift from non-sustainer to supporter of the transportation push policy and the environmentally friendly goods push and pull policies. When looking at the baseline (introduced in Table 22), these results gain further value since the additional 14 percent would be compared to their respective general support of 39 (transportation push), 40 (environmentally friendly goods push), and 64 (environmentally friendly goods pull) percent. In both push policies, providing the health treatment would mean creating a majority (over 50 percent) in favor of a policy that was initially not accepted by most of the sample. Overall, we can state that, besides one exception, the binary regressions support the results found in the continuous model.

Differently from the IT sample, using the binary model we do not find any statistically significant evidence of an effect of the treatment on the general support for a green transition financed by a direct 1 percent tax increase.

If we move on to analyze the results of the interaction regressions, even in this case, we find statistically significant coefficients:

i) Social class: differently from the IT sample, we do not find statistically significant results when analyzing the interaction between the treatment and the respondents' social class; meaning that providing the treatment leads to similar effects regardless of the social classes;

ii) Kids: unlike in the IT sample, in the PT case, we find a constant trend in the relationship between having kids (or not) and treatment effect; in fact, providing the health treatment to a person with kids, with respect to a respondent with no kids, has a much stronger positive impact on green policy support. In other words, the effect of health information is more relevant on respondents that stated to have kids. We find the coefficient to be positive and statistically significant for transportation push, environmentally friendly goods mixed and energy/buildings pull policies[31];

iii) Education: the role of education on the effectiveness and impact of the information treatment plays a crucial role in the PT sample. Oppositely from the IT case, we find that, if compared to respondents without higher education levels, the treatment has a stronger impact on the policy support for people with multiple years of studies. Higher educational levels can, therefore, be a driver for a stronger treatment impact in the PT sample. The positive and statistically significant coefficients are found for the push transportation policy (health treatment) and for the energy/buildings pull policy (both treatments). These coefficients, ranging from 0.21 to 0.42, highlight strong evidence of the above-mentioned interaction between education levels and treatment effect.

6. Conclusions, Policy Implications and Limitations

Given the results found from the analysis, it is of crucial importance to fully grasp the overall country picture and try to understand the importance of this data for policymakers. Starting from the Italian reality, both in the continuous and in the binary models, we notice how the statistically significant positive results tend to be the ones related to those policies already connoted by a high support level (mainly pull measures). Italian policymakers should realize that, by just providing straightforward information concerning the environment or human health, they would not only increase the general support for these policies but also obtain an additional percentage of pro-green-measures citizens. Additionally pull policies are not the only ones affected by the treatment: the env treatment stimulates also support for the energy/buildings push policy. This result is very important because it shows how a simple infographic, containing environmental information, could actually increase the acceptability and support even for those policies that directly introduce a tax to the consumer (push measures). Additionally, providing respondents with either one of the treatments strongly increases their support for a green transition even when aware of the presence of a tax increase. Italian policymakers should, therefore, consider that it would be possible to increase even further the share of supporters that would bear the costs of a tax increase to foster a green transition. From the interaction analysis, the main targets that Italian policymakers should aim to are those

[31] Ranged between 0.21 and 0.26

segments of the population belonging to the middle and lower classes. Increasing the availability of information even for those citizens not coming from affluent environments should, therefore, be a top priority on the government's green agenda.

Differently from the IT case, in the PT sample the effects of the treatment are strong for those policies with an initial low support rate (mainly push policies). In fact, by providing the health treatment, Portuguese policymakers will not only increase the general support for push green policies but they will also be able to obtain a majority supporting these measures. Why is such a result so important for policymakers? Because while pull and mixed policies are already supported by the general public, this is not the case for push measures. Being able to turn a minority into a majority, also for those policies that by nature weigh the most on taxpayers' money, is a crucial point for the implementation of the Portuguese green strategy. Moreover, in the PT sample, a target policy group could be represented by the segments of the population with kids. Preserving the future of the forthcoming generations could play an important role in thriving green policy support.

When comparing the results between the two countries, what stands out the most is that, while for the IT sample both treatments have positive significant results (2 policies out of 3), in the PT case the env treatment does not trigger a statistically significant increase in policy acceptability. This result could be partially explained by Eurobarometer (2015), Eurobarometer (2017), Eurobarometer (2021). Portugal has, in fact, already a large percentage of the population aware of the seriousness of the environmental problem (as previously shown in Figure 2) and this is why they might be less responsive to this type of information. This being said, the health treatment is therefore the most effective one among the PT sample. As previously introduced, the effect of this treatment concerns mainly push policies (taxation). Why is this the case? The reason behind this result may be found at the base of human nature: individualism[32]. As Tsen, Phang, Hasan, and Buncha (2006) states *"Attitudes are the most consistent explanatory factor in predicting consumers' willingness to pay"*. Following behavioral economics, an explanation could lay on the fact that, when dealing with sensitive topics, such as respondents' future health, individuals could be willing to bear the costs of a direct taxation in order to protect their own well-being. Following this line of thought, the effort of paying more would not be done as an attempt to better off society but as a way to protect personal interests. At this point, a question that might arise could be: would such rationale also be applicable to the Italian reality? Our answer would be negative. Italy's general propensity to pay taxes seems to be low: in 2015 the annual losses due to tax evasion were close to EUR 110 billion and more than half of the Italian entrepreneurs were estimated to pay fewer taxes than their fair share[33] (D'Agostino 2021).

Looking at the interaction results, we notice that, in both countries, providing information treatments has a stronger impact on respondents with higher education levels if compared to people with fewer years of studies. The sample segment connoted by lower educational levels seems, therefore, to be less receptive of the treatment benefits. One reason behind this result may lie on the fact that the information treatment included a number of graphs explaining the current environmental and health statuses. Higher education levels may have given respondents the tools to better grasps the full picture and information contained in those graphs. Besides the similarities concerning education levels, the other interaction results tend to largely differ between the two countries. Specifically, providing information has a larger impact on PT respondents with kids (than without), while in the IT case, this evidence is not as clear. Additionally, while social class is a crucial variable in the IT sample that shows how providing the treatment to lower or middle-class respondents has a larger effect than on the higher classed, in the PT sample we do not find statistically significant evidence of these interactions. Overall, since we are not able to establish a common trend for both countries[34], policymakers should consider each situation separately. By doing so and deciding the population target to reach, they would be able to

[32] Even though a clear relationship is still not fully clear, multiple authors have studied the interaction between individualism and willingness to pay in societies.

[33] Additionally, following a study by Statista (2019) the share of Italians who believe that tax evasion is never justifiable is lower than 50 percent for the majority of age groups.

[34] Besides for a limited constant trend in the education variable.

provide a more effective treatment given the amount of limited resources available.

As introduced in the descriptive statistics, we were also able to shed a light on general policy preferences for what regards the topic and the measure used. In both samples, we notice higher support rates for the introduction of policies in the energy and building field. As expected, those measures that did not introduce an extra tax had higher acceptability levels. The trend was clear for both Italy and Portugal: regardless of the policy topic, pull measures always had the highest respondents' support while push ones the lowest.

Moving on to the limitations of this paper, we must surely consider time and resource constraints. However, besides these two caveats, we were able to obtain a total sample of 1664 respondents. Provided with more resources and time, future studies should try to increase the sample size and optimize the randomization process. Moreover, we notice that considering both samples, the environmentally friendly goods policies are more affected by the health treatment than by the env one. The reason behind this result could lie in the fact that the health treatment provided was more related to this topic with respect to the env treatment. This is not the case for both the transportation and energy/buildings topics. Policymakers should, therefore, consider that the type of information provided in a campaign can play a role in the final support outcome for a specific policy. Another limitation of our paper could reside in the level of complexity of the information provided. Treatments including the presence of graphs, such as ours, might not be fully grasped by the entire sample. This may generate an effect on just the more educated ones. On the other hand, providing extremely simple information could decrease the interest of those with multiple years of studies. Future researchers should, therefore, carefully weigh their choice on the level of complexity of the information provided as treatment.

In conclusion, we can clearly state that, besides the differences between the two countries, a simple information treatment, through the use of infographics, can have a positive and statistically significant impact on green policy acceptability. Climate change is not expected to slow down in the next years without targeted collective actions; as the EU green strategy moves forward through the implementation of specific programs such as the Recovery and Resilience Plan, Italian and Portuguese policymakers should consider the introduction of measures in favor of increasing green policy acceptability. From this study, we found information campaigns to be a good starting point to raise green awareness and policy support also for those policies that directly weigh on citizens' wallets.

The future does not seem to be bright, will humankind be able to turn it around and, once again, overcome another challenge? Only time will tell. As Petra Kelly once said:"If there is a future, it will be Green".

References

Abrahamse, W., Steg, L., Vlek, C., & Rothengatter, T. (2007). The effect of tailored information, goal setting, and tailored feedback on household energy use, energy-related behaviors, and behavioral antecedents. *Journal of Environmental Psychology, 27(4), 265-276.* Retrieved from https://www.sciencedirect.com/science/article/pii/S0272494407000540

DOI: https://doi.org/10.1016/j.jenvp.2007.08.002

Agência Transparência, M. A. (2022). Mais transparência. *Agência Administrativa*. Retrieved from https://transparencia.gov.pt/pt/

Allcott, H. (2011). Social norms and energy conservation. *Journal of Public Economics, 95(9), 1082-1095.* Retrieved from https://www.sciencedirect.com/science/article/abs/pii/S0047272711000478 (Special Issue: The Role of Firms in Tax Systems) DOI: https://doi.org/10.1016/j.jpubeco.2011.03.003

Costa, D. L., & Kahn, M. E. (2013, 06). Energy Conservation "Nudges" and Environmentalist Ideology: Evidence from a Randomized Residential Electricity Field Experiment. *Journal of the European Economic Association, 11(3), 680-702*. Retrieved from https://doi.org/10.1111/jeea.12011 DOI: 10.1111/jeea.12011

Dias, A. M. (2017). Evaluating the impact of a carbon tax in portugal considering alternative assumptions for price elasticity of demand. *25th International Input-Output Conference, Atlantic City, New Jersey, USA.* Retrieved from

https://www.iioa.org/conferences/25th/papers/files/3014_20170702111_AvTxCarbM7_25IIOC_z19.pdf

D'Agostino E., Benedetto M., Sobrio G., (2021, 04). Tax evasion and government size: evidence from italian provinces. *Economia Politica, 38, 1149–1187*.

EC. (2019a). The environmental implementation review: Italy. *European Commission: Publications Office of the European Union*, 1-44. Retrieved from https://ec.europa.eu/environment/eir/pdf/report_it_en.pdf DOI: 10.2779/339529

EC. (2019b). The environmental implementation review: Portugal. *European Commission: Publications Office of the European Union*, 1-41. Retrieved from https://ec.europa.eu/environment/eir/pdf/report_pt_en.pdf DOI: 10.2779/546898

EC. (2021). Laying the foundations for recovery: Italy. *Next Gen EU*, 1-2. Retrieved from https://ec.europa.eu/info/system/files/italy-recovery-resilience-factsheet_en.pdf

DOI: 10.2775/941269

EC. (2022). Towards a green, digital and resilient economy: Our European Growth model. *European Commission*. Retrieved from

https://ec.europa.eu/info/sites/default/files/economy-finance/com_2022_83_1_en_act_part1_v5_0.pdf

EIB. (2021). EIB climate survey 2021-2022. *European Investment Bank*. Retrieved from https://www.eib.org/en/surveys/climate-survey/4th-climate-survey/skepticism-reduced-carbon-emission-targets.htm

EUCouncil. (2022). *Fit for 55. the eu's plan for a green transition.* Retrieved from

https://www.consilium.europa.eu/en/policies/green-deal/fit-for-55-the-eu-plan-for-a-green-transition/

Eurobarometer, E. C. (2009). Special Eurobarometer 322: Climate change 2009. *European Commission*, 1-64. Retrieved from

https://ec.europa.eu/clima/system/files/2022-02/ebs_322_en.pdf

Eurobarometer, E. C. (2011). Special eurobarometer 372: Climate change 2011. *European Commission*, 1-84. Retrieved from

https://climate.ec.europa.eu/system/files/2022-02/ebs_372_en.pdf

Eurobarometer, E. C. (2015). Special eurobarometer 435: Climate change 2015. *European Commission, ML- 02-15-910-EN-N*, 1-60. Retrieved from https://climate.ec.europa.eu/system/files/2016-11/report_2015_en.pdf

Eurobarometer, E. C. (2017). Special eurobarometer 459: Climate change 2017. *European Commission, ML- 04-17-622-EN-N*, 1-73. Retrieved from

https://climate.ec.europa.eu/system/files/2017-09/report_2017_en.pdf

Eurobarometer, E. C. (2021). Special eurobarometer 513: Climate change 2021. *European Commission, ML-03- 21-256-EN-N*, 1-96. Retrieved from https://europa.eu/eurobarometer/surveys/detail/2273 DOI: 10.2834/437

Ferraro, P. J., & Miranda, J. J. (2013). Heterogeneous treatment effects and mechanisms in information-based environmental policies: Evidence from a large-scale field experiment. *Resource and Energy Economics*, 35(3), 356-379. Retrieved from https://www.sciencedirect.com/science/article/abs/pii/S0928765513000225 DOI: https://doi.org/10.1016/j.reseneeco.2013.04.001

Ferraro, P. J., & Price, M. K. (2013, 03). Using Nonpecuniary Strategies to Influence Behavior: Evidence from a Large-Scale Field Experiment. *The Review of Economics and Statistics, 95(1)*, 64-73. Retrieved from https://doi.org/10.1162/REST_a_00344 DOI: 10.1162/RESTa00344

Haynes, L., Service, O., Goldacre, B., & Torgerson, D. (2012). Test, learn, adapt: Developing public policy with randomised controlled trials. *Cabinet Office - Behavioural Insights Team*. Retrieved from https://papers.ssrn.com/sol3/papers.cfm?abstract_id=2131581

DOI: https://dx.doi.org/10.2139/ssrn.2131581

Klerk, E., Longworth, B. S., Kharbanda, A., Jiang, B., & Ziffer, M. (2022). The young consumer and a path to sustainability. *Research Institute Credit Suisse*, 1-72. Retrieved from https://www.credit-suisse.com/media/assets/corporate/docs/about-us/research/publications/%20%20csri-the-young-consumer-and-a-path-to-sustainability.pdf

Leiserowitz, A., Carman, J., Buttermore, N., Wang, X., Rosenthal, S., Marlon, J., & Mulcahy, K. (2021). International public opinion on climate change. *New Haven, CT: Yale Program on Climate Change Communication and Facebook Data for Good*, 1-23. Retrieved from

https://climatecommunication.yale.edu/wp-content/uploads/2021/06/international-climate-opinion-february-2021d.pdf

Nilsson, A., Hansla, A., Heiling, J. M., Bergstad, C. J., & Martinsson, J. (2016). Public acceptability towards envi- ronmental policy measures: Value-matching appeals. *Environmental Science Policy*, 61, 176-184. Retrieved from

https://www.sciencedirect.com/science/article/pii/S1462901116300971

DOI: https://doi.org/10.1016/j.envsci.2016.04.013

OECD. (2021). *Main findings from the 2020 risks that matter survey*. Retrieved from https://www.oecd-ilibrary.org/content/publication/b9e85cf5-en

DOI: https://doi.org/https://doi.org/10.1787/b9e85cf5-en

Statista. (2019). Share of italians who believe that tax evasion is never justifiable in 2018, by age group. *Statista*. Retrieved from

https://www.statista.com/statistics/986691/opinion-on-tax-evasion-by-age-group-in-italy/

Tsen, C., Phang, G., Hasan, H., & Buncha, M. (2006, 01). Going green: A study of consumers' willingness to pay for green products in kota kinabalu. *International Journal of Business and Society, 7*, 40-54.

White, H., Sabarwal, S., & de Hoop, T. (2014). Randomized controlled trials (RCT): Methodological briefs. *UNICEF, 7(7)*, 1-10. Retrieved from http://www.unicef-irc.org/KM/IE/

WorldBank. (2022). GDP (current US dollar) - european union - 7th may 2022. *World Bank Group*. Retrieved from

https://data.worldbank.org/indicator/NY.GDP.MKTP.CD?locations=EU

Appendix

Variables used:

- Env stands for the sample receiving the environment treatment;
- Health considers the sample receiving the health treatment;
- Age and Gender represent age and gender;
- Social class, Political, Education and Occupation respectively show social class, political orientation, education level and occupation;
- Government, Willingness to pay and Sect respectively stand level of agreement with government policies, willingness to pay higher

taxes and favourite sector where to initiate the green transition;

- Concern, Nextgen and Concern 5 years respectively represent general concern, concern for next generation and concern with respect to five years ago;
- DiffTaxNotax stands for the support gap for a green transition before and after making the respondents aware of the costs that they would have to bear to finance such transition;
- Q12a and Q12b represent the agreement with statements concerning environmental policies (see Appendix for further details);
- Q18a,b,c, Q19a,b,c, and Q20,a,b,c represent the support for specific green policies in the form of push, pull or mix measures

Table 23: Italy - Regressions' results continuous dependent variable - No covariates (Source: Author's work)

y	Treatment	Coefficient (p-value)
Transportation Push Policy (Q18a)	Health Env	0.19 (0.301) -0.06 (0.764)
Transportation Pull Policy (Q18b)	Health Env	-0.02 (0.913) 0.15 (0.301)
Transportation Mixed Policy (Q18c)	Health Env	-0.11 (0.498) -0.20 (0.257)
Env-Friendly Goods Push Policy (Q19a)	Health Env	0.10 (0.588) 0.04 (0.830)
Env-Friendly Goods Pull Policy (Q19b)	Health Env	0.21 (0.142) 0.24 (0.095)
Env-Friendly Goods Mixed Policy (Q19c)	Health Env	0.14 (0.406) 0.08 (0.652)
Energy and Buildings Push Policy (Q20a)	Health Env	0.09 (0.588) 0.30 (0.081)
Energy and Buildings Pull Policy (Q20b)	Health Env	0.14 (0.288) 0.24 (0.057)
Energy and Buildings Mixed Policy (Q20c)	Health Env	0.09 (0.545) 0.13 (0.423)

Table 24: Italy - Regressions' results continuous dependent variable - With covariates (Source: Author's work)

y	Treatment	Coefficient (p-value)
Transportation Push Policy (Q18a)	Health Env	0.19 (0.341) -0.04 (0.840)
Transportation Pull Policy (Q18b)	Health Env	0.10 (0.466) 0.25 (0.090)
Transportation Mixed Policy (Q18c)	Health Env	-0.09 (0.622) -0.12 (0.514)
Env-Friendly Goods Push Policy (Q19a)	Health Env	0.09 (0.650) 0.08 (0.681)
Env-Friendly Goods Pull Policy (Q19b)	Health Env	0.27 (0.066) 0.34 (0.025)
Env-Friendly Goods Mixed Policy (Q19c)	Health Env	0.16 (0.347) 0.09 (0.628)
Energy and Buildings Push Policy (Q20a)	Health Env	0.20 (0.229) 0.39 (0.027)
Energy and Buildings Pull Policy (Q20b)	Health Env	0.27 (0.040) 0.30 (0.021)
Energy and Buildings Mixed Policy (Q20c)	Health Env	0.13 (0.415) 0.13 (0.427)

Table 25: Italy - Regressions' results continuous dependent variable - With/without covariates (Source: Author's work)

y	Treatment	Coefficient (p-value)
Drop in acceptability (DiffTaxNotax) - NO COV	Health Env	-0.03 (0.813) 0.16 (0.182)
Drop in acceptability (DiffTaxNotax) - WITH COV	Health Env	-0.03 (0.771) 0.10 (0.423)

Table 26: Italy - Regressions' results binary dependent variable (1-6 = 0 and 7-10 = 1) - No covariates (Source: Author's work)

y	Treatment	Coefficient (p-value)
Transportation Push Policy (Q18a)	Health Env	0.03 (0.451) -0.01 (0.805)
Transportation Pull Policy (Q18b)	Health Env	-0.03 (0.361) 0.03 (0.293)
Transportation Mixed Policy (Q18c)	Health Env	-0.04 (0.185) -0.02 (0.466)
Env-Friendly Goods Push Policy (Q19a)	Health Env	0.03 (0.410) 0.02 (0.631)
Env-Friendly Goods Pull Policy (Q19b)	Health Env	0.06 (0.022) 0.06 (0.032)
Env-Friendly Goods Mixed Policy (Q19c)	Health Env	0.04 (0.260) 0.02 (0.610)
Energy and Buildings Push Policy (Q20a)	Health Env	0.09 (0.588) 0.06 (0.055)
Energy and Buildings Pull Policy (Q20b)	Health Env	0.02 (0.448) 0.05 (0.027)
Energy and Buildings Mixed Policy (Q20c)	Health Env	0.01 (0.706) 0.02 (0.416)

Table 27: Italy - Regressions' results binary dependent variable (1-6 = 0 and 7-10 = 1) - With covariates (Source: Author's work)

y	Treatment	Coefficient (p-value)
Transportation Push Policy (Q18a)	Health Env	0.03 (0.423) 0.01 (0.844)
Transportation Pull Policy (Q18b)	Health Env	-0.01 (0.802) 0.04 (0.199)
Transportation Mixed Policy (Q18c)	Health Env	-0.03 (0.336) -0.01 (0.874)
Env-Friendly Goods Push Policy (Q19a)	Health Env	0.01 (0.701) 0.01 (0.684)

y	Treatment	Coefficient (p-value)
Env-Friendly Goods Pull Policy (Q19b)	Health Env	0.08 (0.020) 0.07 (0.013)
Env-Friendly Goods Mixed Policy (Q19c)	Health Env	0.03 (0.459) 0.01 (0.673)
Energy and Buildings Push Policy (Q20a)	Health Env	0.05 (0.154) 0.07 (0.029)
Energy and Buildings Pull Policy (Q20b)	Health Env	0.05 (0.046) 0.07 (0.002)
Energy and Buildings Mixed Policy (Q20c)	Health Env	0.01 (0.643) 0.01 (0.613)
General Green Transition	Health Env	0.07 (0.014) 0.07 (0.014)
General Green Transition with Tax	Health Env	0.06 (0.037) 0.08 (0.005)

Table 28: Italy - Regressions' results binary dependent variable - With/without covariates (Source: Author's work)

y	Treatment	Coefficient (p-value)
Drop in acceptability (DiffTaxNotax) - NO COV	Health Env	-0.02 (0.513) 0.02 (0.355)
Drop in acceptability (DiffTaxNotax) - WITH COV	Health Env	-0.02 (0.435) 0.01 (0.718)

Table 29: Portugal - Regressions' results continuous dependent variable - No covariates (Source: Author's work)

y	Treatment	Coefficient (p-value)
Transportation Push Policy (Q18a)	Health Env	0.62 (0.069) 0.24 (0.501)
Transportation Pull Policy (Q18b)	Health Env	0.16 (0.577) -0.02 (0.946)
Transportation Mixed Policy (Q18c)	Health Env	0.02 (0.960) -0.11 (0.727)
Env-Friendly Goods Push Policy (Q19a)	Health Env	0.27 (0.442) 0.17 (0.631)
Env-Friendly Goods Pull Policy (Q19b)	Health Env	0.56 (0.046) 0.21 (0.471)
Env-Friendly Goods Mixed Policy (Q19c)	Health Env	0.39 (0.212) -0.02 (0.951)
Energy and Buildings Push Policy (Q20a)	Health Env	0.38 (0.225) -0.02 (0.943)
Energy and Buildings Pull Policy (Q20b)	Health Env	0.34 (0.195) -0.25 (0.373)
Energy and Buildings Mixed Policy (Q20c)	Health Env	0.20 (0.485) -0.33 (0.273)

Table 30: Portugal - Regressions' results continuous dependent variable - With covariates (Source: Author's work)

y	Treatment	Coefficient (p-value)
Transportation Push Policy (Q18a)	Health Env	0.85 (0.018) 0.37 (0.276)
Transportation Pull Policy (Q18b)	Health Env	0.47 (0.131) 0.27 (0.340)
Transportation Mixed Policy (Q18c)	Health Env	-0.03 (0.932) -0.09 (0.791)
Env-Friendly Goods Push Policy (Q19a)	Health Env	0.64 (0.089) 0.35 (0.319)
Env-Friendly Goods Pull Policy (Q19b)	Health Env	0.66 (0.022) 0.23 (0.410)
Env-Friendly Goods Mixed Policy (Q19c)	Health Env	0.46 (0.178) -0.08 (0.806)
Energy and Buildings Push Policy (Q20a)	Health Env	0.61 (0.071) 0.06 (0.849)
Energy and Buildings Pull Policy (Q20b)	Health Env	0.29 (0.317) -0.24 (0.370)
Energy and Buildings Mixed Policy (Q20c)	Health Env	0.22 (0.480) -0.41 (0.177)

Table 31: Portugal - Regressions' results continuous dependent variable - With/without covariates (Source: Author's work)

y	Treatment	Coefficient (p-value)
Drop in acceptability (DiffTaxNotax) - NO COV	Health Env	0.31 (0.228) 0.17 (0.525)
Drop in acceptability (DiffTaxNotax) - WITH COV	Health Env	0.43 (0.116) 0.06 (0.838)

Table 32: Portugal - Regressions' results binary dependent variable (1-6 = 0 and 7-10 = 1) - No covariates (Source: Author's work)

y	Treatment	Coefficient (p-value)
Transportation Push Policy (Q18a)	Health	0.11 (0.071)
	Env	0.08 (0.190)
Transportation Pull Policy (Q18b)	Health	0.04 (0.503)
	Env	0.02 (0.752)
Transportation Mixed Policy (Q18c)	Health	0.02 (0.790)
	Env	0.01 (0.862)
Env-Friendly Goods Push Policy (Q19a)	Health	0.07 (0.285)
	Env	0.03 (0.570)
Env-Friendly Goods Pull Policy (Q19b)	Health	0.12 (0.033)
	Env	0.05 (0.411)
Env-Friendly Goods Mixed Policy (Q19c)	Health	0.07 (0.252)
	Env	-0.02 (0.752)
Energy and Buildings Push Policy (Q20a)	Health	0.05 (0.423)
	Env	0.03 (0.579)
Energy and Buildings Pull Policy (Q20b)	Health	-0.03 (0.614)
	Env	-0.04 (0.476)
Energy and Buildings Mixed Policy (Q20c)	Health	0.01 (0.801)
	Env	-0.04 (0.540)

Table 33: Portugal - Regressions' results binary dependent variable (1-6 = 0 and 7-10 = 1) - With covariates (Source: Author's work)

y	Treatment	Coefficient (p-value)
Transportation Push Policy (Q18a)	Health	0.14 (0.031)
	Env	0.10 (0.116)
Transportation Pull Policy (Q18b)	Health	0.09 (0.131)
	Env	0.07 (0.236)
Transportation Mixed Policy (Q18c)	Health	0.02 (0.705)
	Env	0.03 (0.656)
Env-Friendly Goods Push Policy (Q19a)	Health	0.14 (0.030)
	Env	0.07 (0.288)
Env-Friendly Goods Pull Policy (Q19b)	Health	0.14 (0.018)
	Env	0.06 (0.351)
Env-Friendly Goods Mixed Policy (Q19c)	Health	0.10 (0.143)
	Env	-0.04 (0.571)
Energy and Buildings Push Policy (Q20a)	Health	0.10 (0.133)
	Env	0.03 (0.694)
Energy and Buildings Pull Policy (Q20b)	Health	-0.02 (0.680)
	Env	-0.04 (0.390)
Energy and Buildings Mixed Policy (Q20c)	Health	0.02 (0.774)
	Env	-0.06 (0.360)
General Green Transition	Health	0.01 (0.883)
	Env	0.01 (0.909)
General Green Transition with Tax	Health	0.04 (0.537)
	Env	-0.02 (0.697)

Table 34: Portugal - Regressions' results binary dependent variable - With/without covariates (Source: Author's work)

y	Treatment	Coefficient (p-value)
Drop in acceptability (DiffTaxNotax) - NO COV	Health	0.02 (0.626)
	Env	0.01 (0.867)
Drop in acceptability (DiffTaxNotax) - WITH COV	Health	0.00 (0.979)
	Env	0.01 (0.761)