UNIVERSITY OF GOTHENBURG

# DOES QUALITY OF GOVERNMENT AND TRUST EXPLAIN THE CROSS-NATIONAL VARIATION IN PUBLIC SUPPORT FOR CLIMATE POLICY?

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# ABSTRACT

In accordance with the Paris agreement, the signing countries have undertaken to reduce their greenhouse gas emissions, implying more government intervention to steer the behaviors of different actors with climate policy measures. However, states face very different possibilities for gaining support for such interventions, especially those targeting the consumption patterns of individual citizens, due to for example the variation in economic development, the quality of political institutions, and other country covariates. While most research on climate policy support has focused on individual factors, such as ideological position, values, and socio-demographic factors, there are also studies out there showing that there is quite some variation in country support for various climate change policies. Using newly published data from the European Social Survey, we explore whether variation in climate policy support is associated with levels of quality of government (QoG) and individuals' trust in political institutions and people in general, and if these associations vary across different types of climate policies. We find that QoG and generalized trust are positively linked to support for climate taxes, but we find no associations with support for climate subsidies and climate bans. Moreover, we find that political and institutional trust are more strongly linked to support for climate taxes than to support for climate subsidies and climate bans.

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## Introduction

Research has shown that an average increase in the global temperature exceeding 2 °C above pre-industrial levels, in many ways will be a disaster for humanity, with significantly greater risk of events such as floods, droughts and storms. The Paris Agreement, adopted in 2015 within the United Nations Framework Convention on Climate Change (UNFCCC), aims to "holding the increase in the global average temperature to well below 2 °C above pre-industrial levels and to pursue efforts to limit the temperature increase to 1.5 °C above pre-industrial levels" (UNFCCC, 2015 Article 2). Even though the joint targets by the signing parties have a prognosis to lead to an increase of around 3 °C (UNEP, 2016), the agreement has by many been seen as an important step forward. However, how the radical reduction in emissions set out in the Paris Agreement is going to be achieved is not clear.

Understanding climate change as a large-scale collective action problem, we are unlikely to see much voluntary climate action. Individual consumers or business actors are not prepared to reduce their emissions voluntarily as profits accrue to themselves while costs are being paid by the global collective (Jagers et al., 2019). Hence, states play an important role in managing this collective action dilemma. In fact, solving these kinds of complex large-scale collective action problems can even be argued to be "[…] the core justification of the state" (Ostrom, 1998, p. 1). Knowing from previous research that there is greater aversion towards policies directly targeting behaviors of individual consumers than business actors or industries (Harring, Jagers & Matti, 2018; Harring, 2016), how will governments be able to encourage or force citizens, to reduce their greenhouse gas emissions, and not the least get sufficient support to implement different types of climate policies targeting individual citizens?

In a government's toolbox, there are several potential measures to use to direct citizens in a pro-climate direction. For example, the government can choose between rewarding positive or punishing negative behaviors. Which approach to adopt, to a large extent depends on the occurring public support among the citizenry. We can assume that political leaders, at least in democratic countries, will be responsive to the public opinion and acknowledge the risks of implementing policy that people dislike, because it will undermine their political legitimacy (cf. Soroka & Wlezien, 2010; Wallner, 2008). A recent example of this would be the *Gilet jaunes* movement against, among other things, climate taxes introduced by the French government (cf. Carattini, Kallbekken & Orlov, 2019). The state, taking on the role of solving collective action problems by implementing various

policy measures, needs to be perceived as legitimate – exercising its power or "monopoly of violence" over citizens through legitimate coercion (Mansbridge, 2014a, p. 10) – which should be partly indicated by the level of public support towards state policies.

There is by now a rather comprehensive literature on climate policy support. In a recent overview, Drews and van den Bergh (2015) list a number of factors that explain climate policy support. They divide these into three broader categories, i.e., 1) social-psychological factors, such as the values people have or their ideological position, 2) perception of climate policy design, e.g., to what extent people perceive that tools are efficient and fair, and finally 3) what they call contextual factors, where they list aspects such as economic and political context, weather conditions, media framing and trust.

All the same, Drews and van den Bergh's (2015) review implies that there are gaps in the literature, not least when it comes to understanding the support for *various kinds* of policies. Clearly, their overview includes studies of many different kinds of policies, ranging from studies which measure climate policy support by using an index of many policies to studies focusing on one or a few specific policies (e.g. a gasoline tax), from which scholars then oftentimes make general conclusions regarding the role of norms, values, ideology and so forth on policy attitudes. There are, however, scholars that have studied support for different kinds of policies (e.g. de Groot & Schuitema, 2012), and they find that people are often more positive towards *pull* instruments such as subsidies than *push* instruments such as fees and taxes. Simultaneously, there are other studies showing that there is a significant variation in support for various kinds of policy instruments at a country-level. For example, in culturally and comparatively homogenous countries, such as the EU member states, people only prefer economic instruments to other instruments in some member states but not at all in others (Harring, 2014). How can this variation be explained?

As of yet, and compared with the rather large number of studies trying to capture individual level factors, research dealing with and trying to explain such cross-national variation is rather scant. One reason for this shortcoming is a lack of data allowing for such comparative studies. In this article, we make use of a recently published dataset by the European Social Survey facilitating our aim of studying cross-national variation in support for climate policy measures targeting individual consumers. In this endeavor, we build on previous studies (Fairbrother, 2016; Harring, 2014, 2016; Harring & Lapuente, 2016; Davidovic, 2018; Harring, Jagers & Matti, 2018; Davidovic, Harring & Jagers, forthcoming) and pay particular attention to the role of contextual factors and political insti-

tutions in explaining climate policy support. More specifically, we focus on 1) the *quality* of these institutions and 2) people's trust in these institutions[1], as well as other people in general, to understand the individual level mechanisms between institutional quality (i.e. QoG) and support for various climate policies. In this paper, quality of government (QoG) refers to the capacity of the state to perform its activities in an efficient, fair and impartial manner, and without corruption (cf. Rothstein & Teorell, 2008).

In the next section, we theorize the relationship between trust and policy support, where we use collective action and social dilemma theory as our point of departure. We also present a model for the categorization of various types of climate policies and derive two research questions. In the following section, we introduce the data and discuss the methods we use. Thereafter follows the section where we present our results. Subsequently follows the analysis showing that climate taxes and subsidies are more supported in countries with high quality or well-functioning political institutions and, moreover, that political and institutional trust and generalized trust are most strongly linked to punishing economic instruments, such as climate taxes. Finally, we conclude.

## Theoretical framework

### The role of the state in solving large-scale collective action dilemmas

Climate change mitigation can be characterized as a large-scale collective action dilemma, where individuals want to receive the benefits of climate action, but they will also be tempted to free-ride on others emission reductions. The spatial and temporal distances and the large number of actors involved increases uncertainty about how others will act and whether they will cooperate to protect the climate or not (Jagers et al., 2019). There are clear individual benefits for an actor not to change behavior by reducing her consumption of goods and services that generate green-house gas-emissions. The reason is rather straight forward: In the typical dilemma situation, people individually enjoy the benefits of their climate-detrimental behavior, e.g., international flights, use of cars and consumption of meat, while the costs of their behavior are shared by everyone in terms of increased global warming. For someone to ponder upon changing behavior in this situation is risky, because it is quite probable that the actor will end up being the only one actually changing behavior. In this situation, the actor is giving up on current benefits while simultaneously experiencing that

[1] In our analysis, we make a distinction between political trust (i.e. trust in political institutions measured as trust in parliament, politicians and political parties) and institutional trust (i.e. trust in implementing institutions measured as trust in the legal system and the police).

the globe continues getting warmer due to others' ignorance. Therefore, taking a social dilemma framework as a point of departure it is not very likely to see voluntary action to protect the global collective good (i.e. a stable climate). Consequently, some kind of third-party intervention or coercive regulations are needed in order to stop global warming and change the climate-destructive behaviors of individuals (Jagers et al., 2019).

The need for an external, third party – typically the state – has been stressed by many scholars of collective action, for example Mancur Olson's well-known claim that "unless the number of individuals in a group is quite small, or unless there is coercion or some other special device to make individuals act in their common interest, rational, self-interested individuals will not act to achieve their common or group interests" (Olson, 1965, p. 2), and in large-scale dilemmas a third actor (the state) becomes the necessary executor of this coercion. As Jane Mansbridge asserts: "solving collective action problems is the most significant reason for government." (Mansbridge, 2014b, p. 10). By intervention through implementation of various policy tools, governments can directly target behaviors that generate collective losses by increasing the costs for engaging in polluting activities, or they can reward behaviors that have desired effects (i.e. activities that reduce climate or carbon impacts). State intervention can also indirectly facilitate coordination and collective action by providing an infrastructure for sanctioning systems that facilitates cooperation (Mansbridge, 2014a).

However, as has been found in many sanctioning systems, from local to more large-scale contexts, the maintenance of sanctions is, in itself, a collective action problem – sometimes called a second-order collective action problem (Heckathorn, 1989; Ostrom, 1990; Kollock 1998; Yamagishi, 1986; see also Harring, 2016; Davidovic et al., forthcoming). According to the dilemma logic, there are always strong incentives to free-ride rather than to comply with a sanctioning system. Because, as long as everyone else pays climate taxes or fees, I can abstain from paying mine since the collective good will be provided anyhow. Since voluntary efforts are not likely this will, according to public goods theory, lead to an inefficient undersupply of the public good (cf. Samuelson, 1954). Therefore, scholars have paid particular attention to why and under what conditions people cooperate and comply with sanctioning schemes and public policy. In this research, a special focus has been put on the role of trust, where the general finding is that if people do not trust that others will comply with the system, that is, do their fair share, and do not believe that a system will be managed efficiently and fairly by the government implementing a policy, they are personally less likely to support the scheme or the policy (Scholz & Lubell, 1998; Svallfors, 2013).

## Varieties of climate policy instruments

Governments have several different kinds of climate instruments in their tool-boxes, which can be categorized in different ways (de Groot & Schuitema, 2012; Eriksson, Garvill & Nordlund, 2008; Gärling & Schuitema, 2007; Steg, Drejjerink & Abrahamse, 2005; Sterner, 2003; Vedung, 1998). The instruments can be categorized by their technical or administrative design (e.g. economic, legal, informative), but also in terms of their coerciveness (i.e. rewarding or punishing). Governments can *push* people in a certain direction, or instead choose to *pull* them in another direction, where, for example, an economic instrument can be both punishing (e.g., taxes) or rewarding (e.g., subsidies). Push instruments are typically considered to impose more constraints on people's behavior and individual freedom, than pull instruments (Eriksson, Garvill & Nordlund, 2006). Moreover, informative instruments (*persuasion*) are considered to be the least coercive, whereas legal regulations (*punishment*) are considered the most coercive and economic incentives (*reward*) are somewhere in-between being moderately coercive. However, it has also been acknowledged that there is great variation within these broad categories; including encouraging economic incentives (e.g. subsidies) and discouraging regulations (e.g. charges and tariffs) (Vedung, 1998). Table 1 shows a schematic overview of these two different ways of categorizing instruments, based on their administrative design and level of coercion and provides examples of different types of concrete climate policies along these categorizations.

TABLE 1. CATEGORIZATION OF CLIMATE POLICIES

| | **Economic** | **Legal** | **Informative** |
|---|---|---|---|
| **Rewarding** | Subsidies to fossil-neutral vehicles | Permits/licenses to sell or produce certain products | Information campaigns encouraging $CO_2$-reduction |
| **Punishing** | Climate taxes on fossil-fuel | Prohibition of fossil-fuel cars in certain areas | Information campaigns shaming $CO_2$-emissions |

Making categorizations of, and distinctions between, different forms of instruments is difficult as they often go hand-in-hand. Introducing a climate tax, for example, which would be a typical example of an economic and punishing instrument, does at the same time involve an infrastructure of other laws and legal regulations not necessarily categorized as punishing. Furthermore, the introduction would potentially be accompanied by an information campaign to inform or convince citizens of the benefits of the tax. It can also be difficult to categorize a specific policy instrument as

either rewarding or punishing. A measure that is punishing for someone, with non-environmentally friendly behavior, can be perceived as rewarding for another, someone with an environmentally friendly behavior. With these considerations of the difficulties in categorizing climate instruments in mind, we argue that, from a governing point of view, the state can, through the policy design, choose to either punish individuals who pollute or reward or encourage those who do not pollute, and they can do so by implementing policies with different administrative designs.

In the following, we will foremost focus on economic and legal instruments. Partly due to limitations in the data that we use, but also because the broader debate (both the academic and public) on policy acceptance foremost is interested in economic and legal instruments. Another reason for focusing on these particular instruments, excluding the informative ones, is that informational campaigns shaming $CO_2$-emissions most likely will not be enough (at least not on their own) in shifting individuals' non-climate friendly consumption patterns. Table 2 shows the operationalization of the instruments that we will explore in this paper in terms of public acceptance. Unfortunately, the dataset that we use does not include a measure of a policy instrument that could be categorized as a rewarding legal instrument. We will return to this in the method and material section.

TABLE 2: OPERATIONALIZATION OF ECONOMIC AND LEGAL CLIMATE POLICIES

| | **Economic** | **Legal** |
|---|---|---|
| **Rewarding** | Subsidies to renewable energy such as wind and solar power | - |
| **Punishing** | Increased taxes on fossil fuels, such as oil, gas and coal | Bans of the sale of least energy efficient household appliances |

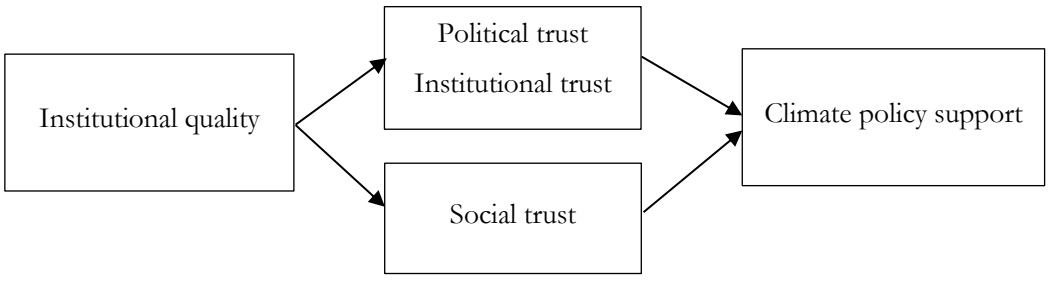
## Trust and support for state intervention

In this paper, we aim to explore whether there is any cross-country variation in public support for climate policies and also explain some of the variation in public acceptance of various types of climate policies. It is worth emphasizing that the implementation of any type of policy is an instance of state intervention and an act of power exercised by state authorities on its citizens. Accordingly, it is reasonable to believe that individuals (for various reasons) will be positive towards some policy interventions and negative towards others. While there are several explanations for policy acceptance, such as perceived fairness and effectiveness of policy measures, we are interested in

whether citizens' perceptions of the state as well as their views about fellow citizens can influence or explain the type of policy instruments that they prefer. Specifically, we are interested in how perceptions of institutional quality and levels of trust in state authorities and fellow citizens impact policy acceptability[2].

In the existing literature on support for state intervention in markets in general, and for market interventions associated with climate and environmental issues in particular, previous studies have shown that the quality of political institutions is related to people's preferences for state intervention (e.g. Svallfors, 2013; Harring 2013, 2014, 2016). The basic assumption in this literature is that institutional quality is linked to both trust in political institutions (political and institutional trust) and trust in other people (generalized trust), which in turn generates acceptance and support for environmental and climate policy instruments in general. Political trust is linked to policy support simply because people are more likely to accept to be regulated by institutions that they trust. People trust that state authorities will be able to uphold regulations and that they will not waste tax revenues but rather use them to provide public goods. Generalized trust is linked to policy support since people also need to trust their fellow citizens and other actors to actually comply with the policies in order to accept the policies being imposed upon them (e.g. Harring & Jagers, 2013). The latter is explicit when thinking of individuals as conditional cooperators (cf. Gächter, 2007), assuming that individuals will only take on the costs for climate action if others do so as well (i.e., if they trust others to contribute to the global common good by acting climate friendly and/or complying with climate policies). The link between institutional quality and support for climate policies is illustrated in model 1.

*MODEL 1: INSTITUTIONAL QUALITY, TRUST, AND CLIMATE POLICY SUPPORT*




[2] In this paper, we use the terms "support", "acceptance" and "acceptability" interchangeably. It should be noted, however, that they conceptually refer to different things: while acceptability refers to pre-implementation and acceptance to post-implementation attitudes, support refers to active endorsement and compliance with a policy.

### *Rewarding and punishing instruments*

Research has, however, shown that these simple assumptions can be questioned, not least based on distinction between different kinds of policies. While the support and acceptance for some of these policies are linked to trust, some are not, and it might even be the reversed relationship; distrust can drive public demand for certain policies. One of the most intriguing findings in previous research is that in countries with malfunctioning institutions, people are more likely to demand state intervention compared to people living in countries with well-functioning political institutions (Aghion, Algan, Cahuc & Schleifer, 2010; Di Tella & MacCulloch, 2009; Dimitrova-Grajzl, Grajzl & Guse, 2011; Pinotti, 2011) or prefer more punishing tools (Harring, 2016). To quote Aghion et al., then "why do people in countries with bad government want more government intervention?" (Aghion et al., 2010, p. 1018). One explanation can be found in the link between institutional quality and trust. Low institutional quality is namely not only correlated with low trust in political institutions, but also with low trust in business actors and low trust in people in general. Hence, people do not believe that these actors will voluntarily contribute to the provision of collective goods and therefore they demand more market intervention by punishing regulation (Aghion et al., 2010). The will to punish free-riders out-weighs the role of malfunctioning institutions. For example, Harring (2016) finds that, compared to less corrupt contexts, people living in corrupt contexts are more likely to prefer "heavy fines for people who damage the environment" over using "the tax system to reward people who protect the environment".

Punishment is often argued to be important for promoting cooperation in social dilemma situations. The ability to punish free-riders is essential to the upholding of collective goods (Van Lange, Rockenbach & Yamagishi, 2014). However, research has demonstrated that punishment can also go astray, e.g., when individuals start to punish not only defectors but also cooperators. This is a phenomenon that is called 'anti-social punishment', where a typical example is free-riders who start to punish cooperators as revenge for previous punishment. In cross-national comparative research, it has also been found that low institutional quality is linked to such antisocial punishment. For example, Herrmann et al. (2008) conclude that "The strength of the rule of law in a society might also have an impact on antisocial punishment. If the rule of law is strong, people trust the law enforcement institutions, which are perceived as being effective, fair, impartial, and bound by the law. Revenge is shunned. If the rule of law is weak, the opposite holds. Thus, the rule of law reflects how norms are commonly enforced in a society." (Herrmann et al., 2008, p. 1365). Thus, there seems to be a general propensity that low institutional quality generates punishing norms in society.

However, research has not only shown a link between distrust and punishment, but also a link between trust and rewards (Ferrin & Dirks, 2003). For example, cross-national survey data has shown that people in less corrupt societies are more likely to prefer rewarding instruments. The underlying assumption is that people trust that other people will actually react to the rewarding signals and change their behaviors accordingly (Harring, 2014; 2016). The distinction between *rewarding* and *punishing* instruments is the first dimension in our typology of climate policy measures. In the following, we will focus on the distinction between *economic* and *legal* instruments.

### *Economic and legal instruments*

High institutional quality and trust has been argued to be important for people to support a certain kind of state intervention; economic instruments (Harring, 2014) (see also the research on welfare state support: Daniele & Geys, 2015; Pitlik & Kouba, 2015; Rothstein & Uslaner, 2005; Svallfors, 2013). It is argued that, apart from trust in people in general, trust in political institutions is also important because people need to trust the institutions dealing with financial transactions to actually have the adequate competence and not waste the revenues through inefficiency or corrupt activities. Similarly, people have to trust that others pay their taxes and that people who receive subsidies are entitled to them (Harring, 2016).

For legal instruments there are reasons to believe that the mechanism between trust and support is slightly different. Clearly, it is always important that people trust that others will comply with a specific policy for any public support for that particular policy to be generated. But in contrast to economic or market-based instruments, we believe that if you see that people cheat with for example regulations, that can generate a demand for even more legal instruments, to regulate those who cheat, while if someone cheats with economic instruments, such as subsidies or taxes, that will less likely generate a demand for even more subsidies or taxes. Hence, low generalized trust can generate demand for even more legal instruments and aversion towards economic instruments. Individuals living in contexts with malfunctioning institutions demand legal and regulatory instruments because such legal institutions and regulatory frameworks are missing and malfunctioning in general. For example, it has been argued that such regulations must be in place *before* people demand other kinds of (or more complex) policies such as economic instruments and redistributing welfare reforms (Harring & Lapuente, 2016; Pierre & Rothstein, 2011).

### The research gap and research questions

Hence, there are several different arguments and findings regarding the role of trust for the support for various policy instruments along our two dimensions; administrative design (legal – economic) and coerciveness (rewarding – punishing), see table 2. However, we do not actually know how levels of trust and institutional quality are linked to the support for specific climate policy instruments, such as for example *climate subsidies*, *climate taxes*, and *climate bans*, which we are focusing on in this article. Previous research to some extent suggests that institutional quality and trust are differently linked to public support for different types of policies within the environmental domain (cf. Harring, 2016; Harring & Lapuente, 2016). Harring, for example, finds that low QoG is associated with preferences for coercive regulatory instruments and aversion towards reward-based instruments, but he uses survey questions that make it hard to distinguish between support for one policy and aversion towards another since respondents are forced to choose between different policies. Harring and Lapuente, find that individuals with low generalized and institutional trust tend to demand more government regulation, but are less willing to pay higher taxes for environmental protection. The measures that they use to capture support for environmental government intervention do not distinguish between support for different types of policies, however. Moreover, to our knowledge, no studies have explored how levels of trust and institutional quality are linked to specific types of climate policies to enhance climate change mitigation. Since the findings in existing literature are inconclusive (only a few studies have explored how QoG and trust are linked to different types of policies and these studies use rather poor measurements), we propose two research questions:

1. Are institutional quality and trust linked to the support for *climate subsidies*, *climate taxes*, and *climate bans*? And if so, what is the direction of the relationship?

2. Is there any variation in the role of institutional quality and trust in the support for various types of policy instruments (*climate subsidies*, *climate taxes*, and *climate bans*)?

## Methods and Material

We use individual-level data from the European Social Survey Round 8 (ESS 2016). Previous research trying to capture climate policy attitudes has struggled with survey questions where the respondents have been forced to choose from different alternatives (cf. Harring, 2014, 2016), which makes it hard to know whether their choice is actually an expression of support for a specific policy or rather a rejection of an alternative policy. This is one advantage with using the ESS data, measur-

ing attitudes towards different policy tools separately. The ESS8 survey covers 23 European countries, including 34837 respondents. The survey involved strict random sampling, with a minimum target response rate of 70%. Due to this sampling design, weights are used to correct for unequal probabilities of selection[3]. The dataset was collected through hour-long face-to-face interviews, and includes a variety of survey questions on public attitudes to climate change. The ESS Round 8 Data Set (2016) was merged with the Quality of Government Basic Cross-Section Data Set (2018), containing country-level variables (Dahlberg, Holmberg, Rothstein, Alvarado & Svensson, 2018).

## Policy support

The dependent variables are public support for various climate policy instruments, including legal, economic, punishing, and rewarding instruments. Due to lacking data on measurements of rewarding legal instruments and unreliable indices when combining taxes and bans (punishing; alpha: 0.38) and subsidies and taxes (economic; alpha: 0.41), we will measure support for three different climate policy instruments separately, using the survey question: "To what extent are you in favor or against the following policies in [country] to reduce climate change?" with five response categories ranging from "strongly in favor" (1) to "strongly against" (5). The scales for each item of this measure (see below) were reversed so that "strongly against" was given the lowest value and "strongly in favor" the highest value. We use this survey question to capture people's support for climate taxes, subsidies and bans as policy instruments to steer behaviors of individuals in a climate friendly direction.

To measure support for economic instruments, we use two items from the stated survey question. To capture support for taxes we use: "Increasing taxes on fossil fuels, such as oil, gas and coal", and to capture support for subsidies we use: "Using public money to subsidise renewable energy such as wind and solar power". To measure support for legal instruments, we use only one item: "A law banning the sale of the least energy efficient household appliances". Ideally, we would like to be able to distinguish between support for punishing instruments and legal instruments, and support for economic instruments and rewarding instruments, but instead we make the best use of the measures that we have, with which we can capture variation in support for three different policy tools – taxes, subsidies, and bans – in contexts with various levels of institutional quality.

[3] Weights could not be applied to the Bayesian estimations, since weights are not allowed with the bayes prefix.

## Political and institutional trust

To capture political and institutional trust, we use items from the survey question: "Please tell me on a score of 0-10 how much you personally trust each of the institutions that I read out". The measures we created are two mean-based indices capturing political trust (trust in parliament, politicians and political parties: alpha 0.91) and institutional trust (trust in the legal system and the police: 0.76). An index combining all five items also indicates high reliability (alpha 0.88). However, the five items do appear to load on two different latent variables in a principal component analysis[4], indicating that they measure different things, therefore, we measure political and institutional trust separately. Moreover, scholars in the political trust literature have claimed that trust in political institutions (parliament, politicians, and political parties) and trust in implementing authorities (the legal system, and the police) are two distinct concepts (Rothstein & Stolle, 2008), and previous research on climate policy support has shown that the links between different conceptualizations or measures of trust and support varies substantially (cf. Harring & Jagers, 2013, Harring, 2018). By using both mean-based indices of political and institutional trust in this study, we are measuring trust in those who propose and those who help to make sure that policy instruments are properly enforced.

## Generalized trust

To capture generalized trust, we use a mean-based index consisting of data from three survey questions: "Generally speaking, would you say that most people can be trusted, or that you can't be too careful in dealing with people?", with response categories ranging from "you can't be too careful" (0) to "most people can be trusted" (10), "Do you think that most people would try to take advantage of you if they got the chance, or would they try to be fair?" with responses ranging from "most people try to take advantage of me" (0) to "most people try to be fair" (10), and "Would you say that most of the time people try to be helpful or that they are mostly looking out for themselves?" with answers ranging from "people mostly look out for themselves" (0) to "people mostly try to be helpful" (10). The resulting generalized trust index (alpha: 0.76) ranges from 0-10, with higher values meaning higher trust. We believe that this mean-based, three-item index better captures generalized trust than the items would do individually, and the reliability of the index is higher than compared to any pairwise combinations of the three social trust items.

[4] For more information about the principal component analysis we did on the five items, see Appendix F. More information about all the different steps of this principal component analysis is available upon request.

## Institutional quality

To capture the level of institutional quality (i.e. QoG) in a country, several measures have been used in existing research. We choose to use a measure of institutional quality that has been found to be highly correlated with Transparency International's Corruption Perceptions Index (CPI) (Svensson, 2005) and shown to produce similar results as both the CPI and the World Bank Estimate of Government Efficiency (WBE), namely the indicator of institutional quality by the International Country Risk Guide, which consists of three variables: "Corruption", "Law and Order" and "Bureaucracy Quality". We believe that this measure best captures the tree dimensions of QoG, defined as (cf. Rothstein & Teorell, 2008) the capacity of the state to perform its activities in an efficient ("Bureaucratic Quality"), fair and impartial ("Law and Order") manner, and without corruption ("Corruption"). The ICRG indicator of institutional quality in our data spans on a scale from 0-10. Higher values mean higher levels of institutional quality.

## Controls

We include six individual level controls: ideology/left-right placement, environmental values, gender, age, household income, and education. All of these variables have been shown, in previous research, to have an impact on public support for environmental protection and environmental and climate policy instruments (Shwom et al., 2015). For complete codings of controls, see descriptive statistics in Appendix A. We would, ideally, also like to control for country-level variables, such as real GDP per capita and income inequality. Economic inequality and real GDP per capita are variables that should be included in an analysis of climate policy support considering the effects they might have on, for example, the ability to pay higher taxes for environmental protection. However, since both variables, and in particular real GDP per capita (.78), are correlated with the country variable that is the main interest of our study (QoG), and the complexity of the modelling procedure that we use (see below), we have chosen not to include them in our final models[5].

[5] We have also run models including different combinations of the country-level variates. In models including both economic inequality and real GDP per capita but not QoG, real GDP per capita is significant. However, when QoG is included, real GDP per capita is insignificant. Economic inequality is only significant when both QoG and real GDP per capita are excluded (see Appendix B). We have also run Bayesian models, with all the country-level variates included in the same models. In these models, the effects of QoG and real GDP per capita can be distinguished, whereas the effect of economic inequality is unstable and imprecise (see Appendix C).

### Methods

Since the individuals in our sample are drawn from countries and several of them are from the same countries, we need to apply statistical regression models that take into account the hierarchical structure of our data – individuals at the lower level are nested within countries at the higher level. Multilevel models have the advantage of allowing us to study the effects of both our main individual-level variables (political and social trust) and country-level variable of interest (QoG) on our individual-level outcome variables (support for taxes, subsidies, and bans) in the same models. We use multilevel ordered logit analysis as our dependent variables are measured on an ordinal scale from 1 to 5, where the distance between the five categories may be different.

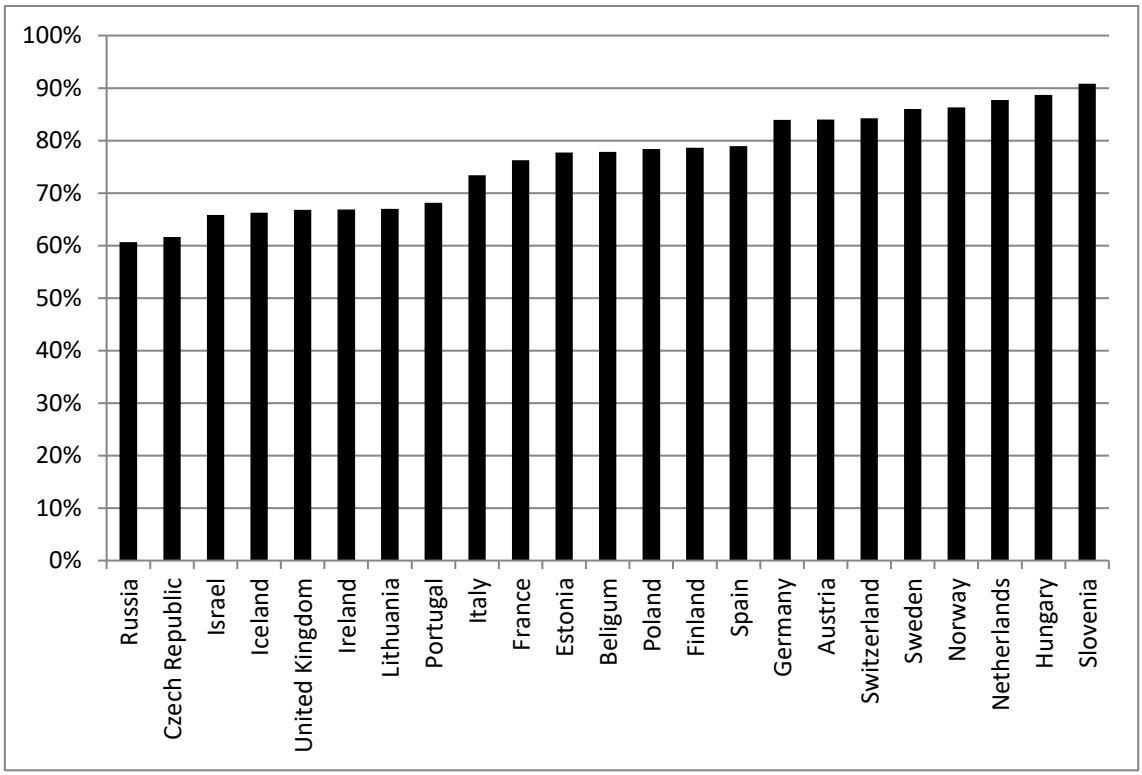
We also apply Bayesian multilevel ordered logit analysis on the data since we might have too few groups at the higher level to perform an ordinary multilevel analysis[6]. According to Stegmueller (2013), however, as long as more than 20 countries are used simple linear or probit models that only contain one variance parameter (a random intercept), the multilevel estimates and confidence intervals covering the estimated macro-level effects are only biased to a limited extent. Thus, we have performed both ordinary and Bayesian multilevel models on our sample of 22 countries to check the robustness of our results.

## Results

We start by simply screening the data. Studying the mean values of policy support in the different countries in the sample, we find that "Using public money to subsidise renewable energy such as wind and solar power" is the most popular policy instrument in most countries, while "Increasing taxes on fossil fuels, such as oil, gas and coal" is the least popular in most countries (figure 1 and 2). Support for legal instruments is somewhere in between (figure 3), with respondents generally being more supportive of "A law banning the sale of the least energy efficient household appliances" than taxes and less supportive of the legal regulation (i.e. a ban) compared to subsidies. We can also see that there is some variation in support for the different policies across countries. For example, respondents in Scandinavian countries (Sweden, Finland, Norway and Iceland) are, on average, more supportive of a climate tax than respondents in Poland, Spain, France and Portugal.

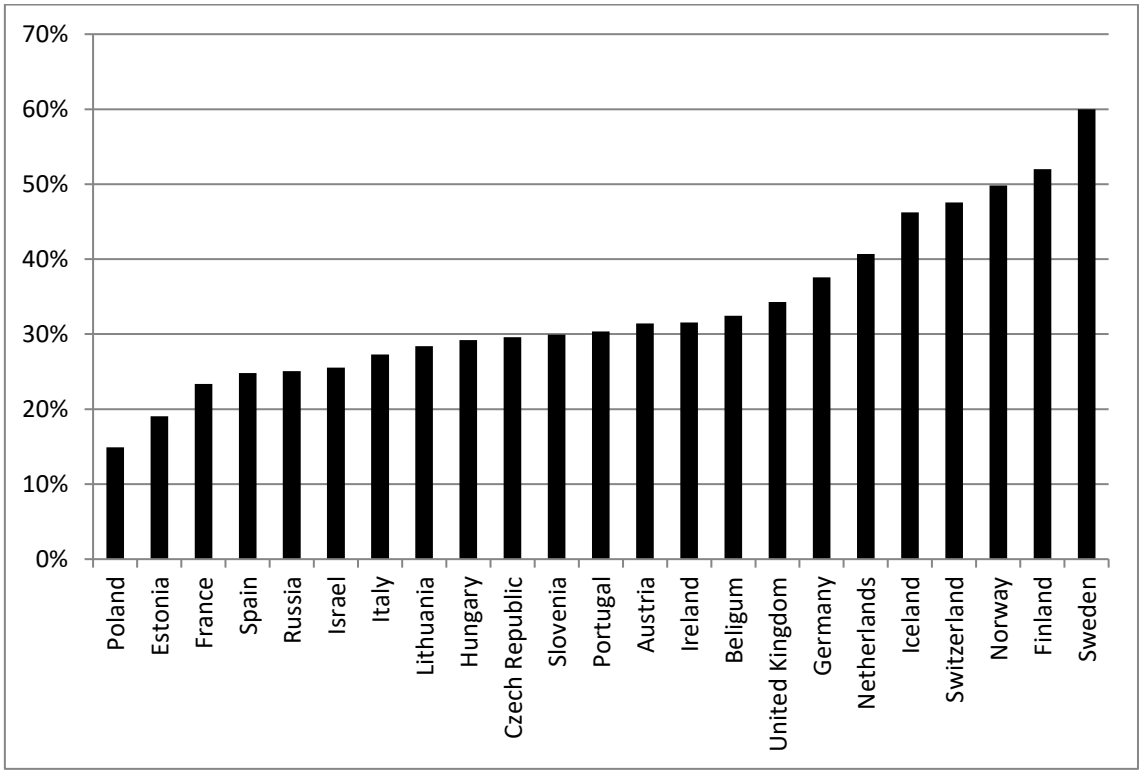
[6] The rules of thumb for conducting a multilevel analysis in the literature vary from 8, 10, 30, to 100 groups, and a small sample size is usually considered to be around 30 groups.

*FIGURE 1. "USING PUBLIC MONEY TO SUBSIDISE RENEWABLE ENERGY SUCH AS WIND AND SOLAR POWER".*



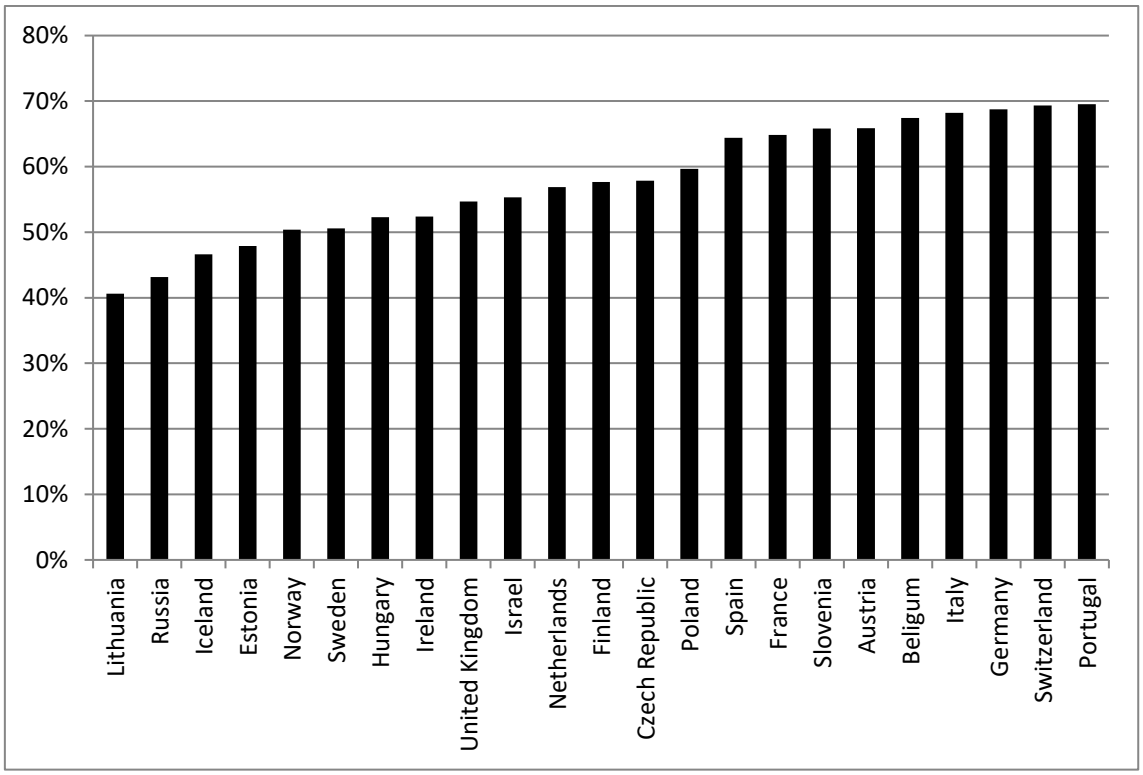

*Note: The figure shows the proportion who support using public money to subsidies renewable energy ("somewhat in favor" and "strongly in favor") (inctxff) in each country: "To what extent are you in favor or against the following policies in [country] to reduce climate change?" "Using public money to subsidise renewable energy such as wind and solar power". European Social Survey round 8, 2016.*

*FIGURE 2. "INCREASING TAXES ON FOSSIL FUELS, SUCH AS OIL, GAS AND COAL".*




*Note: The figure shows the proportion who support increasing taxes ("somewhat in favor" and "strongly in favor") (inctxff) in each country: "To what extent are you in favor or against the following policies in [country] to reduce climate change?" "Increasing taxes on fossil fuels, such as oil, gas and coal". European Social Survey round 8, 2016.*

*FIGURE 3: "A LAW BANNING THE SALE OF THE LEAST ENERGY EFFICIENT HOUSEHOLD APPLIANCES"*




*Note: The figure shows the proportion who support a law banning the sale of the least energy efficient household appliances ("somewhat in favor" and "strongly in favor") (inctxff) in each country: "To what extent are you in favor or against the following policies in [country] to reduce climate change?" "A law banning the sale of the least energy efficient household appliances". European Social Survey round 8, 2016.*

We have also performed ordinary multilevel ordered logit analysis on the data (see table 3) and we find that political trust is linked to support for two of the three policies (for taxes and legal instruments, but not for subsidies)[7]. The same does not hold true for institutional trust, however, where we find that institutional trust is positively correlated with all three climate policies (see Appendix D). The association with political trust is stronger for taxes (.14$^{***}$) than for legal instruments (.03$^{**}$), and the association with institutional trust is the strongest for taxes (0.08$^{***}$) compared to subsidies (0.05$^{***}$) and legal instruments (0.03$^{***}$). We find that generalized trust is linked to support for taxes (.04$^{***}$), but not to support for subsidies and legal instruments. This also holds true for the models

[7] We find no statistically significant association between political trust and support for subsidies in this analysis, but when running a tobit multilevel model (assuming that there may be ceiling effects considering the generally high levels of support for subsidies across countries – indicating skewness – see figure 1) it turns out significant.

with institutional trust. Introducing institutional quality into the model, we find that it is linked to support for taxes (.14***), but not to support for subsidies and legal instruments. The effect of QoG also holds when other country covariates are added to the model (see Appendix B). When institutional quality is introduced, there are no changes in the effect sizes or statistical significance of political trust and generalized trust.

We also find that people with stronger environmental values, higher education, high income and leftist orientations are more supportive of all instruments than people with weaker environmental values, lower education, low income and rightist orientations. Women are more supportive of taxes, and even more so of legal instruments, than men. Younger people ("15-29 years") are more supportive of taxes and subsidies than older people ("30-60 years", "61-105 years"), whereas older people are more supportive of legal instruments than younger people.

TABLE 3. SUPPORT FOR CLIMATE TAXES, CLIMATE SUBSIDIES, AND LEGAL CLIMATE INSTRUMENTS. MULTILEVEL ORDERED LOGIT ANALYSIS

| | **Taxes** | | **Subsidies** | | **Legal instruments** | |
|---|---|---|---|---|---|---|
| *Fixed effects* | | | | | | |
| *Level 1* | | | | | | |
| Generalized trust | 0.04*** | 0.04*** | 0.00 | 0.00 | 0.01 | 0.01 |
| | [0.02,0.07] | [0.02,0.07] | [-0.03,0.04] | [-0.03,0.04] | [-0.01,0.02] | [-0.01,0.02] |
| Political trust | 0.14*** | 0.14*** | 0.03 | 0.03 | 0.03** | 0.03** |
| | [0.12,0.16] | [0.12,0.16] | [-0.01,0.06] | [-0.01,0.06] | [0.01,0.06] | [0.01,0.05] |
| Environmental values | 0.18*** | 0.18*** | 0.31*** | 0.31*** | 0.31*** | 0.31*** |
| | [0.12,0.24] | [0.12,0.24] | [0.26,0.36] | [0.26,0.36] | [0.25,0.37] | [0.25,0.37] |
| Gender (female) | 0.07* | 0.07* | 0.03 | 0.03 | 0.15*** | 0.15*** |
| | [0.00,0.14] | [0.00,0.14] | [-0.05,0.11] | [-0.05,0.11] | [0.08,0.22] | [0.08,0.22] |
| Age[a] | | | | | | |
| "30-60 years" | -0.28*** | -0.28*** | -0.12* | -0.12* | 0.22*** | 0.22*** |
| | [-0.39,-0.17] | [-0.39,-0.17] | [-0.22,-0.01] | [-0.22,-0.01] | [0.16,0.27] | [0.16,0.27] |
| "61-105" years | -0.35*** | -0.35*** | -0.38*** | -0.38*** | 0.14** | 0.14** |
| | [-0.47,-0.22] | [-0.47,-0.22] | [-0.54,-0.22] | [-0.54,-0.22] | [0.04,0.23] | [0.04,0.23] |
| Education[b] | | | | | | |
| Secondary | 0.07 | 0.07 | 0.13** | 0.13** | 0.08* | 0.08* |
| | [-0.01,0.14] | [-0.00,0.14] | [0.05,0.22] | [0.05,0.22] | [0.01,0.16] | [0.01,0.16] |
| Tertiary | 0.35*** | 0.35*** | 0.33*** | 0.33*** | 0.19*** | 0.19*** |

| | | | | | | |
|---|---|---|---|---|---|---|
| | [0.24,0.45] | [0.24,0.45] | [0.23,0.43] | [0.23,0.43] | [0.11,0.26] | [0.11,0.26] |
| Income[c] | | | | | | |
| Middle income | 0.06 | 0.06 | 0.08 | 0.08 | 0.03 | 0.03 |
| | [-0.02,0.13] | [-0.02,0.13] | [-0.02,0.17] | [-0.02,0.17] | [-0.04,0.11] | [-0.04,0.11] |
| High income | 0.25*** | 0.25*** | 0.13* | 0.13* | 0.11* | 0.11* |
| | [0.13,0.36] | [0.13,0.36] | [0.01,0.25] | [0.01,0.25] | [0.00,0.22] | [0.00,0.22] |
| Left-right placement | -0.09*** | -0.09*** | -0.08*** | -0.08*** | -0.04*** | -0.04*** |
| | [-0.12,-0.07] | [-0.12,-0.07] | [-0.10,-0.05] | [-0.10,-0.05] | [-0.06,-0.03] | [-0.06,-0.03] |
| *Level 2* | | | | | | |
| Institutional quality | | 0.14*** | | 0.08 | | 0.03 |
| | | [0.06,0.22] | | [-0.06,0.21] | | [-0.06,0.13] |
| Cut 1 | -0.46** | 0.63 | -2.19*** | -1.59** | -0.96*** | -0.70* |
| | [-0.80,-0.13] | [-0.07,1.34] | [-2.65,-1.72] | [-2.70,-0.47] | [-1.26,-0.65] | [-1.39,-0.01] |
| Cut 2 | 0.93*** | 2.03*** | -0.97*** | -0.38 | 0.44** | 0.70 |
| | [0.57,1.30] | [1.29,2.77] | [-1.37,-0.57] | [-1.44,0.69] | [0.13,0.74] | [-0.03,1.42] |
| Cut 3 | 1.93*** | 3.03*** | -0.07 | 0.53 | 1.49*** | 1.75*** |
| | [1.58,2.29] | [2.28,3.78] | [-0.42,0.29] | [-0.55,1.61] | [1.21,1.77] | [1.01,2.50] |
| Cut 4 | 3.83*** | 4.92*** | 2.00*** | 2.59*** | 3.19*** | 3.46*** |
| | [3.39,4.26] | [4.10,5.74] | [1.57,2.42] | [1.50,3.69] | [2.84,3.55] | [2.71,4.20] |
| *Random effects* | | | | | | |
| Constant (variance) | 0.13** | 0.08*** | 0.27*** | 0.26** | 0.11*** | 0.11*** |
| | [0.04,0.22] | [0.03,0.12] | [0.12,0.43] | [0.08,0.43] | [0.07,0.16] | [0.07,0.15] |
| N (countries) | 22 | 22 | 22 | 22 | 22 | 22 |
| N (individuals) | 30358 | 30358 | 30621 | 30621 | 30506 | 30506 |

*Note: The effects reported are unstandardized. 95% confidence intervals in brackets. * $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$. a Reference category: "15-29 years", b Reference category: "Primary", c Reference category: "Low income". Source: European Social Survey Round 8 2016 and QoG Basic Cross-Section Data set 2018.*

To check whether the above results hold, we have also performed Bayesian multilevel ordered logit analysis (see table 4). The coefficients are similar to the ones we found in the ordinary multilevel analysis, although it should be noted that these coefficients represent posterior means with the "significance stars" representing MCSEs (i.e. the accuracy of the simulation results). The more decimal places, the more precise the estimated means are. Political trust is most strongly associated with support for taxes (0.14***) than with support for subsidies and legal instruments, and according to the credible interval the probability that the mean of political trust is between 0.13 and 0.15 is about 0.95. Political trust is also, to some extent, associated with support for subsidies (0.03***) and

legal instruments (0.04***), but the effect sizes are smaller. We can see that generalized trust is linked to support for taxes (0.04***), but it also appears to be linked to support for both subsidies (0.01***) and legal instruments (0.004***), although to a lesser extent, in contrast to the results in our previous analysis. However, the latter two coefficients are unstable since the credible intervals suggest that these associations could be either positive or negative. We find similar results when we include institutional trust instead of political trust in our models (see Appendix E).

Moreover, in this analysis, we find that institutional quality is most strongly linked to support for taxes (0.15***), but QoG also appears to be linked to support for subsidies (0.10*) and legal instruments (0.01**). However, both of the coefficients for subsidies and legal instruments are less precise than the coefficient for taxes, and the credible interval for the latter suggests that the association could go in either way. These results hold when other country covariates are included in the model (see Appendix C), as well as when institutional trust is included instead of political trust (see Appendix E). Looking at the random components for support for taxes, we can see that by including institutional quality in the model, we explain some of the variation in support for taxes across countries. We also note that there are no significant changes in the size or direction of the coefficients of political trust and social trust when QoG is included in the model. With regard to the individual-level controls, we find the same patterns as in the ordinary multilevel ordered logit analysis.

TABLE 4. SUPPORT FOR CLIMATE TAXES, CLIMATE SUBSIDIES, AND LEGAL CLIMATE INSTRUMENTS. BAYESIAN MULTILEVEL ORDERED LOGIT ESTIMATION

| | **Taxes** | | **Subsidies** | | **Legal instruments** | |
|---|---|---|---|---|---|---|
| *Fixed effects* | | | | | | |
| *Level 1* | | | | | | |
| Generalized trust | 0.05*** | 0.04*** | -0.01*** | 0.01*** | 0.002*** | 0.004*** |
| | [0.04,0.06] | [0.03,0.05] | [-0.01,0.02] | [-0.00,0.02] | [-0.01,0.01] | [-0.01,0.02] |
| Political trust | 0.14*** | 0.14*** | 0.03*** | 0.03*** | 0.04*** | 0.04*** |
| | [0.13,0.15] | [0.13,0.15] | [0.02,0.04] | [0.02,0.04] | [0.03,0.04] | [0.03,0.05] |
| Environmental values | 0.18** | 0.18*** | 0.31*** | 0.29*** | 0.32*** | 0.32** |
| | [0.06,0.13] | [0.16,0.20] | [0.30,0.33] | [0.28,0.32] | [0.30,0.33] | [0.30,0.34] |
| Gender (female) | 0.09** | 0.06*** | 0.04** | 0.02*** | 0.14** | 0.17** |
| | [0.06,0.13] | [0.03,0.09] | [-0.00,0.08] | [0.01,0.04] | [0.11,0.17] | [0.15,0.18] |
| Age[a] | | | | | | |
| "30-60 years" | -0.27** | -0.25** | -0.11** | -0.13** | 0.17*** | 0.19** |
| | [-0.30,-0.24] | [-0.29,-0.20] | [-0.16,-0.06] | [-0.15,-0.10] | [0.15,0.19] | [0.15,0.23] |

| | | | | | | |
|---|---|---|---|---|---|---|
| "61-105" years | -0.35** | -0.32** | -0.37** | -0.37** | 0.09** | 0.15** |
| | [-0.39,-0.32] | [-0.36,-0.28] | [-0.42,-0.32] | [-0.40,-0.35] | [0.06,0.13] | [0.10,0.21] |
| Education[b] | | | | | | |
| Secondary | 0.09** | 0.09** | 0.13** | 0.11** | 0.06** | 0.06** |
| | [0.03,0.14] | [0.07,0.12] | [0.07,0.18] | [0.07,0.15] | [0.03,0.09] | [0.02,0.11] |
| Tertiary | 0.36*** | 0.35*** | 0.31** | 0.29** | 0.14** | 0.13** |
| | [0.32,0.40] | [0.24,0.45] | [0.26,0.35] | [0.26,0.32] | [0.11,0.18] | [0.10,0.16] |
| Income[c] | | | | | | |
| Middle income | 0.05** | 0.04** | 0.08** | 0.05** | 0.08** | 0.04** |
| | [0.01,0.08] | [-0.00,0.07] | [0.06,0.10] | [0.02,0.08] | [0.04,0.12] | [0.02,0.06] |
| High income | 0.24** | 0.20** | 0.15** | 0.13** | 0.18** | 0.15*** |
| | [0.20,0.26] | [0.19,0.22] | [0.10,0.19] | [0.09,0.18] | [0.14,0.21] | [0.13,0.17] |
| Left-right placement | -0.09*** | -0.09*** | -0.07*** | -0.07*** | -0.05*** | -0.05*** |
| | [-0.10,-0.08] | [-0.10,-0.08] | [-0.08,-0.06] | [-0.08,-0.06] | [-0.06,-0.04] | [-0.06,-0.04] |
| *Level 2* | | | | | | |
| Institutional quality | | 0.15** | | 0.10* | | 0.01** |
| | | [0.11,0.18] | | [0.03,0.17] | | [-0.00,0.03] |
| Cut 1 | -0.45* | 0.72* | -2.05* | -1.40 | -1.02* | -0.88* |
| | [-0.64,-0.28] | [0.46,0.90] | [-2.25,-1.83] | [-1.99,-0.91] | [-1.18,-0.88] | [-1.12,-0.57] |
| Cut 2 | 0.93* | 2.10* | -0.88* | -0.23 | 0.35* | 0.49* |
| | [0.75,1.10] | [1.84,2.29] | [-1.10,-0.67] | [-0.82,0.23] | [0.19,0.49] | [0.27,0.80] |
| Cut 3 | 1.94* | 3.09* | 0.02* | 0.67 | 1.40* | 1.54* |
| | [1.74,2.11] | [2.84,3.29] | [-0.20,0.24] | [0.09,1.12] | [1.25,1.54] | [1.32,1.86] |
| Cut 4 | 3.83* | 4.99* | 2.07* | 2.71 | 3.09* | 3.24* |
| | [3.63,4.01] | [4.73,5.18] | [1.86,2.28] | [2.13,3.16] | [2.93,3.22] | [3.01,3.56] |
| *Random effects* | | | | | | |
| Constant (variance) | 0.15** | 0.09*** | 0.31** | 0.30** | 0.13*** | 0.13** |
| | [0.08,0.26] | [0.05,0.19] | [0.16,0.59] | [0.16,0.54] | [0.07,0.24] | [0.07,0.24] |
| DIC | 89997.62 | 89992.83 | 75495.05 | 75493.47 | 87946.25 | 87944.35 |
| N (countries) | 22 | 22 | 22 | 22 | 22 | 22 |
| N (individuals) | 30358 | 30358 | 30621 | 30621 | 30506 | 30506 |

*Note: The effects reported are unstandardized. 95% credibility intervals in brackets. * MCSE < 0.05, ** MCSE < 0.01, *** MCSE < 0.001. a Reference category: "15-29 years", b Reference category: "Primary", c Reference category: "Low income". Source: European Social Survey Round 8 2016 and QoG Basic Cross-Section Data set 2018.*

## Analysis

Based on the results, we can now provide answers to our research questions. First of all, we find that there is a link between institutional quality and support for at least *one* of the climate policy instruments. We see a significant positive link between institutional quality (i.e. QoG) and support for *climate taxes*, but not for *climate subsidies* and *climate bans* in our ordinary multilevel analysis. In our Bayesian multilevel analysis, we find that QoG is most strongly linked to support for climate taxes, but there is also evidence of a positive link between QoG and support for climate subsidies and climate bans, but these associations are less precise and more unstable, in particular with regards to climate bans. Specifically, individuals living in high-QoG countries are more likely to support climate taxes compared to individuals living in low-QoG countries. This could be explained as people living in countries with low levels of QoG, and trust in implementing authorities and political institutions as well as in other people, are less likely to support higher climate taxes because they expect that tax revenues will be wasted or stolen due to corruption, or even believe that the tax system has been designed with loopholes allowing for tax evasion or unfair tax loadings (Fairbrother, 2016).

Although people may support climate taxes because they care about climate change, they could be averse towards them by being *even more* eager not to provide corrupt, inefficient and untrustworthy institutions with additional financial resources (in the form of tax revenues) that can end up being used for climate destructive rather than climate protective purposes. We could expect that the same would hold for climate subsidies, since subsidies also need to be financed through tax revenues, that is, people would not be supportive of a subsidy if they have good reasons to believe that their tax money would provide for subsidies to people that are not entitled to them, but this is not supported by our data. That we do not find a similar effect for subsidies as we do for taxes is somewhat surprising, because in a corrupt state there is a high risk that the state will provide subsidies to citizens that are not entitled to them. Our findings, to some extent, also question previous research findings (e.g. Harring, 2016) saying that people prefer punishing tools in corrupt contexts and rewarding tools in less corrupt contexts.

One potential explanation for why we do not find a significant variation in support for climate subsidies between corrupt and less corrupt contexts is that paying higher taxes for one's polluting activities implies a direct cost to citizens, while subsidies where the state provides benefits to people who engage in climate friendly activities imply indirect costs. That is, the state providing subsidies to citizens that are not entitled to them may be perceived as less damaging to people than the direct

inappropriate handling of tax revenues from an imposed climate tax. In a sense, making the link between indirect costs for financing subsidies and tax revenues being wasted through inefficiency and corrupt activities by state authorities demands more cognitive efforts on the part of citizens. Understanding why people are not less supportive of subsidies in low-QoG countries, and before that making sure that this is also the case in other datasets using other measurements, needs further empirical investigation.

We also find that the effect of trust on support varies between different policy instruments. The results show that there are stronger links between trust, both political and institutional trust and generalized trust, and support for taxes than between trust and support for subsidies and legal instruments. In fact, we find no statistically significant link between generalized trust and support for subsidies and legal instruments in our ordinary multilevel analysis. People in countries with low institutional quality and low generalized trust are not more likely to be supportive of legal instruments than people in countries with high institutional quality and high generalized trust. That our results, to some extent, deviate from findings in existing research (e.g. Aghion et al., 2010; Harring, 2016; Di Tella & MacCulloch, 2009), showing that there is a link between distrust and support for state intervention in general and for punishing and legal instruments in particular, could, for example, be due to different samples. Some previous studies have used samples including countries with higher corruption levels compared to the countries included in our sample. Furthermore, some of the previous studies have forced respondents to choose between different kinds of climate policies, making it hard to distinguish between support for one policy from aversion towards another policy.

## Concluding remarks

Based on the collective action dilemma of climate change mitigation individuals are unlikely to change their consumption patterns voluntarily to help reduce greenhouse gas emissions. Therefore, governments, in order to reach their targets from the Paris agreements will have to impose policies to force or encourage collective action among individuals, and other actors, to change their climate destructive behavior. It is a task for future research to study which countries that will be successful in the transformation to a climate neutral society. However, there is plenty of evidence suggesting that enforcement of collective action through state intervention is more likely to be successful and effective if it is supported by the citizenry. Without sufficient support, climate policies might not even be implemented in the first place. From the findings in this paper, we can conclude that there is some variation in public support for different types of climate policies across countries. The least

appreciated policy in our dataset are climate taxes, for which we also see the largest variation in support between countries. It is also the policy that is most strongly linked to political trust and, possibly, the only policy – of the three policies that we studied (taxes, subsidies, and bans) – that is linked to institutional quality (QoG). This is an interesting finding since green taxes are often promoted by both academics and policy makers as efficient and fair policy instruments that can significantly enhance environmental protection and pro-climate efforts.

One obvious short-coming with our study is that we only have 22 countries in our analysis, which means that our ordinary multilevel analysis estimates could be slightly biased, even if this bias should be limited. Therefore, the effects of the contextual factor, institutional quality, in this multilevel analysis should be interpreted cautiously. Moreover, we could not control for other country variates, such as economic inequality and development in this analysis. On the other hand, the results at the individual level are based on about 30000 individuals, and we did also perform Bayesian multilevel models, providing unbiased estimates even with small sample sizes, to check the robustness of our results. In these models, the effect of institutional quality holds when other country-level covariates are controlled for. However, the estimations of the links between QoG and trust with climate subsidies and climate bans respectively are uncertain. Exploring our two research questions on other datasets, with larger samples of countries, and using a multilevel modelling approach, would allow for inclusion of both individual and several other country-level variates in the same models. Trust, as the suggested link between institutional quality and climate policy support, also needs further exploration as introducing QoG in our models did not change the effect sizes or statistical significance of our trust variables (i.e. social, political and institutional trust). We encourage scholars to further explore the relationships between institutional quality, trust and support for climate policies, to better understand how to create and successfully implement policy instruments that enjoy and require a sufficient amount of public support.

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# APPENDIX

## Appendix A. Descriptive statistics

| Variable | Construct | Mean | Min | Max | Standard deviation |
|---|---|---|---|---|---|
| Support for taxes (*inctxff*) | "To what extent are you in favor or against the following policies in (country) to reduce climate change"? "Increasing taxes on fossil fuels, such as oil, gas and coal" "Strongly against", "Somewhat against", Neither in favor nor against", "Somewhat in favor", "Strongly in favor" (reversed scale) | 2.82 | 1 | 5 | 1.22 |
| Support for subsidies (*sbsrnen*) | "Using public money to subsidise renewable energy such as wind and solar power" "Strongly against", "Somewhat against", Neither in favor nor against", "Somewhat in favor", "Strongly in favor" (reversed scale) | 3.92 | 1 | 5 | 1.06 |
| Support for legal instruments (*banhhap)* | "A law banning the sale of the least energy efficient household appliances" "Strongly against", "Somewhat against", Neither in favor nor against", "Somewhat in favor", "Strongly in favor" (reversed scale) | 3.52 | 1 | 5 | 1.18 |
| Political trust (*trstprl+trstplt+ trstprt*) | Please tell me on a score of 0-10 how much you personally trust each of the institutions I read out. "Parliament", "Politicians", "Political parties" (3 item index, α= 0.91) | 4.93 | 0 | 10 | 2.03 |
| Institutional trust (*trstlgl+ trstplc*) | Please tell me on a score of 0-10 how much you personally trust each of the institutions I read out. "The legal system", "The police" (2 item index, α= 0.76) | | | | |
| Generalized trust (*ppltrst+pplfair+pplhlp*) | "Generally speaking, would you say that most people can be trusted, or that you can't be too careful in dealing with people?" "You can't be too careful", "Most people can be trusted" "Do you think that most people would try to take advantage of you if they got the chance, or would they try to be fair?" "Most people try to take advantage of me", "Most people try to be fair" "Would you say that most of the time people try to be helpful or that they are mostly looking out for themselves?" "People mostly look out for themselves", "People mostly try to be helpful" (3 item index, α= 0.75) | 5.62 | 0 | 10 | 1.82 |
| Ideology/ left-right placement (*lrscale*) | "In politics people sometimes talk of "left" and "right". Using this card, where would you place yourself on this scale, where 0 means the left and 10 means the right?" | 5.17 | 0 | 10 | 2.20 |

| | | | | | |
|---|---|---|---|---|---|
| Environmental values (*impenv*) | "Tell me how much each person is or is not like you. She/he strongly believes that people should care for nature. Looking after the environment is important to her/him"<br>"Not like me at all", "Not like me", "A little like me", "Somewhat like me", "Like me", "Very much like me" (reversed scale) | 4.81 | 1 | 6 | 1.05 |
| Gender (*gndr*) | "Male", "Female" (recoded) | | 0 | 1 | |
| Age (*agea*) | "15-29", "30-60", "61-105" (recoded) | | 0 | 2 | |
| Household income (*hinctnta*) | "Low income", "Middle income", "High income" (recoded) | | 1 | 3 | |
| Education (*eisced*) | "Primary", "Secondary", "Tertiary" (recoded) | | 0 | 2 | |
| Institutional quality (*icrg_qog*) | International Country Risk Guide (ICRG) index (rescaled) | 8.03 | 0 | 10 | 1.69 |
| Economic development (*gle_rgdpc*) | Real GDP per capita (log transformed) | 10.25 | 5.66 | 11.47 | 937 |
| Economic inequality (*wdi_gini*) | Gini Index<br>World Bank estimate | 31.54 | 1 | 100 | 4.66 |

*Data sources: European Social Survey Round 8 2016 and QoG Basic Cross-Section Data set 2018.*

## Appendix B. Support for climate taxes. Multilevel ordered logit analysis. Models with country variates

| DV: Climate tax support | Model 1 | Model 2 | Model 3 | Model 4 |
|---|---|---|---|---|
| *Fixed effects* | | | | |
| *Level 1* | | | | |
| Generalized trust | 0.04*** | 0.04*** | 0.04*** | 0.04*** |
| | [0.02,0.07] | [0.02,0.07] | [0.02,0.07] | [0.02,0.07] |
| Political trust | 0.14*** | 0.14*** | 0.14*** | 0.14*** |
| | [0.12,0.16] | [0.12,0.16] | [0.12,0.16] | [0.12,0.16] |
| Environmental values | 0.18*** | 0.18*** | 0.18*** | 0.18*** |
| | [0.12,0.24] | [0.12,0.24] | [0.12,0.24] | [0.12,0.24] |
| Gender (female) | 0.07* | 0.07* | 0.07* | 0.07* |
| | [0.00,0.14] | [0.00,0.14] | [0.00,0.14] | [0.00,0.14] |
| Age[a] | | | | |
| "30-60 years" | -0.28*** | -0.28*** | -0.28*** | -0.28*** |
| | [-0.39,-0.17] | [-0.39,-0.17] | [-0.39,-0.17] | [-0.39,-0.17] |
| "61-105" years | -0.35*** | -0.35*** | -0.35*** | -0.35*** |
| | [-0.47,-0.22] | [-0.47,-0.22] | [-0.47,-0.22] | [-0.47,-0.22] |
| Education[b] | | | | |
| Secondary | 0.07 | 0.07 | 0.07 | 0.07 |
| | [-0.01,0.14] | [-0.00,0.14] | [-0.00,0.14] | [-0.00,0.14] |
| Tertiary | 0.35*** | 0.35*** | 0.35*** | 0.35*** |
| | [0.24,0.45] | [0.24,0.45] | [0.24,0.45] | [0.24,0.45] |
| Income[c] | | | | |
| Middle income | 0.06 | 0.06 | 0.06 | 0.06 |
| | [-0.02,0.13] | [-0.02,0.13] | [-0.02,0.13] | [-0.02,0.13] |
| High income | 0.25*** | 0.25*** | 0.25*** | 0.25*** |
| | [0.13,0.36] | [0.13,0.36] | [0.13,0.36] | [0.13,0.36] |
| Left-right placement | -0.09*** | -0.09*** | -0.09*** | -0.09*** |
| | [-0.12,-0.07] | [-0.12,-0.07] | [-0.12,-0.07] | [-0.12,-0.07] |
| *Level 2* | | | | |
| Economic inequality | -0.04* | -0.03 | -0.02 | -0.02 |
| | [-0.07,-0.01] | [-0.06,0.00] | [-0.04,0.01] | [-0.04,0.01] |
| Economic development | | 0.39* | | -0.00 |
| | | [0.04,0.74] | | [-0.51,0.50] |
| Institutional quality | | | 0.12** | 0.12 |

| | | | | |
|---|---|---|---|---|
| | | | [0.04,0.20] | [-0.00,0.24] |
| Cut 1 | -1.71*** | 2.65 | -0.03 | -0.05 |
| | [-2.70,-0.73] | [-1.33,6.64] | [-1.03,0.96] | [-4.76,4.65] |
| Cut 2 | -0.32 | 4.05* | 1.36** | 1.34 |
| | [-1.27,0.64] | [0.07,8.03] | [0.38,2.35] | [-3.38,6.07] |
| Cut 3 | 0.68 | 5.05* | 2.36*** | 2.34 |
| | [-0.24,1.61] | [1.05,9.06] | [1.37,3.35] | [-2.40,7.09] |
| Cut 4 | 2.57*** | 6.94*** | 4.25*** | 4.23 |
| | [1.68,3.47] | [2.95,10.93] | [3.26,5.25] | [-0.49,8.95] |
| *Random effects* | | | | |
| Constant (variance) | 0.10*** | 0.08** | 0.07*** | 0.07*** |
| | [0.04,0.15] | [0.03,0.13] | [0.03,0.11] | [0.03,0.11] |
| N (countries) | 22 | 22 | 22 | 22 |
| N (individuals) | 30358 | 30358 | 30358 | 30358 |

*Note: The effects reported are unstandardized. 95% confidence intervals in brackets. * p < 0.05, ** p < 0.01, *** p < 0.001. a Reference category: "15-29 years", b Reference category: "Primary", c Reference category: "Low income". Source: European Social Survey Round 8 2016 and QoG Basic Cross-Section Data set 2018.*

## Appendix C. Support for climate taxes, climate subsidies, and legal climate instruments. Bayesian multilevel ordered logit estimation. Models with country covariates

| | Taxes | | Subsidies | | Legal instruments | |
|---|---|---|---|---|---|---|
| *Fixed effects* | | | | | | |
| *Level 1* | | | | | | |
| Generalized trust | 0.04*** | 0.04** | 0.01*** | 0.01*** | 0.004*** | 0.003*** |
| | [0.03,0.05] | [0.03,0.05] | [-0.00,0.02] | [-0.00,0.02] | [-0.01,0.02] | [-0.01,0.01] |
| Political trust | 0.14*** | 0.14*** | 0.03*** | 0.03** | 0.04*** | 0.04*** |
| | [0.13,0.15] | [0.13,0.15] | [0.02,0.04] | [0.01,0.04] | [0.03,0.05] | [0.03,0.05] |
| Environmental values | 0.18*** | 0.17** | 0.29*** | 0.30*** | 0.32** | 0.32*** |
| | [0.16,0.20] | [0.15,0.18] | [0.28,0.32] | [0.29,0.32] | [0.30,0.34] | [0.31,0.33] |
| Gender (female) | 0.06*** | 0.06*** | 0.02*** | 0.04** | 0.17** | 0.17** |
| | [0.03,0.09] | [0.05,0.06] | [0.01,0.04] | [0.02,0.05] | [0.15,0.18] | [0.15,0.18] |
| Age[a] | | | | | | |
| "30-60 years" | -0.25** | -0.23** | -0.13** | -0.09** | 0.19** | 0.17** |
| | [-0.29,-0.20] | [-0.26,-0.21] | [-0.15,-0.10] | [-0.11,-0.07] | [0.15,0.23] | [0.14,0.19] |
| "61-105" years | -0.32** | -0.29** | -0.37** | -0.36** | 0.15** | 0.09** |
| | [-0.36,-0.28] | [-0.31,-0.26] | [-0.40,-0.35] | [-0.39,-0.32] | [0.10,0.21] | [0.14,0.19] |
| Education[b] | | | | | | |
| Secondary | 0.09** | 0.06** | 0.11** | 0.12** | 0.06** | 0.06*** |
| | [0.07,0.12] | [0.03,0.09] | [0.07,0.15] | [0.10,0.15] | [0.02,0.11] | [0.04,0.09] |
| Tertiary | 0.35*** | 0.34** | 0.29** | 0.28** | 0.13** | 0.14*** |
| | [0.24,0.45] | [0.29,0.39] | [0.26,0.32] | [0.25,0.30] | [0.10,0.16] | [0.13,0.16] |
| Income[c] | | | | | | |
| Middle income | 0.04** | 0.04** | 0.05** | 0.07** | 0.04** | 0.02** |
| | [-0.00,0.07] | [0.03,0.06] | [0.02,0.08] | [0.05,0.09] | [0.02,0.06] | [0.01,0.03] |
| High income | 0.20** | 0.24** | 0.13** | 0.11** | 0.15*** | 0.12*** |
| | [0.19,0.22] | [0.19,0.28] | [0.09,0.18] | [0.08,0.14] | [0.13,0.17] | [0.11,0.14] |
| Left-right placement | -0.09*** | -0.09*** | -0.07*** | -0.07*** | -0.05*** | -0.05*** |
| | [-0.10,-0.08] | [-0.10,-0.09] | [-0.08,-0.06] | [-0.08,-0.06] | [-0.06,-0.04] | [-0.06,-0.04] |
| *Level 2* | | | | | | |
| Institutional quality | 0.15** | 0.11*** | 0.10* | 0.10** | 0.01** | 0.02** |
| | [0.11,0.18] | [0.11,0.12] | [0.03,0.17] | [0.07,0.12] | [-0.00,0.03] | [0.01,0.04] |

| | | | | | | |
|---|---|---|---|---|---|---|
| Economic inequality | | -0.01*** | | 0.004*** | | 0.02*** |
| | | [-0.02,0.00] | | [-0.01,0.01] | | [0.01,0.02] |
| Economic development | | -0.11** | | -0.07** | | 0.35** |
| | | [-0.13,-0.10] | | [-0.10,-0.04] | | [0.33,0.36] |
| Cut 1 | 0.72* | -1.04* | -1.40 | -1.93* | -0.88* | 3.26* |
| | [0.46,0.90] | [-1.27,-0.83] | [-1.99,-0.91] | [-2.26,-1.72] | [-1.12,-0.57] | [3.08,3.50] |
| Cut 2 | 2.10* | 0.34* | -0.23 | -0.77* | 0.49* | 4.62* |
| | [1.84,2.29] | [0.11,0.55] | [-0.82,0.23] | [-1.09,-0.55] | [0.27,0.80] | [4.44,4.86] |
| Cut 3 | 3.09* | 1.34* | 0.67 | 0.14* | 1.54* | 5.67* |
| | [2.84,3.29] | [1.11,1.55] | [0.09,1.12] | [-0.18,0.35] | [1.32,1.86] | [5.49,5.91] |
| Cut 4 | 4.99* | 3.23* | 2.71 | 2.17* | 3.24* | 7.36* |
| | [4.73,5.18] | [3.00,3.44] | [2.13,3.16] | [1.87,2.39] | [3.01,3.56] | [7.18,7.61] |
| *Random effects* | | | | | | |
| Constant (variance) | 0.09*** | 0.09*** | 0.30** | 0.29** | 0.13** | 0.12*** |
| | [0.05,0.19] | [0.05,0.16] | [0.16,0.54] | [0.15,0.53] | [0.07,0.24] | [0.07,0.23] |
| DIC | 89992.83 | 89992.83 | 75493.47 | 75493.47 | 87944.35 | 87944.35 |
| N (countries) | 22 | 22 | 22 | 22 | 22 | 22 |
| N (individuals) | 30358 | 30358 | 30621 | 30621 | 30506 | 30506 |

*Note: The effects reported are unstandardized. 95% credibility intervals in brackets. * MCSE < 0.05, ** MCSE < 0.01, *** MCSE < 0.001. a Reference category: "15-29 years", b Reference category: "Primary", c Reference category: "Low income". Source: European Social Survey Round 8 2016 and QoG Basic Cross-Section Data set 2018.*

## Appendix D. Support for climate taxes, climate subsidies, and legal climate instruments. Multilevel ordered logit analysis. Models with institutional trust

| | Taxes | | Subsidies | | Legal instruments | |
|---|---|---|---|---|---|---|
| *Fixed effects* | | | | | | |
| *Level 1* | | | | | | |
| Generalized trust | 0.07*** | 0.07*** | -0.00 | -0.00 | 0.01 | 0.01 |
| | [0.04,0.09] | [0.04,0.09] | [-0.03,0.03] | [-0.03,0.03] | [-0.00,0.02] | [-0.00,0.02] |
| Institutional trust | 0.08*** | 0.08*** | 0.05*** | 0.05*** | 0.03*** | 0.03*** |
| | [0.05,0.11] | [0.05,0.11] | [0.02,0.07] | [0.02,0.07] | [0.02,0.04] | [0.02,0.04] |
| Environmental values | 0.17*** | 0.17*** | 0.31*** | 0.31*** | 0.31*** | 0.31*** |
| | [0.11,0.24] | [0.11,0.24] | [0.26,0.36] | [0.26,0.36] | [0.25,0.37] | [0.25,0.37] |
| Gender (female) | 0.07 | 0.07 | 0.03 | 0.03 | 0.15*** | 0.15*** |
| | [-0.00,0.14] | [-0.00,0.14] | [-0.05,0.11] | [-0.05,0.11] | [0.08,0.22] | [0.08,0.22] |
| Age[a] | | | | | | |
| "30-60 years" | -0.31*** | -0.31*** | -0.12* | -0.12* | 0.21*** | 0.21*** |
| | [-0.42,-0.20] | [-0.43,-0.20] | [-0.22,-0.01] | [-0.22,-0.01] | [0.15,0.27] | [0.15,0.27] |
| "61-105" years | -0.37*** | -0.37*** | -0.38*** | -0.38*** | 0.13** | 0.13** |
| | [-0.49,-0.24] | [-0.49,-0.24] | [-0.53,-0.22] | [-0.53,-0.22] | [0.03,0.23] | [0.03,0.23] |
| Education[b] | | | | | | |
| Secondary | 0.06 | 0.06 | 0.14*** | 0.14*** | 0.08* | 0.08* |
| | [-0.01,0.14] | [-0.01,0.14] | [0.06,0.22] | [0.06,0.22] | [0.01,0.16] | [0.01,0.16] |
| Tertiary | 0.35*** | 0.36*** | 0.33*** | 0.33*** | 0.19*** | 0.19*** |
| | [0.24,0.46] | [0.25,0.47] | [0.23,0.42] | [0.23,0.42] | [0.12,0.26] | [0.12,0.26] |
| Income[c] | | | | | | |
| Middle income | 0.07 | 0.07 | 0.07 | 0.07 | 0.04 | 0.04 |
| | [-0.01,0.15] | [-0.01,0.14] | [-0.02,0.17] | [-0.02,0.16] | [-0.04,0.11] | [-0.04,0.11] |
| High income | 0.25*** | 0.25*** | 0.12* | 0.12* | 0.11* | 0.11* |
| | [0.13,0.37] | [0.13,0.37] | [0.00,0.24] | [0.00,0.24] | [0.00,0.22] | [0.00,0.22] |
| Left-right placement | -0.09*** | -0.09*** | -0.08*** | -0.08*** | -0.04*** | -0.04*** |
| | [-0.11,-0.06] | [-0.11,-0.06] | [-0.10,-0.05] | [-0.10,-0.05] | [-0.06,-0.03] | [-0.06,-0.03] |
| *Level 2* | | | | | | |
| Institutional quality | | 0.14** | | 0.07 | | 0.03 |
| | | [0.05,0.24] | | [-0.06,0.20] | | [-0.06,0.13] |
| Cut 1 | -0.39* | 0.74 | -2.06*** | -1.51** | -0.92*** | -0.66* |

| | | | | | | |
|---|---|---|---|---|---|---|
| | [-0.78,-0.00] | [-0.13,1.61] | [-2.51,-1.60] | [-2.61,-0.42] | [-1.23,-0.61] | [-1.32,-0.00] |
| Cut 2 | 0.99*** | 2.12*** | -0.84*** | -0.30 | 0.48** | 0.73* |
| | [0.57,1.42] | [1.21,3.03] | [-1.24,-0.44] | [-1.34,0.74] | [0.16,0.79] | [0.03,1.43] |
| Cut 3 | 1.99*** | 3.11*** | 0.07 | 0.61 | 1.53*** | 1.79*** |
| | [1.56,2.41] | [2.20,4.03] | [-0.29,0.43] | [-0.45,1.67] | [1.24,1.83] | [1.07,2.50] |
| Cut 4 | 3.87*** | 5.00*** | 2.13*** | 2.67*** | 3.24*** | 3.49*** |
| | [3.36,4.37] | [4.02,5.97] | [1.70,2.56] | [1.60,3.75] | [2.87,3.60] | [2.77,4.21] |
| *Random effects* | | | | | | |
| Constant (variance) | 0.15** | 0.09*** | 0.27*** | 0.26** | 0.11*** | 0.11*** |
| | [0.05,0.24] | [0.04,0.14] | [0.12,0.43] | [0.08,0.43] | [0.07,0.16] | [0.07,0.15] |
| N (countries) | 22 | 22 | 22 | 22 | 22 | 22 |
| N (individuals) | 30371 | 30371 | 30635 | 30635 | 30521 | 30521 |

*Note: The effects reported are unstandardized. 95% confidence intervals in brackets. * $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$. a Reference category: "15-29 years", b Reference category: "Primary", c Reference category: "Low income". Source: European Social Survey Round 8 2016 and QoG Basic Cross-Section Data set 2018.*

## Appendix E. Support for climate taxes, climate subsidies, and legal climate instruments. Bayesian multilevel ordered logit estimation. Models with institutional trust

| | Taxes | | Subsidies | | Legal instruments | |
|---|---|---|---|---|---|---|
| *Fixed effects* | | | | | | |
| *Level 1* | | | | | | |
| Generalized trust | 0.07*** | 0.07*** | 0.001*** | -0.003*** | 0.01*** | 0.01*** |
| | [0.05,0.08] | [0.06,0.08] | [-0.01,0.01] | [-0.01,0.01] | [-0.00,0.02] | [0.00,0.03] |
| Institutional trust | 0.08*** | 0.08*** | 0.05*** | 0.05*** | 0.03*** | 0.03*** |
| | [0.07,0.09] | [0.07,0.09] | [0.04,0.06] | [0.04,0.06] | [0.02,0.04] | [0.02,0.04] |
| Environmental values | 0.16*** | 0.17*** | 0.30** | 0.32*** | 0.30*** | 0.32*** |
| | [0.15,0.18] | [0.15,0.19] | [0.28,0.32] | [0.31,0.33] | [0.29,0.32] | [0.30,0.34] |
| Gender (female) | 0.07** | 0.06** | 0.02** | 0.02*** | 0.15** | 0.14** |
| | [0.05,0.10] | [0.03,0.08] | [-0.02,0.04] | [0.01,0.03] | [0.12,0.19] | [0.12,0.16] |
| Age[a] | | | | | | |
| "30-60 years" | -0.32** | -0.32** | -0.10** | -0.09** | 0.18** | 0.18** |
| | [-0.35,-0.29] | [-0.34,-0.29] | [-0.13,-0.06] | [-0.10,-0.08] | [0.14,0.22] | [0.15,0.21] |
| "61-105" years | -0.36*** | -0.36** | -0.35** | -0.36** | 0.11** | 0.08** |
| | [-0.37,-0.35] | [-0.39,-0.33] | [-0.37,-0.33] | [-0.38,-0.33] | [0.06,0.16] | [0.06,0.11] |
| Education[b] | | | | | | |
| Secondary | 0.08** | 0.09** | 0.14*** | 0.18*** | 0.08** | 0.10*** |
| | [0.03,0.12] | [0.07,0.11] | [0.12,0.15] | [0.18,0.19] | [0.03,0.12] | [0.08,0.11] |
| Tertiary | 0.39*** | 0.43** | 0.28** | 0.28** | 0.17** | 0.14*** |
| | [0.36,0.42] | [0.42,0.45] | [0.25,0.30] | [0.25,0.30] | [0.12,0.21] | [0.13,0.15] |
| Income[c] | | | | | | |
| Middle income | 0.06** | 0.05** | 0.08** | 0.10** | 0.04** | 0.05*** |
| | [0.04,0.09] | [0.02,0.07] | [0.05,0.11] | [0.07,0.14] | [0.01,0.07] | [0.04,0.07] |
| High income | 0.23** | 0.21*** | 0.15** | 0.17** | 0.15** | 0.17*** |
| | [0.21,0.26] | [0.19,0.22] | [0.11,0.19] | [0.15,0.20] | [0.12,0.18] | [0.16,0.18] |
| Left-right placement | -0.09*** | -0.08*** | -0.07*** | -0.07*** | -0.05*** | -0.04*** |
| | [-0.10,-0.08] | [-0.09,-0.07] | [-0.08,-0.06] | [-0.08,-0.06] | [-0.05,-0.04] | [-0.05,-0.03] |
| *Level 2* | | | | | | |
| Institutional quality | 0.17** | 0.10*** | 0.11** | 0.09** | 0.04*** | 0.02** |
| | [0.15,0.19] | [0.08,0.11] | [0.08,0.15] | [0.07,0.11] | [0.02,0.05] | [-0.00,0.05] |
| Economic inequality | | -0.01*** | | -0.03** | | 0.01*** |

| | | | | | | |
|---|---|---|---|---|---|---|
| | | [-0.02,0.00] | | [-0.04,-0.02] | | [0.00,0.01] |
| Economic development | | 0.02*** | | 0.01** | | 0.36*** |
| | | [0.00,0.04] | | [0.00,0.03] | | [0.34,0.37] |
| Cut 1 | 0.99* | 0.36* | -1.21* | -1.95* | -0.67* | 3.23* |
| | [0.81,1.18] | [0.17,0.67] | [-1.47,-1.00] | [-2.15,-1.76] | [-0.81,-0.50] | [3.03,3.44] |
| Cut 2 | 2.35* | 1.73* | -0.04* | -0.78* | 0.69* | 4.59* |
| | [2.18,2.55] | [1.54,2.05] | [-0.29,0.17] | [-0.97,-0.60] | [0.56,0.86] | [4.40,4.80] |
| Cut 3 | 3.35* | 2.73* | 0.87* | 0.13* | 1.74* | 5.65* |
| | [3.18,3.55] | [2.53,3.04] | [0.60,1.07] | [-0.07,0.31] | [1.61,1.91] | [5.45,5.85] |
| Cut 4 | 5.23* | 4.61* | 2.91* | 2.17* | 3.43* | 7.34* |
| | [5.06,5.44] | [4.42,4.94] | [2.64,3.12] | [1.97,2.36] | [3.30,3.59] | [7.13,7.54] |
| *Random effects* | | | | | | |
| Constant (variance) | 0.11*** | 0.11** | 0.30** | 0.29** | 0.12** | 0.12*** |
| | [0.06,0.21] | [0.06,0.21] | [0.16,0.56] | [0.15,0.55] | [0.07,0.23] | [0.06,0.23] |
| DIC | 89992.83 | 89992.83 | 75493.47 | 75493.47 | 87944.35 | 87944.35 |
| N (countries) | 22 | 22 | 22 | 22 | 22 | 22 |
| N (individuals) | 30371 | 30371 | 30635 | 30635 | 30521 | 30521 |

*Note: The effects reported are unstandardized. 95% credibility intervals in brackets. * MCSE < 0.05, ** MCSE < 0.01, *** MCSE < 0.001. a Reference category: "15-29 years", b Reference category: "Primary", c Reference category: "Low income". Source: European Social Survey Round 8 2016 and QoG Basic Cross-Section Data set 2018.*

# Appendix F. Principal component analysis

**Variable list:**
trust in parliament (*trstprl*)
trust in politicians (*trstplt*)
trust in political parties (*trstprt*)
trust in the legal system (*trstlgl*)
trust in the police (*trstplc*)
trust in the European parliament (*trstep*)
trust in the United nations (*trstun*)

TABLE. CORRELATIONS BETWEEN SEVEN POLITICAL AND INSTITUTIONAL TRUST ITEMS

| n=38,849 | trstprl | trstlgl | trstplc | trsplt | trstprt | trstep | trstun |
|---|---|---|---|---|---|---|---|
| trstprl | 1.0000 | | | | | | |
| trstlgl | 0.6543 | 1.0000 | | | | | |
| trstplc | 0.4740 | 0.6196 | 1.0000 | | | | |
| trstplt | 0.7411 | 0.5963 | 0.4533 | 1.0000 | | | |
| trstprt | 0.7158 | 0.5720 | 0.4279 | 0.8770 | 1.0000 | | |
| trstprt | 0.5459 | 0.4987 | 0.4054 | 0.5780 | 0.5834 | 1.0000 | |
| trstun | 0.5017 | 0.4791 | 0.4304 | 0.4977 | 0.5029 | 0.7282 | 1.0000 |

*Note: the table shows correlation coefficients for seven political and institutional trust items.*

TABLE. PRINCIPAL COMPONENTS, VARIMAX ROTATION

| | Comp 1 | Comp 2 | Comp 3 | Unexplained |
|---|---|---|---|---|
| trstprl | 0.4801 | | | .223 |
| trstlgl | | | 0.5514 | .2197 |
| trstplc | | | 0.8160 | .117 |
| trstplt | 0.5990 | | | .1004 |
| trstprt | 0.6001 | | | .1116 |
| trstep | | 0.6691 | | .1424 |
| trstun | | 0.7425 | | .1161 |

*Note: the table shows rotated components with blanks for loadings with absolute values smaller than 0.3*

TABLE. COMPONENTS CORRELATION

| n=38,849 | PC1 | PC2 | PC3 |
|---|---|---|---|
| PC1 | 1.0000 | | |
| PC2 | 0.0000 | 1.0000 | |
| PC3 | -0.0000 | -0.0000 | 1.0000 |

*Note: the table shows the correlations between the three components is zero.*

TABLE. KAISER-MEYER-OLKIN MEASURE OF SAMPLING ADEQUACY

| Variable | kmo |
|---|---|
| trstprl | 0.9250 |
| trstlgl | 0.8772 |
| trstplc | 0.8732 |
| trstplt | 0.8114 |
| trstprt | 0.8182 |
| trstep | 0.8427 |
| trstun | 0.8253 |
| Overall | 0.8502 |

*Note: sampling adequacy is "meritorious" (Kaiser 1974)*