# SUPPORT FOR MITIGATION AND ADAPTATION CLIMATE CHANGE POLICIES: EFFECTS OF FIVE ATTITUDINAL FACTORS.

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**Abstract:**

The increasing social consciousness about the causes and consequences of climate change has not led to a correspondingly high support for concrete mitigation or adaptation policies. Thus, more research is needed about the factors influencing citizen's support for such climate change policies. In this study we explore the effects on Spaniards' support for one mitigation policy (car policy) and one adaptation policy (water policy) of five attitudinal factors: government response efficacy beliefs, people's feeling of responsibility to mitigate climate change, personal self-efficacy beliefs, people's disposition to resist change and psychological distance from climate change. We use data from an online survey implemented in the Netquest opt-in panel in Spain (N= 2,290). We use structural equation modelling to control for spurious effects and test the fit of the model. Moreover, estimates are corrected for measurement errors. The results reveal that the most important factor affecting Spaniards' support for both mitigation and adaptation policies is the perceived government response efficacy. Furthermore, we identified relevant differences regarding the importance of the above-mentioned five attitudinal factors depending on the climate change policy studied. More precisely, while government response efficacy and people's feeling of responsibility to mitigate climate change have a direct effect on support for both policies, personal self-efficacy and people's resistance to change only affect support for the mitigation policy directly. On the contrary, psychological distance to climate change only has a direct effect on support for the adaptation policy. Our results provide new insights into the causal mechanisms behind citizens' support for climate change policies.

**Keywords:** climate change; causal effects; mitigation policies; adaptation policies; policy support; structural equation modelling (SEM)

**Declarations:**

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- The authors declare that they have no known competing financial interests or personal relationships that could have appeared to influence the work reported in this paper.
- Data will be made available under request.

## 1) INTRODUCTION

Public perception of mitigation and adaptation policies is affected by the "principle-implementation gap" (Krosnick and MacInnis, 2013, p. 28), i.e. people may support a policy principle, but at the same time, oppose any specific policy proposal aiming at making it a reality. For instance, in Spain, evidence from the Centre for Sociological Research Barometer from November 2018 shows that although 93.4% of Spaniards believe that human action has an important influence on climate change and 88.0% think that this phenomenon requires a change of our current societies, the support for specific mitigation and adaptation policies is substantively lower. Indeed, only 53.4% of Spaniards consider that it is necessary to control their water consumption and 32.8% that it is important to use hybrid or electric vehicles. A more recent study conducted by El País (2019) signals a similar pattern. Thus, it is essential to understand what influences citizens' support for concrete climate change policies, to improve their design and success.

In this study, we estimate the causal effects on Spaniards' support for one mitigation and one adaptation climate change policy of five attitudinal factors: government response efficacy

beliefs, people's feeling of responsibility to mitigate climate change, personal self-efficacy beliefs, people's disposition to resist change and psychological distance from climate change. We use data from an online survey implemented in Spain in 2019. Our focus is on the effects on policy support of these five factors because, although they have been previously studied, results are not conclusive and their relationship with policy support is puzzling. Moreover, to the best of our knowledge, this is the first causal analysis considering all five factors together in order to compare the size of their effects and identify if these effects are direct or indirect.

## 2) LITERATURE REVIEW

The body of literature regarding factors influencing citizen's support for climate change policies has been growing. Below, we review the main conclusions of the existing literature concerning the effects of the five factors of interest in this study on support for climate change policies.

### 2.1 People's disposition to resist change

Mitigation and adaptation policies usually entail behavioural efforts for citizens. Therefore, people's overall resistance to change could be an obstacle to individual support for any policy implying changes in their daily life. Resistance to change is a disposition which entails behavioural, cognitive and affective components which, combined, create a feeling of aversion to experience changes of any kind (Piderit, 2000). The concept has been largely used in organizational studies as a predictor of support or opposition to reforms driven by the business's management. However, it has not been deeply analysed in the frame of climate change policies. One exception is the qualitative study of Gifford (2011), which identified that the perceived risks of a change may act as a limit to the willingness of people to endorse it.

### 2.2 Efficacy beliefs

The influence of perceived efficacy, i.e. the reflective judgment of "the adequacy of one's thoughts and actions" to achieve an intentionally set future goal (Bandura, 2006, p. 165), on support for political measures has been explored in several studies. Efficacy beliefs are composed of two factors: self-efficacy and response efficacy, each of them including two levels of action: individual/personal and collective/governmental (Bostrom, Hayes and Crosman, 2019).

In this study, we follow this distinction and concentrate on personal self-efficacy and government response efficacy, which were found to be the dimensions of efficacy with strongest influence on individual policy support (Bostrom, Hayes and Crosman, 2019).

#### 2.2.1 Personal self-efficacy

Bandura (1994) defined self-efficacy as the belief on one's capabilities to carry out an action with the objective of altering the development of an event affecting one's life. According to this author, self-efficacy directly influences individual behaviour, as it enhances self-assurance and the feeling of control in challenging situations.

Ahead of the threatening close future imposed by climate change, people with high self-efficacy will be able to resolutely maintain the behavioural efforts required to translate their green beliefs into actions (Bandura, 1994).

#### 2.2.2 Government response efficacy

Response efficacy captures the belief that an action will effectively have the intended results (Witte, 1992). In the case of climate change, it is necessary to consider response efficacy at least on the national level, because due to its nature of being a collective action problem, isolated individual efforts are unable to achieve their desired outcomes.

Stenhouse (2015) developed a Structural Equation Modelling (SEM) analysis in order to establish whether there exists a causal effect between government response efficacy, and also personal self-efficacy, and collective action on climate change. Although no causal effect could be confirmed, all variables measuring efficacy beliefs were positively associated with political action. Government response efficacy was the variable with the strongest association.

However, efficacy is not perceived objectively, but subjectively (Bandura, 1994). Therefore, it is relevant to explore which factors may influence this perception of efficacy. Stoll-Kleemann, O'Riordan and Jaeger (2001), stated that when there is a dissonance between attitudes and behaviours, people try to solve it by modifying the former. Based on this premise, they analysed the "disjunction between a personal preference for a particular lifestyle" (p. 112) expressed as high concern about climate change and "the need to respond effectively to climate change mitigation strategies" (p. 112), which are usually perceived as entailing excessive costs in terms of behavioural change. They concluded that in order to bring together their resistance to change and their concerns about climate change, people use several strategies: distrust in the efficacy of governments in delivering mitigation polices, distrust in own self-efficacy and denial of responsibility of acting to mitigate climate change, amongst others. The study showed through qualitative research methods that perceived efficacy is affected by people's resistance to change. However, quantitative evidence has yet to be provided.

### 2.3 People's feeling of responsibility to mitigate climate change

We focus on the individually "assumed responsibility" (Fuller, Marler and Hester 2006, p.1092) for the consequences of one's future actions, also known as "before-the-fact consciousness" (p.1091). This responsibility is intentional in nature, that is, it reflects the extent to which people feel compelled to act in order to attain a goal, and thus, voluntarily hold themselves accountable for their current and future actions. Its importance in explaining the

relationship between beliefs and action is crucial (Stoll-Kleemann, O'Riordan and Jaeger, 2001; Sheppard, 2011).

Nevertheless, few environmental studies have analysed this factor. One exception is the study of Bateman and O'Connor (2016). They studied the effect of individual responsibility to mitigate climate change and individual responsibility to adapt to climate change, on support for concrete and general mitigation and adaptation policies. Their findings suggest that felt responsibility mediates the effect of belief in global warming on support for mitigation and adaptation policies. Moreover, while they found that individual responsibility to adapt to climate change only predicts support for adaptation policies, individual responsibility to mitigate it predicts support for both types of policies.

### 2.4 Psychological distance to climate change

Trope and Liberman (2010) defined psychological distance as "a subjective experience that something is close or far away from the self, here, and now" (p. 440). According to them, psychological distance includes four dimensions: social distance, spatial distance, temporal distance and hypothetical distance. Traditionally, it has been studied through the construal level theory. Within this framework, research such as the one by Spence, Poortinga and Pidgeon (2012) supports the idea that when climate change is perceived as psychologically distant, people are less concerned about it and less predisposed to act pro-environmentally. Thus, a high psychological distance can be a barrier to develop pro-environmental behaviour. Promoting psychological closeness to climate change could help overcome this blockage. Nevertheless, conclusions about its concrete effect are sometimes conflicting (McDonald, Chai and Newell, 2015; Sacchi, Riva and Aceto, 2016; Schuldt, Rickard and Yang, 2018). Some studies argue that these discrepancies are due to the omission of third variables which moderate the effect of psychological distance from climate change on support for mitigation and

adaptation policies, such as people's type of cognitive style (Sacchi, Riva and Aceto, 2016) or the perceived response efficacy of the policy (McDonald, Chai and Newell, 2015; Singh et al., 2017). Other studies suggest that the traditional approach to psychological distance through the construal level theory does not hold in climate change issues (Wang et al., 2019).

### 2.5 Contribution of the study to the field

Previous research suffers from several limits that this study tries to tackle. Firstly, usually, the distinction between types of attitudes towards policies is not made. Thus, it is not clear if what is measured is acceptance of or support for a policy. In this study, we focus on support, i.e. a type of attitude that "encompasses [an] actual behaviour as well as an intention to act" (Kyselá, Ščasný and Zvěřinová 2019, p.7). Support is what policy makers need to foster for their policies to deliver results.

Secondly, the five factors of interest have been mainly studied in the case of mitigation policies, assuming that their effect on support for adaptation policies would be similar. Nevertheless, although the determinants of support for adaptation and mitigation may be the same, the specific effect of such determinants on each type of policy can differ (McDonald, Chai and Newell, 2015; Bateman and O'Connor, 2016; Yohe, 2001). Thus, in this study, we estimate the effects of the same factors on support for both an adaptation and a mitigation policy, in order to test if they are similar. More precisely, we selected two policies which are expected to affect most Spaniards[1]: 1) A mitigation policy: the prohibition of the use of light-duty vehicles which directly emit CO2 into the atmosphere, by 2029 and in the whole Spanish territory. This measure was part of the initial draft of the Law of Climate Change and Energy Transition (La Moncloa, 2019). Nevertheless, the schedule was modified (2029 instead

[1] See Appendix A for a more detailed description of both policies.

of 2050) in order to make it more relevant to respondents. 2) An adaptation policy: the implementation of a discount up to 10% on the water bill of all households that reduce their water consumption of at least 10%, compared to the previous year (García Lucea, 2006). This measure was developed by the city council of Zaragoza.

Both policies tackle important climate issues for Spain: 1) greenhouse gas emissions from traffic, taking into account that according to the Report on the National Inventory of Emissions to the Atmosphere of 2019, in 2017, transportation was the sector with the highest percentage of greenhouse gas emissions (26%) in the country (Ministry for the Ecologic Transition, 2019); and 2) water management, in light of the high risk of water scarcity in the Iberian Peninsula (Moreno Rodríguez, 2005).

Thirdly, previous literature found conflicting results regarding the effect of psychological distance. We analyse its effect on support without using the construal level theory to measure it and explore the relationship between this variable and government response efficacy. In this way, we expect to bring light into the causal mechanisms behind the effect of this variable.

Fourthly, little literature in the field uses a SEM approach. In this study, we take advantage of the strengths of SEM (in particular, the distinction between direct and indirect effects, and the possibility of testing the fit of the model and correcting it) to improve the accuracy of the estimates of the causal effects of our factors of interest.

Furthermore, even if it is well-known that survey questions suffer from measurement errors (Andrews, 1984; Alwin, 2007; Saris and Gallhofer, 2014), previous literature usually did not correct for them. This can lead to wrong conclusions (Saris and Revilla, 2016). Thus, we correct for measurement errors using information about the measurement quality of the variables in our analyses.

Finally, a large part of the research about climate change has been conducted in the United States of America (USA). Thus, one should be careful about generalizing the results to other

countries. For instance, whereas the debate surrounding the existence of climate change is highly politicized in the USA, it is not in Spain (Meira Cartea et al., 2013). This could affect the results. Thus, more research is needed outside of the USA. In this study, we focus on Spain, a country where research about citizens' support for adaptation and mitigation policies is existing (Domínguez, Labandeira and Loureiro, 2011; García de Jalón et al., 2013; Gómez, Armesto and Cors, 2017; Hanemann, Labandeira and Loureiro, 2011; Martínez-Paz, Almansa-Sáez and Perni-Llorente, 2011; Oltra et al., 2009), but scarce.

## 3) CAUSAL MODEL AND HYPOTHESES

In this study, we estimate the causal effects of five attitudinal factors (Stern, 2000) on support for the mitigation and adaptation climate change policies described previously (see also Appendix A).

### 3.1 Main causal hypotheses

Based on the previous literature, we propose 10 main hypotheses, five related to the mitigation policy and five to the adaptation policy. Even when the direction of the causal effect is expected to be the same for both policies, we expect different sizes of the effects for the two types of policies. Moreover, we also expect differences in the causal mechanisms for respondents directly affected by the policies (those who owned a vehicle affected by the prohibition or those who did not consume the minimum amount of water yet) and not directly affected (the others). Thus, all 10 hypotheses are tested separating respondents directly and not directly affected.

#### 3.1.1 Government response efficacy

Bostrom, Hayes and Crosman (2019) noted that government response efficacy has a strong direct and positive effect on mitigation policy support, as the belief that the implementation of such a policy will effectively achieve its ultimate objective, may increase people's support for it. We expect the same type of effect in the case of adaptation policies. Thus, our first two hypotheses are the following:

*A higher government response efficacy increases support for the mitigation policy (H1a) and the adaptation policy (H1b).*

### 3.1.2 People's feeling of responsibility to mitigate climate

Since people's feeling of responsibility acts as a bridge linking beliefs and actual engagement (Bateman and O'Connor, 2016), we expect that when people do not think that it is their duty to act to mitigate climate change, they will not support any policy, adaptative or mitigative, which places a burden on them. Thus, our next hypotheses are the following:

*A higher feeling of responsibility to mitigate climate change increases support for the mitigation policy (H2a) and the adaptation policy (H2b).*

### 3.1.3 Personal self-efficacy

Bostrom, Hayes and Crosman (2019) affirmed that self-efficacy has a direct positive effect on mitigation policy support, as perceiving oneself as incapable of carrying out the required behavioural changes may be a reason to not support that policy. In line with the conclusions of Ung et al. (2016), we expect the same type of effect in the case of adaptation policies, which leads us to the following hypotheses:

*A higher personal self-efficacy increases support for the mitigation policy (H3a) and the adaptation policy (H3b).*

### 3.1.4 People's disposition to resist change

Usually, mitigation and adaptation are defined as two different ways of trying to solve climate change: the first one associated with proactively modifying current behaviour and the second one with passively altering human and natural systems (Sheppard, 2011). This conception, linked to the fact that benefits from adaptation policies are more tangible (Wilbanks et al., 2007), has led to a lower resistance to adaptation policies in the public imaginary. Hence, following the argument of Gifford (2011), we expect resistance to change to act like a barrier to mitigative action, thus, having a direct negative effect on support for the mitigation policy. But we do not expect it to have any direct effect on support for the adaptation policy.
Nevertheless, we expect it to have an indirect negative effect on both the mitigation and the adaptation policy, through the following three variables: people's perception of responsibility to act to mitigate climate change, personal self-efficacy and government response efficacy (Stoll-Kleemann, O'Riordan and Jaeger 2001). Thus, we propose the following hypotheses:

*A higher resistance to change decreases support for the mitigation policy, both directly and indirectly, through the feeling of responsibility to act to mitigate climate change, personal self-efficacy and government response efficacy (H4a).*
*A higher resistance to change decreases support for the adaptation policy, not directly but indirectly through the same three variables (H4b).*

### 3.1.5 Psychological distance to climate change

Some studies argue that psychological distance to climate change has a negative direct effect on support (Leiserowitz, 2006; Spence, Poortinga and Pidgeon, 2012): a more distant (improbable or far from the self) perception of climate change leads to lower support for any type of pro-environmental policies. Nevertheless, other studies such as McDonald, Chai and Newell (2015) or Singh et al. (2017) suggest that the effect of this factor on support may interact with government response efficacy. In order to start exploring this relationship, we assume that a more distant perception of climate change leads to thinking that adaptation or mitigation policies are less efficient. As a result, we expect psychological distance to climate change to also reduce support for climate change policies through its indirect effect via government response efficacy.

*A higher psychological distance to climate change reduces support for the mitigation (H5a) and adaptation policy (H5b), both directly and indirectly, through perceived government response efficacy.*

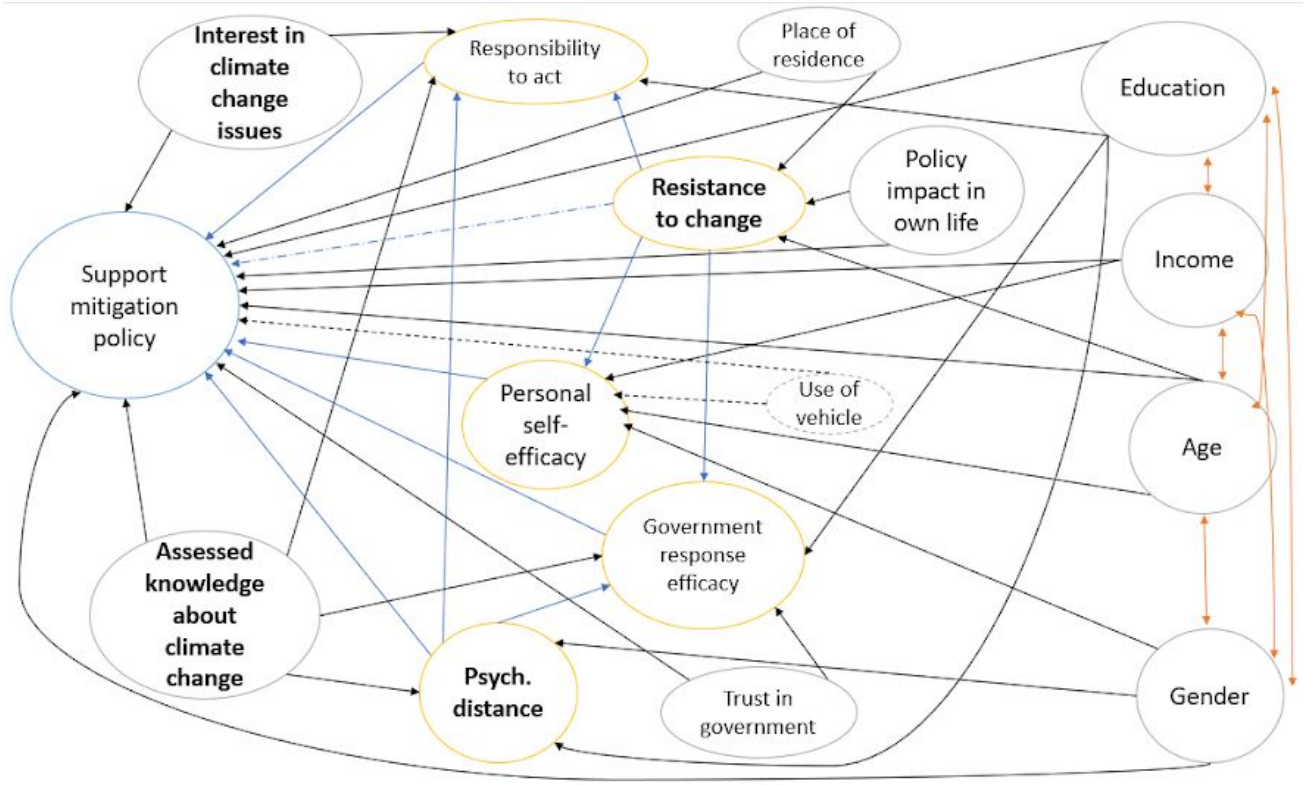
**3.2 Full causal model**

In order to properly estimate the causal effects from our 10 main hypotheses, we have to control for possible spurious effects between the support for the climate change policies and the five main explanatory factors. Thus, we introduced the following 10 control variables in our causal model: gender, age, education, income, place of residence, trust in government, assessed knowledge about climate change, interest in climate change issues and policy impact in own life. In addition, for the mitigation policy, we included as control variable the frequency of use of a vehicle which directly emits CO2. Moreover, since we expect different effects for respondents directly and not directly affected by the policies, we used the following two variables to create different groups: 1) Property of a vehicle affected by the prohibition, and 2)

Consumption of minimum amount of water possible. The causal models are estimated for each of the groups (those who own a vehicle affected by the prohibition and those who do not; those who already consume the minimum amount of water and those who do not).

Figure 1 shows the path diagram of the full causal model for the mitigation policy. The one for the adaptation policy is similar, but excluding the effects represented in Figure 1 with dotted arrows.

**Figure 1. Full causal model for the mitigation policy (car policy).** Bolded variables are the ones considered concepts-by-postulation (see 4.1).




## 4) METHODS AND DATA

### 4.1 Questionnaire

Each of the 16 variables presented in Figure 1 as well as the variables needed to create the groups (directly affected or not) were operationalized following the 3-step procedure proposed by Saris and Gallhofer (2014). This allows to formulate requests for an answer which properly measure the concepts of interest. Following the distinction proposed by Northrop (1947), 11 of our variables were considered concepts-by-intuition which can be measured with a single question and four concepts-by-postulation, which need several indicators to be measured (see Figure 1 and Appendix B).

Since data were collected through an opt-in online panel, we expected a non-negligible part of respondents to access the survey through smartphones (Bosch, Revilla and Paura, 2018). Therefore, we adapted the scales to this device (Revilla, Toninelli and Ochoa, 2016): all scales were vertically oriented and had no more than seven answer categories (Couper, Antoun and Mavletova, 2017), with at least two fixed reference points to ensure equality in the response function (Saris et al., 1988). We used a paging design (with one question on each webpage). The final questionnaire counted a maximum of 46 questions[2]. Moreover, half of the sample was randomly assigned a different order of the subsections such that some respondents started answering the questions about the mitigation policy, and others the ones about the adaptation policy.

The complete questionnaire (in Spanish) can be found at: https://d-camp.net/integraweb_v4/integra/online.php?pid=1199_CANVI_CLIM&ID_NQ=1&SEXO=1&EDAD=25. For an English translation of the main questions, see Appendix B.

### 4.2 Data collection

[22] The questionnaire also included an experiment which is analysed in a different paper.

Data were collected in October 2019 through an online survey implemented in the Netquest opt-in panel in Spain (www.netquest.com).

The target population included all adults whose main residence was in Spain and who were fluent in Spanish. Cross quotas for age, gender, education and region of residence were used in order to guarantee a distribution of these variables in our sample which is similar to the one of the population living in Spain. Respondents received points in exchange for their participation, that can be redeemed for gifts (see Revilla, 2017, for more details).

In total, 4,183 panellists were invited to answer the survey. From those, 2,969 started the survey. However, 207 panellists accessed the questionnaire but did not answer any question, 236 panellists were filtered because the quotas were full or the study was finished, 113 panellists started the survey, left it unfinished temporally, and when trying to access it again, were filtered for similar reasons, and six panellists abandoned the survey.

As a result, 2,407 panellists finished the survey. Nevertheless, 117 observations whose response time was below or equal to five minutes were deleted since we considered that it was not possible to answer the questionnaire so quickly while still providing meaningful answers. This left us with 2,290 respondents for statistical analyses: 51.7% of those are female, the mean age is 49 years, and 34.1% have completed higher education. Regarding the devices, 52.3% answered through smartphones, 40.1% through PCs and 7.6% through tablets. Finally, the average response time was around 10 minutes.

### 4.3 Analyses

To test our hypotheses, we use the SEM approach that allows to: 1) control for spurious effects and thus estimate the size of the causal effects properly, separating direct and indirect effects; 2) correct for measurement errors, which is necessary to draw unbiased conclusions (Saris and Revilla, 2016); and 3) test the fit of the model and correct it when the fit is initially poor.

### 4.3.1 SEM estimation

First, before running the SEM analyses, we create a composite score for each concept-by-postulation[3]. Composite scores are "measurements based on multiple data items" (Babbie, 2012, p 159). This score is then used in the SEM analyses, and not directly the answers to the different questions asked to measure the concept-by-postulation. More precisely, the composite scores for the variables "disposition to resist change" and "psychological distance from climate change" were created as the unweighted average of the respective answers, whereas the composite scores for the variables "interest in climate change issues" and "assessed knowledge about climate change" were created as the unweighted sum of the respective answers (see Appendix C).

Then, the program Lisrel was used to estimate the causal effects through maximum likelihood estimation (Jöreskog and Sörbom. 1996). Because we expected different causal mechanisms for individuals directly affected by the policies and not directly affected, we estimated the causal model using a multiple-group setting, with two groups for each policy: those affected directly by the policy and those who are not. For each policy, the effects were initially set to be invariant across both groups, except for the variables personal self-efficacy and frequency of use of the vehicle. These effects were estimated only for the groups directly affected but fixed to zero for the groups not directly affected (an example of Lisrel input is available in Appendix D).

### 4.3.2 Correction for measurement errors

The link between the survey questions and the latent concepts of interest is far from being perfect due to measurement errors (Saris and Gallhofer, 2014). Thus, in order to avoid

[33] Analyses with latent variables were also performed but the models did not converge into a proper solution.

misleading conclusions, it is necessary to correct the estimates for these measurement errors (Saris and Revilla, 2016).

Therefore, we first correct the correlation matrix for measurement errors using the formula presented by Saris and Gallhofer (2014, p. 290, equation 15.1). This formula states that the correlation between two variables corrected from measurement errors (i.e. the correlation between two latent concepts of interest) is equal to the observed correlation (i.e. correlation between the answers to the two survey questions) minus the common method variance (CMV), divided by the product of the measurement quality coefficients ($q_i$) of both variables:

$$corr(latent_{1,} latent_2) = [corr(observed_{1,} observed_2) - CMV]/ q_{1,} q_2 \quad (1)$$

In order to apply the formula in Equation (1), information about measurement quality and CMV is needed. Measurement quality is defined as "the strength of the relationship between the observed variable and the variable of interest" (Saris and Gallhofer, 2014, p. 179). The program SQP 2.1 (Saris et al., 2011; Saris, 2013) is used to get predictions of the measurement quality of all questions measuring concepts-by-intuition in our study that are not socio-demographics[4]. For socio demographics, the SQP limit section suggests relying on the information about the reliability of self-reported measures provided by Alwin (2007, p.157) because SQP is not suited for such questions (http://sqp.upf.edu/loadui/#limits). Appendix E provides information about the measurement quality for all our concepts-by-intuition.

For the four concepts-by-postulation, we need to compute the measurement quality of the composite scores created to measure them. This is done using the formula presented by Saris and Gallhofer (2014, p. 271, equation 14.4):

[44] Predictions and full coding information are available at www.sqp.upf.edu, in the study "Environment".

$$\text{corr}(CP_1, S_1) = \sum_{i=1}^{k} \frac{q_i}{sd(S_1)} = \left\{ \frac{1}{sd(S_1)} \right\} \sum_{i=1}^{k} q_i \qquad (2)$$

Where: $CP_1$ refers to concept-by-postulation, $S_1$ refers to the composite score, $q_i$ refers to the quality coefficient of each indicator used to create the composite score and $sd(S_1)$ refers to the standard deviation of the composite score.

CMV is defined as the spurious "variance that is attributable to the measurement method rather than to the constructs the measures are assumed to represent" (Podsakoff et al., 2003). Thus, it exists when the variables are measured using a similar scale. In our study, the variables policy impact, government response efficacy and responsibility to mitigate climate change are measured using a similar scale. In addition, trust in government and personal self-efficacy also share a similar scale. To calculate their CMV, we use the formula presented by Saris and Gallhofer (2014, p.290, equation 15.2):

$$CMV = r_i m_i r_j m_j \quad (3)$$

Where $r_{i/j}$ refers to the reliability coefficients and $m_{i/j}$ refers to the method effect coefficients of the two variables with a similar scale.

The program SQP 2.1 provides predictions of the reliability coefficients ($r_i$) and validity coefficients ($v_i$). The method effect coefficients ($m_i$) can be computed as (Saris and Gallhofer, 2014, p. 179):

$$m_i = \sqrt{1 - v_i^2} \qquad (4)$$

Information about the CMV of the above-mentioned variables can be found in Appendix E.

Once the matrices for each group and policy have been corrected, we run the Lisrel analyses using the corrected correlation matrix as data in our input. This allows to estimate the causal effects corrected from measurement errors. The correlation matrices corrected for measurement errors, as well as an example of the application of formulas 1 and 2 can be found in Appendices F and E, respectively.

### 4.3.3 Testing the fit of the model

Before drawing any conclusions, it is necessary to test if the causal models fit the data. There are two main types of model fit indicators: 1) global fit indicators, which assess the overall goodness-of-fit of a model ($Chi^2$ test or global fit indices, such as RMSEA or CFI); and 2) local fit indicators, which test the presence of misspecifications at the parameter level (mainly through the Expected Parameter Changes and Modification Indices).

In this study, we used both global fit indicators provided by Lisrel and local fit indicators provided by the JRule software (Van der Veld, Saris and Satorra, 2008) based on the testing procedure proposed by Saris, Satorra and Van der Veld (2009) (see Appendix G for details on these estimates). We considered deviations larger than .15 as misspecifications. JRule has the advantage to take into account type II errors and to provide information about each misspecified parameter. This is very useful to decide how to correct models with insufficient fit.

Moreover, in order to correct the models, we followed a few other rules:

- Some parameters were set invariant across those affected and not affected directly (see subsection 4.3.1). When such parameters were misspecified according to JRule, they were freed, since we expected different sizes of the effects for respondents directly and not directly affected by the policies.

- Some parameters were fixed to zero in the initial model, because we initially did not expect an effect. When such parameters were misspecified according to JRule, we re-assessed whether an effect could theoretically be supported. We included the new parameter in the model only when it could be theoretically supported.

- As we expect similar types of effects for both policies, modifications that applied to one policy were firstly tested in the other one.

Corrections were introduced in the Lisrel input one by one. If the goodness-of-fit of the model was improved, the correction was accepted, and another misspecification was addressed until no remaining misspecification in JRule were theoretically supported or could improve the goodness-of-fit of the model by being introduced (see Appendix D for a list of the corrections).

## 5) RESULTS

### 5.1 Descriptive results

First, Table 1 shows the proportions of respondents that support both policies, overall and for those directly affected or not by the policies.

**Table 1. Support for both policies (in %)**

| | Car policy | | Water policy | |
|---|---|---|---|---|
| | Support | *N* | Support | *N* |
| Overall | 30.0 | *683* | 63.9 | *1,457* |
| Directly affected | 27.0 | *402* | 71.5 | *445* |
| Not directly affected | 35.7 | *281* | 61.1 | *1,012* |

The level of support is significantly different for both policies: while 30.0% of the respondents support the car policy, 63.9% support the water policy. This difference could be related to different aspects. One of them is the proportion of people affected by each policy. Indeed, while 65.4% of respondents are affected by the car policy (own a vehicle affected by the prohibition), only 27.3% are affected by the water policy (do not consume the minimum amount of water).

Another aspect is the exact content of both policies and the fact that the water policy also includes a reward for those who reduce their consumption (discount on the bill). As a result, whereas in the car policy, those directly affected show a lower support (27.0% versus 35.7%), in the water policy, people directly affected show a higher support (71.5% versus 61.1%), since these are the ones who could benefit from a bill discount.

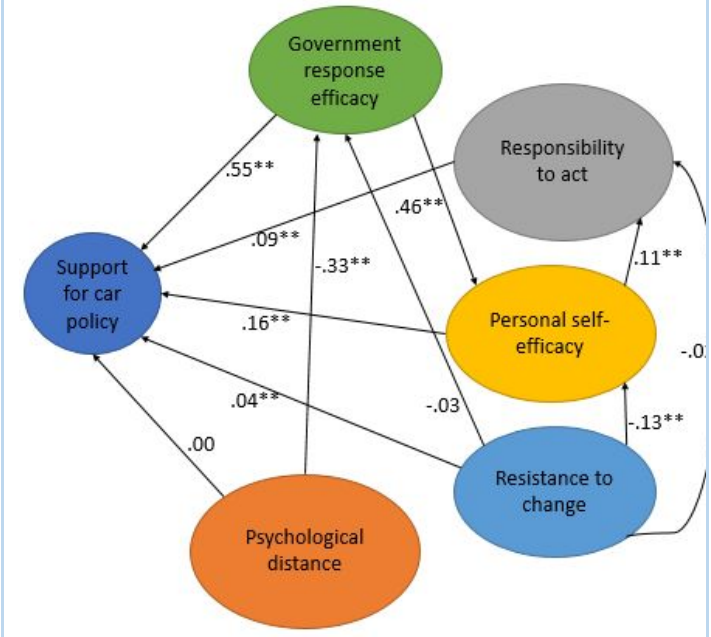
### 5. 2 Causal effects

#### 5.2.1 Testing our 10 main hypotheses

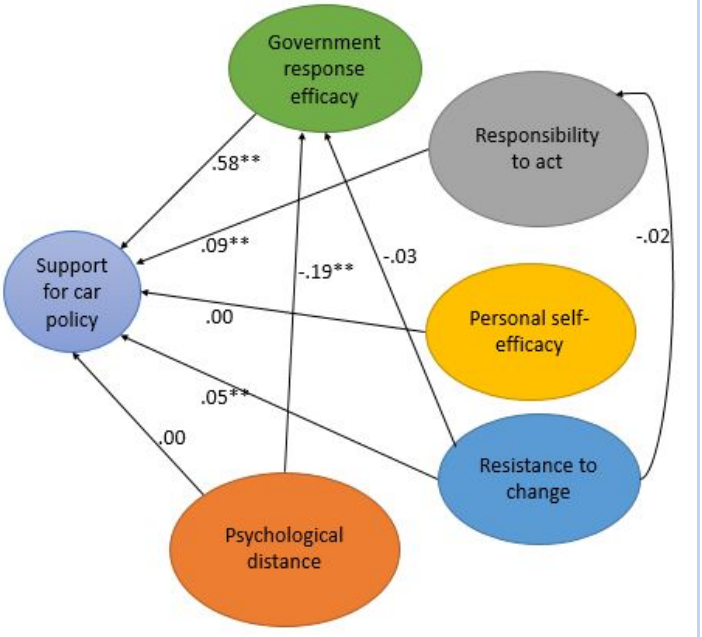
Next, Figure 2 summarises the main causal effects of interest, i.e. the ones needed to test our 10 main hypotheses. For a full overview of the estimates of the SEM analyses, we refer to Appendix H.

**Figure 2. Main causal effects of interest**

Car policy

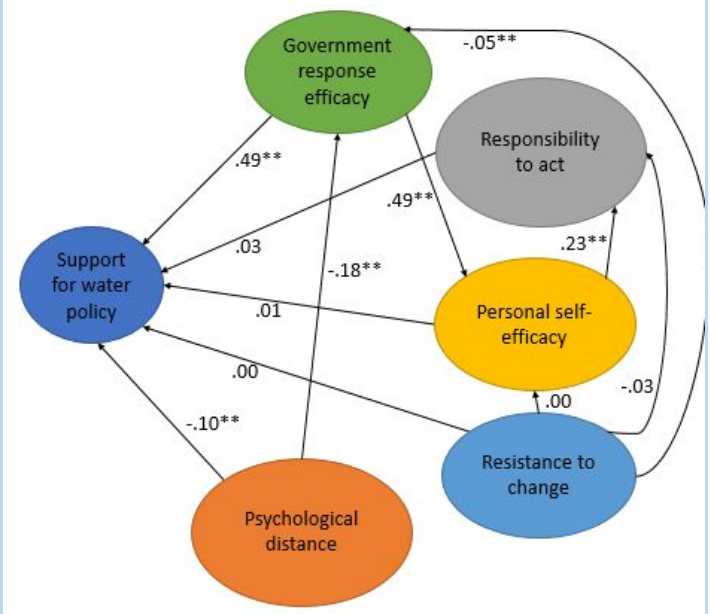



Directly affected (own a car)

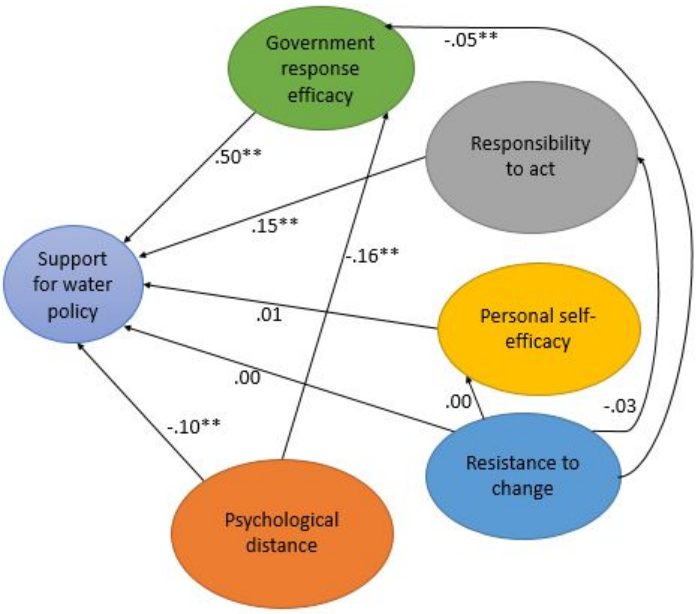



Not directly affected (do not own a car)

Water policy




Directly affected (do not consume minimum water)




Not directly affected (consume minimum water)

** p<.01.

***H1a/b*: the impact of perceived government response efficacy**

Government response efficacy, i.e. how effective individuals think that the policies will be in adapting or mitigating climate change, has the strongest effect on support for the two policies studied. More precisely, when Spaniards are directly affected by the policies, the effects are .55 for the car policy and .49 for the water policy.

Although this effect is slightly higher when citizens are not directly affected (.58 for the car policy and .50 for the water policy), our analysis suggests that even if a pro-environmental policy requires a big change of habits, the more likely the policy is perceived to lead to the desired outcome (e.g. reduce CO2 emissions or water consumption), the more people are willing to endorse it. As a consequence, both *H1a* and *H1b* are supported.

This result confirms and deepens the conclusions of Stenhouse (2015), as we find a significant positive causal effect between government response efficacy and policy support.

***H2a/b:* the impact of people's feeling of responsibility to mitigate climate change**

The more responsible people feel they are to act against climate change, the higher the support for climate change policies. However, in the case of the adaptation policy, this is only true when individuals are not directly affected by the policy. More precisely, this factor has a significant effect of .09 in the car policy for both respondents directly and not directly affected; and a significant effect of .15 in the water policy for those not directly affected. Thus, *H2a* is supported and *H2b* is partially supported. These results are in line with the ones by Bateman and O'Connor (2016) and confirm the role of the feeling of responsibility to motivate action. The results also point out a mediation effect between the impact of the policy on citizens and the effect of this variable on support for adaptation policies.

***H3a/b:* the impact of perceived personal self-efficacy**

As advanced by Bostrom, Hayes and Crosman (2019), the individuals who feel more capable of changing their behaviour in order to comply with the requirements of a given policy show a higher support towards climate change policies. Nevertheless, while the effect is .16 and statistically significant for the car policy, contrary to our predictions, the effect is only .01 and not statistically significant for the water policy. Thus, *H3a* is supported but *H3b* is not.
An explanation for this can be the peculiarities of each policy. Nevertheless, the fact that adaptation policies are generally seen as a responsibility of public administrations, which should adapt the country's infrastructures, involving individuals only passively (Sheppard, 2011), might result in a minimization of the role of personal self-efficacy in deciding whether or not to support such initiatives.

***H4a/b:* the impact of people's disposition to resist change**

Partial support is found both for *H4a* and *H4b*. Individuals who are more resistant to any kind of changes are slightly more supportive to the implementation of the car policy (significant

effects of .04 when individuals are directly affected and .05 when they are not). Thus, the direct negative effect expected in *H4a* is not found; instead a direct positive effect is found. In contrast, how resistant people are to any kind of changes has no significant effect on their support for the water policy. Thus, the absence of a direct effect expected in *H4b* is supported. The perception of adaptation policies not entailing especially large behavioural costs may explain our results (Sheppard, 2011 and Wilbanks et al., 2007). Moreover, this particular policy is based on incentives. Therefore, the individual effort is balanced out by a reward (discount on the water bill).

Both the indirect effects expected in *H4a* and *H4b* obtained partial support, as there exists a negative indirect effect of people's disposition to resist change on support, but only through one of the three expected variables. Moreover, this variable differs between the two policies: individual's resistance to change has a negative indirect effect on support through personal self-efficacy (-.13) for directly affected respondents in the car policy, and through government response efficacy (-.05) for directly and not directly affected respondents in the water policy. This means that the greater the resistance to change, the lower the perceived personal self-efficacy (car policy) or government response efficacy (water policy). This, in turn, generates less support for the policies.

These results are in line with the ones of Stoll-Kleemann, O'Riordan and Jaeger (2001): when considering the concrete individual efforts required by a policy, individuals' resistance to change is stimulated and the mechanisms of attitude adjustment are activated in order to maintain the internal consistency between the individual's declared attitudes and behaviours (in this case, undermining trust in the own capacity to conduct changes and the efficacy of the policies).

***H5a/b:* the impact of perceived psychological distance from climate change**

The distance at which individuals perceive climate change has no direct significant effect on the support towards the car policy but has a direct significant negative effect (-.10) on support for the water policy. Thus, the direct effect expected in *H5a* is not found, but the one expected in *H5b* is found. Not believing that climate change negatively affects the world or believing that the negative impacts will not affect oneself reduces support for the water policy.

Moreover, the indirect effects expected in *H5a* and *H5b* are found. Perceiving climate change as far from the self leads to a lower perceived government response efficacy (for those directly affected significant effects of respectively -.33 and -.18 for the car and water policies; and for those not directly affected of respectively -.19 and -.16).

### 5.2.2 Other interesting effects

Besides testing our 10 main hypotheses of interest, our analyses identified a few other interesting effects.

Psychological distance to climate change has a significant effect on how responsible individuals think they are to act against climate change. More precisely, the further away climate change is perceived, the lower is this feeling of responsibility: we found effects of -.50 for both the car and water policies when respondents are directly affected and of respectively -.51 and -.49 when respondents are not directly affected. Consequently, even if the direct effect of the distance at which individuals perceive climate change is low, due to two indirect effects through the perceived government response efficacy and the responsibility to act to mitigate climate change, the overall causal effect on support is substantial: for those individuals directly affected by the policies, the effects are, respectively, -.23 and -.10 for the car and water policies and -.16 and -.15, respectively, for respondents not directly affected.

Noteworthy is the existing relationship between the two types of efficacy beliefs studied in this research. Our results show a significant positive effect (.46 for the car policy and .49 for the

water policy) between government response efficacy and personal self-efficacy: the more efficient people think that the policies will be in attaining their goals, the more capable they feel to change their own behaviours in order to comply with those policies. This evidence supports the argument of Bostrom, Hayes and Crosman (2019) that the distinct factors forming the theoretical construct of efficacy beliefs are interrelated.

Moreover, it is also relevant to underline that the feeling of responsibility to act in order to mitigate climate change is positively affected by how capable citizens believe they are to successfully accomplish the steps needed to reach their objective (significant effects of .11 for the car policy and .23 for the water policy). When people believe they will be able to reduce their water consumption or to avoid using a pollutant light-duty vehicle, this reinforces their belief in their moral responsibility of conducting such actions.

## 6) CONCLUSIONS

In this paper, our goal was to estimate the causal effects of five attitudinal factors on Spaniards' support for one climate change mitigation policy (car policy) and one climate change adaptation policy (water policy). The five attitudinal factors assessed were government response efficacy beliefs, people's feeling of responsibility to mitigate climate change, personal self-efficacy beliefs, people's disposition to resist change and psychological distance from climate change. In order to do this, we defined 10 main hypotheses, that we tested using data collected in 2019 through the opt-in online panel Netquest in Spain. We used SEM in order to control for spurious effects and corrected for measurement errors.

### 6.1 Main results

We found that between 27.0% (directly affected) and 35.7% (not directly affected) of the respondents support the car policy, whereas between 71.5% (directly affected) and 61.1% (not directly affected) support the water policy.

Moreover, as can be seen in Table 2, we found support for five out of our 10 main hypotheses (*H1a/b, H2a, H3a* and *H5b*), and partial support for four of them (*H2b, H4a/b* and *H5a*). Thus, most of the expected effects of our five explanatory variables were indeed found.

**Table 2. Summary of results about our 10 main hypotheses**

| Hypotheses | Result | Reason |
|---|---|---|
| *H1a and H1b* | Supported | A higher perceived government response efficacy of the policy increases support for both policies. |
| *H2a* | Supported | A higher feeling of responsibility to mitigate climate change increases support for the mitigation policy. |
| *H2b* | Partially supported | A higher feeling of responsibility to mitigate climate change increases support for the adaptation policy (but only for those not directly affected). |
| *H3a* | Supported | A higher personal self-efficacy increases support for the mitigation policy. |
| *H3b* | Rejected | A higher personal self-efficacy does not increase support for the adaptation policy. |
| *H4a* | Partially supported | A higher resistance to change increases support for the mitigation policy but has a negative indirect effect only through personal self-efficacy. |
| *H4b* | Partially supported | Resistance to change does not directly affect support for the adaptation policy but only through government response efficacy |
| *H5a* | Partially supported | A higher psychological distance to climate change does not significantly decrease support for the mitigation policy. But it indirectly does so through perceived government response efficacy. |
| *H5b* | Supported | A higher psychological distance to climate change decreases support for the adaptation policy, both directly and indirectly through perceived government response efficacy. |

In line with previous research (Stenhouse, 2015; Bateman and O'Connor, 2016), the relevance of efficacy beliefs and the feeling of responsibility to mitigate climate change in motivating support for climate change policies was confirmed.

However, personal self-efficacy seems to be relevant in explaining policy support only when individuals are directly affected by the policy and have to conduct important changes in order to comply with it. In addition, being directly affected or not by such policies also seems to mediate the effect of the feeling of responsibility to mitigate climate change for the adaptation policy.

Besides, the relevance of psychological distance cannot be rejected. This variable has two important indirect effects through government response efficacy and people's feeling of responsibility to mitigate climate change, suggesting that its main causal effect is indirect in nature, rather than direct.

Notwithstanding, the most surprising result is that of people's disposition to resist change in general. This factor has an unexpected direct positive effect on support for the mitigation policy, but, at the same time, it has a negative indirect effect on support for this same policy through the efficacy beliefs. This result adds new insights to previous literature such as Stoll-Kleemann, O'Riordan and Jaeger (2001). Furthermore, it has no significant effect on support for the water policy. The perception of this adaptative policy as entailing low behavioural costs, as well as its use of a monetary incentive, might explain our results.

Finally, our results also show that the importance of the factors influencing support for climate change policies varies depending on whether their nature is mitigative or adaptative. Thus, the idea that both types of strategies differ "not only technically, but also behaviourally" (Bateman and O'Connor, 2016) is supported by our results.

### 6.2 Limitations and future research

This study has several limitations. Firstly, due to cost limitations, we could only analyse one example for each type of policy. Future research using different mitigation and adaptation policies is needed to test the robustness of our results. Secondly, the data were collected

through an opt-in and not a probability-based panel. Even if cross quotas were used to guarantee representativeness on the main socio-demographic variables, future research based on probabilistic samples would be useful. Thirdly, even if we corrected for measurement errors, there are also errors in the estimation of the size of the measurement errors. In particular, for the socio-demographic variables, we used the estimates provided by Alwin (2007). Such estimates could be slightly biased since they are not based on the Spanish population. However, this only concerns five variables which all have very small measurement errors. Fourthly, in this study we analysed the causal effect of personal self-efficacy on policy support. Nevertheless, given the collective action nature of climate change policies, it would be interesting to study the effect of government self-efficacy, i.e. how capable citizens think their government is to materialize adaptative policies, on support for this type of initiatives, in order to test if it has a higher causal effect on policy support than personal self-efficacy. Finally, we only analysed the feeling of responsibility to mitigate climate change. It would be interesting to test if a similar pattern arises when analysing people's feeling of responsibility to adapt to climate change, and if the mediation effect of the impact of the policy on the relationship between this feeling of responsibility and support is still present.

### 6.3 Practical implications

Overall, the most important factor explaining individual's support for the two policies studied is the perceived government response efficacy, that is, the perception that their implementation will have the intended results. Thus, policy makers should focus on successfully communicating how efficient such policies are. To do so, it is important to develop action plans with clear, measurable and realistic objectives, based on scientific research. Moreover, these plans should be available and duly explained in the media.

Yet, given that people have different reasons to support a policy depending on being directly affected by it or not, policy makers should properly define their target population and design strategies to activate the support of both individuals directly and not directly affected.

Moreover, given the positive effect of the feeling of responsibility to mitigate climate change, educating the population on their shared responsibility to act to mitigate climate change should be an important objective for public authorities. Besides, the indirect effect of psychological distance on support through government response efficacy and people's feeling of responsibility to mitigate climate change opens a path to overcome the negative effects of such two factors on support for climate change policies.

Finally, emphasizing the big societal changes linked to climate change also seems to activate public support for mitigation policies.

However, we have found evidence unveiling an indirect negative effect of people's resistance to change on policy support. Consequently, facilitating alternative paths of action which balance out the individual efforts required by policies, should also be considered when designing both mitigation and adaptation policies.

**REFERENCES**

Alwin, D. F. (2007). *Margins of error: A study of reliability in survey measurement* (Vol. 547). John Wiley & Sons.

Andrews, F. M. (1984). Construct validity and error components of survey measures: A structural modelling approach. *Public opinion quarterly*, *48*(2), 409-442. https://doi.org/10.1086/268840

Babbie, E.R. (2012). *The Practice of Social Research.* Cengage Learning.

Bandura, A. (2006). Toward a Psychology of Human Agency. *Perspectives on Psychological Science*, *1*(2), 164–180. https://doi.org/10.1111/j.1745-6916.2006.00011.x

Bandura, A. (1994). Self-efficacy. In V. S. Ramachaudran (Ed.), *Encyclopedia of human behaviour*, 4, 71-81. New York: Academic Press.

Bateman, T. S., & O'Connor, K. (2016). Felt responsibility and climate engagement: Distinguishing adaptation from mitigation. *Global environmental change*, *41*, 206-215. https://doi.org/10.1016/j.gloenvcha.2016.11.001

Bosch, O.J., Revilla, M., & Paura, E. (2018). "Do Millennials differ in terms of survey participation?" *International Journal of Market Research,* 61(4): 359-365. First Published Online December 4, 2018. DOI: https://doi.org/10.1177/1470785318815567

Bostrom, A., Hayes, A. L., & Crosman, K. M. (2019). Efficacy, action, and support for reducing climate change risks. *Risk Analysis*, *39*(4), 805-828. DOI: 10.1111/risa.13210

Centre for Sociological Research (2018). *Barómetro de Noviembre 2018*.Retrieved from:

http://www.cis.es/cis/export/sites/default/-Archivos/Marginales/3220_3239/3231/es3231mar.pdf

Couper, M. P., Antoun, C., & Mavletova, A. (2017). Mobile Web surveys: A total survey error perspective. In P. Biemer, S. Eckman, B. Edwards, E. de Leeuw, F. Kreuter, L. Lyberg, C. Tucker, & B. West (Eds.), *Total survey error in practice* (pp. 133–154). New York, NY: Wiley.

Domínguez, F., Labandeira, X., & Loureiro, M. (2011). Políticas contra o cambio climático e preferencias sociais en Galicia e en España. *Revista Galega de Economía*, *20*(1), 33-52. Retrieved from: http://www.usc.es/econo/RGE/Vol20_1/galego/art2g.pdf

El País (2019). El 59% de los españoles pide medidas "muy urgentes" contra el calentamiento. *El País*, pp. 26 - 27. Retrieved from: https://elpais.com/sociedad/2019/12/06/actualidad/1575623466_788676.html

Fuller, J. B., Marler, L. E., & Hester, K. (2006). Promoting felt responsibility for constructive change and proactive behavior: Exploring aspects of an elaborated model of work design. *Journal of Organizational Behavior*, *27*(8), 1089-1120. https://doi.org/10.1002/job.408

García de Jalón, S. G., Iglesias, A., Quiroga, S., & Bardají, I. (2013). Exploring public support for climate change adaptation policies in the Mediterranean region: a case study in Southern Spain. *Environmental Science & Policy*, *29*, 1-11. https://doi.org/10.1016/j.envsci.2013.01.010

García Lucea, J. (2006). *Experiencia de Ahorro de Agua en la ciudad de Zaragoza*. Congreso Nacional del Medio Ambiente, Cumbre del Desarrollo Sostenible. Retrieved from: http://www.conama8.conama.org/conama8/index.php

Gifford, R. (2011). The dragons of inaction: Psychological barriers that limit climate change mitigation and adaptation. *American psychologist*, *66*(4), 290-302. DOI: 10.1037/a0023566

Gómez Martín, M. B., Armesto López, X. A., & Cors Iglesias, M. (2017). Percepción del cambio climático y respuestas locales de adaptación: El caso del turismo rural. *Cuadernos de Turismo,* (39), 287-310. https://doi.org/10.6018/turismo.39.290571

Hanemann, M., Labandeira, X., & Loureiro, M. L. (2011). *Public Preferences for Climate Change Policies: Evidence from Spain*. FEDEA, Working Papers 2011-06. Retrieved from: http://documentos.fedea.net/pubs/dt/2011/dt-2011-06.pdf

Jöreskog, K. G., & Sörbom, D. (1996). *LISREL 8: User's reference guide*. Scientific Software International, Chicago.

Kyselá, E., Ščasný, M., & Zvěřinová, I. (2019). Attitudes toward climate change mitigation policies: a review of measures and a construct of policy attitudes. *Climate Policy*, *19*(7), 878-892. https://doi.org/10.1080/14693062.2019.1611534

Krosnick, J. A., & MacInnis, B. (2013). Does the American public support legislation to reduce greenhouse gas emissions? *Daedalus*, 142 (1), 26–39. https://doi.org/10.1162/DAED_a_00183

Leiserowitz, A. (2006). Climate change risk perception and policy preferences: The role of affect, imagery, and values. *Climatic change*, *77*(1-2), 45-72. https://doi.org/10.1007/s10584-006-9059-9

La Moncloa (2019). *Anteproyecto de Ley de Cambio Climático.* Retrieved from: https://www.lamoncloa.gob.es/consejodeministros/Paginas/enlaces/220219-proyecto.aspx [Accessed: 19 December 2019]

Martínez-Paz, J. M., Almansa-Sáez, C., & Perni-Llorente, A. (2011). Energía eléctrica procedente de fuentes renovables: Percepción social y disposición al pago. *Estudios de*

*Economía Aplicada, 29*(2), 539-560. Retrieved from: https://dialnet.unirioja.es/servlet/articulo?codigo=3739211

McDonald, R. I., Chai, H. Y., & Newell, B. R. (2015). Personal experience and the 'psychological distance'of climate change: An integrative review. *Journal of Environmental Psychology*, *44*, 109-118. http://dx.doi.org/10.1016/j.jenvp.2015.10.003

Meira Cartea, P. A., Arto Blanco, M., Heras Hernández, F., Iglesias da Cunha, L., Lorenzo Castiñeiras, J. J., & Montero Souto, P. (2013). *La respuesta de la sociedad española ante el cambio climático*. Fundación Mapfre. Retrieved from: https://www.miteco.gob.es/es/ceneam/recursos/mini-portales-tematicos/La%20sociedad%20ante%20el%20cambio%20clim%C3%A1tico%202013_tcm30-70533.pdf

Ministry for the Ecologic Transition. (2019). *Report on the National Inventory of Emissions to the Atmosphere (series 1990-2017)*. Retrieved from: https://www.miteco.gob.es/es/calidad-y-evaluacion-ambiental/temas/sistema-espanol-de-inventario-sei-/es2019-unfccc_nir_tcm30-496176.pdf

Moreno Rodríguez, J.M (2005). *A Preliminary Assessment of the Impacts in Spain due to the Effects of Climate Change.* Ministerio de Medio Ambiente. Retrieved from: https://www.miteco.gob.es/en/cambio-climatico/temas/impactos-vulnerabilidad-y-adaptacion/Full%20report_tcm38-178514.pdf

Northrop F. S. C. (1947). *The Logic of the Sciences and the Humanities*. New york: World Publishing Company.

Oltra, C., Solà, R., Sala, R., Prades A., & Gamero, N. (2009). Cambio climático: Percepciones y discursos públicos. *Prisma Social: Revista de Investigación Social*, (2), 1-23. Retrieved from: http://www.academia.edu/17407537/cambio_clim%C3%A1tico_percepciones_y_discursos_p%C3%BAblicos

Piderit, S. K. (2000). Rethinking resistance and recognizing ambivalence: A multidimensional view of attitudes toward an organizational change. The Academy of Management Review, 25(4), 783–794. DOI:10.2307/259206

Podsakoff, P.M., MacKenzie, S.B., Lee, J.-Y., & Podsakoff, N.P. (October 2003). "Common method biases in behavioral research: A critical review of the literature and recommended remedies" (PDF). *Journal of Applied Psychology*. 88 (5), 879–903. doi:10.1037/0021-9010.88.5.879

Revilla, M. (2017). "Analyzing the survey characteristics, participation, and evaluation across 186 surveys in an online opt-in panel in Spain". *Methods, data, analyses,* 11(2): 135-162. DOI: 10.12758/mda.2017.02

Revilla, M., Toninelli, D. & Ochoa, C. (2016). Personal Computers vs. Smartphones in Answering Web Surveys: Does the Device Make a Difference?. *Survey Practice*. 9 (3). http://hdl.handle.net/10446/77026

Sacchi, S., Riva, P., & Aceto, A. (2016). Myopic about climate change: Cognitive style, psychological distance, and environmentalism. *Journal of Experimental Social Psychology, 65*, 68-73. https://doi.org/10.1016/j.jesp.2016.03.006

Saris, W. E. (2013). The prediction of question quality: the SQP 2.0 software. In B. Kleiner, I. Renschler, B. Wernli, P. Farago, & D. Joye (Eds.), Understanding research infrastructures in the social sciences (Chap. 6, pp. 135–144). Zurich: Seismo Press.

Saris, W. E., & Gallhofer, I. N. (2014). *Design, evaluation, and analysis of questionnaires for survey research*. John Wiley & Sons.

Saris, W. E.; Oberski, D. L.; Revilla, M. A.; Zavala-Rojas, D.; Lilleoja, L.; Gallhofer, I. N.; Gruner, T. (2011). The development of the program SQP 2.0 for the prediction of the quality of survey questions. Retrieved from: http://hdl.handle.net/10230/28334

Saris, W. E., & Revilla, M. (2016). Correction for measurement errors in survey research: necessary and possible. *Social Indicators Research*, *127*(3), 1005-1020. DOI10.1007/s11205-015-1002-x

Saris, W. E., Satorra, A., & Van der Veld, W. M. (2009). Testing structural equation models or detection of misspecifications?. *Structural Equation Modeling*, *16*(4), 561-582.

Saris, W.E., van de Putte, B., Maas, K. & Seip, H. (1988). Variation in response functions: observed and created. In W.E. Saris (ed.) *Variation in response functions: a source of measurement error in attitude research*. Amsterdam, SRF.

Schuldt, J. P., Rickard, L. N., & Yang, Z. J. (2018). Does reduced psychological distance increase climate engagement? On the limits of localizing climate change. *Journal of Environmental Psychology*, *55*, 147-153. https://doi.org/10.1016/j.jenvp.2018.02.001

Sheppard, D. (2011). Social solutions for climate change mitigation and adaptation: cross cultural lessons from Denmark to the United States. *Intersect: The Stanford Journal of Science, Technology, and Society*, *4(1)*, 67-91.

Singh, A. S., Zwickle, A., Bruskotter, J. T., & Wilson, R. (2017). The perceived psychological distance of climate change impacts and its influence on support for adaptation policy. *Environmental Science & Policy*, *73*, 93-99. https://doi.org/10.1016/j.envsci.2017.04.011

Spence, A., Poortinga, W., & Pidgeon, N. (2012). The psychological distance of climate change. *Risk Analysis*, 32(6), 957-972. DOI: 10.1111/j.1539-6924.2011.01695.x.

Stenhouse, N. (2015). *Powerful feelings: Extending the extended parallel processing model to collective action on climate change* (Doctoral dissertation). Retrieved from http://mars.gmu.edu/handle/1920/9851.

Stern, P.C. (2000). Toward a coherent theory of environmentally significant behaviour. *Journal of Social Issues,* 56(3), 407-424. DOI: 10.1111/0022-4537.00175

Stoll-Kleemann, S., O'Riordan, T., & Jaeger, C. C. (2001). The psychology of denial concerning climate mitigation measures: evidence from Swiss focus groups. *Global environmental change*, *11*(2), 107-117. DOI: 10.1016/S0959-3780(00)00061-3

Trope, Y., & Liberman, N. (2010). Construal-level theory of psychological distance. Psychological review, 117(2), 440-463. DOI: 10.1037/a0018963

Ung, M., Luginaah, I., Chuenpagdee, R., & Campbell, G. (2016). Perceived self-efficacy and adaptation to climate change in coastal Cambodia. *Climate*, *4*(1), 1. https://doi.org/10.3390/cli4010001

Van der Veld, W. M., Saris, W. E., & Satorra, A. (2008). JRule 3.0: User's Guide. http://www.vanderveld.nl/JRule.

Wang, S., Hurlstone, M. J., Leviston, Z., Walker, I., & Lawrence, C. (2019). Climate change from a distance: An analysis of construal level and psychological distance from climate change. *Frontiers in psychology*, *10*, 230. https://doi.org/10.3389/fpsyg.2019.00230

Wilbanks, T. J., Leiby, P., Perlack, R., Ensminger, J. T., & Wright, S. B. (2007). Toward an integrated analysis of mitigation and adaptation: some preliminary findings. *Mitigation and Adaptation Strategies for Global Change*, *12*(5), 713-725. DOI 10.1007/s11027-007-9095-4

Witte, K. (1992). Putting the fear back into fear appeals: The extended parallel process model. *Communications Monographs*, *59*(4), 329-349. https://doi.org/10.1080/03637759209376276

Yohe, G. W. (2001). Mitigative capacity--The mirror image of adaptive capacity on the emissions side. *Climatic Change*, *49*(3), 247-262. https://doi.org/10.1023/A:1010677916703

**APPENDICES:**

**Appendix A. Formulation of the policies studied in questionnaire**

**A1. Car policy**

Now, we would like to ask you about a mitigative policy of climate change. Its objective is to reduce the CO2 emissions caused by traffic. More precisely, it would consist on prohibiting the use of light-duty vehicles (both for private and commercial uses) which directly emit CO2 to the atmosphere, by 2029 and in all the Spanish territory.

**A2. Water policy**

Next, we would like to ask you similar questions about an adaptative policy of climate change. Its objective is to encourage a reduction in water consumption to face the drought that the country could suffer as a result of climate change. More precisely, it would consist in a 10% discount, applied by all city councils, on the water bills of those households who achieve a reduction of their water consumption of at least a 10%, compared to the previous year.

## Appendix B. Operationalization of all variables

### B.1 Operationalization of the concepts-by-intuition

Table B1. Request for an answer and scale (English translation) for the concepts-by-intuition

| Concept | Request for an answer | Scale |
|---|---|---|
| **Support** | If there was a referendum on the previous policy tomorrow, what would you vote? | - In favour, this policy should be implemented.<br>- Against, this policy should not be implemented.<br>- I would vote blank.<br>- I would not vote.<br>- I do not know. |
| **SelfEfficacy car policy** | To what extent would it be easy or difficult for you not to use a vehicle which directly emits CO2, before 2029? | -3 Completely difficult<br>-2<br>-1<br>0<br>1<br>2<br>3 Completely easy |
| **SelfEfficacy water policy** | To what extent would it be easy or difficult for you to reduce your water consumption by 10% or more, compared to last year? | -3 Completely difficult<br>-2<br>-1<br>0<br>1<br>2<br>3 Completely easy |
| **ResponsEfficacy car policy** | To what extent do you think that the prohibition of using non-electric light-duty vehicles by 2029 would be successful or not, at reducing CO2 emissions to the atmosphere? | 0 It would not be successful at all.<br>1 It would be little successful.<br>2 It would be quite successful.<br>3 It would be very successful.<br>4 It would be completely successful.<br>5 I do not know. |
| **ResponsEfficacy water policy** | To what extent do you think that the discounts applied on the water bill by the city council would be successful or not, at reducing the water consumption at national level? | 0 It would not be successful at all.<br>1 It would be little successful.<br>2 It would be quite successful.<br>3 It would be very successful.<br>4 It would be completely successful.<br>5 I do not know. |
| **Responsibility** | To what extent do you think that, as individuals, we all are responsible, or not, of acting to mitigate climate change? | 0 We are not responsible at all<br>1<br>2<br>3<br>4 We are fully responsible |
| **Trust** | To what extent do you trust or distrust the Spanish government? | -3 I absolutely distrust it<br>-2<br>-1<br>0 I neither trust nor distrust it<br>1 |

| | | |
|---|---|---|
| | | 2<br>3 I absolutely trust it |
| **Impact** | To what extent do you think this policy would personally affect you? | 0 It would not personally affect me at all.<br>1 It would personally affect me a little.<br>2 It would personally affect me quite a bit.<br>3 It would personally affect me a lot.<br>4 It would personally affect me completely. |
| **UseVehicle** | How often do you use this vehicle? | - Daily.<br>- Several times a week.<br>- Once a week.<br>- Several times a month.<br>- Once a month.<br>- Less than once a month. |
| **Residence** | In which type of Spanish municipality are you currently living? In a municipality of: | - More than 10.000 inhabitants outside the metropolitan area of another big city.<br>- More than 10.000 inhabitants inside the metropolitan area of another big city.<br>- More than 10.000 inhabitants core of a metropolitan area.<br>- Between 2.000 and 10.000 inhabitants outside the metropolitan area of another big city.<br>- Between 2.000 and 10.000 inhabitants inside the metropolitan area of another big city.<br>- Less than 2.000 inhabitants. |
| **Age** | How old are you? | Numerical open-ended answer. |
| **Gender** | Please, indicate which is your gender. | - Women<br>- Men |
| **Education** | Please, indicate your maximum level of studies completed. | - No completed compulsory education.<br>- Compulsory education.<br>- Post-compulsory education<br>- First level university studies.<br>- Second level university studies. |
| **Income** | Finally, we would like to ask you what is your household's net monthly income. (A household includes an individual or a couple, as well as kids living in the same house. The income can be received in the form of salary, state benefit and/or income from assets). | - 499€ or less.<br>- From 500 to 999€<br>- From 1000 to 1499€<br>- From 1500 to 1999€<br>- From 2000 to 2499€<br>- From 2500 to 2999€<br>- From 3000 to 4999€<br>- 5000 € or more.<br>- I do not know. |

**B.2 Operationalization of concepts-by-postulation**

**- Indicators for Resistance**

This variable aims at measuring the degree to which a respondent is resistant to accept changes in general or, on the contrary, admits them happily. Based on the Resistance to Change Scale developed by Oreg (2003), we have identified four reflective indicators that capture the disposition of people to resist change: (1) routine seeking, (2) emotional reaction to imposed change, (3) cognitive rigidity and (4) short-term focus. Their formulation in the questionnaire is detailed in Table B2.

- **Indicators for Psychological distance**

This variable aims at measuring the subjective perception of distance between the respondent and climate change, without using the construal-level theory.

Liberman, Trope and Stephan (2007) defined four dimensions of psychological distance: (1) temporal, (2) spatial, (3) social and (4) hypothetical, which constitute "alternatives to the directly experienced reality" (p.353).

The four reflective indicators used in this study to measure psychological distance to climate change reflect these four dimensions. Their formulation in the questionnaire is detailed in Table B2.

- **Indicators for Knowledge**

This variable aims at assessing the knowledge that respondents have about climate change. We wanted to do so in an objective way since self-reported knowledge does not predict attitudes, nor concern about climate change issues (Stoutenborough and Vedlitz, 2013; Drews and van den Bergh, 2015). Thus, we take as a reference a test developed by climate scientists and with

information retrieved from reports of the Intergovernmental Panel on Climate Change (IPCC) (Stoutenborough and Vedlitz, 2013).

This science-based test is made up of six items which represent six assertions regarding different aspects of climate change: (1) greenhouse gases, (2) causes of climate change, (3) biodiversity, (4) sea level, (5) aerosols and (6) global precipitations. For each statement, respondents have to indicate if they think it is "true", "false" or they "do not know".

The formulation of these reflective indicators of assessed knowledge in the questionnaire is detailed in Table B2.

- **Indicators for Interest**

The purpose of this variable is to measure whether respondents are interested or not in the phenomenon of climate change. Thus, we developed four reflective indicators grasping different ways in which this feeling can be revealed: (1) time spent looking for information about climate change; (2) reading, (3) listening or seeing content about it; and finally, (4) time spent talking with family or friends about the issue.

Their formulation in the questionnaire is detailed in Table B2.

Table B2. Requests for an answer and scales (English translation) for the indicators used to measure the concepts-by-postulation

| Concept | Requests for an answer | Scale |
|---|---|---|
| **Resistance** | 1) To what extent do you prefer having a stable routine or experimenting changes in your life?<br>2) To what extent do you feel stressed or not, when things do not go according to plans?<br>3) To what extent is it easy or difficult for you to change your mind?<br>4) Now, we would like to ask you if changing plans is a hassle or not to you. | 1) From 0 (absolute preference for experimenting changes in life) to 6 (absolute preference for having a stable routine).<br>2) From 0 (it absolutely does not stress me) to 6 (it absolutely stresses me).<br>3) From -3 (absolutely difficult) to 3 (absolutely easy).<br>4) From 0 (it is absolutely not a hassle) to 6 (it is absolutely a hassle). |
| **PsychDistance** | 1) Please, indicate when do you consider that the severe effects of climate change will be perceived.<br>2) To what extent do you think that climate change is currently affecting or not the region where you live?<br>3) To what extent do you think that climate change affects or not people like you?<br>4) To what extent do you think climate change is likely or unlikely to change the world for the worse in 10 years? | 1) They are already perceived; Within 1 to 5 years; Within 6 to 10 years; Within 11 to 20 years; Within 21 to 30 years; Within more than 30 years; Never; I do not know.<br>2) From 0 (it does not affect at all) to 4 (it completely affects).<br>3) From 0 (it does not affect people like me at all) to 4 (it completely affects people like me).<br>4) From -2 (completely unlikely) to 2 (completely likely). |
| **Knowledge** | Now, we will present you six statements about climate change. Please, indicate for each of them if you think it is true, false or you do not know.<br>1) Nitrous Oxide is a greenhouse gas.<br>2) The major cause of increased atmospheric concentration of greenhouse gases is human burning of fossil fuels.<br>3) Biological diversity will increase as global temperature increases.<br>4) Scientists agree that, as a result of global warming, the sea level will continue to rise for at least a century.<br>5) Aerosols are airborne particles that are known to contribute to the formation of clouds and precipitation.<br>6) There is scientific consensus that there will be an increase in global precipitation as a result of global climate change. | Scale for all indicators:<br>1 True<br>2 False<br>3 I do not know |
| **Interest** | 1) On average, how much time do you spend looking for information about climate change each month? | Numerical open-ended answers in hours and minutes. |

| | | |
|---|---|---|
| | 2) On average, how much time do you spend reading about climate change each month?<br>3) On average, how much time do you spend seeing or listening to content about climate change each month?<br>4) On average, how much time do you spend talking to friends or family about climate change each month? | |

**Appendix C. Creation of composite scores (CS)**

Based on the indicators presented in Table B2, four CS have been created, as follows:

1. Resistance to change: unweighted average of the four indicators, after recoding all scales so that all values range from 0 (minimum resistance) to 6 (maximum resistance).
2. Psychological distance to climate change: unweighted average of its four indicators, after recoding the questions regarding spatial, social and hypothetical distance so that values range from 0 (minimum distance) to 4 (maximum distance) and temporal distance with values between 1 (minimum distance) and 8 (maximum distance) in order to capture a wider range of distances. The answer category "I do not know" has been considered as a substantive option reflecting great temporal distance, as effects of climate change are not perceived as happening now and there is a lack of interest in knowing when they will occur. As a result, the values of this CS can range from .25 to 5.
3. Assessed knowledge about climate change: unweighted sum of the six indicators, after recoding the answers (-1 = incorrect answer, 0 = I do not know and 1 = correct answer). Thus, the assessed knowledge ranges from -6 (minimum knowledge) to 6 (maximum knowledge).
4. Interest in climate change: unweighted sum of the four indicators. Values do not have a definite range. Nevertheless, the highest the result of this sum, the more interest in climate change issues.

**Appendix D. LISREL Input Car policy**

```
!Group Directly affected
da ng=2 ni=16 no=1408 ma=km
cm file=CorrectedMatrixAffected.corr

Labels
Support Resistance SelfEfficacy ResponseEfficacy Responsibility PsychDistance Interest
Knowledge Trust Residence Impact Education Income Age Gender UseVehicle

mo ny=6 nx=10 be=fu,fi ga=fu,fi ph=sy,fr ps=sy,fi

fr ps 1 1 ps 2 2 ps 3 3 ps 4 4 ps 5 5 ps 6 6
fr be 1 2 be 4 2 be 5 2 be 1 4 be 1 5 be 1 6 be 5 6 be 1 3 be 3 2
fr ga 1 1 ga 5 1 ga 1 2 ga 5 2 ga 6 2 ga 4 2 ga 1 3 ga 4 3 ga 2 4 ga 1 4 ga 1 5 ga 2 5
fr ga 1 6 ga 5 6 ga 4 6 ga 6 6 ga 1 7 ga 3 7 ga 1 8 ga 2 8 ga 3 8 ga 1 9 ga 6 9 ga 3 9
fr ga 1 10 ga 3 10

!Modifications added after testing the model:
 fr be 4 6 be 3 4 be 5 3 ga 3 5 ga 6 1 ga 4 5 ga 5 8 ga 4 1

out mi sc ns AD=OFF

!Group Not directly affected
da ni=16 no=723 ma=km
cm file= CorrectedMatrixNotAffected.corr

mo ny=6 nx=10 be=in ga=in ph=sy,fr ps=in

fr ps 1 1 ps 2 2 ps 3 3 ps 4 4 ps 5 5 ps 6 6
va 0 be 1 3 be 3 2 ga 3 10 ga 3 8 ga 3 9 ga 3 7 ga 1 10

!Modifications added after testing the model:
fr be 3 4 be 4 6 be 3 2 be 5 3 be 1 5 be 1 3 ga 3 10 ga 3 5 ga 3 7 ga 4 5 ga 4 8

pd
out mi sc ns AD=OFF
```

***Note***: A similar input is used for the water policy, except for the following changes:
Group directly affected: ni=15, no=602, nx=9, va 0 be 1 2, and ga 1 10 and ga 3 10 are deleted.
Group not directly affected: ni= 15, no= 1578, nx=9, and ga 1 10 and ga 3 10 are deleted.
Modifications added after testing the water policy model:
Group directly affected: fr be 3 4 be 4 6 be 5 3 ga 4 5 ga 5 9 ga 3 5 ga 4 4 ga 6 1
Group not directly affected: fr be 3 4 be 4 6 be 5 3 be 4 5 be 1 5 ga 3 9 ga 3 5 ga 4 5 ga 6 1 ga 4 8.

**Appendix E. Quality estimates**

Table E1. Quality estimates for all variables in the study

| Policy | Variables | Quality[5] | Source |
|---|---|---|---|
| Car | UseVehicle | .652 | SQP 2.1 |
| | Impact | .691 | |
| | Support | .635 | |
| | SelfEfficacy | .590 | |
| | ResponseEfficacy | .677 | |
| Water | Impact | .692 | |
| | Support | .635 | |
| | SelfEfficacy | .580 | |
| | ResponseEfficacy | .676 | |
| Both | Trust | .720 | |
| | Responsibility | .597 | |
| | Age | .998 | Alwin (2007) |
| | Gender | 1 | |
| | Education | .940 | |
| | Income | .945 | |
| | Residence | .916 | |
| | Resistance (CS) | .995 | Saris & Gallhofer (2014, 14.4) |
| | PsychDistance (CS) | .961 | |
| | Interest (CS) | 1 | |
| | Knowledge (CS) | .954 | |

Table E2. CMV between pairs of variables where it exists

| Policy | Variable 1 | Variable 2 | CMV |
|---|---|---|---|
| Car | Self-efficacy | Trust | .057 |
| | Government response efficacy | Responsibility | .040 |
| | Impact | Responsibility | .037 |
| | Government response efficacy | Impact | .023 |
| Water | Self-efficacy | Trust | .066 |
| | Government response efficacy | Responsibility | .046 |
| | Impact | Responsibility | .037 |
| | Government response efficacy | Impact | .027 |

[5] Quality estimates obtained with SQP correspond to measurement quality ($q^2$). Those obtained from Alwin (2007) correspond to what Alwin calls reliability.

**Calculation of the quality of the CS:**

Applying the formula presented in Equation 2 to our data, we get the following quality coefficients for our four CS:

$$q\,(_{Resistance}) = \frac{\frac{(.64+.65+.45+.72)}{4}}{.616} = .998$$

$$q\,(_{PsychDistance}) = \frac{\frac{(.81+.76+.78+.77)}{4}}{.796} = .980$$

$$q\,(_{Interest}) = \frac{(\frac{.83+.84+.77+.79}{4})}{.799} = 1$$

$$q\,(_{Knowledge}) = \frac{(\frac{.24+.47+.23+.4+.48+.54}{6})}{.403} = .977$$

In order to obtain the measurement quality, we then take the square of these values.

**Appendix F. Correlation matrices corrected for measurement errors**

We present below two examples applying the formula presented in Equation 1 to our data.

Example 1 (Water policy):

corr(Impact, Response efficacy) = [.322-.027]/.684 = .295/.684 = .431.

Example 2 (Car policy):

corr(Impact, Responsibility) = [.066-.037]/.642 = .029/.642 = .05.

Table F1: Correlation matrices corrected for measurement errors

| | **Car policy** | **Water policy** |
|---|---|---|

| | | |
|---|---|---|
| **Directly affected** | 1.00<br>-.06 1.00<br>.57 -.20 1.00<br>.68 -.05 .55 1.00<br>.24 -.02 .19 .25 1.00<br>-.24 .02 -.16 -.35 -.53 1.00<br>.17 -.07 .14 .18 .14 -.18 1.00<br>.10 .04 .10 .16 .20 -.19 -.01 1.00<br>.04 -.03 .09 .15 .05 .02 .01 .04 1.00<br>-.10 .10 -.06 -.07 -.02 .03 -.05 -.03 -.05 1.00<br>-.34 .11 -.45 -.17 .05 -.06 -.01 -.08 -.16 -.05 1.00<br>.13 -.07 .09 .13 .07 -.01 .07 .01 -.08 -.14 .17 1.00<br>.05 -.05 .18 .05 .03 .03 -.01 .00 -.03 -.16 .07 .35 1.00<br>.00 -.09 .10 -.05 -.14 .08 -.05 .02 .16 -.03 -.24 -.26 .07 1.00<br>.00 .05 .00 .03 .16 -.15 .03 .05 .00 .00 .00 .09 -.10 -.01 1.00<br>-.10 .01 -.39 -.08 -.02 .04 -.01 -.05 -.09 .08 .33 .02 .04 -.21 -.10<br>1.00 | 1.00<br>.00 1.00<br>.30 -.04 1.00<br>.51 .00 .43 1.00<br>.18 -.02 .29 .21 1.00<br>-.26 -.13 -.12 -.29 -.53 1.00<br>.05 -.12 .09 .02 .13 -.10 1.00<br>.06 .04 -.05 -.03 .12 -.10 -.01 1.00<br>.07 -.05 -.02 .04 -.02 .06 -.06 .01 1.00<br>-.01 .02 -.05 .07 .05 -.03 -.02 -.03 -.05 1.00<br>.28 .13 .07 .43 .15 -.31 .10 -.13 -.05 -.09 1.00<br>.18 -.02 .05 .03 .09 -.05 .08 .08 -.10 -.12 .18 1.00<br>.09 .00 .07 -.05 -.07 .17 -.07 .04 -.01 -.15 .01 .29 1.00<br>.04 -.03 .01 -.07 -.12 .03 -.09 -.08 .22 .00 -.15 -.27 .15 1.00<br>.04 .06 -.07 .07 .22 -.19 .02 .02 -.08 .03 .01 .14 -.09 -.01 1.00 |
| **Not directly affected** | 1.00<br>-.04 1.00<br>.00 .00 1.00<br>.70 -.12 .00 1.00<br>.19 -.04 .00 .19 1.00<br>-.21 -.04 .00 -.23 -.55 1.00<br>.20 -.08 .00 .14 .11 -.16 1.00<br>.12 .04 .00 .15 .13 -.21 -.01 1.00<br>.11 .01 .00 .17 .08 .02 .03 .06 1.00<br>-.02 .04 .00 -.07 -.01 -.02 -.01 -.02 .06 1.00<br>-.43 .12 .00 -.38 .00 .00 .01 -.08 -.10 .05 1.00<br>.12 -.05 .00 .11 .06 -.05 .06 .07 .00 -.15 .06 1.00<br>.10 -.03 .00 .05 .06 .04 -.08 .07 .10 -.07 -.04 .42 1.00<br>.04 -.02 .00 -.13 -.04 .03 -.03 -.02 .15 -.01 -.12 -.21 .02 1.00<br>-.13 .04 .00 -.07 .15 -.16 -.01 -.05 -.01 .14 .00 .00 -.05 .09 1.00<br>.00 .00 .00 .00 .00 .00 .00 .00 .00 .00 .00 .00 .00 .00 .00 1.00 | 1.00<br>-.08 1.00<br>.00 .00 1.00<br>.55 -.02 .00 1.00<br>.33 -.03 .00 .22 1.00<br>-.31 .03 .00 -.26 -.54 1.00<br>.13 -.06 .00 .08 .13 -.19 1.00<br>.12 .04 .00 .09 .19 -.23 -.01 1.00<br>.04 .00 .00 .04 .09 .01 .04 .06 1.00<br>-.09 .10 .00 .02 -.03 .03 -.04 -.02 .00 1.00<br>.13 .07 .00 .31 .05 -.11 .04 .01 -.03 -.03 1.00<br>.14 -.07 .00 .05 .06 -.01 .06 .01 -.04 -.15 .09 1.00<br>.11 -.06 .00 -.02 .08 -.01 -.03 .01 .01 -.12 -.03 .41 1.00<br>-.03 -.07 .00 -.17 -.10 .07 -.04 .03 .13 -.03 -.14 -.22 .03 1.00<br>.04 .04 .00 .10 .12 -.13 .02 .02 .04 .06 -.03 .00 -.12 .04 1.00 |

## Appendix G. Fit of the model

### G.1. Global and local fit

Table G1. Global and local fit

| Policy | Model | p-value (Chi² test) | RMSEA | CFI | No. JRule misspecifications |
|---|---|---|---|---|---|
| Car | Initial | .0 | .110 | .740 | 39 |
| | Final | .0 | .040 | .970 | 6 |
| Water | Initial | .0 | .089 | .760 | 36 |
| | Final | .0 | .048 | .940 | 15 |

**Appendix H. Size causal effects**

Table H1. Causal effects

| Effect on... | Of... | Car policy | | Water policy | |
|---|---|---|---|---|---|
| | | Directly affected | Not directly affected | Directly affected | Not directly affected |
| Support | Resistance | **.04**** | **.05**** | n.a. | n.a. |
| | SelfEfficacy | **.16**** | **.00** | **.01** | **.01** |
| | ResponseEfficacy | **.55**** | **.58**** | **.49**** | **.50**** |
| | Responsibility | **.09**** | **.09**** | **.03** | **.15**** |
| | PsychDistance | **.00** | **.00** | **-.10**** | **-.10**** |
| | Interest | .06** | .06** | .04* | .04* |
| | Knowledge | -.02 | -.02 | .03 | .03 |
| | Trust | -.07** | -.07** | .01 | .01 |
| | Residence | -.02 | -.02 | -.05** | -.05** |
| | Impact | -.21** | -.22** | -.03 | -.03 |
| | Education | .08** | .09** | .11** | .11** |
| | Income | -.02 | -.02 | .06** | .06** |
| | Age | .05** | .06** | .09** | .09** |
| | Gender | -.06** | -.07** | -.04* | -.04* |
| | UseVehicle | .05** | .05** | n.a. | n.a. |
| Resistance | Residence | .08** | .08** | .08** | .08** |
| | Impact | .10** | .10** | .08** | .08** |
| | Age | -.04* | -.04* | -.05* | -.05* |
| SelfEfficacy | Resistance | **-.13**** | **.00** | **.00** | **.00** |
| | ResponseEfficacy | **.46**** | **.00** | **.49**** | **.00** |
| | Income | .17** | .00 | .03 | .03 |
| | Age | -.02 | -.02 | .00 | .00 |
| | Gender | -.01 | -.01 | -.10** | .00 |
| | UseVehicle | -.27** | .00 | n.a. | n.a. |
| | Impact | -.28** | .00 | -.15** | .00 |
| ResponseEfficacy | Resistance | **-.03** | **-.03** | **-.05**** | **-.05**** |
| | PsychDistance | **-.33**** | **-.19**** | **-.18**** | **-.16**** |
| | Responsibility | n.a. | n.a. | n.a. | .10** |
| | Knowledge | .07** | .07** | .02 | .02 |
| | Trust | .14** | .14** | .06** | .06** |
| | Education | .13** | .13** | -.01 | -.01 |
| | Impact | -.17** | -.38** | .41** | .28** |
| | Interest | .10** | .10** | n.a. | n.a. |
| | Age | n.a. | -.16** | n.a. | -.12** |
| | Residence | n.a. | n.a | .05** | .05** |
| Responsibility | Resistance | **-.02** | **-.02** | **-.03** | **-.03** |
| | PsychDistance | **-.50**** | **-.51**** | **-.50**** | **-.49**** |
| | SelfEfficacy | **.11**** | **.00** | **.23**** | **.00** |
| | Interest | .03 | .03 | .04 | .04 |
| | Knowledge | .07** | .07** | .08** | .08** |
| | Education | .02 | .02 | .04* | .04* |

| | | | | | |
|---|---|---|---|---|---|
| | Age | -.08** | -.08** | n.a. | n.a. |
| | Gender | n.a. | n.a. | .08** | .08** |
| PsychDistance | Knowledge | -.20** | -.20** | -.19** | -.19** |
| | Education | .00 | .00 | .00 | .00 |
| | Gender | -.15** | -.15** | -.14** | -.14** |
| | Interest | -.17** | -.17** | -.10* | -.19** |

*p< .05; ** p< .01 Bold: effects commented in section 5.2 of the paper.