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Manuscript title: Citizens Show Strong Support for Climate Policy, But Are They Also Willing to Pay?

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Abstract:
To what extent citizens are willing not only to support ambitious climate policy, but also willing to pay for such policy remains subject to debate. Our analysis addresses three issues in this regard: whether, as is widely assumed but not empirically established, willingness to support (WTS) is higher than willingness to pay (WTP); whether the determinants of the two are similar; and what accounts for within-subject similarity between WTS and WTP. We address these issues based on data from an original nationally representative survey (N=2500) on forest conservation in Brazil, arguably the key climate policy issue in the country. The findings reveal that WTP is much lower than WTS. The determinants differ to some extent as well; regarding the effects of age, gender, and trust in government. The analysis also provides insights into factors influencing how much WTS and WTP line up within individuals, with respect to age, education, political ideology, salience of the deforestation issue, and trust in government. Our findings provide a more nuanced picture of how strong public support for climate change policy is, and a starting point for more targeted climate policy communication.

Keywords: Climate change mitigation, willingness to support, willingness to pay, forest conservation, survey, Brazil

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1.0 Introduction

Climate change mitigation has important implications for citizens, because, for example, it imposes behavioral restrictions and affects energy costs as well as the allocation of public spending (Kane and Shogren 2000; Grothmann and Patt 2005). Though cost estimates concerning climate policy are plagued by high degrees of uncertainty, such policy is bound to impose substantial opportunity costs on individuals and societies as a whole (Victor and House 2005; Stern et al. 2006; McCollum et al. 2013; Nordhaus 2015). Particularly in democratic countries, policy-makers are thus – and, from a normative democratic standpoint, should be – affected in their climate policy decisions by what citizens want (Drews and Bergh 2015).

Public opinion surveys have sought to measure the "public will" in this respect, and to identify determinants of variation in country-level and individual attitudes and preferences (e.g., Scruggs and Benegal 2012; Harring and Jagers 2013; Geels, 2013; Wiseman et al. 2013; Kachi et al. 2015). Many of these studies have gauged, based on surveys and survey experiments, people's concern about climate change and their support or opposition to climate change mitigation, in a general sense, or with respect to specific mitigation measures (e.g., Ryan and Spash 2011; Vincent et al. 2014). According to a recent survey by PEW (2015), for instance, 54% in all 40 countries polled (average across the 40 countries) consider climate change a very serious problem. 78% on average want their country to limit greenhouse gas (GHG) emissions.

Survey embedded experiments show, however, that when people are confronted with cost implications of mitigation policy they become less supportive (e.g., Gampfer et al 2014; Bechtel and Scheve 2015). This suggests that differences in survey design and item wording matter, and that we should pay greater attention to differences between willingness to support (WTS) climate mitigation policy and willingness to pay (WTP) for such policy. The existing literature focuses to a large degree on WTS measures, and there are fewer studies that examine WTP for climate mitigation (e.g., Carlsson and Martinsson 2001; Turpie 2003; Brouwer et al. 2008; Solomon and Johnson 2009; Diederich and Goeschl 2014).

The existing evidence suggests that WTS survey instruments are likely to produce higher scores than WTP instruments (e.g., Seip and Strand 1992). However, to the best of our knowledge, this has not yet been systematically examined, though some studies on climate policy use WTP measurements and a few studies use both WTS and WTP approaches. In depth analysis of differences between WTS and WTP can provide several insights. First, it can offer a more nuanced picture of constraints public opinion may impose on climate policy-making, relative to focusing on WTS alone. It may, for instance, help in highlighting differences in public support levels associated with more or less manifest cost implications. Second, it allows us to examine whether determinants of WTS and WTP are similar. Third, it can generate information on what types of citizens are more likely to be what we will call "non-green" (both low WTS and WTP), "deep green" (both high WTS and WTP), "shallow green" (high WTS but low WTP), or "paradox green" (low WTS but high WTP, paradox because the presumption is that WTS is generally higher than WTP).

We address these questions based on data from an original nationally representative survey in Brazil (N=2500) that was implemented between late 2015 and early 2016. This survey focused on climate change mitigation and forest conservation, which is the most

important and publicly salient climate policy issue in Brazil. Our survey included a range of WTS and WTP items as well as items on potential determinants of variation in individual level WTS and WTP.

2.0 Conceptual differences between WTS and WTP

Most research on climate policy preferences focuses on people's general support for (or opposition to) climate policy. For example, a 2010 World Bank survey asks: "As you may know, [participant's country] and other countries from around the world will be meeting in December in Copenhagen to develop a new agreement to take steps against climate change by limiting greenhouse gas emissions. If the other countries come to an agreement, do you think [participant's country] should or should not be willing to commit to limiting its greenhouse gas emissions as part of such an agreement?" Factors that are used to explain preferences, captured in such form, include for instance socio-demographic variables, risk perceptions, general world-views, trust in public institutions, political ideology, and self-efficacy (e.g., Tobler et al. 2012; Geels 2013; Wiseman et al. 2013; Drews and Bergh 2015).

Other research has examined WTP (e.g., Inglehart 1995; Jacobsen and Hanley 2009; Lindhjem and Tuan 2012; Krosnick and MacInnis 2013; Diederich and Goeschl 2014). In general, we see two basic approaches of measuring WTP: revealed preferences and stated preferences. The first approach examines individuals' behavior in order to capture their (revealed) preferences towards climate change mitigation (e.g., Jaccard et al. 2003; Bürer and Wüstenhagen 2009; Diederich and Goeschl 2014). The second approach asks participants to choose from hypothetical choice sets. The stated-preferences approach is categorized further according to the type of valuation question, e.g., dichotomous choice using bid amounts (e.g., Cameron 2005; Brouwer et al. 2008), payment cards (e.g., Solomon and Johnson 2009), or open-ended questions (e.g., Kotchen et al. 2013). For instance, Aldy et al. (2012) employ different randomized amounts to ask survey participants how much they think a national clean energy standard (NCES) would increase their annual household electricity bill. To this end, they offer "bid" amounts between $5 and $155. They find that a $10 increase in the annual household cost of the NCES decreases the probability of policy support by 1 percentage point. Likewise, Kotchen et al. (2013) conclude that "US households are, on average, willing to pay between $79 and $89 per year in support of reducing domestic greenhouse-gas (GHG) emissions 17% by 2020. Even very conservative estimates yield an average WTP at or above $60 per year." Other studies expose survey participants to climate policy proposals, and let them express their preferences vis-à-vis such proposals. Such choice experiments can provide information on what role cost implications play, relative to other policy attributes. They find that support for climate policies tends to decline with increasing costs. Similarly, framing experiments that randomly embed references to costs in survey items gauging climate policy references show that support for climate policy declines to some extent when costs are referred to (Gampfer et al. 2014; Bechtel and Scheve 2015; Bernauer and McGrath 2016).

Whereas most of the existing research employs either a WTS or a WTP approach, we are interested in comparing the two. There is considerable disagreement in the environmental-economics literature on the extent to whether the two concepts can be used interchangeably. Randall and Stoll (1980), for instance, argue that WTP and WTS do not

differ much unless there are significant income effects (Breffle et al. 2015). However, WTS refers to the general support for climate change policy, while WTP refers to people's intention to pay for climate change mitigation. We thus expect WTP and WTS levels to be shaped by somewhat different considerations, which are likely to result in higher WTS than WTP levels. The principal consideration is that supporting a policy constitutes a less costly action for the respondent than paying for a policy (Diekmann and Preisendörfer 2003). Although our WTP measures in the survey are not set up to make participants pay directly, they generate an idea or feeling of the policy at stake having costly implications. Taking these arguments further, we then examine what types of individuals score similarly at low or high levels on the two measures, and which ones differ. We thus attempt to categorize people along their WTP and WTS levels to examine how potential driving factors impact on these outcome measures and differences across them. For example, the existing literature argues that left political ideology is associated with more favorable attitudes towards climate policy (Harring and Jagers 2013). But it remains unclear whether this results in higher WTS, WTP, or both.

3.0 Study Design

The following analysis relies on data from an original nationally representative survey fielded in Brazil between December 28, 2015 and January 12, 2016. We focused on Brazil because of an interest in forest conservation issues related to climate policy, and because of Brazil's relevance to global climate change mitigation (Brechin 2003; Gebara et al. 2014). The survey was designed by the authors and was implemented by YouGov and its local partner in Brazil, Netquest. Details on the sampling strategy can be found in supplementary information SI-1.

The survey included in random order items on WTS and WTP for forest conservation and climate policy more generally. With regards to WTP, we acknowledge that the existing literature has employed different approaches in examining stated preferences. The first approach gauges WTP in a rather broad sense (e.g., Krosnick and MacInnis 2013), whereas the second approach results in monetized measurement units (e.g., Kotchen et al. 2013). Which of these two approaches is more useful for measuring WTP depends, in our view, on the objective of a given research effort. For the purposes of our study, we follow the first approach. The main reason is that we are interested in comparing WTS and WTP measures and thus prefer to use a similar measurement approach, in the sense of asking survey participants to respond to batteries of survey items, some of which pertain to whether they are willing to support climate mitigation policy, and others that pertain to whether they are willing to pay for such policy. Also, we included a range of socio-demographic and other items (See SI-2-SI-5).

4.0 Empirical analysis

The analysis reported in this section is organized along the three questions outlined at the outset. First, we examine the extent to which the two measurements (WTS, WTP) generate different results, and whether, as presumed, WTP is lower than WTS. Second, we examine to what extent determinants of WTS and WTP are similar or different. Third, we look at what kinds of people score similarly high or low or different on the two variables.

4.1 Are people more willing to support than to pay? A comparison

Our survey included batteries of items for WTS and WTP respectively. Table 1 shows the scores on these items in simplified, i.e., dichotomized form (the subsequent analysis will use the full information. For item wordings and illustrations, see SI-3 and SI-4). To measure WTS, we used items capturing concern regarding climate change and support for mitigation policy. To measure WTP, we included items that make participants aware of costs of forest conservation policies, and ask them about their willingness to pay for such policies.

To facilitate overall comparison and analysis of determinants of WTS and WTP respectively, and also mitigate problems of measurement error, we aggregated the individual item scores into composite measures, based on confirmatory factor analysis (CFA). The eight WTS items and four WTP items listed in Table 1 were used to that end. We constructed a broad measure of WTS that consists of items referring not only to specific policies for climate change and forest conservation, but also to individuals' concern about climate change. The WTP measure focuses on people's willingness to pay additional taxes for forest conservation and financial contributions to environmental NGOs. We do not capture willingness to pay by directly asking people for money or observing their monetary contributions, but asking about their *intention to pay* for forest conservation. This approach differs from the WTS one, which does not imply or refer to any (direct) costs. The factor loadings indicate the relationship of each variable (item) to the underlying factor (WTS and WTP). The factor loadings for WTS range between 0.29 and 0.45. The factor loadings for WTP range from 0.50 to 0.64 (SI-6**)**. The distribution of the WTS variable is significantly different from the distribution of the WTP variable. The mean for WTP equals 0.80 and the mean for WTS is 0.40. The standard deviation is 0.14 and 0.29 respectively (Table and Figure SI-3). Average WTP is much lower than average WTS, and WTP scores are much more heterogeneous (much higher standard deviation) than WTS scores. This finding thus responds to the first question, as outlined at the outset of the paper (to what extent the two measures differ). The fact that we observe such differences between the two measurements (i.e., WTS and WTP) raises questions about whether the determinants of WTS and WTP differ as well, and what types of people score similarly high or low or different on the two variables.

4.2 Determinants of WTS and WTP

To examine whether determinants differ across the two outcome variables of interest here we regress these two variables on a wide range of potential determinants that have been identified as relevant in prior research (e.g., Geels 2013; Wiseman et al. 2013; Drews and Bergh 2015). We include two demographic variables, gender and age. Gender is a dummy variable, 1 for male and 2 for female. Age is a count variable ranging from 18 to 78 years old. We also include in the analysis indicators for income, education, and political ideology. Income captures the annual household income of a survey participant and is measured in Brazilian Real. Education captures the highest level of education of a participant. The categories are: no schooling, elementary school, high school, professional training, undergraduate studies, and postgraduate studies. For political ideology, we coded dummy variables (left, center, right, uncertain) and use "uncertain" as the baseline category. Participants are likely to differ in their knowledge of environmental issues (Dolan et al.

2012). We thus asked participants a question on greenhouse gas emissions (knowledge). Also, we included an item that measures whether participants consider deforestation a crucial environmental issue in Brazil (deforestation salience). Finally, we employ a variable that measures trust in the Brazilian government (trust). Fairbrother (2016) finds that political trust is an important correlate of greater WTP, but not of environmental concern (for item wordings, see SI-5).

In both models shown in Table 2, we regress WTS (Model 1) and WTP (Model 2) on a set of potential determinants. Model 1 shows that women and younger participants are on average more willing to pay for forest conservation. We also find that education and the salience of deforestation have a positive and significant effect on WTP. Turpie (2003), in a study on South Africa, found a positive correlation between WTP and income and knowledge. In another study, Bruderer et al. (2014) found a negative correlation between income and environmentally responsible behavior. In our study, knowledge and income have no significant effect on WTP. This finding could be driven by the current economic recession in Brazil, which is likely to make people more skeptical towards any environmental policy.

Model 2 focuses on determinants of WTS. Unlike in Model 1 (WTP), gender is not a significant determinant, and age is a positive and significant predictor of WTS, meaning that older people are more supportive of climate change policy. Knowledge also turns out to be a significant and positive predictor of WTS. Our results regarding trust in the government are in line with previous findings; trust in government, while having a significant positive effect on WTP, has no significant effect on WTS (Fairbrother 2016) (see also Table SI-5). Education level, left political ideology, income, and deforestation salience all have similar effects on both outcome variables (positive, except for income, which does not have a significant effect across the models). Refer to the supplementary information SI-6 and SI-7 for additional models and a series of robustness tests.

4.3 Explaining similarities and differences between WTS and WTP scores

The differences in what factors drive WTS and WTP, as described and explained in the previous section, point to a need for better understanding of what types of individuals score similarly at low or high levels on the two measurements, and which ones differ in what ways. To that end we divided survey participants into four groups, based on how their WTS and WTP scores compare.

For a straightforward and intuitive analysis, we used the median values on the two variables to create four groups (Table SI-8). The median value of WTS is 0.83 and the median value of WTP is 0.39. 773 individuals were thus categorized as “non green”, based on low scores both on WTS and WTP. 532 individuals were categorized as “shallow green”, as they score high on WTS but low on WTP. 497 individuals were categorized as “paradox green”. We considered it less likely that an individual would be highly motivated to pay for climate policy whilst she/he does not support it. Note, however, that there might be some borderline cases, namely those who are very close to the median values. For example, there might be individuals with the highest WTS scores within the low WTS category and the lowest WTP within the high WTP category. Finally, “deep green” individuals, in our categorization, score high on both variables (N=698). We are, of course, aware that this categorization is very simple and uses somewhat provocative labels. Yet,

we think that this is a useful first attempt to explore how and why people may score similarly or differently on the WTS and WTP variable.

To examine what types of people are more likely to be in which of the four categories we carried out multinomial regressions, with the four categories serving as classifications on the outcome variable to be explained (Table 3). The explanatory variables are those also used for comparison of determinants of WTS and WTP in the previous section (Table 2). The distributions of explanatory variables at the aggregate level and within each of the four categories are graphically shown in SI-7.

The coefficients of multinomial logit models (Table 3) have to be interpreted with regards to a baseline (i.e., one value of the categorical dependent variable). For that purpose, we use the "non-green" category (low scores on both WTS and WTP). Coefficients in multinomial logit models, however, cannot be interpreted as slopes, and thus we provide marginal effects (Figure SI-7). Overall, the results indicate that there are substantial differences across the explanatory variables with regards to their effects on the outcome. For example, individuals become economically more conservative with age (Binstock and Quadagno 2001; Goerres 2008). Our results show that *age* significantly increases (by 28 percentage points) the probability of an individual to be in the shallow-green category, and it is a significantly negative predictor for being in the paradox-green and deep-green categories. Moreover, women tend to be more concerned about climate change than men (see also McCright 2010). However, we also find that women are somewhat more likely (by 3.7 percentage points) to be in the paradox-green category.

We expect that highly educated people are both more supportive and more willing to pay for climate policy. Less educated people, conversely, should be more likely to end up in the non-green category. When increasing *education* from the minimum to the maximum and holding all other variables constant at their medians, the likelihood of being in the deep-green category in fact increases by 22 percentage points. The (perceived) salience of deforestation (i.e., whether participants consider deforestation a crucial environmental issue in Brazil) is a significantly positive predictor for the deep-green and the shallow-green categories. Individuals who consider deforestation a less salient issue are neither supportive nor willing to pay for forest conservation. In more substantive terms, when increasing perceived salience from the minimum to the maximum (i.e., not salient issue to very salient issue), the likelihood of belonging to the non-green group decreases by 35 percentage points. Conversely, the likelihood of belonging to the deep-green category increases by 27 percentage points.

The most knowledgeable individuals belong to the strongest supporters of climate change policy (WTS) (Turpie 2003), but this does not mean that they are also willing to pay. When increasing knowledge from the minimum to the maximum, the likelihood of belonging to the deep-green category increases by 2.2 percentage points. The least knowledgeable individuals are those who do not support forest conservation policy, but are still willing to pay for them ("paradox green") (see also Table SI-6). Existing studies find significant differences between different ideological groups and climate change policy in the United States (Nisbet et al. 2015). In our study, center and right political ideology do not have a strong significant impact on the dependent variable. We find, however, that left-wing individuals are less likely to belong to the non-green category. The results show that a left political viewpoint is associated with a 9-percentage point lower likelihood of belonging to the non-green category.

Finally, *trust* is an important predictor of WTP. Individuals exhibiting high levels of trust in government are more willing to pay for forest conservation, even if they exhibit only weak support for forest conservation (paradox green). When increasing trust from the minimum to the maximum, the likelihood of belonging to the paradox-green category increases by 11 percentage points. Likewise, the likelihood of belonging to the deep-green category increases by 8.7 percentage points. However, the chances of belonging to the shallow green category decrease by 7.7 percentage points, while the likelihood of belonging to the non-green category decreases by 12 percentage points.

We also report χ^2-test statistics and probabilities to assess whether the effects of the explanatory variables are identical across categories (Tables SI-9 and SI-10). Overall, we observe that *age*, *education*, *left* political ideology, *salience* of the climate change issue, and *trust* in government are the most important determinants that influence to what category an individual belongs to. These determinants are consistently and significantly positive.

5.0 Discussion

Particularly in democratic societies, public opinion acts as a constraint on or facilitator for what policy-makers can do (or avoid doing) in order to reduce greenhouse gas emissions, and thus mitigate adverse consequences of climatic changes. Knowing what the public prefers is important for understanding what current climate policy looks like and where it might be heading, and for assessing how current policies compare to what citizens want. These considerations have led to a large and growing body of research on citizens' attitudes and preferences with respect to climate change mitigation policy.

Preferences with respect to climate change mitigation policy are being measured primarily in terms of willingness to support (WTS) and willingness to pay (WTP). While cost considerations clearly do play a role when citizens form preferences with respect to mitigation policy, the existing evidence also shows that other factors matter too (e.g., Diekmann and Preisendörfer 2003; Bernauer and McGrath 2016). Hence, we believe that using both types of measures is the most insightful approach, both in policy and academic terms. This also means, however, that a clearer understanding is needed on how the two measures compare and relate.

In this paper, we thus engage in a systematic comparison of the two measurement approaches (i.e., WTS and WTP), examining the implications for identifying factors that shape public opinion on climate change policy, and also examine what kinds of citizens are likely to score similarly or differently with respect to WTS and WTP. The empirical analysis is based on new public opinion data from a representative sample from Brazil, which faces great challenges in conserving tropical forests and dealing with climate change more generally.

The results reveal substantial differences between WTS and WTP, with WTP turning out to be lower than WTS, as expected. The determinants of WTS and WTP differ to some degree as well, reaffirming that the two measures capture somewhat different facets of public preferences concerning climate policy. The analysis also provides further insights into how individuals group into different combinations of WTS and WTP. When studying these

groupings, we find that *age*, *education*, *left* political ideology, *salience of deforestation*, and *trust* in government have significant effects.

While the research presented here provides more nuanced insights into different facets of citizens' climate policy preferences, it also has some limitations that could be addressed in further research. Like the large majority of studies on WTP for environmental policy, our measurement captures stated (or intended) rather than revealed or *de facto* willingness to pay. Additionally, in contrast to some other WTP measurements, our approach does not generate information on how much, in monetary terms, survey participants would pay for particular climate policies (e.g., defined in terms of the GHG emissions they would reduce). Rather, it captures WTP in a more general form. Further research could also measure WTP in direct terms, e.g., by using contingent valuation methods (see Diamond and Hausman 1994; Hanemann 1994), and compare the resulting measure to our broader WTP variable as well as WTS. Moreover, it would be useful to engage in field experiments, where WTP could be assessed in a more realistic fashion, e.g., in the form of donation campaigns supporting forest conservation. Further research could also look more closely into why certain types of individuals are more willing to support climate policy than to pay for it, and vice versa. Finally, another limitation is that the survey took place while Brazil experienced a major economic downturn. Future research could explore whether WTP is more sensitive to economic downturns than WTS.

The main policy implication of our study is that decision-makers, when planning climate policies, should engage in systematic assessment of both WTS and WTP in order to understand constraints emanating from public support for (or opposition to) such policies. To the extent the determinants of WTS and WTP differ, or are similar at low or high scores, political communication could also be better tailored to specific subgroups.

Table 1. List of WTS and WTP questions and percentages of support

Please tell us your opinion about the following statements:	
WTS	
1. We need to preserve rainforests in Brazil even if this means less land for agriculture or construction in Brazil.	79.16%
2. We need to preserve rainforests in Brazil, even if this means that the government of Brazil has to reduce government spending/investment in other areas.	74.24%
3. To limit climate change (global warming), do you think people in Brazil and other countries will have to change their lifestyles, […] or can new technology solve the climate change problem without requiring changes of lifestyles?	71.96%
4. Do you think climate change is harming people in Brazil now, […] or will never harm people in Brazil?	95.56%
5. How concerned are you, if at all, that climate change will harm you personally at some point in your lifetime?	94.48%
6. The government of Brazil has pledged to reduce the country's emissions of carbon dioxide (CO_2), which contribute to climate change (global warming), […] To what extent do you personally support or oppose this policy?	93.36%
7. People hold different views on whether Brazil should increase its forest conservation efforts on its own, […] Brazil should increase its forest conservation efforts . . .	84.44%
8. People hold different views on whether Brazil should reduce its carbon dioxide (CO2) emissions on its own, or reduce its emissions only if other countries […] Brazil should reduce its carbon dioxide emissions . . .	81.12%

WTP	
1. We need to preserve rainforests in Brazil, even if this means raising taxes in Brazil to fund forest conservation.	39.08%
2. Would you personally be willing or not be willing to pay an additional R$ 30 in taxes per month […] to invest more in forest conservation?	37.68%
3. Would you personally be willing or not be willing to contribute R$ 100 to a large private environmental organization to support forest conservation […]	29.52%
4. Would you personally be willing or not be willing to pay more for certain […] to protect forests in Brazil?	68.44%

Note: See SI-2 for detailed wordings.

Table 2. Determinants of WTP and WTS

	Model 1	Model 2
	WTP	WTS
Gender	0.03**	-0.00
	(0.01)	(0.01)
Age	-0.01***	0.01***
	(0.01)	(0.01)
Education	0.01**	0.02***
	(0.01)	(0.01)
Left	0.06***	0.01***
	(0.02)	(0.00)
Center	0.02	-0.00
	(0.02)	(0.00)
Right	-0.02	-0.00
	(0.02)	(0.00)
Income	0.00	0.00
	(0.00)	(0.00)
Knowledge	0.00	0.02***
	(0.01)	(0.01)
Deforestation salience	0.04*** (0.01)	0.08*** (0.01)
Trust	0.04*** (0.01)	0.01 (0.00)
Constant	0.24***	0.48***
	(0.05)	(0.02)
Obs.	2500	2500
F-Test	0.00	0.00
R^2	0.04	0.11

Notes: OLS regression, standard errors in parentheses; * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$

Table 3. Determinants of WTS and WTP profiles

Dependent variable	(2) Shallow green	(3) Paradox green	(4) Deep green
Gender	0.01 (0.12)	0.27** (0.12)	0.10 (0.12)
Age	0.02*** (0.01)	-0.02*** (0.01)	-0.01 (0.01)
Education	0.13** (0.18)	0.01 (0.06)	0.26*** (0.05)
Left	0.47*** (0.03)	0.37** (0.18)	0.46*** (0.17)
Center	0.01 (0.15)	0.24* (0.15)	0.04 (0.14)
Right	-0.16 (0.21)	-0.11 (0.22)	-0.09 (0.19)
Income	0.03 (0.02)	0.01 (0.02)	0.02 (0.02)
Knowledge	0.27** (0.12)	-0.04 (0.11)	0.18* (0.10)
Deforestation salience	0.68*** (0.13)	0.17* (0.10)	1.08*** (0.16)
Trust	0.01 (0.06)	0.31*** (0.07)	0.24*** (0.06)
Constant	-3.70***	-1.35***	-4.77***
	(0.54)	(0.47)	(0.58)
Obs.			2,500
Pseudo Log Likelihood			-3301.389
Prob> χ 2			0.000

Notes: Multinomial logit: standard errors in parentheses;
* $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$; Baseline category is *Non green* = 1

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Supplementary Information

This part provides details on:

1. SI-1 Survey sampling strategy.
2. SI-2 Socio demographic characteristics of our sample.
3. SI-3 Item wordings of willingness to support climate policies.
4. SI-4 Item wordings of willingness to pay climate policies.
5. SI-5 Item wordings of Control variables.
6. SI-6 Comparison between WTP and WTS.
7. SI-7 Explanatory variables.
8. SI-8 Green categories
9. SI-9 Significant Differences across categories.

SI-1 Survey sampling strategy

3,223 Brazilian residents were interviewed online. Based on propensity score matching, they were then fitted to a sample of 2,500 to produce the final dataset. YouGov then raked to marginals (i.e., carried out a sample balancing) for gender, age, and education. The frame was constructed by stratified sampling from the full 2014 Americas Barometer from the LAPOP project at Vanderbilt University with selection within strata by weighted sampling with replacement. The matched cases were weighted to the sampling frame using propensity scores. The matched cases and the frame were combined and a logistic regression was estimated for inclusion in the frame. The propensity score function included age, gender, region, years of education, and frequency of internet usage. The propensity scores were grouped into deciles of the estimated propensity score in the frame and post-stratified according to these deciles. The final weights were post-stratified to match the distribution of the sampling frame on three-category age, gender, and three-category education indicators. We acknowledge the potential biases this sampling approach engenders (particularly in view of incomplete internet penetration in Brazil). However, it is widely acknowledged in current survey research that this approach provides samples and survey data of at least equivalent quality, compared to traditional telephone or mail based recruitment into paper-and-pencil, telephone, or online-surveys with response rates that hardly ever get beyond 10 percent.

Table SI-1 (SI-2) compares sociodemographic averages of our sample with the population of Brazil. For example, 48% of our sample finished education between 17 and 19 years old. According to the Latinobarometer (2013) the median value of age respondents finished education is 17. We also obtained a gender ratio of 1:1, while the gender ratio in the overall population is 0.97:1 according to the 2015 population census. There are some differences in ideology but this is due to the recent political instability in Brazil. That said, “uncertain” individuals are the largest group in our sample and in the population.

SI-2 Socio demographic characteristics of our sample

Table SI-1: Comparison of socio-demographic characteristics

	Our sample	Population	Source of population data
Ideology	Left: 14% Center-left: 7.56% Center: 11.52% Center right: 5.32% Right: 8.76% Uncertain: 52.84%	Left: 7.06% Center-left: 17.44% Center: 22.76% Center right: 15.78% Right: 5.15% Uncertain: 31.81%	Latinobarometer 2013
Education	The median value of age respondents finished education is 19 (48% of participants completed education between 17-19 years old).	The median value of age respondents finished education is 19	Latinobarometer 2013
Income	The average income is: R$ 10,000.00 - R$ 20,000.00	The 2014 Brazilian average household income was R$ 41,021.98	The World Bank
Gender (male: female ratio)	1:1	0.97:1 (2015 est.)	The World Factbook (CIA)
Age	The median value of age is 34	The median value of age is 31.1 (2015 est.)	The World Factbook (CIA)

Note: the table presents a comparison of the socio-demographic characteristics of our sample and the population of Brazil.

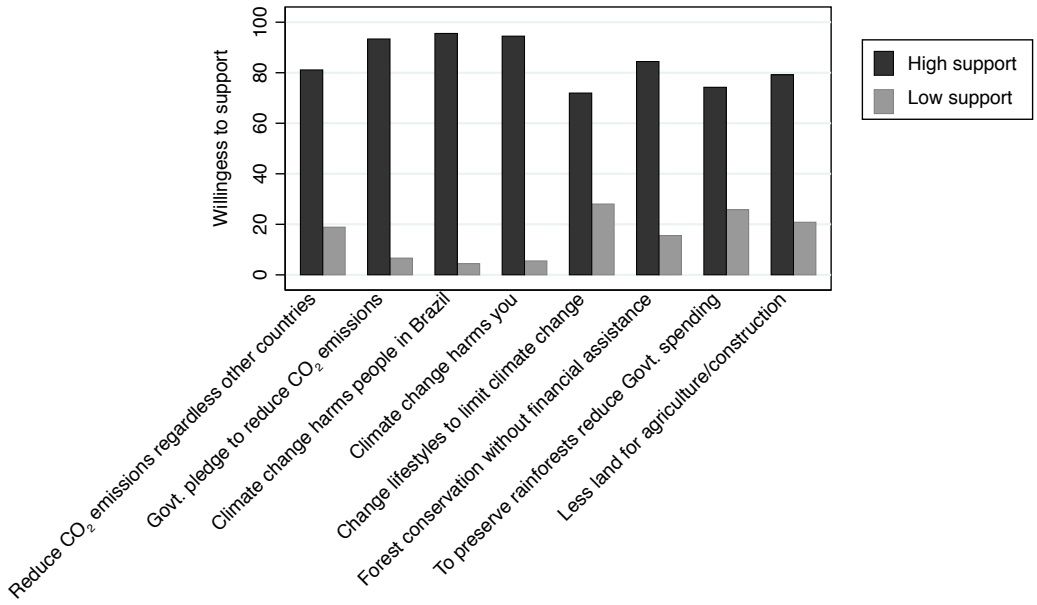
SI-3 Item wordings of willingness to support climate policies

Willingness to support climate policies	
Please tell us your opinion about the following statements:	
1. We need to preserve rainforests in Brazil even if this means less land for agriculture or construction in Brazil.	1 Strongly agree 2 Agree 3 Disagree 4 Strongly disagree
2. We need to preserve rainforests in Brazil, even if this means that the government of Brazil has to reduce government spending/investment in other areas.	1 Strongly agree 2 Agree 3 Disagree 4 Strongly disagree
3. To limit climate change (global warming), do you think people in Brazil and other countries will have to change their lifestyles, for example by using less electricity and driving less; or can new technology solve the climate change problem without requiring changes of lifestyles?	1 Have to change lifestyles 2 New technology can solve the problem without change of lifestyles 3 Climate change is not a problem, neither change of lifestyle nor new technology are needed
4. Do you think climate change is harming people in Brazil now, will harm people in Brazil in the next few years, will not harm people in Brazil for many years, or will never harm people in Brazil?	1 Now 2 In the next few years: 3 Not for many years: 4 Never 5 Climate change does not exist
5. How concerned are you, if at all, that climate change will harm you personally at some point in your lifetime?	1 Very concerned 2 Somewhat concerned: 3 Not too concerned 4 Not at all concerned 5 Climate change does not exist
6. The government of Brazil has pledged to reduce the country's emissions of carbon dioxide (CO_2), which contribute to climate change (global warming), by a large amount (around 40 percent). These reductions would take place over the next five to ten years. To that end, the government plans to conserve forests and reduce deforestation in Brazil and increase the amount of electricity from hydropower, solar, and wind. To what extent do you personally support or oppose this policy?	1 Strongly support 2 Support 3 Oppose 4 Strongly oppose
7. People hold different views on whether Brazil should increase its forest conservation efforts on its own, or do so only if richer (industrialized) countries provide financial assistance to Brazil for this purpose. Which of the following statements comes closest to your own personal point of view? Brazil should increase its forest conservation efforts . . .	1 Regardless of whether richer countries provide financial assistance to Brazil 2 Only if industrialized countries (e.g. United States, Germany, Japan) provide financial assistance to Brazil 3 Brazil should not increase its forest conservation efforts
8. People hold different views on whether Brazil should reduce its carbon dioxide (CO2) emissions on its own, or reduce its emissions only if other countries do the same and provide financial assistance to Brazil for this purpose. Which of the following statements comes closest to your own personal point	1 Regardless of what other countries do 2 Only if industrialized countries (e.g. United States, Germany, Japan) reduce their own emissions as well

of view? Brazil should reduce its carbon dioxide emissions . . .	3 Only if industrialized countries reduce their own emissions as well **and** provide international funding and technical support to Brazil for this purpose 4 Only if other lower income countries (e.g. China and India) reduce their own emissions as well 5 Brazil should not reduce its carbon dioxide emissions.

Figure SI-1 shows that concern about climate change and support for climate policy and forest conservation is indeed very strong, with support levels in the range of 70-90 percent. To the contrary Figure SI-2 shows that levels of willingness to support forest conservation are rather low.

Figure SI-1 Willingness to support climate policy and forest conservation

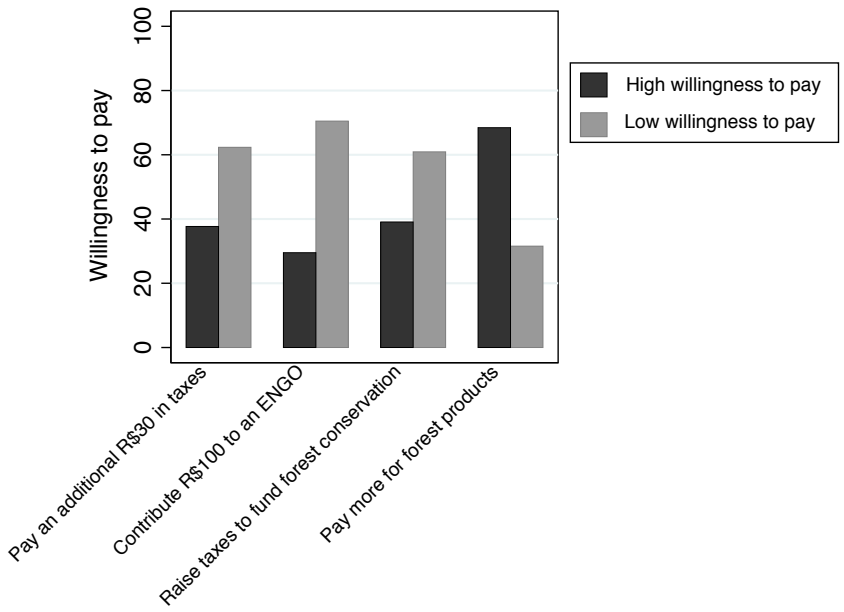


Notes: For simplicity, the responses were recoded to a binary scale. The horizontal axis shows the percentage of respondents in the respective category (high support, low support). See SI-3 for detailed wordings. N=2,500.

SI-4 Item wordings of willingness to pay for forest conservation

Willingness to pay for forest conservation in Brazil	
Please tell us whether you agree or disagree with the following statements:	
1. We need to preserve rainforests in Brazil, even if this means Raising taxes in Brazil to fund forest conservation.	1 Strongly agree 2 Agree 3 Disagree 4 Strongly disagree
2. Would you personally be willing or not be willing to pay an additional R$ 30 in taxes per month over the next few years to enable Brazil to invest more in forest conservation?	1 Would be willing 2 Would not be willing
3. Would you personally be willing or not be willing to contribute R$ 100 to a large private environmental organization to support forest conservation in Brazil such as the Instituto de Pesquisas Ecológicas (IPÊ; this is an institute for environmental education and research that deals with deforestation issues in Brazil; more information is available at: www.ipe.org.br)?	1 Would be willing 2 Would not be willing
4. Would you personally be willing or not be willing to pay more for certain products related to forests, such as furniture or food, if this helped to protect forests in Brazil?	1 Would be willing 2 Would not be willing

Figure SI-2 Willingness to pay for forest conservation



Notes: For simplicity, the responses were recoded to a binary scale. The horizontal axis shows the percentage of respondents in the respective category (high willingness to pay, low willingness to pay). The black bars are responses that indicate willingness to pay for climate policy; the grey bars show responses that indicate no willingness to pay (see SI-2 for detailed wordings). N=2,500.

SI-5 Item wordings of Control variables

Items wording for control variables	
1. What is your gender?	1 Male 2 Female
2. In what year were you born?	Select year
3. What is the highest education level you have completed?	1 No schooling 2 Elementary school 3 High school 4 Professional training 5 Undergraduate studies 6 Professional diploma (5 or 6 years of studies) 7 Postgraduate studies
4. Thinking about politics these days, how would you describe your own political viewpoint?	1 Left 2 Center-left 3 Center 4 Center right 5 Right 6 Not sure
5. Thinking back over the last year, what was your household's annual income?	1 Less than R$ 10.000,00 2 R$ 10.000,00 - R$ 20.000,00 3 R$ 20.001,00 - R$ 30.000,00 4 R$ 30.001,00 - R$ 40.000,00 5 R$ 40.001,00 - R$ 50.000,00 6 R$ 50.001,00 - R$ 60.000,00 7 R$ 60.001,00 - R$ 70.000,00 8 R$ 70.001,00 - R$ 80.000,00 9 R$ 80.001,00 - R$ 90.000,00 10 R$ 90.001,00 - R$ 100.000,00 11 R$ 100.001,00 - R$ 110.000,00 12 R$ 110.001,00 - R$ 120.000,00

	13 R$ 120.001,00 - R$ 130.000,00 14 R$ 130.001,00 - R$ 140.000,00 15 R$ 140.001,00- R$ 150.000,00 16 More than R$ 150.000,00
6. Could you tell us which of the following statements you consider correct? The "greenhouse effect", as debated in international negotiations on climate change, refers to:	1 Gases in the atmosphere that trap heat 2 The Earth's protective ozone layer 3 Pollution that causes acid rain 4 How plants grow 5 Don't know
7. In your view is deforestation in Brazil, a...	1 Very serious problem 2 Somewhat serious problem 3 Not too serious problem 4 Not a problem
8. I trust the federal government to do what is right	1 Definitely true 2 Somewhat true 3 Somewhat false 4 Definitely false

SI-6 Comparison between WTP and WTS

Table SI-2 shows the results of the CFAs along with the eigenvalue for each composite measure. For the WTS variable, we constructed a battery item that consists of items referring not only to specific policies for forest conservation, but also to individuals' concerns about climate change. The factor loadings in the confirmatory factor analysis are in the range from 0.27 to 0.45. Only a single factor resulted in an eigenvalue greater than 1. For the WTP measure, we employed only those survey items that focus on people's willingness to pay additional taxes for forest conservation and financial contributions to environmental NGOs. Our survey questionnaire has four related items that are all used for the construction of the WTP variable. The factor loadings in the confirmatory factor analysis range between 0.50 and 0.64. We obtained one factor of eigenvalue larger than 1.

Table SI-3 shows descriptive statistics for the measurement of WTS and WTP. The mean for WTP equals 0.80 and the mean for WTS is 0.40. The standard deviation is 0.14 and 0.29 respectively. That is, the two measurements differ strongly both in means and in distributions.

Table SI-2 Results of confirmatory factor analysis

Survey Item	Willingness to support	Willingness to pay
1. Reduce CO_2 emissions regardless other countries	0.45	
2. Government pledge to reduce CO_2 emissions	0.40	
3. Climate change harms people in Brazil	0.27	
4. Climate change harms you	0.37	
5. Change lifestyles to limit climate change	0.43	
6. Forest conservation without financial assistance	0.45	
7. To preserve rainforests the government of Brazil has to reduce government spending in other areas	0.29	
8. Less land for agriculture or construction in Brazil	0.36	
1. Raise taxes to fund forest conservation		0.57
2. Pay additional R$30 in taxe for climate policies		0.64
3. Pay R$100 to ENGO		0.50
4. Pay more for forest produc		0.51
N	2,500	2,500
Eigenvalue	1.17	1.25

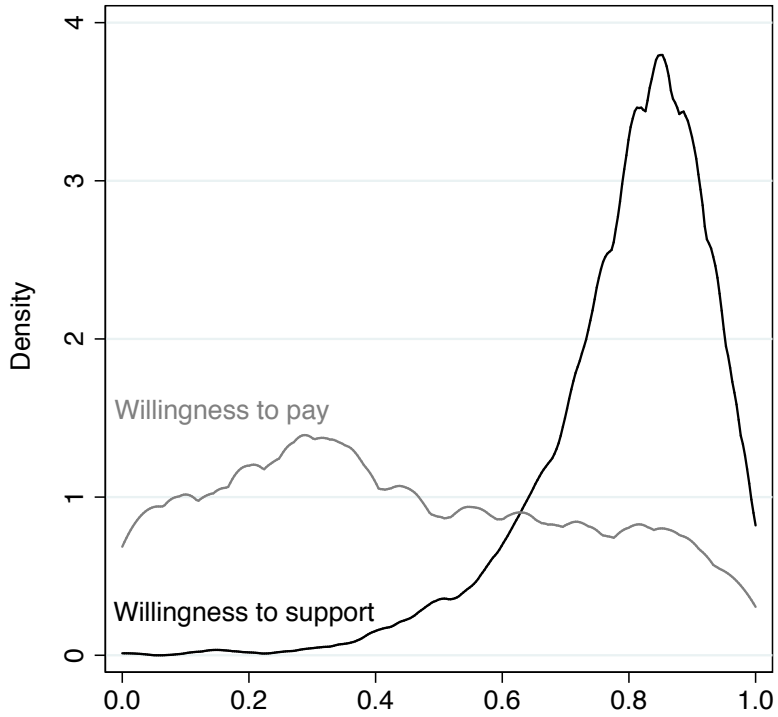
Notes: only a single factor resulted in an eigenvalue greater than 1 in all latent constructs. Employing polychoric correlations the results remain qualitatively the same. The eigenvalue for the significant factor is reported in the last row. For internal consistency, we calculated the alpha coefficient (Cronbach's Alpha) that is 0.58 for WTS, and 0.67 for WTP (standardized items because they are not on the same scale). Cronbach's Alpha suggests that the items for both measurements do not have a very high internal consistency, but still within the acceptable scale to produce robust results (see also Lance et al. 2006).

Table SI-3: Descriptive statistics for WTS and WTP

	Obs.	Mean	SD	Min.	Max.
WTS	2,500	0.80	0.14	0	1
WTP	2,500	0.44	0.29	0	1

Figure SI-3 shows the distributions of the two composite variables (i.e., WTS and WTP).

Figure SI-3 Distribution of composite measures for WTS and WTP



Note: the composite measures were standardized to a 0 to1 scale.

The purpose of our WTS measure is to generally grasp people's support for climate change mitigation. That said, we also provide a model where the WTS items focus only on supporting forest conservation policy (i.e., reduce CO2 emissions regardless other countries; government pledge to reduce CO2 emissions; to preserve rainforests the government of Brazil has to reduce government spending in other areas; less land for agriculture or construction in Brazil). We re-estimated the regression model using the alternative WTS variable and the results remain qualitative the same for all the sociodemographic determinants (Table SI-4). We find, however, that age is not significantly related to WTS when focusing on domestic policies. As the only difference compared to our main results age is no longer significantly related to WTS when focusing on domestic policies.

Table SI-4 Determinants of WTS for forest conservation

	Model 1 WTS
Gender	-0.00
	(0.01)
Age	0.01***
	(0.01)
Education	0.02***
	(0.01)
Left	0.01***
	(0.00)
Center	-0.00
	(0.00)
Right	-0.00
	(0.00)
Income	0.00
	(0.00)
Knowledge	0.02***
	(0.01)
Deforestation salience	0.08***
	(0.01)
Trust	0.01
	(0.00)
Constant	0.48***
	(0.02)
Obs.	2500
F-Test	0.00
R^2	0.11

Notes: OLS regression, standard errors in parentheses; * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$

Kknowledgeable participants are more likely to distrust the government and, thus, less willing to pay for forest conservation. In order to examine whether our results are systematically biased by this, we offer two additional robustness checks. First, we consider a variable on individuals' trust of climate scientists. When incorporating this item into our analysis, though, the results remain qualitatively the same; at the same time, it also shows that participants who trust climate scientists are more supportive of climate change mitigation and willing to pay. This may indicate that climate scientists are a "more trustworthy source of action" than the government of Brazil (Table SI-5). Second, we examined interaction effects of knowledge and trust to government across all green categories. To this end, if our results were affected by a systematic bias (i.e., that more knowledgeable people tend to distrust the government), the multiplicative term of the interaction should be statistically significantly signed. However, this is not the case as it shown in the Table SI-6.

Table SI-5 Determinants of WTP and WTS-robustness check

	Model 1 WTP	Model 2 WTS
Gender	0.03**	-0.00
	(0.01)	(0.01)
Age	-0.01***	0.01***
	(0.01)	(0.01)
Education	0.01*	0.02***
	(0.01)	(0.01)
Left	0.06***	0.02**
	(0.02)	(0.00)
Center	0.02	-0.00
	(0.01)	(0.00)
Right	-0.02	-0.00
	(0.02)	(0.00)
Income	-0.00	-0.00
	(0.00)	(0.00)
Knowledge	0.00	0.02***
	(0.01)	(0.01)
Deforestation salience	0.03***	0.07***
	(0.01)	(0.01)
Trust	0.04***	-0.00
	(0.01)	(0.00)
Trust climate scientists	0.04***	0.02***
	(0.01)	(0.00)
Constant	0.32***	0.53***
	(0.05)	(0.02)
Obs.	2460	2460
F-Test	0.00	0.00
R^2	0.05	0.12

Notes: OLS regression, standard errors in parentheses; * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$; the number of observations decreases because some participants skipped the trust to climate scientists question.

Table SI-6 Determinants of WTS and WTP profiles

(*Knowledge*Trust* and *Knowledge*Trust climate scientists*)

Dependent variable	(2) Shallow green	(3) Paradox green	(4) Deep green
Gender	0.04	0.27**	0.15
	(0.12)	(0.12)	(0.12)
Age	0.02***	-0.02***	-0.01
	(0.01)	(0.01)	(0.01)
Education	0.13*	0.01	0.26***
	(0.06)	(0.06)	(0.05)
Left	0.44**	0.34*	0.42**
	(0.18)	(0.19)	(0.17)
Center	0.02	0.24*	0.03
	(0.15)	(0.15)	(0.14)
Right	-0.20	-0.19	-0.15
	(0.20)	(0.22)	(0.20)
Income	0.03	0.01	0.02
	(0.02)	(0.02)	(0.02)
Deforestation salience	0.66***	0.13	0.99***
	(0.14)	(0.10)	(0.16)
Knowledge	0.66*	0.21	0.17
	(0.33)	(0.35)	(0.31)
Trust	0.03	0.30***	0.15*
	(0.10)	(0.09)	(0.08)
Knowledge*Trust	-0.17	-0.08	0.01
	(0.14)	(0.13)	(0.12)
Trust climate scientists	0.27**	0.22*	0.47***
	(0.10)	(0.11)	(0.11)
Knowledge*Trust climate scientists	0.09	0.08	0.03
	(0.15)	(0.15)	(0.15)
Constant	-3.34***	-0.88***	-3.88***
	(0.58)	(0.52)	(0.62)
Obs.			2460
Pseudo Log Likelihood			-3228.19
Prob> $\chi 2$			0.000

Notes: Multinomial logit: standard errors in parentheses; * p < 0.10, ** p < 0.05, *** p < 0.01; Baseline category is Non green = 1; the number of observations decreases because some participants skipped the trust to climate scientists question.

To further examine participants' understanding of the two measurements we provide additional empirical analysis. We replace the dependent variable (WTP) by an item that captures the differences between the values of WTP and WTS. This variable measures whether individuals' replies to WTP and WTS are identical (absolute difference = 0) or, if they differ, by how much WTP is off WTS and vice versa (e.g., the maximum absolute difference is 1, which stands for full willingness to pay, but no willingness to support (or the other way round)). This helps us examine the impact of the several socio-demographic characteristics on differences between WTP and

WTS. Unlike the previous models, the results show that gender has a significant negative impact on the differences between WTP and WTS. Older and center-leaning individuals show higher variance on WTS and WTP. Also, individuals who trust the government to do what is right show less variance between WTS and WTP. In summary, the analysis here reveals substantial differences in determinants across the difference between the two outcome measures of interest. Notably, gender, age, left and center political ideology, and trust impact on the difference between individuals' WTS and WTP (Model 1 in Table SI-7 and Figure SI-4).

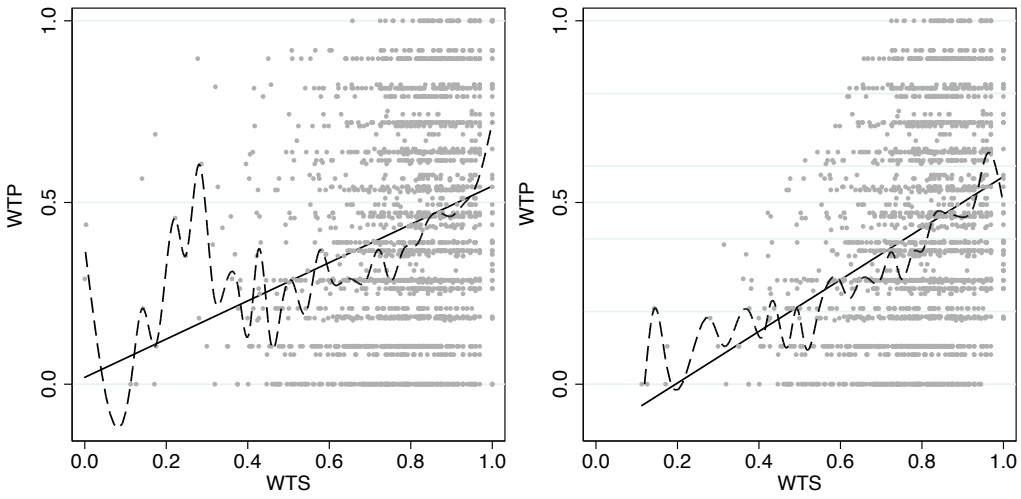
Second, we also sought to extend our analysis and examine whether individuals did not understand the difference of WTS and WTP. Specifically, we now provide an additional analysis that examines whether participants were willing to pay for one, but not another policy (i.e., (1) would you personally be willing or not be willing to pay an additional R$ 30 in taxes per month […] to invest more in forest conservation? And (2): would you personally be willing or not be willing to contribute R$ 100 to a large private environmental organization to support forest conservation […]). Using that information, we are able to approximate a two-stage process (i.e., "could you give an estimation of the monetary amount on yourself?" Then if people give a lower estimated amount than their estimated amount in questions in WTP, then we can sort of know that this is information gap and ignorance of cost that makes people respond differently") as we constructed a variable that measures WTP for one but not the other policy. Based on the original WTP and WTS items, this variable receives a value of 1 if a respondent said they would support, but not pay for climate mitigation policies (or vice versa; a value of 0 is coded otherwise). We find that female participants are, on average, more associated with WTP inconsistency. Also, older participants are less consistent with their WTP behavior than younger people, while particularly educated individuals are willing to pay for one policy but not the other (Model 2 in Table SI-7).

In order to examine whether these results are driven by attitudes toward a specific actor (i.e., government (for taxes) or civil society (for the second question we use above) and to control for the different amounts of money in the two questions (i.e., R$ 30 vs. R$100), we also provide models focusing on (1) only WTP to ENGOs, but not the taxes and (2) WTP in taxes but not the R$100 to civil society (Model 3 and Model 4, respectively). Although gender is not a significant determinant for WTP only to ENGOs, we find that female participants are positively associated with WTP taxes. Older participants are not willing to pay only to ENGOs, but age is not a significant determinant of WTP taxes. Moreover, we find that education – again – is a positive and significant predictor in general.

Figure SI-4 shows results of a more systematic comparison between WTS and WTP. It depicts the scatter plot of WTP and WTS and also indicates the linear fit of a simple OLS regression and a median spline to facilitate the interpretation of the directional relationship between the two measures. The left-hand side panel, in combination with additional test statistics, suggests that there is significant difference between the two measures. When we exclude potentially influential observations[1], as shown in the right-hand side panel, there still is a significant difference between the measurements. Dropping outliers from the data decreases the variance of WTP and, hence, reduces the impact of influential observations on the relationship between the two variables.

[1] We employed Cook's distance (or Cook's D) to measure the information of leverage and residual of the observation. Using the predict command with the cooksd option we created a new variable containing the values of Cook's D, the outliers. The conventional cut-off point for outliers is 4/n, where n is the number of observations in the data set.

Figure SI-4. Relationship between WTP and WTS



Note: The panel on the left shows the scatter plot of WTP and WTS and also indicates the linear fit of a simple OLS regression and a median spline (Model 1, Table 4). The panel on the right does the same, except that it excludes influential observations. The solid line shows the linear fit of an OLS regression. The dashed line shows the median spline.

Table SI-7 Determinants of WTP and WTS-robustness checks

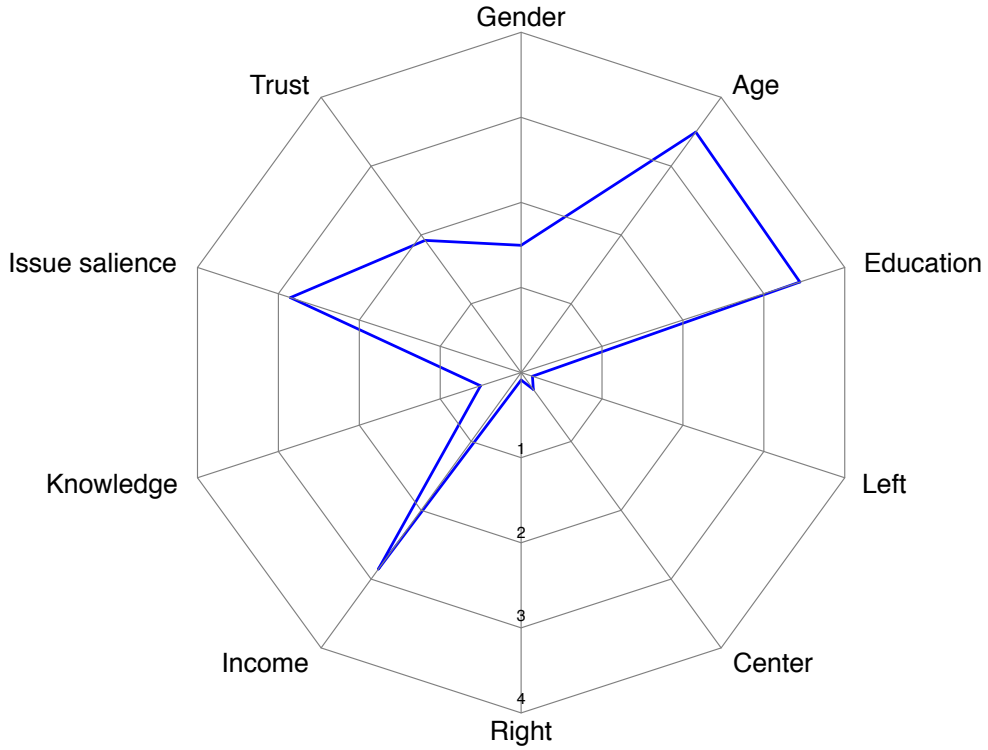
	Model 1 Δ (WTP-WTS)	Model 2 WTP inconsistency	Model 3 WTP ENGOs	Model 4 WTP taxes
Gender	-0.03***	0.20**	0.07	0.21**
	(0.01)	(0.09)	(0.14)	(0.11)
Age	0.01***	-0.02***	-0.03***	-0.01
	(0.00)	(0.01)	(0.01)	(0.00)
Education	0.01	0.15***	0.15**	0.10**
	(0.00)	(0.05)	(0.06)	(0.05)
Left	-0.03*	0.11	0.08	0.11
	(0.01)	(0.14)	(0.20)	(0.15)
Center	-0.02**	0.01	0.10	-0.04
	(0.01)	(0.11)	(0.17)	(0.13)
Right	0.02	0.06	0.18	-0.04
	(0.01)	(0.16)	(0.24)	(0.20)
Income	-0.00	-0.01	0.01	-0.02
	(0.00)	(0.02)	(0.02)	(0.02)
Knowledge	0.00	0.10	0.07	0.10
	(0.00)	(0.09)	(0.14)	(0.11)
Deforestation	-0.00	0.12	-0.09	0.24**
salience	(0.00)	(0.10)	(0.13)	(0.12)
Trust	-0.03***	0.06	-0.01	0.09
	(0.00)	(0.05)	(0.07)	(0.06)
Constant	0.42***	-0.71***	-1.73**	-2.89***
	(0.04)	(0.40)	(0.57)	(0.48)
Obs.	2500	2500	2500	2500
F-Test	0.00	0.00	0.00	0.00
R^2	0.03	0.02	0.01	0.01
Pseudo Log Likelihood		45.24	33.07	22.25
Prob> χ 2		0.02	0.02	0.01

Notes: standard errors in parentheses; * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$; model 1 is based on OLS regression; Models 2-4 are logit models due to the binary nature of the dependent variable.

SI-7 Explanatory variables

Figure SI-5 shows what are the mean values of each variable in our sample. For example, the mean value of income is 2.85 and the mean value of education is 3.4. At the same time we obtain only a mean value of 0.50 for knowledge about Greenhouse gas emissions (GHG).

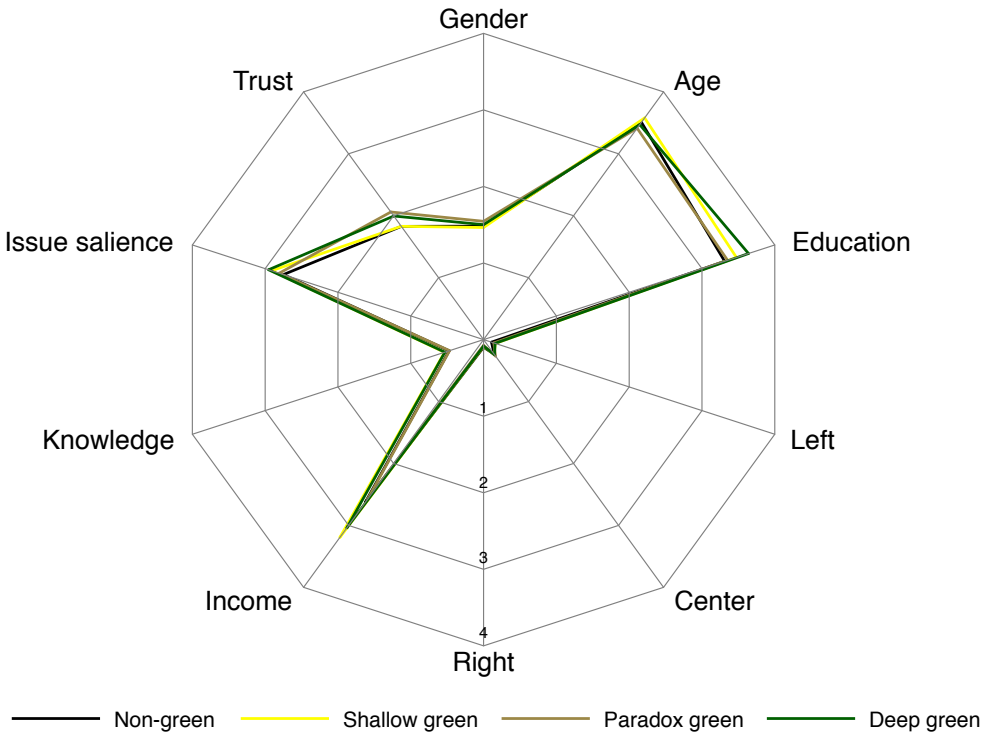
Figure SI-5: Means of explanatory variables across the sample N=2500



Notes: Center is at 0; Colored lines pertain to mean values. Age is log transformed for facilitating reading.

Figure SI-6 shows what are the mean values of each variable in our sample for each of the four green categories (Non-green, shallow green, paradox green, and deep green). For example, the mean value of education for the deep green category is 3.64; the next category with the highest mean value is shallow green at 3.47, whilst paradox and non-green almost overlap at 3.31 and 3.35 respectively. The shallow green category is also the wealthiest category in our sample with very small difference from the other categories (non-green 2.63, paradox green 2.58, deep green 3.03)

Figure SI-6: Mean values of explanatory variables over the green categories



Notes: Center is at 0; Colored lines pertain to mean values. Age is log transformed for facilitating reading.

SI-8 Green categories

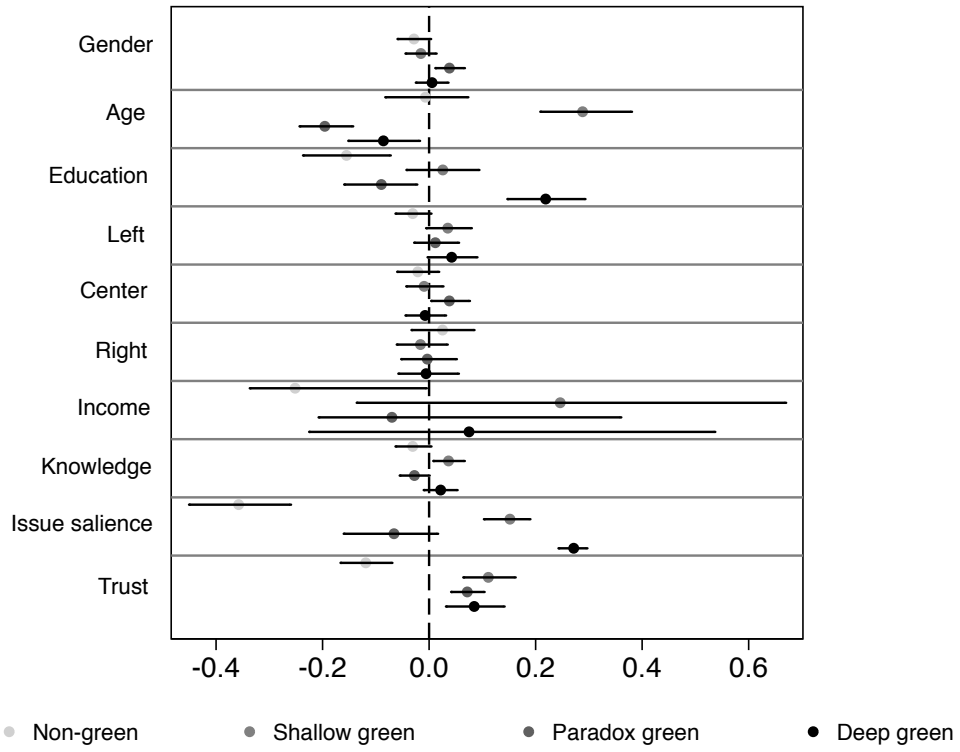
Table SI-8 provides basic information on the four groups.

Table SI-8 Non-green, shallow green, paradox green, and deep green individuals

		WTP	
		Low	High
WTS	Low	Non-green 31% (N=773)	Paradox green 20% (N=497)
	High	Shallow green 21% (N=532)	Deep green 28% (N=698)

Notes: N= 2,500; the four groups were created by splitting the sample at the median values of WTS and WTP.

Figure SI-7 First Difference Estimates (Table 3 in the main text)



Notes: Simulated estimates are based on 1,000 draws from a multivariate normal distribution; horizontal lines indicate 90 percent confidence intervals; the vertical dashed line indicates a first difference effect of zero; effects are calculated while all other variables are held constant at their median.

Figure SI-7 shows changes in the probability of an individual ending up in a given category when increasing the value on a given explanatory variable from its minimum to the maximum and holding all other variables constant at their medians.

SI-9 Significant Differences across categories

Tables SI-9 and SI-10 report χ^2-test statistics and probabilities to assess whether the effects of the explanatory variables are identical across categories. To this end, Table SI-6 shows what are the indicators that delineate to what category each individual belongs to when comparing non-green vs. deep green. Comparing non green vs. deep green individuals we find that the significantly different indicators are *education*, *left political ideology*, *deforestation salience*, and *trust* in government. Hence, these factors determine whether an individual belongs to either the *non-green* or *deep green* category. Likewise, comparing deep green vs. shallow green, the significant indicators that distinguish between *deep green* and *shallow green* individuals are *age*, *education*, *deforestation salience,* and *trust* in government.

Table SI-9: Significant Differences across categories ((1) and (4)) of individuals' climate related categories

Non-green vs. deep green

Coeff. for (1) – Coeff. for (4)=0	χ^2	Prob > χ^2
Gender	0.89	0.35
Age	1.35	0.25
Education	22.96	0.00
Left	7.55	0.00
Center	0.07	0.79
Right	0.24	0.63
Income	1.72	0.19
Knowledge	2.73	0.10
Deforestation salience	45.74	0.00
Trust	15.43	0.00

Note: variables in bold letters indicate significant different coefficients.

Table SI-10: Significant Differences across categories ((4) and (2)) of individuals' climate related categories

Deep green vs. shallow green

Coeff. for (4) – Coeff. for (2) =0	χ^2	Prob > χ^2
Gender	0.63	0.43
Age	23.20	0.00
Education	5.60	0.01
Left	0.00	0.95
Center	0.03	0.87
Right	0.09	0.76
Income	0.17	0.68
Knowledge	0.55	0.46
Deforestation salience	4.54	0.03
Trust	12.27	0.00

Note: variables in bold letters indicate significant different coefficients.

References for the supplementary information

Sampei, Y, Aoyagi-Usui, M (2009) Mass-media coverage, its influence on public awareness of climate-change issues, and implications for Japan's national campaign to reduce greenhouse gas emissions. *Global Environmental Change* 19 (2): 203-212.

Dolan P, Hallsworth M, Halpern D, King D, Metcalfe R, and Vlaev I (2012) Influencing behaviour: The mindspace way. *Journal of Economic Psychology* 33 (1): 264-277.