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How does trust in institutions affect protest responses in environmental valuation surveys?

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Abstract

In environmental valuation surveys, some respondents state a zero willingness to pay that does not reflect their preferences. Among the rationale for such a value, I focus on mistrust in institutions. The results in the existing literature depends on whether the effect is identified by respondents' statements or by a random assignment of the managing institution. This paper tackle this issue using a new identification strategy. By merging country data on perception of institutions with meta-data from environmental valuation surveys, I am able to estimate the effect of trust in institutions on the protest responses in the surveys, wiping out the effect of each studies' specificities. Results show that trust in institutions is not a significant determinants of protest responses.

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1 Introduction

Stated preference studies use surveys to elicit preferences for non-market goods. In these surveys, the respondents state how much they would be willing to pay (WTP) for the non-market good provision. However, some of them refuse to state their true preferences and give a zero amount instead, for various reasons. For instance, they think someone else should pay for the good, the choice of payment vehicle is not adequate or the scenario is not credible enough. Usually, these respondents must justify their zero amount by answering follow-up questions, which enable the practitioner to detect these so-called "protest respondents".

Even if the practitioner is able to detect these protest responses and remove them from the sample, the distribution of protest respondents is very unlikely to be random. Then, the samples on which the aggregate WTP is computed are no more representative, posing a threat to some of the fundamental hypothesis of cost-benefit analysis. The selection bias due to protest responses can be accounted for econometrically, but it requires strong assumption that are often difficult to meet. In all cases, in order to mitigate protest responses and to inform the econometric models used to correct for the selection bias, it is important to understand the motivations of protest behaviors.

Respondent's perception of the managing authority is often suspected to be an important determinant of protest zeros. However, the effect of trust in institutions on the protest responses is not clear yet and could be better understood by tackling two issues.

First, the effect differs depending on how we look at the institutional determinant of the protest responses. On the one hand, several studies find that mistrust in the government is often the reason stated by the respondents for their protest responses (Hadker et al. (1997); Cunha-e Sá et al. (2012)). On the other hand, a recent article (Remoundou et al. (2012)), using random assignment of managing authority do not find any impact of a change in the authority in charge of the project on the protest rate.

Second, the effects of the managing institution identified so far are study- and good-specific, allowing no inference on a more general effect of institutional context on protest behavior.

In this paper, I try to tackle these issues. I rely on meta-data on environmental valuation studies merged with variables on the trust in institutions. By using intra-country variations, I am able to capture the effect of trust institutions on the protest rate, wiping out the effect of each studies' specificities.

2 Methods and Data

In this section, I describe the meta-data, the institutional data and the other variables used as controls.

The dataset was collected by Meyerhoff and Liebe (2010). It has observations for 254 independent samples from 157 different stated preference studies from 1988 to 2010 across 34 countries.[1] It contains information about elicitation methods, payment vehicles, survey methods, type of goods, protest rates, year and country of collection. Only studies with a

[1] Several studies have split samples.

reported number of protest responses and sufficient information about survey characteristics were used (see Meyerhoff and Liebe (2010) for more details).

I merge the dataset by year and country with trust in institutions variables.

I measure trust in the institutions, using variables from the World Value Survey (WVS (2015)) and European Value Survey (EVS (2011)). For these two surveys, respondents from a representative sample of each country state whether they trust various institutions, particularly the government and civil services (from "A great deal" to "Not at all"). There are several waves of surveys for each country, which are not more distant than 10 years. Thus I match each stated preference survey with a WVS wave that is closer than 5 years at most. I compute the mean by country and year to get two global measures of trust in institutions. I then rescale the variables to be in a range from 0 to 100, where 100 stand for "A great deal" of trust in the government.

I control for the main survey characteristics using the variables collected by Meyerhoff and Liebe (2010). I also account for the nature of the environmental good. I add country fixed effects to control for country specificities, which means that the only variation left in the dependent variable comes from the characteristics of the surveys and the variability of country variables across time.[2]

I control for tax revenue, because respondents may feel like they give already too much money for the collectivity, thereby affecting their probability to protest. To do this, I use OECD data of Total Tax revenue as a percentage of GDP (OECD (2017)). I account for GDP per capita since a correlation between income and protest responses has been repeatedly observed in stated preference studies.

I estimate two different models. I use a WLS regression with the log of the protest rates, weighting each observation by the inverse of the number of survey in the study, in order to give the same weight to all studies. The second model is a fractional logit model on the (untransformed) protest rates to account for the fractional nature of the dependent variable (Papke and Wooldridge (1996)). In all specifications, I use cluster standard errors by study.

3 Results

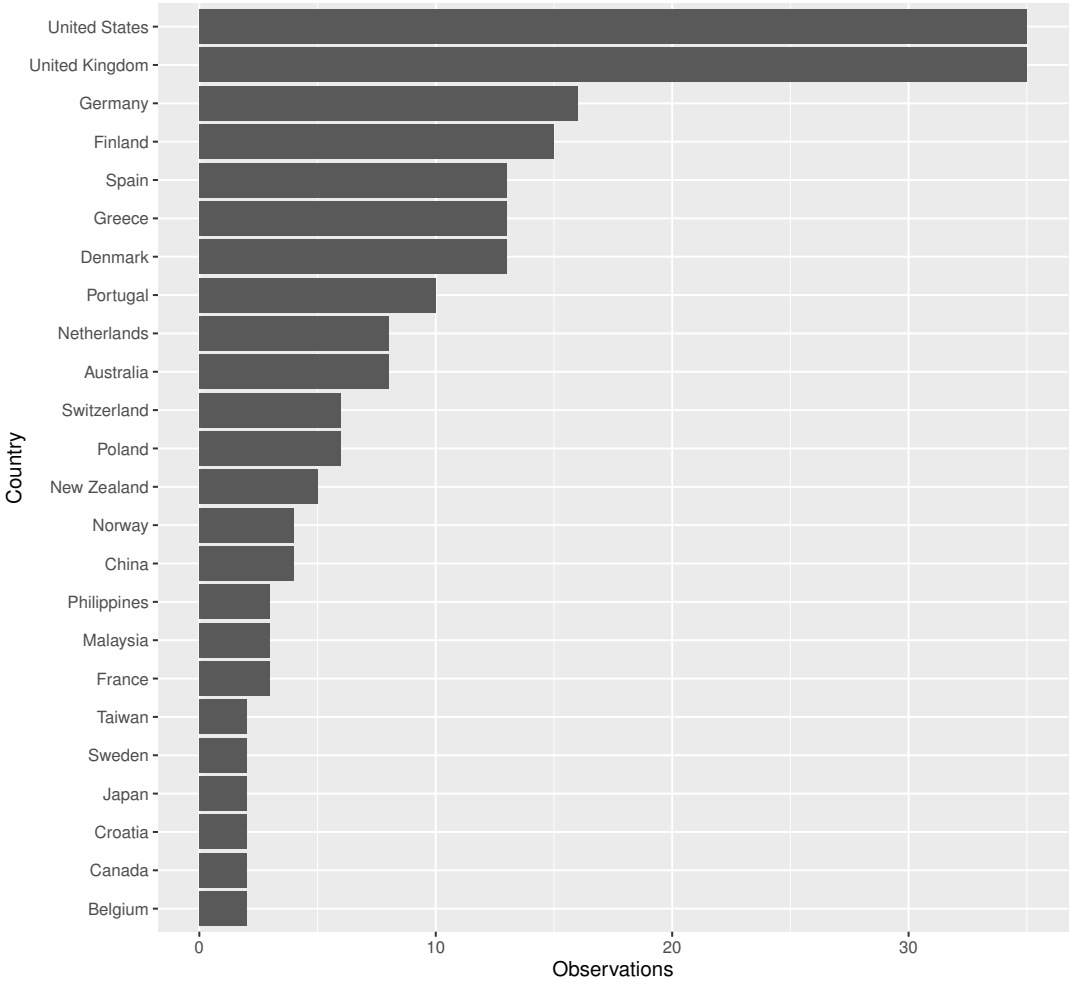
3.1 Descriptive Statistics

Out of the full sample of 255 observations, I delete 15, either because of missing values or because the survey was the only one conducted in a given country. There are 29 different countries in total. The number of survey per country is reported in Figure 1. Since a large share of stated preference studies is conducted in developed countries, the sample is biased towards them. This could be an issue in terms of external validity, but I should be able to provide valid findings for developed countries.

Table 1 shows descriptive statistics for survey characteristics and country variables. Survey characteristics are coded as binary variables. On average, 20% of the stated preferences are not valid WTP, and this rate can go up to 60%. This shows that protest responses should be a major concern for stated preference studies and that it can greatly bias the aggregate

[2]Intra-country variations could also have an impact, but are impossible to capture without losing almost all of the variability.

Figure 1: Number of surveys per country



WTP. The mean of the trust in the government index for the country and years present in the meta-data is 69. This reflects the fact that most countries are developed countries, with a relatively high amount of trust in institutions.

Table 1: Summary statistics

Variable	Mean	SD	Min	Max	N
Protest rate	0.173	0.113	0	0.593	240
Elicitation Method					
Choice Experiment	0.138	0.345	0	1	240
Dichotomous Choice	0.417	0.494	0	1	240
Open Ended	0.192	0.394	0	1	240
Payment Card	0.237	0.426	0	1	240
Other	0.017	0.128	0	1	240
Survey Method					
Face to face	0.354	0.479	0	1	240
Mail	0.358	0.481	0	1	240
On site	0.096	0.295	0	1	240
Phone	0.071	0.257	0	1	240
Web	0.054	0.227	0	1	240
Other	0.067	0.25	0	1	240
Payment Vehicle					
Bill	0.204	0.404	0	1	240
Donation	0.092	0.289	0	1	240
Entrance fee	0.096	0.295	0	1	240
Fund	0.121	0.327	0	1	240
Tax	0.363	0.482	0	1	240
Other	0.125	0.331	0	1	240
Country variables					
Trust in gouvernment	69.155	6.732	42.28	78.951	207
Trust in civil services	64.817	5.211	47.066	80.381	235
Tax Revenues	33.73	6.282	23.017	48.984	227
Gdp/capita	32.35	9.231	5.821	62.434	233

3.2 Regression Analysis

The different specifications are reported in Tables 2.[3]

Regarding the effect of survey characteristics, the findings are roughly consistent with Meyerhoff and Liebe (2010). The choice of payment vehicle seems to be the most important survey determinant on the protest rates. Funds and entrance fees have the biggest impact on protest rates, closely followed by taxes. Surprisingly, donation leads to fewer protests than the other Payment vehicle (except bill). Elicitation formats do not have significant effects

[3]Because of the difference in scale of the dependent variable the estimated coefficients are much lower in magnitude in the fractional model than the WLS.

on the protest rate. On-site survey tends to produce significantly fewer protest responses than face to face (at the respondent's residence) surveys, according to the WLS model.

The effect of trust in institutions is not significantly different from zero in all models, for both government and civil services. This result suggests that the level of trust in institutions itself is not a determinant of the protest rate. In this regard, it is in line with the results from Remoundou et al. (2012).

Due to the small number of observations, the use of country fixed effect could cause identification problems due to a potential lack of remaining variability in the covariates. In order to test this issue, I estimate models keeping only countries with 5 or more and 10 or more surveys, both using the WLS model. The coefficient for trust in government (respectively -0.024 and -0.029) and for trust in civil services (-0.016 and -0.038) are larger in magnitude compare to the standard models, but still non-significant.

4 Discussion

This paper investigates the relationship between trust in institutions and protest responses in environmental valuation studies. It provides insights to practitioners on how the protest rate can be affected depending on the country where a survey is conducted. Using meta-data merged with institutional variables and exploiting intra-country variations, I find that trust in the institutions is not a significant determinant of the protest behaviors. This result is in line with the results from Remoundou et al. (2012), reinforcing it by wiping out the study and good specificities.

Some mismatch between the meta-data and the WVS data could cause some issues. First, the level of trust is measured based on a representative population from the whole country, while the population targeted by the valuation studies are often from more specific places. Second, the managing authority of the valuation study could differ from the institutions for which the trust is measured in the World Value Survey. Improving the identification strategy proposed in this paper would require more precise geographic and institutional data in the valuation studies.

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Table 2: Regression Results

VARIABLES	WLS	Fractional	WLS	Fractional
Payment vehicle				
Donation	0.801**	0.0619**	0.701**	0.0404
	(0.364)	(0.0273)	(0.290)	(0.0267)
Entrance fee	1.082**	0.101	1.142***	0.0994
	(0.419)	(0.0691)	(0.392)	(0.0620)
Fund	1.283***	0.0893**	1.309***	0.101***
	(0.237)	(0.0349)	(0.228)	(0.0324)
Tax	1.078***	0.0620**	0.964***	0.0571**
	(0.245)	(0.0258)	(0.231)	(0.0240)
Other	1.169***	0.103**	1.034***	0.102**
	(0.373)	(0.0504)	(0.334)	(0.0399)
Elicitation method				
Dichotomous Choice	0.292	0.0404	0.211	0.0286
	(0.214)	(0.0318)	(0.184)	(0.0262)
Open ended	0.343	0.0439	0.445*	0.0566
	(0.347)	(0.0456)	(0.253)	(0.0348)
Payment card	0.291	0.0192	0.296	0.0198
	(0.198)	(0.0264)	(0.178)	(0.0236)
Other	-0.108	-0.0374	-0.243	-0.0434
	(0.928)	(0.0670)	(0.914)	(0.0642)
Survey method				
Mail	0.155	0.0339	0.169	0.0426
	(0.253)	(0.0372)	(0.201)	(0.0268)
On site	-0.569*	-0.0375	-0.479*	-0.0244
	(0.322)	(0.0332)	(0.272)	(0.0315)
Phone	0.122	0.0113	0.139	0.0321
	(0.295)	(0.0377)	(0.253)	(0.0404)
Web	-0.109	-0.0166	-0.0860	0.00845
	(0.251)	(0.0364)	(0.221)	(0.0355)
Other	-0.413	-0.0401	-0.455	-0.0485
	(0.474)	(0.0462)	(0.417)	(0.0351)
Country variables				
Gdp/capita	0.00344	-0.00176	0.00197	-0.000141
	(0.0242)	(0.00233)	(0.0154)	(0.00147)
Tax Revenues	0.0301	-0.00525	0.0369	-0.000350
	(0.0641)	(0.00794)	(0.0587)	(0.00745)
Trust in gouvernment	-0.0217	-0.00217		
	(0.0297)	(0.00351)		
Trust in civil services			-0.0151	-0.000378
			(0.0326)	(0.00381)
Country FE	X	X	X	X
Type of good FE	X	X	X	X
Observations	190	196	216	222
R^2	0.568		0.535	

Robust standard errors in parentheses
*** p<0.01, ** p<0.05, * p<0.1

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