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Analysis

Willingness to pay of committed citizens: A field experiment

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ABSTRACT

In this paper, we propose a behavioral approach to determine the extent to which the consumer/citizen distinction affects interpretations of monetary values in stated preferences methods. We perform a field experiment dealing with air pollution, where some (randomly selected) subjects are given the opportunity to behave politically by signing a petition for environmental protection *prior* to stating their private preferences in a standard contingent valuation exercise. We show that signing has the potential to influence respondents' willingness to pay values. Results indicate that even market-like situations are not immune to citizen behavior.

1. Introduction

From the outset, the interpretation of respondents' behavior in contingent valuation (CV) questionnaires has provoked debate. In the particular case of environmental good valuation, Kohn (1993), Stevens et al. (1993), or more recently Bithas (2011), showed that this debate may be rooted in the Bergson–Tintner–Samuelson (BTS) theory (Bergson, 1938; Samuelson, 1977, 1981; Tintner, 1946). This theory suggests that people hold two categories of values for public environmental goods: values motivated by private preferences (*consumer* values) and values inspired by social preferences (*citizen* values). As citizens, respondents base their decisions on social welfare rather than their personal self-interested preferences when contributing to public goods (Nyborg, 2000; Sugden, 2005). They can express positive attitudes toward public goods, concerns for society problems (Kahneman and Sugden, 2005) or political concerns rather than expressing monetary values in line with consumer surplus (Blamey, 1998; Orr, 2007). Further, some authors have argued that this is likely to be exacerbated in referendum CV surveys which "move the CVM[ethod] away from the provision of a pseudo-market setting toward a political choice setting" (Blamey et al., 1995, p. 263). If the values expressed by the respondents are not clearly identified (citizen or consumer values), it would of course cast doubt on the use of respondents' answers in CV surveys in standard cost–benefit analysis as "aggregation may amount to adding apple and oranges" (Nyborg, 2000, p.319) — see also Howley et al. (2010) for a recent review of consumer versus citizen distinction in CV surveys.

One way to operationalize the distinction between respondents in CV surveys behaving as consumers and behaving as citizens, in line with Sagoff (1988) who argued that respondents may adopt the different 'roles' of consumer or citizen depending on the valuation context, consists of randomizing respondents into sub-groups and presenting them with different hypothetical scenarios that put more emphasis either on the personal perspective or on the societal perspective (Howley et al., 2010; Mill et al., 2007). In this paper, we combine the latter with a behavioral approach in the spirit of Jacquemet et al. (2013) that relies on the social psychology theory of commitment (Kiesler, 1971) in a 3×2 experimental design. This will allow us to experimentally control for citizen behavior from each perspective, individual and social, and to assess the extent to which both perspectives are sensitive to citizen behavior.

In the first treatment condition, respondents are randomized with respect to three typical scenarios of the CV literature on air pollution (see Lindhjem et al., 2011): a new *drug* that prevents adverse health effects of air pollution exposure for the respondent alone (Alberini et al., 2004; Krupnick et al., 2002), *moving* the whole household to an

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already less polluted city (Aprahamian et al., 2007; Viscusi et al., 1988) and new *regulations* on air pollution that will potentially increase market prices (Desaigues et al., 2007a). The *Drug* scenario refers to respondent's private sphere in a market like situation, the respondent only benefits from the drug. The *Move* scenario also refers to the private sphere of the respondents but concerns the entire household. Finally, the *Regulation* scenario, which is closer to current air pollution policies, concerns the society as the whole. One additional feature of these scenarios is that they involve different degrees of environmental conservation. The *Drug* scenario does not imply any particular measure to protect the environment whereas the two other scenarios do. The *Move* scenario suggests that local action has already been taken with the result that one of the locations has less air pollution. The *Regulation* scenario presupposes national, or even international, measures to protect the environment. In the *Drug* scenario, respondents are asked to adopt a personal perspective whereas in the *Regulation* scenario they are asked to adopt a societal perspective, the *Move* scenario being in between the other two.

In the second treatment condition, some of the respondents are randomly given the choice to behave politically *prior* to stating their private preferences in the CV exercise. The aim of this prior political behavior is to frame people's mind into a citizen perspective, a person who does not act solely in a purely self-interested way. Experiments on the social psychology of commitment have shown that when people agree to perform an initial action, even when it appears to be innocuous, this can have strong attitudinal and behavioral consequences (Joule and Beauvois, 1998; Kiesler and Sakumura, 1966) — see also Jacquemet et al. (2011) for a succinct presentation of commitment theory and the conditions under which commitment devices can be implemented. In practice, subjects are given the opportunity to sign a petition calling on (the then) future candidates in the French 2007 presidential election, to be held six months later, to take an official stand (regarding their program and respective commitment) on environmental conservation. We call subjects who agree to sign the petition *committed citizens* and we compare their behavior to that of a control group of respondents who merely answer the CV questionnaire directly. Our sample is therefore composed of 6 groups of subjects: 3 groups of subjects who have been given the opportunity to sign a petition and randomized in the 3 hypothetical scenarios and 3 groups of subjects who perform the CV exercise directly.

The experiment took place over three days in the council chamber of Regional Council in the city of Marseilles which is equipped for electronic voting. It involved more than four hundred subjects under the six sets of experimental conditions. Our results are as follows. First, more than eighty percent of subjects agreed to sign the petition when it was presented to them. Second, signing the petition had a significant, although varying, impact on subjects' willingness to pay. Econometric analysis shows that subjects who signed the petition were more likely to pay more in the *Move* and *Regulation* scenarios. In the *Drug* scenario, subjects were *less* willing to pay when they have signed the petition prior to the valuation exercise.

The paper is organized as follows. In the second section, borrowing insights from social psychology, we explain how the petition can act as a commitment device. The third section describes the experimental design while the fourth section presents the empirical results. In the final section, we discuss the results and draw conclusions.

2. A Petition as a Commitment Device

In the theory of commitment (Joule and Beauvois, 1998; Kiesler, 1971), commitment means the "pledging or binding of the individual to behavioral acts" (Kiesler and Sakumura, 1966, p. 349). Foot-in-the-door experiments are situations that typically produce this kind of commitment (Joule et al., 2007), by asking subjects to comply with an initial request and later on making a second request which is thematically in line with the initial request. In commitment theory in general, a first request acts as a *commitment device* that puts people in a certain frame of mind regarding the action that is going to follow (Joule and Beauvois, 1998). That is, when they are asked to comply with the second request, subjects may consider themselves as being the "kind of person […] who does this sort of things" (Freedman and Fraser, 1966, p. 101). This argument stems from self-attribution theory (Bem, 1972) and is central to self-signaling models in economics, in which agents derive utility from the outcome of actions, *outcome utility*, but also derive *diagnostic utility* from the information that the action provides on some underlying trait or disposition of themselves (see for instance Bodner and Prelec, 2001). In our case, "being this kind of person" means that they are committed to a certain cause – environmental protection – and because they have already complied with the initial request, they are more likely to comply with the second request.

Foot-in-the-door experiments have shown that subjects agree to a second request much more easily if they have already agreed to an initial request of a similar kind (see Burger, 1999; and Joule and Beauvois, 1998; for reviews Katzev and Wang, 1994, and Wang and Katzev, 1990; for applications to the environment). In their original foot-in-the-door experiment, Freedman and Fraser, 1966) telephoned housewives in Palo Alto, California. They were presented first with a few questions about the cleaning products they use. A few days later, they were asked to participate to a more time consuming and invasive survey that involve several interviewers looking at all cleaning products used in the house and classifying them. In the control group, only the second request was made. In the control 22.2% accepted, while with foot-in-the-door, 52.8% accepted.

Because "[c]ommitment in the guise of signing a petition [has] a powerful effect on the expression of attitude, leading to a more extreme attitude" (Kiesler, 1971, p. 79), we use in our experiment a petition as a commitment-device to generate "committed citizens". Some subjects were proposed to sign a petition in favor of environmental protection that asked future candidates in the 2007 presidential election to take an official stand concerning environmental conservation.[1] Signing was free and participation to the CV experiment was not conditional on signing.[2]

3. Experimental Design

The experiment is a 2×3 design. Under the experimental conditions, subjects are either offered a petition before the valuation exercise or not, and are presented with three different scenarios.

3.1. The Three Scenarios

Let us first describe the three scenarios. The empirical aim of the field experiment was to elicit willingness-to-pay for a decrease in air pollution. To this end, we considered three typical scenarios from the CV literature devoted to the valuation of air pollution effects. Lindhjem et al. (2011) conducted an exhaustive meta-analysis of stated preference surveys on mortality risk valuation that includes more than 800 estimates. They found that many aspects of surveys can affect WTP estimates, like the characteristics of the population surveyed, the type of risk, the context as well as methodological aspects of the surveys (such as the format of the elicitation question). The three scenarios used in our study are typical scenarios from this literature, differing in the two "risk valuation context variables" labeled by Lindhjem et al. (2011, p. 1389) "Public" and "Household". The former characterizes the good as public or private

[1] The presidential election was to be held 6 months later. At the time of the experiment, a petition, promoted in the French media, was actually circulating in France. Our petition was effectively sent to each candidate.

[2] Another explanation could be that presenting respondents with a petition on "environmental conservation" issues before the WTP elicitation primes subjects to provide responses that conform to social norms. For further discussion on priming, social desirability and commitment, see Jacquemet et al. (2013). Note however that, in our experimental design, although the petition is a real citizen behavior, respondents did not know that the petition was part of the experiment (see Section 3.2).