CONSEQUENTIALITY AND THE WILLINGNESS-TO-PAY FOR RENEWABLES: EVIDENCE FROM GERMANY

Mark Andor, RWI – Leibniz Institute for Economic Research, Phone: +49 201 8149216, Email: andor@rwi-essen.de

Manuel Frondel, RWI – Leibniz Institute for Economic Research & Ruhr University Bochum, Phone: +49 201 8149204, Email: frondel@rwi-essen.de

Marco Horvath, RGS Econ, RWI – Leibniz Institute for Economic Research & Ruhr University Bochum, Phone: +49 201 8149522, Email: marco.horvath@rwi-essen.de

Overview

Based on hypothetical responses originating from a large-scale survey among about 7,000 German households, this study investigates the discrepancy in willingness-to-pay (WTP) estimates for green electricity across discrete-choice and open-ended valuation formats, thereby accounting for perceived consequentiality: respondents selfselect into two groups distinguished by their belief in the consequentiality of their answers for policy making. Recognizing that consequentiality status and WTP might be jointly influenced by unobservable factors, we employ a switching regression model that accounts for the potential endogeneity of respondents' belief in consequences and, hence, biases from sample selectivity. Contrasting with the received literature, we find WTP bids that tend to be higher among those respondents who received the open-ended question, rather than the discrete-choice format. This difference shrinks, however, when focusing on individuals who perceive the survey as politically consequential.

Methods

To elicit households' WTP for green electricity, we have employed both discrete-choice and open-ended questions, the two most widely used valuation formats in applied contingent valuation studies.

To compare responses across formats, we follow Balistreri et al. (2001) and convert the WTP bids originating from the open-ended questions into binary values by assuming that respondents would have accepted a randomly given increase in the EEG Levy of either 1, 2, or 4 cents if their WTP bid were to be at least as large as the respective levy increase, thereby randomly allocating the open-ended bids to one of the three levy increases. As a result, we obtain a binary variable that serves as the dependent variable in the estimations presented in the subsequent section. Pooling the observations from the discrete-choice and open-ended formats, we first estimate a probit and a linear probability model (LPM). Additionally, to cope with the potential endogeneity of consequentiality, we apply an endogenous switching regression model that, in the first stage, divides respondents into two regimes, those who believe that their responses may have political consequences to at least some extent and those who do not.

Results

The results of our estimimations indicate that WTP bids resulting from the discrete-choice questions tend to be lower than those originating from the open-ended format. The magnitude of the difference of less than 20 percentage points between our open-ended and discrete-choice estimates is rather moderate, but significant in statistical and economic terms. In addition, we find a positive relationship between WTP and political consequentiality, which is associated with a higher WTP of approximately 20 percentage points. As another central result, we find that the difference between open-ended and discrete-choice contingent valuation is alleviated, to less than 6 percentage points, when focusing on those individuals who perceive their answer as politically consequential.

The coefficient estimates of the second-stage switching regression reconfirm the estimation results obtained from the LPM and probit model. Specifically, from the coefficient estimate on the discrete-choice dummy in the second-stage regression, we see again that the difference between both validation formats shrinks to about 6 percentage points if we only take into account people who perceive their answer as politically consequential. One possible reason for the similarity of the results of the switching regression model and the LPM is the absence of sample selectivity as indicated by the statistically insignificant coefficients on the inverse Mills ratio.

Conclusions

Consistent with a number of empirical studies we find a positive relationship between consequentiality and WTP, a result that Vossler and Watson (2013) call negative hypothetical bias: those of our respondents who perceive there to

be policy consequences exhibit a WTP that, on average, is approximately 20 percentage points higher than those who do not. Thus, we provide for further evidence that may reverse the common perception that stated-preference methods overestimate non-market values (Vossler and Watson, 2013).

Two other key results emerge from our empirical analysis. First, the WTP values resulting from the open-ended method are generally higher than those originating from the discrete choice format. In our empirical example of green electricity, large WTP bids may indicate strong preferences for its provision, not least based on green attitudes. Second, our results suggest that the discrepancy between both contingent valuation formats is strongly reduced focusing on those respondents who perceive their answer as consequential for policy making. It seems to be plausible that this effect is caused by a reduction of the hypothetical bias, as Vossler et al. (2012) demonstrate that the hypothetical bias in contingent valuation can be eliminated by focusing on those respondents who perceive their answer as consequential for policy making.

References

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