



University of Zurich
Zurich Open Repository and Archive

Winterthurerstr. 190
CH-8057 Zurich
<http://www.zora.unizh.ch>

Year: 2007

Anchors, endorsements, and preferences: A field experiment

Schläpfer, F; Schmitt, M

Schläpfer, F; Schmitt, M. Anchors, endorsements, and preferences: A field experiment. *Resource and Energy Economics* 2007, 29(3):229-243.

Postprint available at:
<http://www.zora.unizh.ch>

Posted at the Zurich Open Repository and Archive, University of Zurich.
<http://www.zora.unizh.ch>

Originally published at:
Resource and Energy Economics 2007, 29(3):229-243

Anchors, endorsements, and preferences: A field experiment

Abstract

This study investigates how access to political endorsements affects stated preferences for an environmental public good in Switzerland. We developed a contingent valuation survey questionnaire with two valuation questions, the first formulated as a (hypothetical) policy referendum, the second an open-ended WTP question. For the referendum question we solicited endorsements from a range of political parties and relevant interest groups. We then conducted a split-sample mail-survey experiment in which a table listing the endorsements was included with a subsample of the questionnaires. Access to the policy endorsements significantly affected the responses to the open-ended willingness-to-pay question.

Anchors, Endorsements, and Preferences:

A Field Experiment

Felix Schläpfer* and Marcel Schmitt

Institute of Environmental Sciences, University of Zurich, Switzerland

Abstract

This study investigates how access to political endorsements affects stated preferences for an environmental public good in Switzerland. We developed a contingent valuation survey questionnaire with two valuation questions, the first formulated as a (hypothetical) policy referendum, the second an open-ended WTP question. For the referendum question we solicited endorsements from a range of political parties and relevant interest groups. We then conducted a split-sample mail-survey experiment in which a table listing the endorsements was included with a subsample of the questionnaires. Access to the policy endorsements significantly affected the responses to the open-ended willingness-to-pay question.

JEL Classification: D70, Q26, Q28

Keywords: Anomalies, contingent valuation, rationality, referendum, political signals

* Corresponding author address: Institute of Environmental Sciences, University of Zurich, Winterthurerstrasse 190, 8057 Zurich, Switzerland, Tel.: +41 44 635 4747, Fax: +41 44 635 5711, E-mail: schlaepf@uwinst.unizh.ch. The authors would like to thank several colleagues for comments on preliminary versions of the survey questionnaire. This paper has greatly benefited from discussion with participants of several conferences and seminars and from valuable comments by Jason Shogren, Nick Flores, Ian Bateman and two anonymous reviewers. English proofreading by Jennifer Durer is gratefully acknowledged. Financial support by the ETH Department of Agricultural Economics, the Swiss Federal Institute for Forest, Snow and Landscape Research, the Canton of Zurich Office for Landscape and Nature, and the Swiss Federal Office of Agriculture is gratefully acknowledged.

1. Introduction

Laboratory experiments by psychologists and economists have produced a large body of evidence suggesting that individual preferences are inconsistent and unstable, and that the economic working rules may often not apply in the unfamiliar decision tasks presented in experimental settings. However, more recent experimental studies by economists have also shown that market forces can transform anomalies in preference patterns observed in the laboratory (e.g., Frey and Eichenberger, 1994) and that “learning” through institutions may promote consistent decision-making about private goods (Slembeck and Tyran, 2004).

In choices about non-market goods and services, the power of market forces cannot be relied on by definition. If market settings are required for inducing individuals to make consistent choices, then the prospects for consistent individual decision-making about non-market goods are bleak. Indeed, recent research on the contingent valuation of public goods has replicated a variety of the choice anomalies that have been observed in laboratory experiments which did not induce strong market-like incentives. It is currently unclear how stable and consistent preferences for public goods could be generated and measured in a survey setting. This is particularly dissatisfactory given economists’ increasing interest in nonmarket goods and services (McFadden 1999).

However, political scientists have recently shown that voters in referenda use informational “shortcuts” to make decisions about complex issues that appear to be consistent with their interests and values. Specifically, they have shown that relatively uninformed voters who knew the positions of important interest groups were able to use this information to infer how a proposition would likely affect them (e.g. Lupia 1994). This finding suggests a novel approach to preference elicitation in surveys. Uncertain respondents in surveys may likewise choose – if given this option – to base their decisions on information shortcuts such as political

endorsements from familiar parties, which may then restore the apparent rationality of their decisions about unfamiliar public goods.

In this paper we design an experiment to test if access to endorsements solicited from political parties and interest groups affects responses in a stated preference (contingent valuation) setting. We develop a survey questionnaire with two valuation questions, the first formulated as a (hypothetical) policy referendum, the second an open-ended WTP question. For the referendum question we solicit endorsements from a range of political parties and relevant interest groups. We then conduct a split-sample mail-survey experiment in which a table listing the endorsements is included with a subsample of the questionnaires.

The rationale of this specific setup is as follows. In the control treatment without political endorsements, the tax costs specified in the referendum question represent an arbitrary “anchor” for the subsequent open-ended willingness-to-pay question. In contrast, in the treatment with endorsements, the tax costs together with the endorsements carry potentially important information which respondents may use to find their responses to both the referendum question and the open-ended WTP question. The experiment is therefore a test of whether replacing arbitrary anchors by informative signals affects stated preferences for public goods. If the answer is yes, then informative, non-arbitrary signals may have the potential to “crowd out” the undesired effects of arbitrary anchors – and thus promote consistent patterns in stated preferences for public goods. In addition, by experimentally varying the tax costs in the referendum question, it is possible to test if the effect of the information treatment is an effect of the presence of political endorsements *per se*, or if it depends on the specific proposition for which the endorsements are provided.

We find that access to political endorsements in our stated preference survey setting strongly reduced the frequency of non-responses in the open-ended WTP question. Moreover, the information signals in interaction with the specified tax costs significantly affected open-

ended WTP for the proposed policy. These findings suggest that providing access to political signals has the potential to reduce anomalies in stated choices about public goods.

The paper proceeds as follows. The next section briefly reviews relevant literature and presents the experimental design and hypotheses. Section 3 presents the results, Section 4 contains the discussion, and Section 5 concludes.

2. Background, Experimental Design and Hypotheses

Experimental psychologists have long established that individual judgements about unfamiliar goods and experiences are highly sensitive to framing (Slovic and Lichtenstein, 1968). In responding to experimental stimuli individuals use simplified heuristics, and their responses may contain largely arbitrary components (Kahneman and Tversky, 1984). The arbitrary scaling of responses has for instance been demonstrated by the fact that initial responses are often nearly insensitive to the size or scope of a stimulus (Ariely et al., 2003).

Economists have replicated many of the choice anomalies observed in psychological experiments (Boyle et al., 1985; Kahneman et al., 1999; McFadden, 1999). A particularly well-examined anomaly in preference elicitation is the phenomenon of “anchoring” effects. Stated willingness to pay for unfamiliar goods has been found to be strongly influenced by arbitrary anchors such as by dollar amounts presented in dichotomous choice questions (Green et al., 1998), or even by figures the respondents themselves had derived from their social security card numbers (Ariely et al., 2003).

However, experimental economists have argued that various forms of “institutions” and “learning” may transform or eliminate choice anomalies. Frey and Eichenberger (1994) argue that the frequency of anomalous actions is endogenous and influenced by social processes. People may need time to learn optimal decisions (Camerer, 1995). Cherry et al. (2003) and Hanley and Shogren (2005) argue that that learning on private good markets may spill over to

choices about public goods. List (2006) reports that market settings reduced the willingness to pay/willingness to accept disparity even in choices about “unfamiliar” private goods. Slembeck and Tyran (2004) found that competition and communication among individuals – and specifically learning from better informed individuals – entirely eliminated choice anomalies in their experiment.

Political scientists have shown that many voters in direct legislation decisions are uninformed to the point of ignorance about public policy, politics and government in general. Nevertheless, the consequences of voter ignorance continue to be debated. Kuklinksy et al. (1982) found that relatively uninformed voters looked to reference groups more than others in deciding how to vote. McKelvey and Ordeshook (1986) identify group endorsement as a potential source of information for imperfectly informed voters.¹ Lupia (1994) argues that voters can use information about the preferences or opinions of others such as friends, co-workers, political parties or other organisations to emulate the behavior of relatively well-informed citizens. He corroborates his arguments with the results of an exit poll in which he surveyed California voters who were confronted by five complex propositions regarding the regulation of the insurance industry. Based on an exit poll, Lupia found that a large group of voters who possessed relatively low levels of factual knowledge about the initiatives but could correctly identify the insurance industry’s preferences on a particular proposition were much more likely to emulate the behavior of relatively well-informed voters on that propositions than were similarly uninformed voters who did not know the insurance industry’s position. Lupia and McCubbins (1998) discuss the dynamics of these information signals in the broader context of strategic models of communication known as “signalling” games (Milgrom and Roberts, 1986). Lupia and Matsusaka (2004) observe that not all providers of information in elections are trustworthy or knowledgeable. However, voters have an incentive to seek advice from people who are credible and to avoid information from those who provide vague or unreliable advice.

¹ See Grossman and Helpman (1999, p. 503f.) for a review of the theoretical literature on political endorsements.

Institutions such as truth-in-advertising laws, effective channels of communication and competitive political environments provide a strong incentive to publicly expose misleading signals.

In the literature on stated preferences, public referenda have played an important role as a guide for survey design (Arrow et al., 1993; Hanemann, 1994). Problems with information provision and respondent uncertainty constitute a substantial part of the extensive literature (Blomquist and Whitehead, 1998; Munro and Hanley, 1999). The fact that voters in elections use other sources of information in addition to official voter guides has also been noted in the contingent valuation literature (Diamond and Hausman, 1994, p. 60; Hanemann, 1994, p. 28; Baron, 1996, p. 148; Shapiro and Deacon, 1996). However, although decision-makers in the public sector are increasingly relying on stated preference methods to provide signals of value, the effects of political signals on individuals' stated preference for public goods have not been examined to date. The sole exception is a recent study by Schläpfer et al. (2004) who examine effects of political endorsements in an attribute-based choice experiment. The present study extends that research to a contingent valuation setting.

Experimental Design

In a real-world ballot proposition it would be difficult to experimentally control information provision. However, in an appropriately designed survey setting, access to political signals such as policy endorsements from diverse political parties and interest groups can be experimentally controlled. To experimentally isolate the effects of information shortcuts on voter behavior we conduct a two-stage experiment. We develop a referendum-format stated-preference survey questionnaire and, based on this questionnaire, solicit (negative or positive) endorsements from political parties and relevant interest groups. We then conduct a mail survey in which we include a table listing the endorsements with a subsample (one half) of the questionnaires. To allow an

interesting additional interpretation of the results, we orthogonally cross the information treatment with a treatment Green et al. (1998) used to detect “anchoring” effects in survey responses.

Table 1 presents our 2×2 experimental design and provides sample sizes for each treatment. The first experimental factor splits the respondent sample into subsamples with and without access to political signals. The (orthogonal) second factor has two levels representing two alternative tax costs (‘bids’) specified in the first, dichotomous-choice (DC) valuation question which precedes a second, open-ended (OE) WTP question. In the control of the information treatment, this tax amount represents an arbitrary (potential) anchor for the responses to the OE question. In the information treatment with endorsements, these tax costs carry information that is potentially important for individual responses to both the DC and the OE question. This design allows us to examine if the responses to the survey are affected by the political signals, and if the specific propositions for which the signals are available (rather than the signals *per se*) matter for stated willingness to pay in an open-ended question. The interaction effect of the two treatment factors on stated WTP in the OE question also indicates whether the “anchoring effect” is transformed by informative political signals. As explained in the introduction, this test has an important interpretation: a significant interaction would suggest that informative, non-arbitrary political signals have the potential to “crowd out” anomalous effects of arbitrary anchors.

- Table 1 about here -

The policy proposition of the contingent valuation survey was concerned with measures to prevent land abandonment followed by spontaneous reforestation in the Swiss Alps.² The proposition was to provide increased tax-financed incentive payments to mountain farmers who

² In Switzerland, the issue of alpine agricultural land abandonment has been a subject of some debate for many years. In a ‘motion’ passed on March 18 2004 by the National Council and on September 29 2004 by the Council of States, the parliament obliged the Federal Council (the executive) to evaluate measures for preventing further land abandonment and forest expansion.

continue to manage their marginal lands and thus contribute to the public-good benefits of maintaining a diverse cultivated landscape. The questionnaire, in addition to a title page, consisted of four pages. The first page contained information about past and current land-use changes in the Swiss Alps, particularly with regard to the forest area and to agricultural land-use. This included a small map showing the percentage increase in forest area over a twelve-year period for each of the central, the south-western and the south-eastern region of the Alps. Respondents were given information about possible positive and negative consequences of a decline of mountain agriculture and further increase of forest area. The following page asked questions about general attitudes toward these changes and about the amount of time spent in the Swiss Alps. On the third page, the subjects were confronted with a hypothetical policy proposition which implied a specified increase in taxes in the case of majority approval. In a first, dichotomous-choice (DC) question, the respondents were asked if they would vote in favor of this proposition. In a second, open-ended question, they were asked to state the maximum amount (in SFR) at which they would vote for the proposition. This question sequence follows Green et al. (1998) as mentioned above. The presentation of the two valuation questions is illustrated in Fig. 1 of the Appendix. Compared with standard contingent valuation surveys, an important peculiarity of our DC question is that the cost consequence of the proposition was specified as a *percentage* increase in taxes. This specification was necessary to be able to subsequently collect endorsements from parties and interest groups.³ To aid the respondents in answering the question, a table on the same page converted the percentage amount into absolute amounts for different levels of the tax bill (see Appendix, Fig. 1). The questionnaire closed with questions about socioeconomic characteristics. The usual income question was replaced by a question concerning the amount of the last year's total personal tax bill. Comprehension and clarity were checked with numerous policy experts and laymen, whereupon small corrections led to the final version of the questionnaire.

³ However, recent research also suggests that a bid design based on tax percentages has potential merits beyond its specific purpose in the present study (Boyle et al., 1997; Flores and Strong, 2004; Schläpfer, 2006).

In September 2004, the national offices of the largest political parties and relevant interest groups concerned with land-use issues were contacted and asked if they would be willing to provide endorsements for the land-use policy propositions. Five of the eight parties and interest groups we contacted agreed to participate. Their representatives jointly provided endorsements (Yes or No) from a broad spectrum of political interests. Based on the final questionnaire, these organisations gave negative or positive endorsements for both versions of the closed-ended valuation question (involving a 0.2 and a 1.0 percent tax increase). Endorsements were obtained from the following organisations: People's Party (SVP, right-wing), Liberal Democrats (FDP, center), Swiss Farmers Union, Swiss Foundation for Consumerism (largest consumer organisation), and Pro Natura (largest NGO in Swiss nature conservation). For each of the two bid-levels a sheet with the endorsements was then printed to be included as a supplement to the questionnaires (Appendix, Fig. 2). The consumer organisation switched from a positive to a negative endorsement when the tax costs were 1 instead of 0.2 tax percent. The other organisations gave the same recommendation for both 'bid' levels.

For the mail survey we used the (complete) address stock from a previous mail survey on land-use policy in the Canton of Zurich conducted in November/December 2003 (Schläpfer et al., 2004). Potential respondents had been recruited by telephone from five municipalities in the Canton of Zurich (Zurich, Faellanden, Greifensee, Grueningen and Baeretswil).⁴ The questionnaires were sent out in October 2004, and a reminder was sent to all addresses about three weeks after the initial mailing. The mail-survey mode is cognitively the most similar to Swiss ballot decisions in that most voters receive their ballot materials and most post their votes by mail rather than passing by the ballot boxes in person.

⁴ The target individuals were selected in a two-stage process to obtain a sample that corresponded well with the structure of the sampled population. First, random samples were drawn from the list of telephone numbers in the survey areas. The household structure was then surveyed, yielding number, age, and gender of all potential respondents in the household (citizens with the right to vote). A random sample of individuals was then drawn from the potential target members of the households. Households were contacted five times (on different days) before target respondents were replaced. A computer-assisted algorithm for selecting replacements ensured that the age and sex distribution in the sample remained close to census distributions.

Hypotheses

The experimental design allows us to test a number of specific hypotheses regarding the effect of the political signals on the survey responses. First, we examine if the information shortcuts affected the questionnaire return rates (hypothesis *H1*). Second, we test if the information shortcuts affect the (unconditional) distribution of the responses among the categories “yes”, “no” and “missing” in the DC question, and among the categories “positive”, “zero”, “slash” (/) and “missing” in the OE question (*H2*). Third, we use multiple regression to examine how the information treatment and the ‘bid’ level (coded as dummy variables) affect the probability of a Yes response in the DC question and stated WTP value in the OE question. In a model with the pooled data, we thus test if the coefficients on the treatment dummies (and their interaction) are significantly different from zero (*H3*).

3. Experimental Results

Of the 773 distributed questionnaires 311 (40.2%) were returned complete. The return rate was not different among the four treatment combinations (see Table 1).

Table 2 presents the frequency of Yes, No and missing responses to the dichotomous-choice valuation question. In the low-bid treatment (Bid=0.2), the frequency of Yes, No and missing responses was very similar with and without political signals. In the high-bid treatment (Bid=1.0), the signals tended to increase the proportion of Yes votes (49 vs. 36 percent) while the proportion of No votes and missings tended to be decreased. However, this result was not statistically significant in chi-square independence tests.

- Table 2 about here -

Table 3 presents the frequency of the response categories in to the OE question. Under the low-bid treatment, the endorsements did not significantly affect the frequency of responses in the four categories. Under the high-bid treatment, the frequency of the responses among the four categories was different between the split samples with and without endorsements. Specifically, the frequency of missings (or item non-response) was significantly lower when the respondents had access to the signals (14 percent *vs.* 33 percent of the responses), while the frequency of zero bids was increased. When bid-level subsamples were pooled, the proportion of missing values was again significantly reduced by the endorsements. Means and standard deviations of the “usable” WTP responses to the open-ended question (following the interpretation described below) are presented in Table 4. In moving from the DC to the OE question, 7.4 percent of the DC and OE responses were inconsistent. Fifteen No voters stated a WTP greater than their bid amount, and eight Yes voters stated a WTP smaller than their bid amount. As this type of inconsistency cannot be identified in standard surveys we did not exclude these observations from the sample.

- Tables 3 and 4 about here -

To analyze the responses to the valuation questions in a multiple regression framework, we coded dummy variables for each of the two-level treatment factors. The definitions of the explanatory variables in the regressions are presented in Table 5. To analyze the responses to the OE question we divided the open-ended WTP amount by the self-reported annual tax bill to obtain the variable “WTP in tax percent”. Incredibly high WTP bids, defined as WTP greater than 10 percent of the annual tax bill, were excluded from the analysis. There were eight such responses, three from respondents with access to the endorsements and five from respondents without access to the endorsements. The “slash” (/) and missing responses were interpreted as

zero bids. This interpretation seems to be the most appropriate one on the following grounds.

“Slash” was observed only once among those voting Yes and 31 times among those voting No in the DC question. Blanks were observed 7 times among those voting Yes and 36 times among those voting No. Given less frequent “missings” (and more frequent zeros) under the SIGNALS treatment, deleting these responses could seriously bias our estimates. (We also ran the models with “slash” and blanks coded as “missing” for the Yes voters and as “zero” for the No voters; this did not change our results.)

- Table 5 about here -

Table 6 contains the estimates from regressions of the binary responses to the DC question (probit models) and the OE question (OLS and censored “Tobit” regression) on the treatment dummies, with and without relevant (significant) socioeconomic co-variables. These models encompass direct tests of our hypotheses regarding the impact of the endorsements on the DC and OE responses. The binary (Yes/No) choices were not significantly affected by the treatments (Table 6, column 1). This result did not change when dummies for gender and high income were added to the model (column 4), although $BID \times SIGNALS$ tended to have a positive effect ($t=1.46$). In the OLS and Tobit models of percentage WTP with only the treatment dummies included as independent variables (Table 6, columns 2 and 3), BID and SIGNALS had a significant interactive effect on the open-ended WTP responses (columns 2 and 3). This pattern remained unchanged when dummies for gender and high income were added to the model (columns 5 and 6), or when the absolute WTP (instead of the percentage WTP) was used as the dependent variable.

- Table 6 about here -

The effects of BID on the OE responses are effects of “bid-anchoring” as discussed for example in Green et al. (1998). An important interpretation of the significant interaction between BID and SIGNALS is that this anchoring effect is changed or transformed by the political signals. However, there is an important difference in the interpretation of the BID effect in our two information treatments. In the treatment without access to political signals, the effect of BID is the effect of an *arbitrary* anchor on the responses to the OE question. In the treatment with information signals, in contrast, the effect of BID is the effect of informative signals or, in other words, of an *informative, non-arbitrary* anchor.

Regarding the socioeconomic characteristics, male respondents were significantly less likely to “vote” Yes in the DC question. The annual taxbill (Highinc) had a negative effect on open-ended WTP. In interpreting this result, it is important to consider that the ‘bid’ in the DC question was presented as a *percentage* change in existing (progressive) taxes. The coefficient on the income dummy was positive as expected when we used the absolute WTP (instead of the percentage WTP) as the dependent variable, (OLS $t=2.79$, $p<0.01$; Tobit $t=1.37$).

The results of the hypothesis tests are summarized in Table 7.

- Table 7 about here -

4. Discussion

Several aspects of the results and the experimental approach in general warrant further discussion.

The effects of the political signals on the open-ended WTP responses support the hypothesis and observational findings of political scientists that voters who are confronted with unfamiliar policy propositions may choose to base their decisions on endorsements received from political parties and interest groups. The substantial reduction of item non-reponse suggests

that the endorsements reduced information costs and that at least some of the respondents perceived them as helpful for formulating a “satisfactory” response.

The mean effect of political endorsements on open-ended WTP was positive (see Table 4). We suggest that this direction of the effect can be partly explained by an asymmetry of the “decision space” in the open-ended question: subjects with a generally positive perception of public spending for landscape management may have been reassured by positive endorsements from favored organisations. Their WTP was therefore increased by the endorsements. Subjects with a generally negative perception of the broader policy issue may have been similarly reassured by the (negative) endorsements from their favored organisations. However, since the range of possible WTP responses had a natural lower bound of zero, the positive effects on the mean WTP of the “proponents” may have been stronger than the negative effects on the mean WTP of the “opponents”. The many zero WTP responses given by those who answered No to the DC question (see above) lend some support to this interpretation.

In the treatment without endorsement information we found a larger proportion of Yes responses to the tax increase of 0.2 percent than to the tax increase of 1 percent as expected (0.47 vs. 0.36; see Table 2), but this difference was not significant in the test (Table 6). While insensitivity to the bid level is often seen as evidence of a flawed study, such interpretations must clearly take the specific bid design into account. The bid levels in the present study varied by a factor of five while CV studies on tax-financed public goods often use experimental designs that vary the bid by a factor of one hundred or more. It is clear that designs which unlike our design include extremely high bids (relative to the income of the respondent) will be more likely to produce significant effects of the bid level. In the treatment with endorsements, the proportion of Yes responses was slightly smaller with the smaller tax increase than with the larger tax increase (0.43 vs. 0.49; non-significant). This finding suggests that, within the range of tax increases used, the endorsements may not have helped the respondents in formulating rational responses to the

DC question. However, it seems fair to say that the effect of the tax increase would likely be different with tax increases varying by a factor of one hundred – and related party information.⁵

Using tax percentages is a precondition for the parties to be able to provide endorsements for a tax-financed public good (see section Experimental design). Valuation in a rational model then somehow involves the translation of tax percentages (or changes in a public budget) into personal tax consequences. The conversion table provided in the valuation question had precisely the purpose of guiding the respondent in this inevitable task. We thus used absolute amounts in the open-ended question only after introducing the respondent to the correspondence between percentages and individual-specific amounts. Once the respondent is aware of this correspondence, a WTP in absolute amounts may be easier to formulate than a WTP in tax percentages. However, we do not want to suggest that this was the best way to proceed. Exploring alternative procedures would seem to be an important topic for future research.

The specification of the costs as a percentage (rather than absolute) increase in taxes may have far-reaching consequences for the credibility and strategic incentives of stated preference questions (Flores and Strong, in press; Schläpfer, 2006; Schläpfer and Hanley, 2006). By this formulation we essentially prevented that the public good was offered to high (low) incomes at incredibly low (high) costs. This sets the control of our information treatment clearly apart from standard contingent valuation formats. The observed effects of the information treatment may thus not be generalized to surveys using a standard ‘bid’ design.

Our results are relevant for future research on stated preferences for public goods. The reduced frequency of non-responses under the treatment with endorsements suggests that this information treatment may reduce problems with respondent uncertainty in notoriously difficult

⁵ One reviewer suggested an interesting alternative interpretation of the insignificant bid amount: “You change taxes and you change the good. For this reason demand as opposed to willingness to pay is being measured. A higher proportional tax rate increase may be preferred over a lower if it is closer to my bliss point (individually preferred tax increase). [...] If the exact number of acres covered was the same across the two bid amounts, then I would say willingness to pay is being measured. If instead the acres covered is not explicit, I would have to infer that higher taxes means more acres.” This interpretation seems plausible, but we would suggest that a similar interpretation might also apply to standard question formats where the bid is specified as an absolute dollar amount.

decisions and may hence reduce well-known empirical symptoms of respondent uncertainty such as insensitivity to scope, part-whole bias, and anchoring effects. The significant interaction of the information and ‘bid’ level treatments specifically suggests that political endorsements in a survey setting have the potential to “crowd out” anomalous anchoring effects by replacing arbitrary anchors with informative political signals.

Regarding the applied use of contingent valuation for benefit-cost analysis, our experiment demonstrates that it is possible to conduct field surveys in which respondents have access to a similar type of political signals as voters have in direct legislation decisions. To those policy-makers who seek information about individuals’ preferences for public goods, the endorsements themselves and their effect on survey responses may provide valuable additional information about the likely preferences and support for proposed policies outside the restrictive information environment of standard stated preference approaches. Our approach thus holds considerable promise for applied research in nonmarket valuation.

5. Conclusion

Compared to exit polls, laboratory experiments and standard contingent valuation surveys, our contingent valuation approach with political endorsements combines the advantages of a controlled experimental setting with a social context and information environment that is similar to real-world voting decisions. The main results of our experiment are that (i) the open-ended WTP responses were more strongly affected by the political signals than the dichotomous choice responses, (ii) the endorsements reduced the frequency of item non-response in the open-ended question, and (iii) the responses were more strongly affected by the endorsements when the (hypothetical) cost of the proposition was relatively high than when it was low.

Some may argue that the stated preferences we elicit at best mimic, rather than reveal, “true” preferences. We agree. However, as Ariely et al. (2003) demonstrate, even choices about

private goods may often be “anchored” in prices and other signals from competitive markets. Seen in this light, the best we can do in preference elicitation is to ensure that the respondents have access to *informative* rather than misleading anchors. If we achieve this by providing endorsements from reputable, accountable political actors, then survey responses about public goods may be as firmly grounded in “true” preferences as many of our routine choices about private goods in the markets.

References

- Ariely, D., Loewenstein, G., Prelec, D., 2003. "Coherent arbitrariness": stable demand curves without stable preferences. *Quarterly Journal of Economics* 118, 73-105.
- Arrow, K., Solow, R., Portney, P.R., Leamer, E.E., Radner, R., Schuman, H., 1993. Report of the NOAA Panel on contingent valuation. *Federal Register* 58, 4601-4644.
- Baron, J., 1996. Rationality and invariance: responses to Schuman, in: Bjornstad, D.J., Kahn J.R. (Eds.), *The Contingent Valuation of Environmental Resources. Methodological Issues and Research Needs*. Edward Elgar, Cheltenham, U. K., pp. 145-163.
- Blomquist, G., Whitehead, J., 1998. Resource quality information and the validity of willingness to pay in contingent valuation. *Resource and Energy Economics* 20, 179-196.
- Boyle, K.J., Bishop, R.C., Welsh, M.P., 1985. Starting point bias in contingent valuation surveys. *Land Economics* 61, 188-194.
- Boyle, K. J., Johnson, F. R., McCollum, D. W., 1997. Anchoring and adjustment in single-bounded, contingent-valuation questions. *American Journal of Agricultural Economics* 79, 1495-1500.
- Camerer, C., 1995. Individual decision making, in: Kagel, J., Roth, A. (Eds.), *Handbook of Experimental Economics*. Princeton University Press, Princeton, NJ, pp. 587-703.
- Cherry, T.L., Crocker, T.D., Shogren, J.F., 2003. Rationality spillovers. *Journal of Environmental Economics and Management*, 45, 63-84.
- Diamond, P.A., Hausman, J.A., 1994. Contingent valuation - is some number better than no number. *Journal of Economic Perspectives* 8, 45-64.
- Flores, N.E., Strong, A., in press. Cost credibility and the stated preference analysis of public goods. *Resource and Energy Economics*.
- Frey, B.S., Eichenberger, R., 1994. Economic incentives transform psychological anomalies. *Journal of Economic Behavior & Organization* 23, 215-234.

- Green, D., Jacowitz, K.E., Kahneman, D., McFadden, D., 1998. Referendum contingent valuation, anchoring, and willingness to pay for public goods. *Resource and Energy Economics* 20, 85-116.
- Grossman, G.N., Helpman, E., 1999. Competing for endorsements. *American Economic Review*, 89, 501-524.
- Hanemann, W.M., 1994. Valuing the environment through contingent valuation. *Journal of Economic Perspectives* 8, 19-43.
- Hanley, N. and Shogren, J.F., 2005. Is cost-benefit analysis anomaly-proof? *Environmental & Resource Economics* 32, 13-34.
- Kahneman, D., Ritov, I. and Schkade, D.A., 1999. Economic preferences or attitude expressions?: an analysis of dollar responses to public issues. *Journal of Risk and Uncertainty* 19, 203-235.
- Kahneman, D., Tversky, A., 1984. Choices, values, and frames. *American Psychologist* 39, 341-350.
- Kuklinsky, J.H., Metlay, D.S., May, W.D., 1982. Citizen knowledge and choice on the complex issue of nuclear energy. *American Journal of Political Science* 26, 615-642.
- List, J. A., 2006. Using Hicksian surplus measures to examine consistency of individual preferences: evidence from a field experiment. *Scandinavian Journal of Economics* 108, 115-134.
- Lupia, A., 1994. Shortcuts versus encyclopedias - information and voting- behavior in California insurance reform elections. *American Political Science Review* 88, 63-76.
- Lupia, A., Matsusaka, J.G., 2004. Direct democracy: new approaches to old questions. *Annual Review of Political Science* 7, 463-482.
- Lupia, A. and McCubbins, M.D., 1998, *The Democratic Dilemma: Can Citizens Learn What They Need to Know?* Cambridge University Press, New York.
- McFadden, D., 1999. Rationality for economists? *Journal of Risk and Uncertainty* 19, 73-105.

- McKelvey, R.D., Ordeshook, P.C., 1986. Information, electoral equilibria and the democratic ideal. *Journal of Politics* 48, 909-937.
- Milgrom, P., Roberts, J., 1986. Relying on the information of interested parties. *Rand Journal of Economics* 17, 18-32.
- Munro, A., Hanley, N., 1999. Information, uncertainty, and contingent valuation, in: Bateman, I., Willis, K. (Eds.), *Valuing Environmental Preferences*. Oxford University Press, Oxford., pp.258-259.
- Schläpfer, F., 2006. Survey protocol and income effects in the contingent valuation of public goods: a meta-analysis. *Ecological Economics* 57, 415-429.
- Schläpfer, F., Hanley, N., 2006. Contingent valuation and collective choice. *Kyklos* 59, 115-135.
- Schläpfer, F., Schmitt, M., Roschewitz, A., 2004, Stated preferences with and without external value cues. Paper presented at the 13th Annual Conference of the Association of Environmental and Resource Economists, Budapest, June 2004.
- Shapiro, P., Deacon, R.T., 1996. Estimating the demand for public goods: comments and extensions, in: Bjornstad, D.J., Kahn, J.R. (Eds.), *The Contingent Valuation of Environmental Resources. Methodological Issues and Research Needs*. Edward Elgar, Cheltenham, U. K., pp. 244-262.
- Slembeck, T., Tyran, J.R., 2004. Do institutions promote rationality? An experimental study of the three-door anomaly. *Journal of Economic Behavior & Organization* 54, 337-350.
- Slovic, P., Lichtenstein, S., 1968. Relative importance of probabilities and payoffs in risk-taking. *Journal of Experimental Psychology Monographs* 78, 1-18.

Table 1. Experimental Design

	Signals	Control
Bid = 0.2	193 (78)	194 (81)
Bid = 1.0	193 (78)	193 (74)

Note: Entries are numbers of distributed (and returned) questionnaires.

Table 2. Descriptive Statistics, Test Results for Split Sample Comparison of DC responses

Sample	Treatment	Frequency of response types			χ^2 statistic, df=2
		split samples (proportions)			
	tested (n)	Yes	No	Missing	
Bid = 0.2	SIGNALS	32 (0.43)	33 (0.45)	9 (0.12)	0.32
	CONTROL	38 (0.47)	35 (0.43)	8 (0.10)	
Bid = 1.0	SIGNALS	38 (0.49)	30 (0.39)	10 (0.13)	2.90
	CONTROL	28 (0.36)	35 (0.45)	15 (0.19)	
Pooled	SIGNALS	70 (0.46)	63 (0.41)	19 (0.13)	0.71
	CONTROL	66 (0.42)	70 (0.44)	23 (0.15)	

Table 3. Descriptive Statistics, Test Results for Split Sample Comparison of Responses to the Open-ended Question

Sample	Treatment	Frequency of response types (proportion)				χ^2 statistic, df=3	χ^2 statistic, df=1 (missing vs. other)
		positive	zero	slash (/)	missing (blank)		
Bid = 0.2	SIGNALS	39 (0.53)	13 (0.18)	9 (0.13)	13 (0.18)	1.97	0.02
	CONTROL	47 (0.58)	8 (0.10)	11 (0.14)	15 (0.19)		
Bid = 1	SIGNALS	47 (0.60)	9 (0.12)	11 (0.14)	11 (0.14)	8.43 **	7.97***
	CONTROL	36 (0.46)	9 (0.12)	7 (0.09)	26 (0.33)		
Pooled	SIGNALS	86 (0.57)	22 (0.14)	20 (0.13)	24 (0.16)	5.091	4.70 **
	CONTROL	83 (0.52)	17 (0.11)	18 (0.11)	41 (0.26)		

Note: *, **, *** denote significance at the 0.10, 0.05, and 0.01 levels, respectively.

Table 4. Descriptive Statistics of the WTP Responses to the Open-ended

Question

Sample		WTP absolute			WTP in tax percentages		
		Mean	SE	N	Mean	SE	N
Bid=1	SIGNALS	121.0	38.1	76	1.40	0.26	71
	CONTROL	47.4	9.7	77	0.76	0.14	72
Bid=0.2	SIGNALS	27.9	8.1	73	0.47	0.10	63
	CONTROL	26.1	4.3	77	0.56	0.17	67

Note: SE indicates standard errors.

Table 5. Definition of the Independent Variables

Variable name	Description	Coding	Mean	SD	N
BID	Tax costs in the DC question (percent of tax bill)	1 if “1 percent”; 0 if “0.2 percent”	0.502	0.501	311
SIGNALS	Access to the political signals	1 if access; 0 if no access	0.489	0.501	311
Highinc	Annual taxbill (CHF)	1 if > 10'000; 0 otherwise	0.537	0.499	311
Male	Gender	1 if male; 0 if female	0.518	0.500	281

Note: SD indicates the standard deviation.

Table 6. Regression Model Results for the Pooled Samples

Variable	Probit	OLS	Tobit	Probit	OLS	Tobit
Constant	0.04 (0.24)	0.56*** (3.07)	-0.16 (-0.52)	0.41** (1.97)	1.06*** (4.68)	0.67* (1.84)
Highinc				0.02 (0.13)	-0.66*** (-3.62)	-0.99*** (-3.36)
Male				-0.49*** (-2.91)	-0.17 (-0.96)	-0.39 (-1.33)
BID	-0.20 (-0.90)	0.20 (0.78)	-0.08 (-0.18)	-0.30 (-1.29)	0.18 (0.71)	-0.10 (-0.24)
SIGNALS	-0.07 (-0.35)	-0.09 (-0.34)	-0.23 (-0.54)	-0.10 (-0.42)	-0.15 (-0.57)	-0.34 (-0.81)
BID × SIGNALS	0.35 (1.13)	0.73** (2.00)	1.26** (2.11)	0.49 (1.46)	0.71** (1.98)	1.24** (2.13)
SIGMA			2.25*** (16.30)			2.17*** (16.31)
<i>N</i>	262	273	273	234	272	272
Log-likelihood	-180.8		-423.90	-155.8		-415.09
Log-l. restricted	-181.6		-504.04	-161.8		-502.54
R^2		0.056			0.107	

Notes: Numbers in parentheses are t-statistics; for significance levels see Table 3.

Table 7. Summary of Results

Null-Hypothesis	Result
<i>H1</i> ₀ : Endorsements do not affect survey response rates	not rejected
<i>H2.1</i> ₀ : Endorsements do not affect response categories to DC question (χ^2 frequency test)	not rejected
<i>H2.2</i> ₀ : Endorsements do not affect response categories to OE question (χ^2 frequency test)	rejected for subsample with bid=1 and for pooled sample
<i>H3.1</i> ₀ : Endorsements do not affect responses to DC question (test of restrictions in Probit model)	not rejected
<i>H3.2</i> ₀ : Endorsements do not affect responses to OE question (test of restrictions in OLS and Tobit models)	rejected; significant interactive effect (with BID)

Figure legends

Fig. 1 Wording and presentation of the valuation questions (translated from German).

Fig. 2 Wording and presentation of the endorsements for the question involving a 1 percent increase in taxes (translated from German).

Question 4

Imagine the following national **ballot proposition**:

Through a targeted **increase of compensation payments** to farmers, the continued agricultural use of the current meadows and pastures in the mountainous regions will be secured. With this measure, a further **forest expansion will be stopped**. The payments will be financed through taxes: In consequence, your annual **tax bill** (municipal, cantonal and direct federal taxes) **increases** by **0.2** percent. The table below helps you estimate to how many Francs the [...] percent tax increase corresponds for you personally.

Annual taxbill in Francs	A [...] percent tax increase corresponds to Francs per year
0	0
2'000	4
4'000	8
6'000	12
8'000	16
10'000	20
15'000	30
20'000	40

***Note:**
If as a married couple you receive a common tax bill, please divide the amount of your tax bill by two.

Would you approve of this proposition?

- Yes**, I would approve of the proposition
 No, I would reject the proposition
 don't know

[Are you unsure, if you would or would not approve of the proposition? Enclosed you find **choice recommendations** from various political parties and interest groups. You may use these recommendations, as the voting recommendations in ballot propositions, to form your opinion.]

Question 5

By how much could your tax bill be maximally increased, so that you would just approve of the proposition?

ca. Francs **per** year (for married couples: amount per person)

Choice recommendations for Question 4 (enclosure to the questionnaire)

The representatives of the listed political parties and interest groups recommend you the following responses to question 4:

<p>Yes, Approval of the proposition</p>	 <p>BAUERNVERBAND pro natura</p>
<p>No, Rejection of the proposition</p>	 <p>SVP UDC FDP Stiftung für Konsumentenschutz KONSUMENTEN S C H U T Z</p>

Note:

These choice recommendations do not necessarily correspond to the *official* party or interest group position. The answers are those of individual members who have done their best to state the position of their party or interest group:

Bauernverband:	Marco Baltensweiler (Director Division Agricultural Economics)
Pro Natura:	Ueli Berchtold (Project manager Protected areas, Division Biotopes and species)
Stiftung für Konsumentenschutz:	Jacqueline Bachmann (Director)
SVP:	Jeannine Grünenfelder (Scientific Advisor)
FDP:	Romain Clivaz (Policy Secretary)