Anyone for higher speed limits? – Self-interested and adaptive political preferences *

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Abstract. Swedish survey-evidence indicates that variables reflecting self-interest are important in explaining people's preferred speed limits, and that political preferences adapt to technological development. Drivers who believe they drive better than the average driver as well as drivers of cars that are newer (and hence safer), bigger, and with better high-speed characteristics, prefer higher speed limits. In contrast, elderly people prefer lower speed limits. Furthermore, people report that they themselves vote more sociotropically than they believe others vote on average, indicating that we may vote less sociotropically than we believe ourselves. One possible reason for such self-serving biases is that people desire to see themselves as socially responsible.

1. Introduction

The purpose of this paper is twofold: i) to use survey evidence about what speed limits different people prefer on motorways, and what their own subjectively perceived and self-reported voting motives are, in order to provide new insight into the determinants of individual voting behavior, in particular the self-interested voting hypothesis; and ii) to identify adaptations in political preferences due to technological development, in our case changes in safety and high-speed features of cars. The analysis is based on two recent representative Swedish surveys: In the first one people were asked about their preferred speed limits on motorways. In the second they were asked about why they vote as they do, and about why they think other people vote as they do.

Why do people vote in the way they do and why do they vote at all? One reason for the latter is simply that we are heavily indoctrinated to do so; c.f. Tullock (2000). But is *how* we vote motivated solely by the instrumental outcome induced by our votes? Or are we perhaps, as proposed by Brennan and

Lomasky (1993) and Brennan and Hamlin (1998, 2000), motivated largely by the expressive act of voting? If the expressive motive is important it becomes more likely that people are concerned with society as a whole when voting, rather than what is good solely for themselves.[1] Indeed, as found by Brekke, Kverndokk and Nyborg (2003), most people seem to prefer a self-image that reflects social responsibility, rather than pure self-concern. The relative importance of purely self-interested voting, versus sociotropic voting, is still debated. This is partly because it is difficult to draw strong conclusions from general elections that are characterized by few political parties (or candidates) and many political issues and indicators; see e.g. Kinder and Kiewiet (1979), Kramer (1983) and Mitchell (1990). The reason for this is that some opinions of one party may favour a certain group while other opinions may favour other groups, and it is difficult to know the relative weights that different voters give to the different opinions of the parties. Thus, there are clear advantages to be gained from testing the self-interested voting model when the choice set is small and when there are few political issues, such as on a single-issue referendum or by using tailor-made surveys.

Smith (1975) analyzed the voting behavior from a referendum in Oregon concerning tax equalization between different districts, and concluded that self-interest does seem to play an important role. Sears, Lau, Tyler and Allen (1980), on the other hand, analyzed survey data on people's attitudes toward specific policies in the US, and concluded that self-interest plays a very minor role. However, their conclusions, based on their statistical results, can be questioned: for example, they found that the support for a national health insurance decreased with income and increased with age, and that the support for more resources to be given to law and order increased with income, but these findings were not interpreted to reflect self-interest. Nevertheless, there have also been other studies such as Gramlich and Rubinfeld (1982) and Shabman and Stephenson (1994) that have concluded that self-interest alone does a poor job of explaining the results. These findings are also consistent with much experimental evidence from public-good games; see e.g. Ledyard (1995) and Keser and van Winden (2000).

Much of the analysis here is based on the first survey about the preferred speed limits on motorways, which is an issue that has been frequently debated for a long time in Sweden. Besides being a single issue, it has the advantage of being fairly neutral from an ethical point of view, meaning that the opinion of good and responsible citizens is not straightforward to predict.[2] Survey responses can otherwise be biased towards what is perceived to be the most ethical alternative, which is an argument that for example is put forward in the environmental valuation literature. A possible underlying reason for this bias, in turn, is that people typically attempt to present themselves in

a positive manner to others, which implies that we sometimes deliberately conceal or colour our true opinions or preferences, i.e. what Kuran (1995) denotes "preference falsifications." An alternative reason is our desire to see ourselves as good people, and our tendency to bias our impressions of reality in various respects to maintain or improve this self-image (see e.g. Gilovich, 1991). Such tendencies may, for example, influence people to believe that they would be willing to pay more for a socially good cause than they would actually be willing to pay, which is denoted "purchase of moral satisfaction" by Kahneman and Knetsch (1992).

In order to broaden the insights on voting motives, we also performed a second survey where a representative sample of Swedes was asked about why they vote as they do, and why they think other people vote as they do. This allows us to compare the findings about the preferred speed limits with the perception that people have of their own and others' voting motives. The reason we also asked about the perception of others' voting motives is the one just mentioned, i.e. that we suspected that the responses may be biased since most people would presumably consider voting out of conviction to be ethically superior to voting solely for one's own good.

Given that self-interest is important for the political preferences, one would from the general self-interested hypothesis expect people with more exclusive and safer cars, and with higher subjective driving skills, to prefer relatively high speed limits, and elderly and more vulnerable people to prefer lower speed limits. In addition, one would expect people who drive faster, and who break the speed limits more often to prefer higher speed limits. The results, reported in Section 2, are consistent with these hypotheses. One would also expect that these preferences would change with changing circumstances. Indeed, behavioural adaptations in response to perceived changes in the environment are among the most important insights that modern economics can contribute to the public debate. For example, a safety improvement in cars of, say, 10% may cause a much smaller net effect on safety, since safer cars may induce people to drive faster and less responsibly; see Peltzman (1975), Keeler (1994), Peterson, Hoffer and Millner (1995) and Merrel, Poitras and Sutter (1999) for theoretical analysis as well as empirical evidence. This paper will concentrate on another kind of adjustment, namely how political preferences with respect to preferred speed limits on motorways change with the rapid technological development of private cars. The data used here is not ideal in this respect, since the survey is purely cross-sectional. Nevertheless, it is still possible to see whether the results are consistent with the hypothesis of adjustments of political preferences. If people demand higher speed limits when their cars get safer and have better high-speed characteristics, one would expect from the empirical analysis that more people

would be in favour of increasing speed limits rather than decreasing them, since these limits were decided upon many years ago,[3] and also that individuals with newer cars would prefer higher speed limits. This is also found in our empirical analysis.

It is interesting to compare the obtained motives that can be inferred from people's choices, in reality or in surveys, from their own subjectively perceived voting motives. This is the reason we undertook the second survey about people's perceptions of their own and others' voting motives. The results indicate that most people believe that others vote largely for their own interests, whereas they, on average, consider themselves to be influenced roughly equally by their own interests and by those of society as a whole. The results further help to identify possible self-serving biases, i.e. that people may tend, unconsciously, to believe that what is in the interest of society happens to coincide with what is in their own private interest. If so, one would expect systematic differences between people's reported perception of their own motives and that of others' motives, and that people on average believe that they themselves vote more out of conviction, or sociotropically, than others do. And as reported in Section 3, this is indeed found to be the case.

2. Analysis of preferred speed limits

The main survey was mailed to 2500 randomly selected individuals aged between 18 and 65 years old in Sweden, during spring 2001. The response rate of the overall survey was 62%, and 1131 car drivers answered the speed-limit question. Each respondent was asked the following question: *What speed limit do you think we should have on Swedish motorways?* They were given five options, all of which have been discussed in the Swedish debate from time to time: 90, 100, 110 (the level today), 120, and 130 km/h.

The descriptive result in Table 1 shows that very few would like to have decreased speed limits, and that more than half of the respondents would like to see increased speed limits. This may in itself be an indication that people have adapted their political preferences to the increased levels of vehicle safety, but to be able to say more on this issue we would need to know who wants increased speed limits, and who does not. This is the issue to which we turn next.

In order to obtain information on the characteristics that affect the preferred speed limit, we ran an OLS-regression with the preferred speed limit as the dependent variable on a number of socio-economic characteristics and the characteristics of the car that they most frequently drive. Because of missing or incomplete responses, primarily on the income and voting variables the

Table 1. Sample distribution of the preferred speed limit on Swedish motorways. (N = 974)

90 km/h	100 km/h	110 km/h (as of today)	120 km/h	130 km/h
2%	3%	41%	25%	29%

number of respondents included in the analysis is 974. The results from the estimations are presented in Table 2 along with the mean sample value of each explanatory variable.

The results show that those who drive newer cars do prefer higher speed limits, as one would expect, given that people adapt their preferences to changing circumstances, in this case safer cars with better high-speed driving characteristics.[4] Similarly, drivers of the prestige cars BMW, Mercedes and Porsche, which are also safer and/or have better high-speed driving characteristics, also prefer higher speed limits. The size of car also affects the preferred speed limit in the expected direction, since bigger cars are on average safer, and have better high-speed characteristics, but the differences are not significant at conventional levels. Jeeps and vans constitute the base case, and although these are big vehicles, they have typically bad high-speed characteristics.

The preferred speed limit is higher for those who believe they are better than average drivers, which is also consistent with the self-interested hypothesis, since the risk of an accident, for a given speed, would then be lower.[5] A long annual driving distance also increases preferred speed limit, which, however, is not obvious from the self-interested hypothesis. On the one hand, those who drive a lot will gain more time from increased speed levels, but on the other hand they will also face a larger reduction in safety. In our case, it seems that the former effect dominates the latter. This is also consistent with Rienstra and Rietveld (1996), who found that self-reported frequency of speed-transgressions on Dutch highways increases with annual driving distances. The effects of always using a seatbelt may seem to contradict the theory, since those without seatbelts would face the biggest risk-increase from increased speed levels. However, it seems likely that the results largely reflect preference heterogeneity, so that those who are more risk-averse, or generally more cautious, prefer both to use seatbelts and to have relatively low speed limits.

People living in the bigger cities of Sweden prefer somewhat higher speed limits, for which one explanation may be the higher pace, in general, of urban life, which translates into a higher value of time. The effect of education is

Table 2. OLS-estimation of preferred speed limit on Swedish motorways. Dependent variable: Preferred speed limit on Swedish motorways in km/h. (N = 974)

Variable	Coeff.	P-value	Mean value
Constant	–111.552	0.276	
Model-year of the car	0.112	0.030	1993.299
Drives either BMW, Mercedes or Porsche	2.771	0.029	0.050
Drives a small-sized car	1.082	0.505	0.071
Drives a medium-sized car	1.553	0.229	0.516
Drives a big car	2.173	0.100	0.362
Drives better than average (self-reported)	2.693	0.000	0.424
Drove more than 25000 km last year	1.524	0.025	0.213
Always wears seat-belt in front-seat	–2.446	0.003	0.860
Lives in Stockholm, Gothenburg or Malmö	1.469	0.040	0.196
University-educated	1.314	0.103	0.322
A-level educated	0.907	0.213	0.449
Equivalence-scaled household income*	0.201	0.001	12.047
Aged above 57	–1.952	0.021	0.151
Male	4.233	0.000	0.532
Has at least one child	0.669	0.307	0.406
Right-wing political preferences	2.799	0.001	0.140
Left-wing political preferences	–1.582	0.011	0.299

$R^2 = 0.204$

RESET** p-value = 0.281

Mean VIF*** = 1.84 and highest VIF for a single
    variable is 5.64.

*In 1000 SEK/month and person. In order to compare income between households, we employ the equivalence scale used by the National Tax Board (RSV) in Sweden. The scale assigns the first adult the value of 0.95, the following adults are set at 0.7 and each child at 0.61 units.

**RESET type of test is a general specification test (see e.g. Godfrey, 1988). In the test we re-run the regression including the squared, cubed and quadratic values of the estimated value of the dependent variable from the original model and test if coefficients of the included variables are jointly significant.

***We test for multicollinearity in our data set by calculating the variance of inflation factor (VIF) for each variable. The largest VIF is 5.64 and the mean VIF is 1.84. The largest value is thus smaller than 10 and the mean value is not considerably larger than 1, as required to be able to judge that there is no apparent indication of mutlicollinearity according to STATA (2003: 378).

quite small, and perhaps in the opposite direction to that in which one would have guessed, since safety awareness is often believed to follow from, or at least to be positively correlated with, education. However, hardly anyone in Sweden, irrespective of education, can be uninformed about the public campaign messages that safety decreases as speed increases. Further, the true relationship between speed and safety may not be as clear and strong as is typically presented, and maybe highly educated people are less easy to convince by public propaganda. Generally, most (but not all)[6] analysts seem to agree that safety typically does decrease with increased speed limits, but there is less agreement about how large the effect is. Nevertheless, the result presented here is also consistent with the result of Hemenway and Solnick (1993) and Shinar, Schechtman and Compton (2001), who found that levels of education higher than high-school tended to increase the probability of speed violation.

Increased household income causes both higher value of time and a higher value of a statistical life, or more generally, the willingness to pay to avoid traffic risks; hence the theoretical prediction is ambiguous. As for driving distance, the time effect appears to dominate. These results are also consistent with Rienstra and Rietveld (1996) and Shinar, Schechtman and Compton (2001) who found that those with the highest incomes tend to break highway speed limits more often than others. Older people prefer lower speed limits, as predicted due to their increased vulnerability.

The relatively large male coefficient, corresponding to more than 4 km/h, can possibly be explained by observed higher risk aversion among women (e.g. Jianakoplos and Bernasek 1998, Hartog, Ferrer-i-Carbonell and Jonker 2002), but it might also reflect a taste difference concerning how fun fast driving is perceived to be, or some kind of macho image.

The influence of political voting is also in the expected direction, since political parties to the left have typically proposed, and been associated with, a more restrictive speed policy, and vice versa. These parameters too may reflect direct instrumental self-interest, if people choose political party partly due to the politically proposed speed limits. Still, it seems reasonable that these parameters rather reflect ideological conviction and expressive concern. This does not necessarily mean that they represent sociotropic concern, however, since people may have different kinds of values and opinions that they want to express; see e.g. Brennan and Lomasky (1993) and Brennan and Hamlin (2000). There is also a large part of the variation left unexplained, and we do not know how large a share of this part can be explained by non-included variables that reflect self-interest, such as how fun it is considered to be to drive fast.

3. Perceptions of voting motives

This second survey was mailed to 1500 randomly selected individuals aged between 18 and 65 years old in Sweden, during spring 2002 (i.e. a year after the first survey), and the response rate of the overall survey was 58%. To compare actual voting motives with the perception people have of voting motives, we simply asked another representative sample of Swedes about why they thought other people vote as they do, followed by a question about why they themselves vote as they do. Before the questions, they were given the following information: *One can vote for a political party for different reasons. One can vote for a party because one is favored oneself, or one can do it out of conviction that it is the best for society as a whole.*

As can be seen from Tables 3 and 4, most people believe that others vote largely for their own interests, whereas they, on average, consider themselves to be influenced roughly equally by their own interests and by those of society as a whole. To test whether the observed differences are statistically significant, i.e. whether there is a statistical difference between people's perception of the degree to which they themselves vote sociotropically, and the degree to which others vote sociotropically, we used a simple ordered probit model; the motives are ordered from "Mostly because it benefits me (them)" to "Mostly out of conviction." This is an appropriate econometric specification since the empirical analysis focuses on an ordered discrete variable. The approach is based on the idea of a latent unobservable variable, $Socio^*$, representing, in our case, individuals' perception of the degree of sociotropic voting with the following structure: [7]

$$Socio^* = \delta \, D_{Others} + \varepsilon,$$

where D_{Others} is a dummy variable indicating that the responses are given to the framing on how others vote, and δ is the associated parameter to be estimated; ε is assumed to be a normally distributed error term with zero mean and constant variance. The results in Table 5 show that the between-sample difference is indeed highly significant as reflected by a significant δ-parameter (at less than 0.1% level).

One possible reason for this systematic bias is that people want to have a good self-image, or identity, and that they therefore engage in a degree of self-deception so that they believe that they would vote more for the common good than they would actually do in reality. Indeed, there is much psychological evidence for systematic self-deception that enhances people's perception of their own abilities in many respects; see e.g. Gilovich (1991) and Taylor and Brown (1994). An alternative, slightly more sophisticated version of this argument, is that people answer truthfully and without bias concerning their own motives. However, since most of us want to see ourselves as good and

Table 3. Self-reported perceptions of own voting motives. (N = 751)

Why do you vote as you do?	
Reason	Fraction
Mostly because it benefits me	10%
Because it benefits me, but also to a certain degree out of conviction	23%
Equally because it benefits me and out of conviction	27%
Out of conviction, but also to a certain degree because it benefits me	22%
Mostly out of conviction	18%

Table 4. Self-reported perceptions of others' voting motives. (N = 762)

Why do you, on average, believe that people vote as they do?	
Reason	Fraction
Mostly because it benefits them	20%
Because it benefits them, but also to a certain degree out of conviction	39%
Equally because it benefits them and out of conviction	19%
Out of conviction, but also to a certain degree because it benefits them	17%
Mostly out of conviction	5%

Table 5. Ordered probit regression to estimate the differences between the respondents' perceived degree to which they themselves and others vote sociotropically. (N = 1513)

Variable	Coeff.	P-value
Dummy variable reflecting the additional degree that others (compared to oneself) vote sociotropically	–0.553	0.000
Cut-off 1	–1.346	
Cut-off 2	–0.377	
Cut-off 3	0.246	
Cut-off 4	0.968	

The dependent variable is the perceived degree of sociotropic voting coded as follows: 1 = Mostly because it benefits me (them); 2 = Because it benefits me (them), but also to a certain degree out of conviction; 3 = Equally because it benefits me (them) and out of conviction; 4 = Out of conviction, but also to a certain degree because it benefits me (them); and 5 = Mostly out of conviction.

responsible people, and at the same time to do what is best for ourselves, we may unconsciously try to reduce the cognitive dissonance (cf. Akerlof and Dickens, 1982) by adapting our perceptions of what is best for society as a whole so that it more or less coincides with what is best for ourselves. Hence, when we honestly try to judge different alternatives as objectively as possible on behalf of society, we will still unconsciously bias our judgment in favour of what is best for ourselves; see Babcock and Loewenstein (1997) and references therein for much evidence of such self-serving biases.

When we observe others, however, we just know roughly how they vote and their other circumstances. Hence, we can only crudely observe the correspondence between how others vote and their personal interests. But since we do not take into account the fact that others too adapt their perceptions of what is in the interest of society, through self-serving biases, the perception of the degree to which others vote sociotropically may be biased downwards.

4. Conclusion

Most results from our survey indicate that self-interest is an important determinant of the preferred speed limit; for example, those who have a newer car (and hence one that is typically safer and more comfortable at high speeds) that is bigger and faster, prefer higher speed limits. This is also true for those who believe they are better than the average driver, whereas older people prefer lower speed limits. Furthermore, the results are also consistent with the existence of political offsetting behaviour, so that when cars become safer due to technological developments, people adapt their political preferences in favour of higher speed limits, which reduces road safety overall.

However, the results from people's self-reported subjective voting motives are not consistent with purely instrumental pocketbook voting. Rather, it seems that the expressive motive is important, as argued thoroughly by Brennan and Lomasky (1993) and Brennan and Hamlin (1998, 2000),[8] and it seems in particular that people want to express that they are socially responsible people who care about the overall welfare of society. This is also strengthened by the observed fact that people tend to believe that others vote more in their own interests, on average. Still, despite such biases, we also find that most people answer that they vote both for their own interest and for the interest of society. Hence, the hypothesis that most people solely or primarily vote sociotropically appears to be incorrect too.

Answering a survey, such as ours on preferred speed limits, is in some respects quite similar to voting. Since the respondents were informed that the survey was sent out to a large random sample of Swedes by a university, and was a part of a research project, they could hardly believe that their single

response would influence actual policy in a non-negligible way. Furthermore, the financial incentive of answering was zero, and it took probably almost half an hour to answer the whole survey on average. The response rates (62% and 58% respectively) were also similar to electoral participation rates in many countries.[9] Presumably, most of the respondents answered based on a sense of civic duty, or due to the disutility associated with not answering which would break what they perceive to be a social (or personal) norm. But given that expressive voting, and expressive answering of surveys such as ours, is the main explanation behind observed behaviour, how can we explain the fairly strong correlation with their own self-interest? Although it is perceived as socially admirable to vote, it is hardly perceived to be admirable to vote solely for your own best interests. Rather, we are socialized to focus on the collective good when wearing our "political hats" (Sears, Lau, Tyler and Allen, 1980; Sears and Funk, 1990). One possible explanation to this paradox is provided by the idea of self-serving bias. As expressed by Elster (1999, 333): "*Most people do not like to think of themselves as motivated only be self-interest*. They will, therefore, gravitate spontaneously towards a world-view that suggests a coincidence between their special interest and the public interest." (italics in original.) In this way we can vote for improvements for ourselves without feeling guilty that this would, overall, be bad for society, and we are hence not plagued by any cognitive dissonance. After all, it is much more pleasant to think that what is good for you is also good for society, isn't it?

Notes

1. However, as argued by Brennan and Lomasky (1993) as well as Brennan and Hamlin (2000), expressive voting *per se* does not necessarily imply sociotropic voting.
2. If anything, it may be considered somewhat more ethical to vote for lower speed limits. Nevertheless, despite a possible bias in this direction, very few respondents (5%) prefer a lower speed limit than the current one, as can be seen from Table 1.
3. Highway speed limits have increased rapidly in many states in the USA during the last 15 years (Greenstone, 2002), and also in other countries such as Italy, while there are on-going discussions in many other countries.
4. However, it is possible that people who drive newer cars do so due to stronger preferences for safety. For this reason, those who have new cars would then prefer *lower* speed limits than others would. Given that the empirical result presents the net effect, the isolated effect of a newer car on the preferred speed limit would then be larger than the effect that is presented here.
5. This does not necessarily mean that actual safety increases with self-reported subjective driving ability, however, since over-optimism regarding one's own driving ability is likely to be positively correlated with subjective driving ability. Still, what matters for the preferred speed limit it the *subjective* risk, which is independent of such biases.
6. Indeed, some analysts have even questioned the sign of the relationship: Lave and Elias (1997) argued that the accident increase on rural interstate USA roads resulting from

increasing the speed limits to 65 mph in 1987 were more than off-set by the decline of accidents on other roads due to compensatory reallocations of drivers and state police; see also Greenstone (2002), who, however, questioned the conclusion by Lave and Elias.

7. In our case five ordered categories are possible. The respondents are assumed to choose the alternative closest to their own perception, where we observe Socio = 1, i.e. "mostly because it benefits me (them)," if Socio* $\leq \alpha_1$; Socio = 2, i.e. "because it benefits me (them), but also to a certain degree out of conviction," if $\alpha_1 <$ Socio* $\leq \alpha_2$ etc.; until Socio = 5, i.e. "mostly out of conviction," if $\alpha_4 \leq$ Socio*; where α_1 to α_4 are cut-off points to be estimated simultaneously with the coefficient.

8. See also Copeland and Laband (2002) for recent empirical support.

9. In the 2002 General Election in Sweden 80.1% of the eligible population voted (SCB, 2002).

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