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Article

How Important are Pocketbook Voting, Social Preferences and Expressive Motives in Referenda?

CESifo Forum

Provided in Cooperation with:

Ifo Institute – Leibniz Institute for Economic Research at the University of Munich

Suggested Citation: Meya, Johannes; Poutvaara, Panu; Schwager, Robert (2021) : How Important are Pocketbook Voting, Social Preferences and Expressive Motives in Referenda?, CESifo Forum, ISSN 2190-717X, ifo Institut - Leibniz-Institut für Wirtschaftsforschung an der Universität München, München, Vol. 22, Iss. 04, pp. 31-37

This Version is available at:

<https://hdl.handle.net/10419/250930>

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How Important are Pocketbook Voting, Social Preferences and Expressive Motives in Referenda?*

Pocketbook voting, defined as voting for the alternative that benefits the voter the most financially, is the starting point in models of income redistribution that build on Meltzer and Richard (1981) and on the theory of probabilistic voting (Lindbeck and Weibull 1987, 1993; Dixit and Londregan 1996). While economists have found support for pocketbook voting (see Levitt and Snyder 1997; Vlachos 2004; Manacorda et al. 2011; Elinder et al. 2015), there is also evidence that pocketbook voting and social motivations may coexist, as shown by Fiorina (1978) for the United States and by Carlsson and Johansson-Stenman (2010) for Sweden. In this article, we summarize Meya et al. (2020) that studies voting among German students. It contributes to this literature by providing the first analysis of individual-level voting in referenda using an objective measure of monetary benefits and costs and also asked respondents directly about how they weighted self-interest as opposed to the interests of other students.

University of Goettingen holds referenda among students on whether they should collectively purchase flat rate tickets, called “Semestertickets.” The price of a ticket is very attractive compared with prices for individual use; however, once a ticket is accepted in the referendum, buying becomes compulsory for all students. Usually, these referenda are held yearly in January on campus, with the option of voting by mail. If passed, these tickets give all students the right to unlimited use of a facility, such as public transpor-

* Acknowledgment: Johannes Meya coauthored this paper in a private capacity and the results are exclusively the authors' responsibility and do not in any way reflect the position of Bundesnetzagentur.

ABSTRACT

Economic models on voting usually assume that voters maximize their own material interests. Yet there is convincing evidence that people also tend to care about fairness and the common good. Furthermore, some voters may derive utility from the act of voting in a certain way, independent of whether their vote affects the actual outcome. To evaluate the importance of these motives, we studied voting in student referenda on whether to collectively purchase a public good, such as a regional train ticket. Most students voted in line with their pocketbook interests and reported that their own willingness to pay was more important in their vote choice than others' willingness to pay.

tation or cultural amenities. Since buying a ticket becomes compulsory for every student if the majority vote in favor of it, these tickets share essential features with tax-financed public projects or local public goods.

We conducted two surveys on individual voting decisions and the underlying motives. Investigating these referenda is promising because they involve easy-to-understand public policy decisions. In our setting, the voters knew exactly what a ticket would cost and the benefits were clearly defined. In contrast, if the vote had involved, for example, a large infrastructure project, then the costs and benefits would have been more widespread and uncertain. Different voting



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decisions could also then reflect different subjective expectations and differences in risk attitudes.

The motives we consider are pocketbook voting, social preferences and expressive concerns. Pocketbook voting refers to voting in line with one's own monetary interests. The latter two motives both capture how the issue voted upon is seen related to other people but differ in one crucial aspect: Voters with social preferences want to affect the outcome of the vote, for example, because they have altruistic or paternalistic feelings toward other members of society, or because they care for the common good. In this sense, social preferences, such as pocketbook motives, are instrumental. In contrast, the theory of expressive voting, proposed by Tullock (1971) and further developed by Hillman (2010), posits that voters derive utility from the act of voting in accordance with what they think is socially good or morally just or good for their self-image, independent of whether their vote affects the actual outcome.

Although the theory of expressive voting has gained prominence in the public choice community, a challenge so far has been how to test its validity in a way that is distinguishable from altruistic voting that aims to benefit others. A proponent of expressive voting would typically interpret any claims of voting according to social preferences as cheap talk, arguing that such voting is expressive. To address this dilemma, we developed a theory on the individual voting and turnout decisions as a function of the size of monetary gains or losses conferred by the public good, the strength of social or expressive motives and the perceived probability of changing the referendum outcome. We then derived conditions under which it is possible to test whether voting is expressive.

THEORY

We model a voter's decision about whether to participate in the referendum on a ticket and if so, how to vote. In this model, the net monetary gain procured by the ticket is given by the benefit from having access to unlimited use of the facility for the one-off price of the ticket, compared to paying for each single use. In line with standard economic theory, we assume that the voter's utility strictly increases in this gain. Social preferences or expressive motives are described by variables such as the net monetary benefits accruing to other students, or the impact of the referendum outcome on the environment. The voter supports the ticket if the gain in expected utility from voting in favor of the ticket rather than against the ticket is positive or zero and votes against the ticket otherwise. In this calculation, the monetary gain and social preferences are weighted with the voter's subjective probability to cast the decisive vote, since these items relate to the actual outcome. The impact of expressive motives, in contrast, is independent of this probability.

An empirical investigation of the model tests whether the measure of monetary gains and variables that represent social or expressive motives predict the likelihood of voting in favor of the ticket. The theory entails two kinds of hypotheses. The presence of pocketbook voting will be established by rejecting

Hypothesis H1: A voter whose net monetary gain from the ticket is large is *not more likely* to vote in favor of the ticket than a voter whose net monetary gain is small.

The presence of social preferences and expressive motives is tested by a list of hypotheses, one for each such motive. For example, altruism toward other students is established by rejecting.

Hypothesis H2: A respondent who considers the benefits of other students in his or her vote and expects students to gain (lose) on average from the ticket is *not more likely* to vote in favor of (against) the ticket than a voter who does not consider the benefits of other students.

The implications of possible outcomes of the empirical analysis are collected in Table 1. If hypothesis H1 is rejected but H2 is not, voting is exclusively based on monetary considerations (see bottom left cell in Table 1). Rejecting H2 shows that social preferences, expressive motives, or both, affect the voting decision, but does not allow discrimination between these two motives. According to our theory, however, the outcome of the test of hypothesis H1 helps to do so, since the instrumental nature of social preferences creates a link between both kinds of hypotheses.

Failure to reject H1 would reveal that voters consider the probability of changing the outcome to be negligible. Consequently, voters should also not expect to affect the outcome for others, hence, rejecting H2 could not be due to social preferences but would be evidence for expressive motives (see top right cell in Table 1). If, instead, we find evidence for pocketbook voting by rejecting hypothesis H1, there are two possible interpretations. First, voters may consider the probability of affecting the outcome to be non-negligible. In this case, rejecting H2 is consistent with instrumental social preferences but could also be due to expressive concerns (see bottom right cell in Table 1). While consistent with the existence of expressive motives, this outcome nevertheless contradicts a theory of purely expressive voting, which maintains that voters consider their impact on the outcome to be zero (see Hillman 2010, p. 415). Second, with a negligible subjective probability of changing the outcome, monetary benefits have no impact on expected utility and, hence, any expressive concerns would dominate the voting decision. Finding pocketbook voting in this case therefore implies that expressive concerns are absent, again contradicting a theory of purely expressive voting.

To summarize, expressive voting can be shown to exist, in a way that is not observationally equivalent to social preferences, only in the case where pocketbook

Table 1

Implications of Possible Outcomes from Testing Hypotheses H1 and H2

		Hypothesis H2	
		Fail to reject	Reject
Hypothesis H1	Fail to reject	Model invalid	Expressive voting
	Reject	Pure pocketbook voting	Pocketbook voting and social preferences or expressive motives (observationally equivalent); pure expressive voting ruled out

Source: Authors' elaboration.

voting is not observed. Otherwise, if both hypotheses are rejected, social preferences and expressive voting are observationally equivalent, but a theory of purely expressive voting is ruled out.

When deciding whether to take part in the referendum, an individual anticipates his or her optimal voting decision. He or she compares the expected utility procured by this vote with the expected utility from abstaining. This decision takes into account costs and benefits of voting unrelated to how one votes, such as the time needed to cast one's ballot or the desire to adhere to a civic duty norm which advocates participation. These costs and benefits are weighed against monetary stakes and social and expressive motives. Therefore, sufficiently large monetary gains imply participation and a positive vote and sufficiently large monetary losses imply participation and a negative vote. In the same way, sufficiently large social or expressive concerns imply participation and voting in line with these concerns.

INSTITUTIONAL BACKGROUND

We analyze votes on tickets for regional trains, local buses and cultural amenities. The train ticket was introduced in 2004 and until 2010 covered, with only minor changes, all of the tracks depicted in Figure 1, served by several operators. In 2010, however, the ticket was split in two. The first ticket covered the offer made by two companies, henceforth called the MetroCan ticket (tracks depicted as solid red lines in Figure 1) and was approved in January 2010. The second ticket covered the tracks served by Deutsche Bahn and two smaller companies (blue dashed lines in Figure 1), jointly referred to as Bahn. A referendum on the Bahn ticket was held in May 2010. The ticket cost EUR 42.24 per semester. Of approximately 22,800 students registered at that time, 25 percent participated in the referendum, of whom 77 percent voted yes.

The culture ticket offers free or highly discounted entrance to theaters, museums and concerts. The local bus ticket would have been a novelty in 2013 and offered unlimited rides. In the 2013 referenda, the prices per semester amounted to EUR 8.55 for the culture ticket, EUR 25.80 for the bus ticket and EUR 95.04 euros for the train ticket, which covered all lines depicted in Figure 1. Approximately 36 percent of

nearly 25,600 students took part in each referendum. While the culture ticket barely passed with 53 percent approval, the bus ticket failed with 46 percent support. An overwhelming majority of 82 percent voted in favor of the train ticket.

DATA

Dataset I refers to the referendum on the ticket for the Bahn tracks (Figure 1) in May 2010. This dataset was collected using an anonymous online survey. Unlike exit polls, this method allows non-voters to be included. This dataset consists of 1,189 students, of whom 828 students took part in the referendum. While this shows an overrepresentation of voters in our sample, these data at the same time allow us to base our analysis on almost one-sixth of all voters.

The key variable in this dataset is the individual savings of each student. We constructed an objective measure of the savings associated with the Bahn ticket by combining the number of trips to visit the respondent's parents using this ticket within the previous year with the price that would have been paid without the ticket. We focused on trips to parents because this is the most common trip students make. Moreover, since parental location is exogenous, the opportunity to use the tickets for these trips is randomly assigned. Finally, the two larger cities close to Goettingen, namely Hannover and Kassel, which might be attractive leisure destinations, could be reached using the MetroCan ticket (Figure 1). The savings variable exhibits a large variation and ranges from EUR 0 to EUR 3.800. Since students can also use the ticket for other trips, we complemented the savings measure by binary variables describing whether the respondent used the ticket to visit people other than his or her parents, or for leisure and work purposes.

We measured social preferences by binary variables derived from survey responses. Central to the analysis of this dataset are two variables that describe whether a student was altruistic in terms of considering the benefits to others in his or her voting decision and if so, whether he or she believed that students on average gained or lost from having the ticket. If the student did not vote, then the variable is based on a corresponding question about a hypothetical voting decision. Among the voters, 13 percent were altruists

Figure 1

The Tracks Covered by the Bahn and MetroCan Tickets



Note: Bahn is in green lines and MetroCan is in red lines.
Source: Meya et al. (2020).

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who believed that other students lost, on average, from the ticket and 33 percent were altruists who believed that other students gained from the ticket, on average. This dataset moreover contains information on gender, the party for which the student voted in the federal election in 2009 and on whether the student is a freshman.

Dataset II covers the referenda on all three tickets that took place in January 2013 and was collected using exit polls. It contains 1,334 observations, corresponding to one-seventh of all the votes cast. Pocketbook benefits are measured by categorical variables on the intensity of use. In addition, students were asked if they would buy the ticket for themselves if the ticket were rejected in the referendum but were available for purchase at the same price on an individual basis. For each of the three tickets, students were asked whether they considered savings to other students to be important in their vote. Furthermore,

we asked about other social or expressive motives, such as environmental aspects in the case of the train ticket or strengthening local transportation or local cultural life in the case of the bus or culture tickets, respectively, or a paternalistic concern that other students should attend cultural events more often. Additional variables included gender, fields of study, being a freshman and political (party) preferences.

VOTING

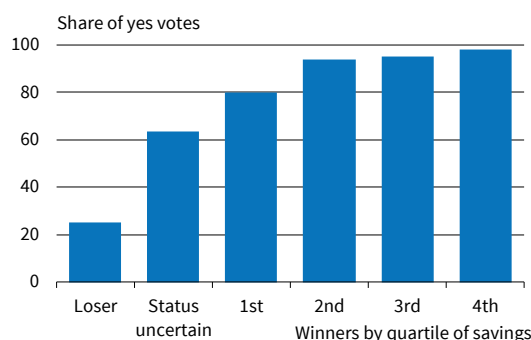
The left panel in Figure 2 depicts the percentage of yes votes for different groups of students in Dataset I, defined according to the monetary benefit they obtained from the Bahn ticket. The first bar, labeled “loser,” refers to those for whom savings from visiting parents were less than the price of the ticket and who did not mention other trips. The last four bars refer to the quartiles of savings among the “winners,” defined to be those for whom the savings from visiting parents exceeded the price of the ticket. The middle category consists of students for whom savings from visiting parents fell short of the price of the ticket but who also mentioned other trips and who therefore cannot clearly be classified as winners or losers in monetary terms. Overall, 92 percent of the winners voted in favor of the ticket and 75 percent of the losers against. Among the winners, the share of yes votes increased from 80 percent in the first quartile to 98 percent in the last.

The right-hand panel of Figure 2 shows how pocketbook benefits are correlated with the decision whether to vote. Losers from the ticket and those in the middle category, who could not be classified according to their monetary gain, were least likely to vote. Among winners, turnout increased monotonically in stakes. Hence, monetary considerations were also correlated with the participation decision, although the link was less pronounced than for the decision how to vote.

In our first survey, we also asked respondents how they weighed (or would have weighed, in the case of non-voters) their own price threshold, defined as

Figure 2

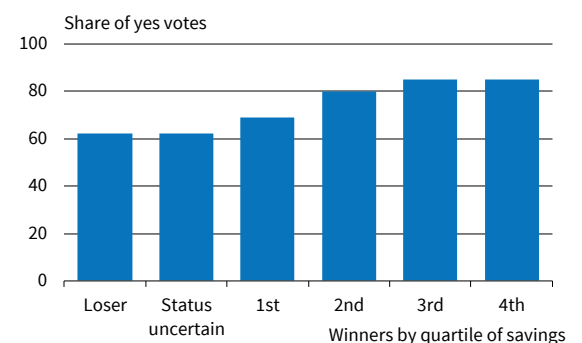
Shares of Yes Votes for Different Groups of Students



Source: Meya et al. (2020).

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Participation Rates for Different Groups of Students



Source: Meya et al. (2020).

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Table 2

Importance of Own vs. Other Students' Price Thresholds in Dataset I

Weighting of price thresholds	Voters (Percent)	Non-voters (Percent)
Only one price threshold	52.9	47.1
Stronger own price threshold	31.5	30.0
Both equally strong	10.8	11.8
Stronger expected average threshold of all students	3.6	8.5
Only expected average price threshold of all students	1.2	2.6
Observations	758	340

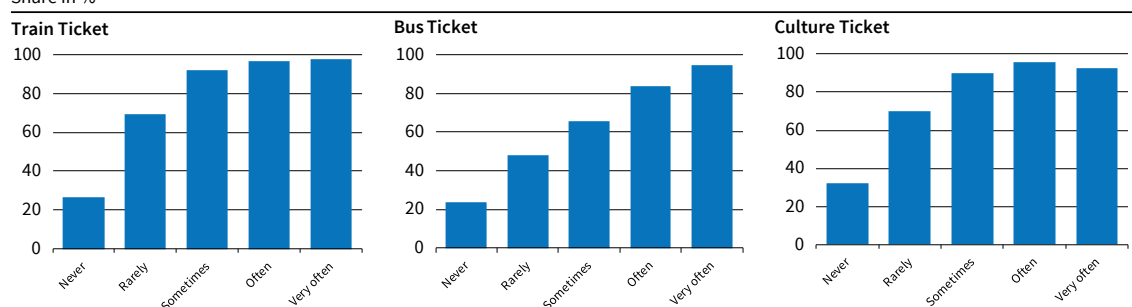
Responses to the question how students weighed (would have weighed) their own price threshold and the expected average price threshold of all students in their voting decision on the Bahn ticket. Percentages refer to the total of voters (non-voters) who gave a response and did not check "no answer."

Source: Meya et al. (2020).

Figure 3

Shares of Yes Votes and Intensity of Use of Different Tickets that were Subject of the Vote

Share in %



Note: Definitions of the intensity of use differ: Rarely, Sometimes, Often, and Very often correspond to at most 5 times a year, monthly, weekly, and at least twice a week, respectively, for the train ticket; once or twice a semester, monthly, weekly, at least twice a week, respectively, during the lecture period for the bus ticket and once or twice a year, 3 to 5 times a year, 6 to 10 times a year, >10 times a year, respectively, for the culture ticket.

Source: Meya et al. (2020).

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the maximum price, up to which they would have been willing to vote for the ticket and the average price threshold of all students in their decision. Table 2 shows that 84 percent of voters and 77 percent of non-voters put more weight on their own benefit, 11 percent and 12 percent weighed both thresholds equally and only 5 percent of voters and 11 percent of non-voters assigned higher importance to other students' benefits. This suggests that pocketbook voting is more important than social preferences, even based on voter self-reflection. If anything, one could expect that people would rather highlight social preferences if asked how one weighs self-interest and social preferences, suggesting that our measures are unlikely to overestimate the importance of pocketbook voting.

For Dataset II, Figure 3 depicts the share of yes votes dependent on how intensively the voter used the service that was the subject of the vote. For each ticket, more than 90 percent of those who used the

service very often voted in favor, while the share of yes votes varies between 24 percent and 32 percent for those who never used the service.

Pocketbook benefits do not explain all votes. This can be seen in Table 3 where we relate voting decisions in Dataset II to the answers to the question whether respondents would have bought the ticket individually if it were rejected in the referendum but available for individual purchase at the same price. In line with pocketbook voting, 93 percent to 96 percent of those who voted against a semester ticket would also decline the opportunity to buy it privately, but, remarkably, 23 percent to 27 percent of those who voted in favor of a ticket would not be willing to buy it privately for the same price.

We conjecture that social preferences or expressive motives can explain most of the votes that are not in line with pocketbook voting. Indeed, as we report in Meya et al. (2020), in Dataset I, the majority of

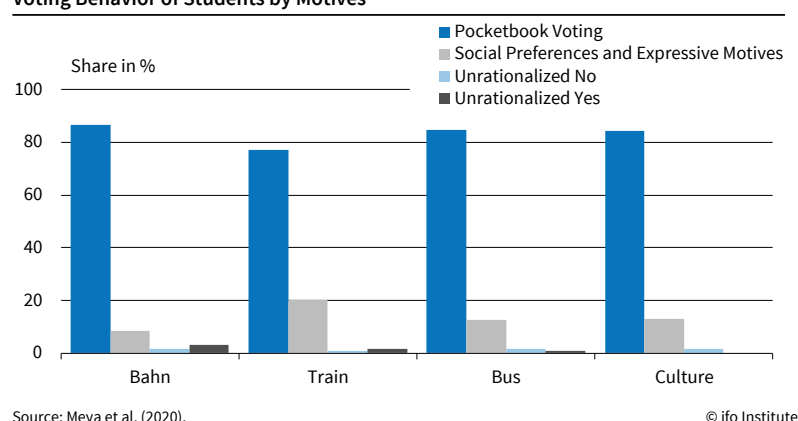
Table 3

Voting and Hypothetical Private Purchase Decisions in Dataset II

Train ticket (1,180 responses)			Bus ticket (1,194 responses)			Culture ticket (1,188 responses)		
	Vote no	Vote yes		Vote no	Vote yes		Vote no	Vote yes
Would not buy	13.4%	21.7%	Would not buy	47.9%	13.4%	Would not buy	43.7%	12.4%
Would buy	0.9%	64%	Would buy	1.8%	36.9%	Would buy	2.3%	41.7%

Source: Meya et al. (2020).

Figure 4
Voting Behavior of Students by Motives



Source: Meya et al. (2020).

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losers who voted in favor of the Bahn ticket thought that other students gained from it and reported that they cared about this gain. Among the winners who voted against the ticket, a clear majority was either of the view that other students would lose from the ticket or expressed strategic concerns that accepting a higher price could foster future price increases in a question with a write-in option. Similarly, in Dataset II, we found that more than 90 percent of those voting in favor of a ticket despite not being willing to buy it privately claimed at least one social or expressive motive.

Figure 4 summarizes our findings. The figure shows that 77 percent to 87 percent of all votes can be rationalized by pocketbook voting alone. In Dataset I, this corresponds to losers voting against the ticket and winners voting in favor, disregarding the middle category. Note that the 87 percent share of votes that can be rationalized by pocketbook voting in this Dataset is almost the same as the share of respondents who declared that they cared only or mostly about their own price threshold in Table 2. In Dataset II, a vote is rationalized by pocketbook considerations if the respondent votes in favor of a ticket if and only if he or she would buy it privately at the price charged. Almost all of the votes that cannot be rationalized in this way can be rationalized by social preferences or expressive motives, leaving less than 5 percent of unexplained votes for each referendum.

We show in Meya et al. (2020) that the conclusions are supported also by regression analysis. We also included in robustness analyses political preferences (in both datasets) and fields of study (in Dataset II) in the regression equation. While supporters of left-wing parties and students in humanities or social sciences were more likely to vote in favor of the culture ticket, these variables overall have only a minor impact on the voting decision. The coefficients of the variables measuring monetary benefits and social preferences, or expressive concerns remain stable when these variables are included. The more a student gains in monetary terms from a ticket, the more likely he or she is to vote in favor. Students who find some social or

expressive motive important are more likely to vote in a way promoting this concern. Regression analysis also confirms that participation increases in stakes, in line with the theory of instrumental voting.

The empirical analysis clearly rejects both hypotheses H1 and H2 from the theoretical model. We thus establish pocketbook voting and find evidence that social preferences or expressive motives are relevant for the voting decision. Since we reject both hypotheses, the empirical results do not allow the latter two motives to be disentangled: In our setting, social preferences and expressive concerns are observationally equivalent. Moreover, the strong support for pocketbook voting suggests that behavior cannot adequately be described by a theory of purely expressive voting.

CONCLUSION

Our results are consistent with monetary interests being a major driver of both turnout and voting decisions. This is also in line with stated preferences, with 84 percent of voters and 77 percent of non-voters saying that they put more weight on their own benefit than on savings for other students. However, we found that in addition to this pocketbook voting, social motives such as the costs and benefits to other students or the desire to support local public transportation or cultural life are also important and occasionally even decisive for the referendum outcome.

Our setting can be described as a real-world laboratory of direct democracy. Just as in a laboratory, voters faced a clearly defined decision and had very good information on the individual costs and benefits associated with both outcomes. Thus, confounding influences such as asymmetric information were minimized. At the same time, the polity to which the respondents belong is real and the social ties between the participants are independent of researchers. Since the decisions we study have strong parallels with decisions on local public goods, our results are particularly informative for direct democracy at the local level. The relative importance of pocketbook voting and social motives can be expected to vary according to circumstances. We therefore invite other researchers to test the predictions of our theory in other settings. It would be especially interesting to compare the relative importance of pocketbook benefits and social preferences across referenda taking place at different levels of government.

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