An Economic Analysis of Voting in Sweden

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Abstract

Using data from the Swedish Election Studies between 1985 and 1994 supplemented with time series on inflation and unemployment, I compare the impact of macro- and microeconomic variables on the individual vote. The principal finding is that microeconomic variables influence the vote almost as much as macroeconomic variables do. In consequence, both self-interest and public interest appears to be important explanations of economic voting in Sweden. Macroeconomic variables have, however, been much more influential in determining election outcomes. Since previous studies of economic voting have used cross-sectional data only, it is also worth noting that the panel estimates indicate a relatively greater impact of macroeconomic variables on the vote than the cross-sectional estimates do.

JEL-Classification: D72, C23
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1 Introduction

To what extent does self-interest explain voting? This much-debated question has led researchers to examine the relative impact of macro- and microeconomic variables on the vote. If voters are selfish and support governments that advance their individual economic interests, microeconomic variables are expected to influence the vote. If voters are instead concerned with some conception of the public interest, one expects macroeconomic variables to influence the vote. However, since a prosperous economy is beneficial to everyone regardless of the concern for fellow citizens, responses to macroeconomic variables do not rule out self-interest. Consequently, it is only possible to test if voters are motivated by the public interest. If responses to microeconomic variables are considerable, this hypothesis can be rejected.[1]

The vast empirical literature on economic voting started with the contributions of Mueller (1970), Goodhart and Bhansali (1970) and Kramer (1971). After this breakthrough in the early 1970s, numerous aggregate studies have followed. Nannestad and Paldam (1994) call attention to four robust results: (1) people hold the government responsible for economic conditions, (2) in most cases, unemployment and inflation generate the most significant coefficients, (3) the voters' expectations are retrospective with a short time horizon, and (4) to rule costs popularity. However, aggregate studies only confirm that economics influences elections and do not distinguish between macro- and microeconomic conditions.[2]

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[1] Since a wide definition of self-interest makes this interpretation of economic voting very difficult to refute, it has been argued that only responses to microeconomic variables should be interpreted as signs of self-interest. See Lewin (1991) for an elaboration of this view.

[2] Since this paper investigates economic voting in Sweden, the evidence from this country is also worth mentioning. In addition to the early contributions of Åkerman (1946, 1947), at least four aggregate studies have been made on Swedish data. Frey (1979) reports that the rate of inflation and the rate of unemployment had a significant and negative impact on government popularity in the post-war years, whereas the growth of real income had a significant and positive impact in the same period. Considering the vote share of the incumbent government, only changes in the rate of unemployment had a significant (and negative) effect when all variables were simultaneously included in the model. Jonung and Wadensjö (1979) find that inflation and unemployment exerted a strong and negative influence on the support for the ruling Social Democratic Party during the period

Kinder and Kiewiet (1979) made the first investigation of the relative impact of macro- and microeconomic variables on the vote. Using survey data, they found that American voters responded almost exclusively to macroeconomic variables. Since then, their results have been corroborated in numerous similar studies; most notably by Lewis-Beck (1988) in a comprehensive investigation of economic voting in Britain, France, Germany, Italy, Spain and the United States. The only Swedish study based on survey data is Holmberg (1984). His conclusion is that economic factors were of some importance in the Swedish election of 1982. However, short-run changes in the perceived financial situation of the citizens offered only a minor explanation of their votes. Lewin (1991) reviews the aggregate and cross-sectional studies and concludes that the findings of relatively modest effects of microeconomic variables make the hypothesis of self-interest untenable. Another review, with a more cautious interpretation, is Nannestad and Paldam (1994).

A drawback with cross-sectional survey data is that macroeconomic variables are by definition constant across individuals. Because of this, researchers have chosen to work with perceptions of these variables. However, this approach is also problematic. While it is true that perceptions–even if they are incorrect–matter in forming opinions, the link from changes in economic variables to changes in perceptions is clearly missing in these studies. If one wants to know how economic variables affect voting, it makes good sense to pool data from several elections. By pooling cross sections one can incorporate economic time series into the data set, i.e. include objective instead of subjective variables.

Up to the present, the findings from studies based on pooled cross-sectional data do not tally with the findings from purely cross-sectional studies. Markus (1988, 1992) uses data

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1967–1976. In a similar study of nearly the same time period (1967–1978), Hibbs and Madsen (1981) find that the bloc of governing parties loses support when there are unexpected increases in unemployment or inflation, and gain support when there are unexpected increases in disposable income growth relative to market income growth. This is in line with the findings in Madsen (1980)–that changes in the rate of unemployment, as opposed to the level of unemployment, had a negative and significant effect on the deviation from normal vote of the incumbent parties in the period 1920–1973.

from the American National Election Studies between 1956 and 1988, and finds considerable responses to microeconomic variables. A one-unit change in his personal economic measure has the same effect on the individual vote as an increase of about 3.5 percent in real per capita disposable income, and such a large increase (or decrease) only occurred before two of the nine presidential elections in his sample. Nadeau and Lewis-Beck (2001) apply Markus' methodology and estimate versions of his model for the extended time period 1956–96. They focus on the macroeconomic effect of their National Business Index, which is found to be substantial, but they also report a small and persistent effect from personal finances. Nannestad and Paldam (1997a) find a stronger effect of personal finances when investigating 28 Danish quarterly surveys between 1986 and 1992. They claim: "Danes are mainly pocketbook voters" (p. 120).[3] One explanation of the different results obtained from pooled cross-sections is that estimates based on survey responses may suffer from a simultaneity bias. In particular, an individual's perception of the macro economy could be affected by his vote choice. Strong supporters of the incumbent government might be inclined to adopt a relatively more favourable view of the state of the economy, biasing the estimated effect of subjectively reported macro variables upwards.

In this paper, I follow this most recent line of empirical research and estimate the model on pooled data from the Swedish Election Studies of 1985, 1988, 1991, and 1994 supplemented with time series on inflation and unemployment. Unlike the previous empirical studies, I present estimates based on panel data in addition to the estimates based on pooled cross sections.[4] When individuals are observed at more than one point in time, the researcher has better prospects of identifying real economic change, which facilitates a causal interpretation of the estimates.

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[3] See Lewis-Beck and Stegmaier (2000) for a recent and comprehensive review of the economic voting literature.

[4] In the economic voting literature, panel data has only been used to construct more valid measures of party identification (see e.g. Fiorina 1981; Lewis-Beck 1988).

Contrary to what might be expected, the impact of macroeconomic variables on the vote is substantially greater in the specifications with panel data than in the cross-sectional specifications. This is an important result since it suggests that the previous studies of economic voting, which all use cross-sectional data, may not have come up with very accurate comparisons of the impact of macro- and the microeconomic variables. The results also indicate that Swedish citizens respond almost as much to micro- as to macroeconomic variables when deciding how to vote. In particular, the experience of unemployment has a strong impact. Compared to a citizen who is employed, an unemployed citizen is much more likely to vote for a left wing and against a right wing incumbent government.

2 Rational Retrospective Voting

The empirical analysis can be justified by alluding to some theoretical voting models that show how individuals can use economic variables to infer how much they can expect to gain if the government would be re-elected; in other words that retrospective voting is rational. Downs (1957) emphasize that policies of political parties are stable over time.[5] Because of this, retrospective voting helps to predict the policies that the incumbent government would implement if it were re-elected.[6] More recently, Cukierman and Meltzer (1986), Rogoff and Sibert (1988), Persson and Tabellini (1990) and Rogoff (1990), have argued that certain economic variables are noisy signals of the government's competence. Then, if competence is persistent, it is rational to support the incumbent government when macroeconomic outcomes are better than expected. In such situations, there is a good chance that the competence of the

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[5] Downs (1957) use the term "ideological immobility" as a characteristic of every responsible (and vote maximizing) party, because "it cannot repudiate its past actions unless some radical change in conditions justify this" (p. 109).

[6] Alesina and Spear (1988) explain the consistency of a party's policies with a transfer scheme that is contingent on the incumbent's good behavior in an overlapping generations model. Harrington (1992) assumes that a lame duck incumbent prefers a successor from his own party and therefore refrains from implementing his own ideology since this reinforces the reputation of future candidates from his party.

government is high.[7] The assumption that competence is persistent is crucial for the argument but hardly unreasonable. Differences in competence between government and opposition may reflect their different abilities to solve current economic problems. Problems and ministers certainly change time and again, but rarely in an erratic and totally unpredictable way.

Similarly, the personal financial situation of a citizen will affect his vote if, like Downs suggested, the government redistributes income among the citizens in a way that is persistent through time, and if redistribution, like competence, is not perfectly observable. However, one difference between the two political alternatives is likely to be well known–that social insurance is more generous under a left wing government. Since the best predictor of an individual's risk of future unemployment is his past history of unemployment (Arulampalan et al. 2000), this implies that experience of unemployment will make a person more inclined to support the left wing parties. Another motivation for retrospective voting is electoral control. This view of elections as a disciplining device can be found in Barro (1973) and Ferejohn (1986).

3 Data

The data set contains information on individuals from four of the Swedish Election Studies (1985, 1988, 1991, and 1994) complemented with time series on inflation, unemployment, and real GDP growth for the same period of time. The election studies are made in the form of a two-step panel in which each respondent is interviewed twice and one half of them are replaced in each study. Since some of the economic variables of interest are only included since 1985, it is not meaningful to go further back in time than this. In three of the four terms of office under study the government is classified as left wing. The last term of office

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[7] This description of voting behaviour is unrealistic in the sense that voters are often found to have a very vague knowledge about the state of the economy. However, Sanders (2000) demonstrates that British voters have a remarkable overall sense of macroeconomic improvement and decline and that this overall sense matters electorally.

(1991–94) is the exception with a right wing governing coalition. Consequently, the governing coalition retained its majority in the elections of 1985 and 1988, whereas the elections of 1991 and 1994 resulted in a transfer of power.

Although Sweden has a multi-party system, I follow the common practice[8] of treating it as a two-bloc system.[9] For the period of study, this does not seem to violate the actual situation in the Swedish Parliament very much. The dependent variable in all estimations is the choice of political bloc. A vote for one of the parties in the bloc with a majority in parliament is coded one and a vote for any of the other parties is coded zero. In order to avoid tiring repetitions, I will sometimes be imprecise and refer to the bloc that forms an alliance with a majority in Parliament as the government and to the other bloc as the opposition. As in the related literature (see Nannestad and Paldam, 1995, 1997a, b), a control variable for political preferences, BACKGROUND, is constructed from sociodemographic characteristics. A description of the variables is given in Appendix A.

4 Estimates Based on Pooled Cross Sections

Although cross sectional data have the well known drawback that estimation results may be biased in the presence of unobserved individual heterogeneity, I present such results in order to compare them with previous studies and with estimates based on panel data. Because of this intention, most of the sensitivity analysis is only carried out for the panel data estimates in the next section. The model is estimated with the probit model of binary choice. Several researchers in the field have chosen to work with the simpler linear probability model (e.g. Markus 1988, 1992; Nadeau and Lewis-Beck 2001). They claim that their choice makes little difference in practice, but comes with the advantage of easy interpretations of the coefficients.

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[8] See e.g. Alesina et al. (1997), Laver and Schofield (1990), Johansson (2002) and Pettersson Lidbom (2000).

[9] The left wing bloc includes the Social Democratic Party, the Leftist Party and the Green Party. The right wing bloc includes the Conservative Party, the Centrist Party, the Liberal Party, the Christian Democratic Party and the New Democratic Party.

Since the linear probability model has some well-known drawbacks (inefficient estimates due to heteroscedastic error terms and predictions outside the feasible range) and since it is fairly easy to obtain predictions for election outcomes from the probit model, my choice is to drop the linear probability model and work with the probit model. Due to data limitations, it is not possible to estimate the model with objective data only. Because of this and in order to address the issue of sensitivity to different specifications, I report estimation results from specifications with subjective as well as with objective macroeconomic variables.

Specification (1) includes two objective macroeconomic variables: the changes in the rates of unemployment and inflation (ΔU and $\Delta \Pi$). Inflation and unemployment are the most obvious macroeconomic variables to be included in the empirical specifications since they are typically found to have the most significant effects (Paldam 1997; Lewis-Beck and Paldam 2000) and are almost always included in vote and popularity functions. Besides, unemployment is particularly well suited for this kind of study since it exists on the macro- as well as on the microeconomic level. Since a new government "inherits" rates of inflation and unemployment, it seems more reasonable to include the changes rather than the levels of these variables.[10] Specification (1) also includes two subjective microeconomic variables. The first of them is a measure of the self-reported change in the financial situation of the citizen's household. This variable, MICRO, is trichotomous: "worse" is coded -1, "about the same" is coded 0 and "better" is coded 1. The second subjective variable is a dummy for personal experience of unemployment, UNEMPLOYED. Since the dependent variable VOTE equals one if the citizen votes for the incumbent government and zero otherwise, this personal

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[10] See Blanchard and Summers (1986) and Jackman et al. (1991) for evidence of persistent unemployment, and Fuhrer and Moore (1995) for evidence of persistent inflation. Lindbeck (1976) notes that a moderate level of unemployment only affects a small share of the population whereas increasing unemployment creates a risk of being laid off for a much larger share of the population. From the voters' point of view, the most correct choice would be to include neither the level nor the change in inflation and unemployment, but the observed differences relative to what citizens expect (e.g. on account of the development in other industrialized countries). Nevertheless, I include changes in order to simplify the analysis.

unemployment variable is interacted with two dummy variables, LEFT and RIGHT, indicating left and right wing governments. Thus, specification (1) is written:

$$\Pr(VOTE = 1) = \Phi\left(\begin{array}{l} a + b_1 \Delta U + b_2 \Delta \Pi + c_1 MICRO + \\ \\ + c_2 (LEFT \times UNEMPLOYED) + \\ \\ + c_3 (RIGHT \times UNEMPLOYED) + \\ \\ + d \times BACKGROUND \end{array}\right), \tag{1}$$

where Φ is the cumulative standard normal distribution and BACKGROUND is the already mentioned control variable. Coefficients for macroeconomic variables are indicated b and coefficients for microeconomic variables are indicated c.

Specification (2) contains subjective measures only and is written as follows:

$$\Pr(VOTE = 1) = \Phi\left(\begin{array}{l} a + b_1 MACRO + c_1 MICRO + c_2 (LEFT \times UNEMPLOYED) \\ + c_3 (RIGHT \times UNEMPLOYED) + d \times BACKGROUND \end{array}\right), \tag{2}$$

where the subjective variable MACRO is trichotomous with the same coding as the analogous variable MICRO. We expect b_1 and b_2 in the first specification to be negative and b_1 in the second specification to be positive. In both specifications, c_1 and c_2 are expected to be positive, whereas c_3 is likely to be negative.

Table 1 displays the estimation results. For both specifications, the signs of the estimated coefficients are consistent with the described expectations. All of the coefficients,

except for RIGHT×UNEMPLOYED in the second specification, are also statistically significant at the five percent level.[11]

Table 1 Estimates from pooled cross sections

		Specification	
		1	2
Macroeconomic variables	ΔU	-.053**	
		(.011)	
	$\Delta\Pi$	-.030**	
		(.009)	
	MACRO		.383**
			(.028)
Microeconomic variables	MICRO	.175**	.110**
		(.030)	(.031)
	LEFT×UNEMPLOYED	.753**	.756**
		(.267)	(.276)
	RIGHT×UNEMPLOYED	-.443*	-.309
		(.212)	(.209)
Control variable	BACKGROUND	2.809**	2.823**
		(.120)	(.122)
	CONSTANT	-1.495**	-1.404**
		(.067)	(.067)
	Elections	1985–94	1985–94
	Log likelihood	-2,089	-2,002
	Correct predictions	69.0%	70.4%
	# Observations	3,522	3,522

Probit model. The dependent variable vote is coded 1 for government and 0 for opposition. Standard errors are in parenthesis. * indicates significance at the 5% level. ** indicates significance at the 1% level.

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[11] Allowing observations from the same year to be dependent (but still assuming independence across years) does not change the levels of statistical significance in Table 1 in any important way.

The signs of the coefficients for LEFT×UNEMPLOYED and RIGHT×UNEMPLOYED mean that unemployed voters tended to support the left wing governments between 1985 and 1991, but shunned the 1991–94 right wing government.[12] Also note that the coefficient for ΔU is considerably larger than the coefficient for $\Delta \Pi$ (in absolute values). Since the variance of ΔU is only a fraction of the variance of $\Delta \Pi$, this is well in line with what one reasonably would expect from citizens who are trying to extract information about the government's competence from these two macroeconomic variables.

Further interpretation of the estimated coefficients is facilitated by comparing predicted probabilities for different sets of values of the explanatory variables. Since the probit model is non-linear, the partial derivatives of the probabilities with respect to the explanatory variables depend on the values of all explanatory variables. Table 2 and 3 display predicted probabilities, which indicate the potential impact on the vote of changes in the variables of interest (evaluated at focal values of the other explanatory variables). In both of the specifications, the experience of unemployment under a left wing government (LEFT×UNEMPLOYED=1) has a considerable impact on the vote although the standard errors are quite large. The tables also reveal that the potential impact on the predicted probabilities are greater for the subjective macroeconomic variable MACRO than for the objective macroeconomic variables (ΔU and $\Delta \Pi$).

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[12] In none of the specifications does UNEMPLOYED enter with statistical significance if we let it replace the variables LEFT×UNEMPLOYED and RIGHT×UNEMPLOYED.

Table 2 Predicted probabilities to vote for the government in specification (1)

		Min	Mean*	+ Std. dev.	Max
Macroeconomic variables	ΔU	.515 (.009)	.463 (.009)	.421 (.014)	.405 (.018)
	ΔΠ	.494 (.013)	.463 (.009)	.427 (.013)	.410 (.017)
Microeconomic variables	MICRO	.395 (.015)	.463 (.009)		.533 (.015)
	LEFT×UNEMPLOYED	.463 (.009)			.745 (.086)
	RIGHT×UNEMPLOYED	.463 (.009)			.297 (.073)

Each row of the table shows how the probability to vote for the government changes when one variable is varied and the others are held constant. The first row, for example, shows that this probability is.405 when ΔU is at its maximum and .515 when it is at its minimum. The probabilities are based on column 1 in Table 1. In each case, the other variables are assigned the following values: ΔU=1.0 (mean), ΔΠ=-1.2 (mean), MICRO=0 (midpoint), LEFT×UNEMPLOYED=0, RIGHT×UNEMPLOYED=0, BACKGROUND=.505 (mean). Standard errors (calculated with the "delta method") are in parenthesis.

* Midpoint in the case of MICRO.

Table 3 Predicted probabilities to vote for the government in specification (2)

		Min	Midpoint	Max
Macroeconomic variable	MACRO	.359 (.011)	.509 (.010)	.657 (.016)
Microeconomic Variables	MICRO	.465 (.465)	.509 (.010)	.552 (.015)
	LEFT×UNEMPLOYED	.509 (.010)		.782 (.081)
	RIGHT×UNEMPLOYED	.509 (.010)		.387 (.080)

Each row of the table shows how the probability to vote for the government changes when one variable is varied and the others are held constant. The first row, for example, shows that this probability is .657 when MACRO is at its maximum. The probabilities are based on column 2 in Table 1. In each case, the other variables are assigned the following values: MACRO=0 (midpoint), MICRO=0 (midpoint), LEFT×UNEMPLOYED=0, RIGHT×UNEMPLOYED=0, BACK-GROUND=.505 (mean). Standard errors (calculated with the "delta method") are in parenthesis.

Even though the estimates are somewhat sensitive to the choice of empirical specification, they clearly suggest that both macro- and microeconomic variables influence voting substantially. In particular, one cannot claim that the impact of microeconomic variables on the vote is negligible. Obviously it is difficult to compare the effects of the macro- and the microeconomic variables on the vote. A certain amount of arbitrariness has to be accepted in order to make continuous variables comparable to trichotomous ones. Table 2 contains predicted probabilities for values of ΔU and $\Delta \Pi$ that are one standard deviation above the means of these variables. Following Nannestad and Paldam (1997a), I compare a "standard change", where one of the variables increases from its mean to a value one standard deviation above its mean, with a one unit change in the microeconomic variables MICRO and LEFT×UNEMPLOYED. Such a comparison suggests that the effects of the microeconomic variables are greater in specification (1). In the specification (2), the effect of MACRO is

greater than the effect of MICRO, but the largest effect is the one of LEFT×UNEMPLOYED. The cross-sectional estimates therefore indicate that changes in microeconomic variables affect the predicted probability to vote for the government more than "standard" changes in macroeconomic variables do.

5 Estimates Based on Panel Data

Since each respondent in the Swedish Election Studies is interviewed at two adjacent general elections, I apply a panel data method known as the random effects probit model. A fixed effects model may appear more appealing since it does not presuppose that the individual effects are uncorrelated with the regressors. However, fixed effects binary response models are less attractive than their ordinary least squares counterparts, and unfortunately the problems are magnified by my data set. The obvious alternative to the random effects probit is Chamberlain's (1980) conditional logit model. This model doesn't use any information from people that vote for the same bloc in all of the elections in which they are observed. I would lose almost 75 percent of the observations by using it.

With panel data, the dependent variable VOTE is recoded to indicate choice of bloc (left wing = 1) since it is reasonable to interpret the unobserved heterogeneity as an individual political bias in favour of one of the blocs. Thus, it is unnecessary to include the control variable BACKGROUND. In consequence of this change, the variables ΔU, $\Delta \Pi$, MACRO and MICRO are interacted with incumbency status (left or right wing) in order to enter the specifications as they did in the previous specifications. Using the whole unbalanced panel, estimates from three different specifications are presented.

Specification (3) contains the objective macroeconomic variables ΔU and $\Delta \Pi$ together with the subjective microeconomic variables MICRO and UNEMPLOYED. Thus, the first specification using panel data is:

$$\Pr(VOTE = 1) = \Phi\big(a + I(b_1\Delta U + b_2\Delta\Pi + c_1 MICRO + c_2 UNEMPLOYED + d)\big), \qquad (3)$$

where I is an indicator variable, which equals one in 1985, 1988 and 1991 (when there were left wing governments), and negative one in 1994 (when there was a right wing government) and d is the individual random effect.

As a sensitivity check, specification (4) also contains the annual growth of real GDP (ΔGDP), a variable that is often included in voting models:

$$\Pr(VOTE = 1) = \Phi\left(a + I\begin{pmatrix} b_1\Delta U + b_2\Delta\Pi + b_3\Delta GDP + \\ c_1 MICRO + c_2 UNEMPLOYED + d \end{pmatrix}\right). \qquad (4)$$

Just like specification (2) specification (5) contains subjective variables only and is written:

$$\Pr(VOTE = 1) = \Phi\big(a + I(b_1 MACRO + c_1 MICRO + c_2 UNEMPLOYED + d)\big). \qquad (5)$$

Table 4 displays the estimation results. In all of the specifications, the signs of the estimated coefficients are consistent with our expectations. All coefficients except two are also statistically significant at the five percent level. The first exception is the coefficients for ΔGDP in specification (4). This supports the choice of only including the changes in unemployment and inflation. The second exception is the coefficient for UNEMPLOYED in specification (5), which is marginally insignificant at the 10 percent confidence level. Specification (5), however, suffers from the disadvantages associated with subjective macroeconomic variables–for instance the possibility of perception bias. Compared with the

cross-sectional estimates in Table 1, the coefficients for the macroeconomic variables, ΔU, $\Delta \Pi$ and MACRO, are greater, whereas the impact of personal unemployment is a bit smaller.

As a small sensitivity analysis, I have estimated specification (3) and (5) for two shorter time periods. When excluding the first step of the unbalanced panel (individuals observed in 1985 and 1988), the coefficient for UNEMPLOYED is not statistically significant at the five percent level. When instead excluding the last step of the panel (individuals observed in 1991 and 1994), the coefficient for $\Delta \Pi$ in specification (3) changes sign to positive and is statistically significant, whereas the coefficient for UNEMPLOYED becomes statistically significant with the expected sign at the one percent level in both specification (3) and (5). The estimates from this sensitivity analysis are found in Appendix B.[13]

By excluding the individuals observed in 1991 and 1994 it is also possible to investigate whether voting behaviour depends on the political colour of the ruling bloc. Although the data is by no means ideally suited for such a comparison, some tentative relations are worth noting. According to the salient goal hypothesis of Powell & Whitten (1993), the supporters of the left care more intensively about unemployment and therefore they will hold left wing governments to higher standards on this variable. Quite so, the negative effect of rising unemployment is greater during the left wing period 1985–91 than during the entire period 1985–94. Moreover, increases in inflation surprisingly appear to favour the left wing parties. On the other hand, the observed pattern do contradict Anderson's (1980) clientele hypothesis which predicts that voters are more inclined to support the left when unemployment is rising. In that situation, the voters are thought to give priority to measures that increase employment and also believe that left wing parties are more able to pursue such policies. But as can be seen in Appendix B, it is only on the personal level that unemployment increases the support

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[13] Note also that the estimated coefficients and their standard errors in specification (3) hardly change at all if I use an expanded definition of unemployment which also includes people in short term labor market programs in addition to the official unemployment figures that are used throughout this paper.

for the left. Correspondingly, inflation may favour the right wing parties since they are less willing to pursue and tolerate a lax monetary policy. However, the positive coefficient for $\Delta\Pi$ suggests that it is the left wing parties that benefit from rising inflation.

Inspired by the "grievance asymmetry" found among Danish voters by Nannestad and Paldam (1997b), I also test if the effects of the subjective variables MACRO and MICRO are asymmetric with respect to economic improvements and deteriorations. No such pattern is found in specification (3) and (4). In specification (5), however, only deteriorations in the personal financial situation appear to influence the vote.

Table 4 Panel Estimates

		Specification		
		3	4	5
Macroeconomic Variables	ΔU	-.207** (.012)	-.237** (.036)	
	ΔΠ	-.087** (.010)	-.076** (.016)	
	ΔGDP		-.045 (.052)	
	MACRO			.543** (.027)
Microeconomic variables	MICRO	.166** (.030)	.163** (.030)	.079** (.030)
	UNEMPLOYED	.323* (.153)	.323* (.153)	.210 (.148)
	Constant	-.189** (.030)	-.250** (.077)	-.106** (.025)
	Elections	1985–94	1985–94	1985–94
	Log likelihood	-3,665	-3,665	-3,605
	Correct predictions	61.1%	61.1%	63.5%
	# Observations	5,700	5,700	5,700
	ρ	.482	.480	.443

Random effects probit model. The dependent variable VOTE is coded 1 for left wing and 0 for right wing parties. The variables ΔU, ΔΠ, MACRO and MICRO are interacted with the political colour of the incumbent government so that the coefficients represent the impact on the propensity to vote for the incumbent government. Standard errors are in parenthesis. * indicates significance at the 5% level. ** indicates significance at the 1% level. ρ is the proportion of the total variance contributed by the panel-level variance component.

As was evident in the previous section, the estimated coefficients are easier to interpret if we compare predicted probabilities for different sets of values of the explanatory variables. Table 5 and 6 display such predicted probabilities, which indicate the potential impact on the vote of certain changes in the variables of interest. The striking dissimilarity to the potential

impacts in Table 2 and 3 is the considerable impact of changes in ΔU in Table 5. The impact of MACRO is also greater than it was with cross sectional data, although this difference is less dramatic. Thus the application of panel data indicates a greater importance of macroeconomic variables than is the case with pooled cross sections.

Table 5 Predicted probabilities for specification (3)

		Min	Mean*	+Std. dev.	Max
Macroeconomic variables	ΔU	.585	.387	.216	.146
		(.016)	(.015)	(.017)	(.016)
	ΔΠ	.535	.387	.295	.268
		(.027)	(.015)	(.013)	(.014)
Microeconomic variables	MICRO	.325	.387		.451
		(.018)	(.015)		(.019)
	UNEMPLOYED	.387			.514
		(.015)			(.062)

Each row of the table shows how the probability to vote for the left wing bloc changes when one variable is varied and the others are held constant. The first row, for example, shows that this probability is .199 when ΔU is at its maximum. Probabilities are based on specification (3) in Table 4. In each case, the other variables are assigned the following values: ΔU=1.0 (mean), ΔΠ=-1.2 (mean), MICRO=0 (midpoint), UNEMPLOYED=0. Standard errors (calculated with the "delta method") are in parenthesis.
* Midpoint in the case of MICRO.

Table 6 Predicted probabilities for specification (5)

		Min	Midpoint	Max
Macroeconomic variable	MACRO	.258	.457	.669
		(.012)	(.010)	(.013)
Microeconomic variables	MICRO	.427	.457	.489
		(.016)	(.010)	(.015)
	UNEMPLOYED	.457		.452
		(.010)		(.058)

Each row of the table shows how the probability to vote for the left wing bloc changes when one variable is varied and the others are held constant. The first row, for example, shows that this probability is .699 when MACRO is at its maximum. The probabilities are based on specification (3) in Table 4. In each case, the other variables are assigned the following values: MACRO=0 (midpoint), MICRO=0 (midpoint), UNEMPLOYED=0. Standard errors (calculated with the "delta method") are in parenthesis.

We also want to make the same kind of comparisons between the effects of the macro- and microeconomic variables as was done with the cross-sectional specifications. In specification (3), the effect on the vote of a "standard" increase in ΔU from its mean to one standard deviation above its mean is 1.3 times as great as the effect of the dummy variable UNEMPLOYED. At the same time, the effect of the same increase in $\Delta \Pi$ is 1.4 times as great as the effect of a one-unit increase in MICRO. Thus the effect of macroeconomic variables appears to be slightly greater than the effect of microeconomic variables in this specification. In the third panel specification on the other hand (Table 6), the effect of the subjective macroeconomic variable MACRO is almost seven times greater than the effect of the subjective microeconomic variable MICRO. Thus, the relative sizes of the macro- and the microeconomic effects depend on the chosen empirical specification. I am however inclined to put more weight on the specification with objective macroeconomic variables since it eliminates macroeconomic perception bias.

6 The Impact on Election Outcomes

So far, the analysis has focused on individual vote choice. In order to assess the capacity of different variables to affect election outcomes we need to consider the aggregate effect of changes in the explanatory variables. Due to the close connection between the macro variable ΔU and the micro variable UNEMPLOYED, I have chosen to investigate whether unemployment influences election outcomes mainly because rising unemployment makes everybody believe that the government is less competent or mainly because the unemployed vote differently than the employed. In addition and contrary to MICRO, none of the individual effect of the personal unemployment variable UNEMPLOYED cancel out in the aggregate. According to the model, the total effect of unemployment depends on the identity of the incumbent government. With a left wing government, the negative macroeconomic

effect of rising unemployment is mitigated by the positive effect of the increased support for the government among the unemployed. With a right wing government on the other hand, the macro- and the microeconomic effect reinforce each other. Even if the experience of unemployment has about the same potential to influence individual vote choice as changes in the rate of unemployment have, the latter variable affects every voter and may therefore be more important for election outcomes.

In Table 7, the macro- and microeconomic effects of unemployment on election outcomes are compared by predicting the outcomes in the four elections under the counterfactual absence of one of these effects at a time. Obviously such a speculative exercise can only provide us with a very crude measure of actual and potential influences on election outcomes. Table 7 displays predicted vote shares in a hypothetical case when nobody is unemployed (UNEMPLOYED=0 for the whole sample) and in another hypothetical case when the rate of unemployment is constant ($\Delta U=0$). The differences between the conditional and unconditional predicted vote shares suggest that the total macroeconomic effect of unemployment has been much larger than the total microeconomic effect. However, the total microeconomic effect of unemployment is not negligible. An additional percentage point of the votes can very well be decisive in close races.

Table 7 The governing alliance's share of the vote

Year	Actual vote	Predicted vote	Predicted given UNEMPLOYED=0	Predicted given $\Delta U=0$
1985	51.1%	51.9%	51.8%	45.4%
1988	56.5%	58.9%	58.8%	47.5%
1991	44.1%	24.6%	24.3%	35.3%
1994	42.3%	36.3%	37.1%	73.0%

The table is based on the estimates in specification (3) in Table 4.

* Among the parties that won seats in parliament.

7 Concluding Remarks

The empirical results that are based on pooled cross sections confirm the findings in Markus (1988, 1992), and Nannestad and Paldam (1997a) that microeconomic variables influence voting decisions about as much as macroeconomic variables do. Especially the experience of unemployment appears to have a considerable influence on the vote. The unemployed tend to support left wing and oppose right wing governments. This is roughly in accordance with Nannestad and Paldam (1995), who find that unemployed Danish voters turned away from Conservative-led but not from Social Democratic-led governments.

For well-known reasons, panel data exhibits several advantages, which make the results from panel estimations more reliable than cross-sectional results. Compared to the empirical results based on cross-sections, the results that are based on panel data indicate a stronger impact of macroeconomic variables. This is important since it suggests that the previous studies of economic voting, which all have used cross-sections, may not have come up with very accurate comparisons of the impact of macro- and the microeconomic variables. In the most plausible specification in this study, the impact of the microeconomic variables are almost as great as the impact of the macroeconomic ones.

Thus, my findings strike a balance between the "pocketbook" and the altruistic view of voting. In particular, the results cast doubt on claims in previous studies that changes in individual financial conditions have a minimal impact on the vote. In fact, even if responses to macroeconomic variables are assumed to be due to a concern for fellow citizens–which itself is far from clear–self-interest still can be about as important for individual vote choice as is such an altruistic concern.

The relative importance of self-interest as a vote motive has been found to differ substantially from one country to the other. Since this is the first paper to investigate

economic voting by applying panel data throughout, there is need for similar research for other countries. Nevertheless, the fact that Swedes appear to be more pocketbook oriented than Americans, can be interpreted by Kinder and Kiewiet's (1979, 1981) culture hypothesis (see also Nannestad and Paldam, 1997a). According to this hypothesis, Swedes find it more natural to hold the government responsible for economic changes when compared with the more individualistic Americans. Indeed, a distinguishing feature of a welfare state is that the public sector actively tries to influence the welfare of the citizens.

Regarding the effects of unemployment on election outcomes, the macroeconomic effect of unemployment appears to have a much larger potential of influencing outcomes compared with the microeconomic effect. The total microeconomic effect of unemployment is, however, not negligible.

Data limitations prohibited me from estimating models with objective data only. Therefore, a promising next step would be to collect such data and investigate if the pocketbook effect stands. Another unexplored question is if the voters respond more to regional than to national aggregate variables.

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Appendix A: Description of the Variables

The Swedish Election Studies

The Swedish Social Science Data Service (SSD) has made the major part of the data in this paper available. The data in the Swedish Election Studies was originally collected in a research project at the Department of Political Science at Göteborg University, under the guidance of Sören Holmberg and Mikael Gilljam. Neither SSD nor the primary researchers are responsible for the analyses presented in this article. The sample of the Swedish Election Studies is drawn from a population of 18 to 80 year old Swedish citizens entitled to vote in the general election. Swedes living abroad are, however, not included in the sample. The response rates are 79 percent in 1985, 75 percent in 1988, 73 percent in 1991, and 80 percent in 1994. The most frequent reason for a non-response is that the selected citizen refused to be interviewed.

VOTE

This binary micro variable is coded differently in the cross-sectional and in the panel specifications. The variable is based on answers to the following question in the Swedish Election Studies: "We had several elections at the same time this year. Which party did You vote for in the general election?" To simplify matters, votes for parties that did not win seats in parliament are coded as missing values. In the cross-sectional specifications, the variable is coded 1 if the individual voted for any of the parties in the governing alliance, and coded 0 for the other opposition parties, as described by the following table:

	s	v	mp	m	fp	c	kd	nyd
1985	1	1	-	0	0	0	-	-
1988	1	1	1	0	0	0	-	-
1991	1	1	-	0	0	0	0	0
1994	0	0	0	1	1	1	1	-

In the specifications with panel data, VOTE is coded 1 for left wing parties and 0 for right wing parties, as described by the following table:

	s	v	mp	m	fp	c	kd	nyd
1985	1	1	-	0	0	0	-	-
1988	1	1	1	0	0	0	-	-
1991	1	1	-	0	0	0	0	0
1994	1	1	1	0	0	0	0	-

Key to the parties:

s: Socialdemokraterna (Social Democratic Party)

v: Vänsterpartiet (Left Party)

mp: Miljöpartiet (Green Party)

m: Moderaterna (Conservative Party)

c: Centerpartiet (Centrist Party)

kd: Kristdemokraterna (Christian Democratic Party)

nyd: Ny demokrati (New Democratic Party)

ΔU

The difference between the rate of unemployment at the time of the election (September) and three years before the election (September). Based on official figures of the National Labor Market Board (AMS).

ΔΠ

The difference between the rate of inflation in the year before the election (September to September) and the rate of inflation in the same period three years before the election. Based on inflation figures from Statistics Sweden.

ΔGDP

Annual real GDP growth during the present term of office.

Source: Statistics Sweden.

Descriptive statistics

	ΔU	ΔΠ	ΔGDP
1983–85	-.8	-.8	.3
1986–88	-1.4	-1.1	1.1
1989–91	1.5	2.6	1.9
1992–94	4.7	-5.6	3.0
Mean	1.0	-1.2	1.6
St. Dev.	2.4	2.9	1.0

MACRO

Perception of the change in the country's economy. The variable is based on answers to the following question: "According to your own opinion, how has the Swedish economy developed the last two or three years. Has it gotten better, stayed about the same or gotten worse?" "Better" is coded 1, "stayed about the same" is coded 0 and "gotten worse" is coded -1.

MICRO

Perception of the change in the own financial situation. The variable is based on answers to the following question: "If you compare your financial situation with how it was two or three years ago, has it gotten better, stayed about the same or has it gotten worse?" It is coded as MACRO.

UNEMPLOYED

Dummy variable coded one for the respondents in the Swedish Election Studies who state that they have been unemployed since the last election. The share of unemployed individuals in the sample has evolved as follows:

1985	1.5%
1988	1.0%
1991	2.2%
1994	8.1%
1985–94	3.0%

LEFT

Dummy variable indicating a left wing government. It is coded one in 1985, 1988 and 1991.

RIGHT

Dummy variable indicating a right wing government. It is coded one in 1994.

BACKGROUND

The structurally determined probability to support the incumbent government. Computed as the predicted probability to vote for any of the parties in the governing coalition based on the

following variables: education, church attendance, sector of employment (private or public), home ownership, occupation and the hometown's population. The following table displays the estimates used for the computations:

Variable	Coefficient	Std. Error
EDU1	-.300**	.050
EDU2	-.364**	.061
CHURCH	-.846**	.077
PUBLIC	.287**	.045
HOME	-.185**	.045
COUNTRY	-.032*	.018
LABORER	.508**	.051
EHO	-.508**	.057
Constant	.239**	.060

Log likelihood   -2,391

Correct predictions   68.0%

Observations   3,926

EDU1   High school (gymnasium) graduate without higher education.

EDU2   At least some college.

CHURCH   Goes to church at least once a month.

PUBLIC   Employed in the public sector.

HOME   Owns the own home.

COUNTRY   Lives in the country or in a small town.

LABORER   Employed as a laborer.

EHO   Entrepreneur or higher official.

Appendix B: Sensitivity Analysis

		Specification			
		3	5	3	5
Macro-economic variables	ΔU	-.245**		-.609**	
		(.015)		(.192)	
	ΔΠ	-.084**		.305*	
		(.015)		(.148)	
	MACRO		.625**		.540**
			(.038)		(.037)
Micro-economic variables	MICRO	.181**	.116**	.206**	.109**
		(.045)	(.042)	(.042)	(.041)
	UNEMPLOYED	.265	.227	.900**	.874**
		(.198)	(.185)	(.327)	(.326)
	Constant	-.285**	-.252**	-.205*	.069
		(.056)	(.041)	(.085)	(.036)
	Elections	1988–94	1988–94	1985–91	1985–91
	Log likelihood	-2,272	-2,273	-2,583	-2,494
	Correct predictions	60.8%	64.0%	57.04%	63.5%
	# Observations	3,731	3,731	3,982	3,982
	ρ	.670	.616	.635	.601

Notes: See Table 4.