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First Evidence from German Micro Data

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Government Popularity and the Economy *

First Evidence from German Micro Data

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Abstract

This is one of the first studies to estimate a popularity function at the micro-level. Using German micro-level data (GGSS/ALLBUS) for the years 1991, 1992, 1998, and 2008, we show that a positive assessment of the economy significantly improves government popularity while negative evaluations decrease satisfaction with the government. Voters take the (current and expected) national and personal economic situation into account. We find no evidence for a grievance asymmetry, i.e. voters punish the government for a bad economy but also reward them in good times. Finally, we show that popularity functions are only very crude proxies for vote functions, with the latter being mostly driven by party identification.

JEL: D72, H11

Keywords: vote function, popularity function, micro data, Germany

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1 Introduction

Vote and popularity (VP) functions describe the relationship between public support for the government and the economy. Understanding this relationship is not only of vital importance to politicians and political scientists, but also to (political) economists as VP functions are essential building blocks in politico-economic models (e.g. Frey and Schneider, 1978*a*,*b*). Moreover, political support functions can be used to approximate social welfare functions (Smyth et al., 1991; Paldam, 2008) and to predict election outcomes (Sigelman, 1979). Micro-level studies help to analyze individual voting behavior and assess issues like voter rationality which is a crucial assumption in many theoretical models.

Table I Classification and seminal papers of vote and popularity functions

	popularity function	**vote function**
macro level	Mueller (1970)	Kramer (1971)
micro level		Fiorina (1978)

The large body of literature in this area can be divided along two major lines: the level of aggregation (*macro* vs *micro*) and the object of investigation (*vote* vs *popularity*). Table I illustrates this classification.[1] However, even after forty years of research our understanding of VP functions is quite limited and "very little is cut and dried in the field" (Paldam, 1991). With respect to vote functions, micro-level data has been used to dig deeper into the intricate relationship between voting (or vote intention) and the economy, but – to the best of our knowledge – there is only one single study that explores popularity functions at the micro-level.[2]

[1] Vote and popularity functions have been estimated for many countries and time periods and it is virtually impossible to discuss the extensive body of research in an article like this. Excellent overviews are given by Lewis-Beck and Paldam (2000), Lewis-Beck and Stegmaier (2000, 2007) and Paldam (2008). Berlemann and Enkelmann (2012) survey and discuss the large field of popularity functions for the United States.

[2] Hesli and Bashkirova (2001) study public support for Russian presidents between 1991 and 1999. However, there is no such study for any Western country.

With respect to Germany, the literature on VP functions has majorily taken place at the macro level (Frey and Garbers (1972), Kirchgässner (1974), Kirchgässner (1985, 1986), Kirchgässner (1991), Feld and Kirchgässner (2000), Batool and Sieg (2009)). Most authors find a significant effect of economic conditions on government popularity, but the relationship sometimes gets "lost" (Kirchgässner, 2009). There are also a number of German political scientists that estimate vote functions at the micro level (e.g. Maier and Rattinger, 2004; Kellermann and Rattinger, 2006; Rattinger and Steinbrecher, 2011). Likewise, their findings about the impact of economic conditions are mixed. While Maier and Rattinger conclude that the economy plays only a "minor role", Rattinger and Steinbrecher find the economy to be "an important factor".[3]

In this study we estimate a micro-level popularity function for the case of Germany. Using GGSS (ALLBUS) surveys for several years, we try to shed light on the following questions:

Q1: To what extent, if at all, does the economy affect government popularity? Given the inconclusive results for popularity functions at the macro level, this question is not trivial. However, we expect a good economy to have a positive effect on government popularity, and *vice versa*.

Q2: Do voters react symmetrical to positive and negative economic situations? The idea that voters punish governments for bad outcomes without rewarding them for positive achievements has entered the literature as the *grievance asymmetry hypothesis* going back to Mueller (1970).

Q3: Are voters retrospective (backward-looking) or prospective (forward-looking) when it comes to evaluating government performance? The *bankers-peasants controversy* is one of the unsettled questions in the field (Paldam, 2008, p. 563) and has important implications for the modeling of voters in politico-economic models.

[3] In a related study, Norpoth and Gschwend (2010) use government popularity to predict election outcomes in Germany.

Q4: Are voters sociotropic or egotropic? The question whether the economic situation of the nation or the personal economic situation plays a larger role is also not clear. It should be expected that the rational voter is concerned with her own pocketbook, but most studies find a large sociotropic component.[4]

Q5: Are popularity functions a reasonable proxy for vote functions? This is a crucial question since for many researchers the vote is the "variable of ultimate interest" (Lewis-Beck and Stegmaier, 2000, p. 188) as it most directly affects the political scene in modern democracies. Due to the small number of elections, however, popularity functions are used to proxy the vote function and make up the larger part of the literature. Today, vote and popularity functions are often mentioned in one breath although there are several conceptional differences which we will discuss in more detail below.

The remainder of the paper is structured as follows: Section 2 presents some theoretical considerations. Section 3 desribes the data. Section 4 presents the empirical results and discusses questions Q1 through Q5. Finally, Section 5 concludes.

2 Some Theoretical Considerations

To begin with, it must be noted that there is no unified and all-encompassing theory that explains individual public support. There are three major theories of voting behavior: the sociological model (Lazarsfeld et al., 1944), the psycho-social model (Campbell et al., 1960), and the rational choice approach (Downs, 1957). The literature on economic voting, though primarily empirical in nature, was heavily influenced by the latter.

Likewise, the theoretical foundation for our analysis can largely be found in the seminal contribution of Downs (1957, ch. 3), whose work is based on ideas of Schumpeter (1942). The Downsian

[4] According to a survey by Paldam (2008), questions Q2 through Q4 represent unsettled ("'controversial"') issues in the field. In the German context, evidence is even less clear.

"Basic Logic of Voting" assumes rational voters who maximize their expected stream of utility $E(U^i_{t+1})$ from party $i = A, B$, respectively. As the expected party differential, $E(U^A_{t+1}) - E(U^B_{t+1})$, is unknown in period t, however, rational voters use information on the current performance to get an idea about how the incumbent party will perform in the future. The voting decision of rational voters, thus, depends on the current party differential, $U^A_t - E(U^B_t)$.[5]

Following this logic and assuming that voters hold the incumbent government responsible for economic outcomes, public support should rise and fall with the stance of the economy. We should, thus, find a relationship between government support and the economy (**Q1**). This basic logic is known as the punishment-reward mechanism according to which the voter acts as a "god of vengeance and of reward" (Key, 1964).

With respect to the question of retrospective or prospective voting behavior (**Q3**), the Downsian model also provides theoretical guidance. Although voters are assumed to be rational and optimizing with respect to *future* streams of utility, it is the *present* performance on which voters base their evaluation of the incumbent. Downs (1957, p. 297), thus, derives the proposition that the incumbent's current performance plays a more important role to voters than expectations about the future. Although following a different reasoning, Key (1966) comes to the same conclusion that the electorate "judges retrospectively" and acts "as an appraiser of past events, past performance, and past actions." We, therefore, expect that the present performance of the incumbent government has a larger influence than expectations about the future.

The answer to question **Q4** – egotropic or sociotrop? – seems to be straighforward in the context of rational choice models of voting behavior. Rational voters are interested in maximizing their own utility and, hence, their support for the government should be purely egotropic.

[5] Among others, Downs' theory has been further developed by Davis et al. (1970) and Kirchgässner (1986). In these models – and also in Downs (1957, ch. 8) – voters maximize utility by minimizing the distance between their own position and the (estimated) party position in the politico-economic space. From these models, an aggregate popularity function can be derived (see, e.g., Kirchgässner, 1986; Neck and Karbuz, 1997). For our purpose, however, this approach is less helpful since we focus on the voter's evaluation of *the economy* as such, i.e. our measure of performance is a valence issue and not a position issue Stokes (see 1963). Our argumentation, thus, follows the basic ideas of Downs (1957, ch. 3).

However, the empirical results by Kinder and Kiewiet (1979, 1981), who show that U.S. voters act rather sociotropically, suggest that this is not the whole story. In fact, Downs' (1957, p. 37) concept of voter rationality leaves room for a broader interpretation of voter rationality, noting that it "is possible for a citizen to receive utility from events that are only remotely connected to his own material income." The idea of receiving utility from sociotropic components is also consistent with Downs' argument that rational voters must be motivated by some sense of social responsibility when it comes to the question of going to the ballot or not (Meehl, 1977). Nevertheless, rational choice theories of economic voting are relatively quiet about the concept of sociotropic voting.

The grievance asymmetry hypothesis (**Q2**) has been introduced to the popularity function literature through the pioneering work of Mueller (1970, p. 23), who postulated that "[t]here is punishment, but never reward." Grievance asymmetries were further investigated by Bloom and Price (1975) and Nannestad and Paldam (1997), who find that voters react more strongly to negative economic events than to positive events. Psychologists have confirmed this "negativity bias" (Rozin and Royzman, 2001) in several experiments (Jordan, 1965). From a rational choice perspective, the grievance asymmetry simply reflects the fact that people are risk-averse (Nannestad and Paldam, 1997). In other words, the voter's marginal utility from a better economy decreases as the economy improves. Consequently, we expect voters with a negative assessment of the economy to react more strongly to the economy than voters with a positive assessment.

3 Data

In this paper, we estimate a micro-level popularity function for Germany. The underlying study is based on the German General Social Survey (GGSS/ALLBUS), a biannual survey that was started in 1980.[6] With every wave a representative cross-section of the adult population, about

[6] After the German reunification an additional, unscheduled survey was conducted in 1991.

3000 to 3500 respondents, has been interviewed.[7] We extract the following variables from the data.

Government Popularity and Vote Intention In four waves (1991, 1992, 1998, and 2008) the following question was asked: *"How satisfied are you – on the whole – with the current performance of the German government?"* There are three negative answers (categories 0, 1, and 2) and three positive answers (categories 3, 4, and 5) to this question from which we construct a dummy variable POP that equals one if the respondent expresses satisfaction with the current government (popularity). The use of a dummy variable is intuitive and simplifies the presentation of our results without affecting the findings. More importantly, building a dummy variable allows a direct comparison with the estimated vote function, where the dependent variable is dichotomous as well.[8]

Additionally, respondents were asked for their vote intention in a hypothetical upcoming election: *"If there was a federal election next Sunday, which party would you vote for with your second vote?"* From this information, we construct a dummy variable ($VOTE$) which is set to one if the respondent intends to vote for a government party, and zero otherwise. We will use this more direct measure of government support to compare vote and popularity functions in the last part of the paper.

Table II displays descriptive statistics for all four years. Some interesting points should be stressed: (1) Government popularity varies considerably over time; (2) the vote intention is relatively stable, at least within the same government coalition; (3) in most years, there are large differences between both measures of government support. The latter point already indicates

[7] The study employs the cumulated GGSS/ALLBUS dataset "ALLBUS/GGSS 1980–2008, study number 4570" (GESIS (2010)), which is also available in English language (study number 4572).

[8] Alternatively, it is possible to create a dummy variable that is one if the respondent falls into the two or four highest answer categories. However, the construction of our dummy variable is (linguistically) intuitive as the three top answer categories include the word "satisfied" while the others include the word "dissatisfied" in their answer. Additionally, we have run an ordered logit regression that supports our intuitive division. A good economy increases the likelihood of choosing a positive category, and *vice versa*. As the results are qualitatively identical, we decided to present the results for the dummy variable.

that government popularity and voting are two quite different things in Germany, a point which will be discussed in more detail below.

Table II Satisfaction with the government and vote intention

year	obs	government	satisfied	vote for govt
1991	2,351	CDU/FDP	55.0%	36.4%
1992	2,588	CDU/FDP	41.0%	31.0%
1998	2,235	CDU/FDP	32.0%	31.0%
2008	2,658	CDU/SPD	50.7%	56.1%
all years	9,832		44.9%	39.1%

Sample includes only respondents for which information on satisfaction with the government (popularity) and vote intention were available.

Economic Variables Our main interest lies in the effect of the economy on government popularity. Given the cross-section character of our dataset, an analysis of the impact of objective economic indicators, such as the unemployment or inflation rate on government popularity is not possible. However, we include four categorial variables that capture the individual subjective assessment of the current/future national and the current/future personal economic situation.[9] This allows us to answer the question of whether voters are forward-looking or not (Q3) and whether it is the national or personal economy that matters more to voters (Q4). All economic variables run from zero (very bad/considerably worse) to four (very good/considerably better). Summary statistics (means) are given in Table III.

For several reasons, subjective indicators have replaced the use of objective macroeconomic variables in recent VP function estimations (see Bellucci and Lewis-Beck (2011, p. 195) and Lewis-Beck and Stegmaier (2000, p. 186). First, in case of a panel or time-series study it is not clear *which* objective indicator should be included to describe *the economy*. Usually, unemployment

[9]The questions read as follows:
Current national economy: "How would you generally rate the current economic situation in Germany?"
Future national economy: "What do you think will the economic situation in Germany will be like in one year?"
Current personal economy: "How would you generally rate your own current financial situation?"
Future personal economy: "What will your own financial situation be like in one year?"

Table III Subjective assessment of the national and personal economy

year	current national	future national	current personal	future personal
1991	2.68	2.50	2.38	2.24
1992	2.40	1.83	2.41	2.09
1998	1.79	1.84	2.31	2.00
2008	2.05	1.70	2.25	1.97
overall	**2.22**	**1.95**	**2.34**	**2.07**

and inflation have been used in macro-studies but other variables (e.g. growth, taxes, deficits) could play a role as well. It could also be argued that some economic aspects are very hard if not impossible to measure, such as legislative changes. Second, even if one would know the most important variables, their relative importance to the electorate might change over time. On the contrary, subjective measures imply an individual weighing scheme. Third, it can easily be assumed that subjective assessments of the economy affect government popularity without time lags. Fourth, and maybe most important, *there is no single objective assessment of the economy*. One can try to measure unemployment rates or inflation rates, but apparantly the subjective assessment of the national economy at a given point in time varies from very bad to very good. This either reflects individual weights to different economic goals or different levels of information.

However, since all variables measure some subjective assessment of the economic environment, one could object that all variables capture more or less the same thing. This is not the case. Spearman's (ρ) and Kendall's (τ) rank correlations are fairly small. The highest correlation is found between expectations about the personal and national economy ($\rho = 0.40$, $\tau = 0.22$) and between the current personal and national economy ($\rho = 0.30$, $\tau = 0.17$).

Moreover, the sample is not biased by respondents with an overly optimistic or pessimistic answer pattern. Our sample includes very few cases that answer extremely positive (2 cases) or negative (16 cases) for all economic items.

Table IV Popularity function

	all years	**1991**	**1992**	**1998**	**2008**
avg predicted probability	0.452	0.599	0.393	0.301	0.521
national economy (present)	0.118***	0.093***	0.082***	0.110***	0.111***
national economy (future)	0.087***	0.064***	0.105***	0.038**	0.095***
personal economy (present)	0.083***	0.090***	0.101***	0.071***	0.087***
personal economy (future)	0.057***	0.066***	0.023	0.071***	0.053***
controls	yes	yes	yes	yes	yes
observations	8,310	1,928	2,152	1,959	2,271
McFadden's pseudo R^2	0.133	0.156	0.142	0.128	0.099
% predicted correctly	0.684	0.702	0.702	0.714	0.656

Results from logistic regression. Independent variable: POP. ***, **, * indicate statistical significance at the 1%, 5%, 10% level, robust standard errors. All coefficients represent marginal effects (in percentage points) with all other covariates held at their mean.

4 Results

To analyze the effect of the assessment of the economy on the respondent's probability to express satisfaction with the government, we employ logistic regression techniques.[10] The binary left-hand variable POP equals one if the respondent expresses satisfaction with the current government. The subjective economic variables are categorial, ranging from 0 (very bad) to 4 (very good). In a first step, we include them as quasi-continuous variables (Table IV) and then as categorial dummies (Table V).[11] Additionally, we always include a set of socio-demographic characteristics (age, age squared, gender, East/West dummy, year dummies and education) as control variables. We also control for the vote of the last election by including a dummy variable that equals one if the respondent has voted for one of the current government parties in the previous election. We do so to account for persistent party alignments in the population.

[10] This approach is in line with The estimation of OLS or ordered logit models with the categorial popularity variable as the dependent variable as well as linear probability models with the dichotomous variable as a dependent variable leave the qualitative results unaffected.

[11] We also estimated a model in which the categorial economic variables were recoded to variables with three outcomes (good, neutral, bad). The results are virtually identical to the ones presented in the text.

Popularity and the Economy First of all, the results from the logit model displayed in Tables IV and V clearly indicate that the subjective assessment of the economy plays a significant role in the voters' evaluation of the government.[12] In Table IV all coefficients are statistically significant and show the expected sign, i.e. a better assessment of the national or personal economy increases government popularity. Moreover, the coefficients are economically sizeable. A look at the first column in Table IV shows that the marginal effect of an increase in the assessment of the national economy, for example, is about 12 percentage points. Given the expected probability of supporting the government of 45 percent, the respective *relative marginal effect* is about 25 percent. Marginal effects for the other economic variables are somewhat smaller but still sizable. The marginal effect of an increase in all four economic variables is approximately 35 percentage points. Moreoever, the results seem to be quite stable over all years in our sample.[13]

A very similar picture emerges if we include the economic variables as dummy variables (leaving out the neutral answer as the reference category).[14] On average, a positive assessment of the economy increases the probability of expressing satisfaction with the government. However, the effects vary slightly between years and do not reach statistical significance in some cases. Negative expectations about the personal economy, for example, tend to decrease government popularity but we only find a significant effect in 1998 and 2008. Likewise, in 1991 the government is not punished for bad prospects about the future economy. In some cases, statistical insignificance might simply be due to a small number of observations in the respective category, e.g. in the case of very good expectations about the personal economy.

[12] Results for all variables including the control variables can be found in Tables IX and X in the Appendix.

[13] Regarding the goodness-of-fit, the model performs quite well. We present the most common McFadden's R^2 which is, however, severely downward biased. According to McFadden (1979, p. 307), a value above 0.20 already indicates an excellent fit. The share of correct predictions is an alternative and more intuitive measure. Assuming that a respondent is satisfied with the government if the predicted probability is above 50%, we are able to predict about 70% of all answers correctly.

[14] The coefficients in Table V describe the effect (in percentage points) of a change from neutral to the respective category. For example, changing from a neutral position to *very bad* regarding the current national economy decreases the probability of expressing approval by 19 percentage points.

Table V Popularity function with categorial variables

		all years	**1991**	**1992**	**1998**	**2008**
avg predicted probability		0.401	0.400	0.321	0.344	0.531
	very bad	-0.192^{***}	-0.307^{*}	-0.071	-0.189^{***}	-0.205^{**}
	bad	-0.123^{***}	-0.001	-0.086^{*}	-0.103^{***}	-0.159^{***}
national economy (present)		—	—	—	—	—
	good	0.115^{***}	0.142^{***}	0.112^{***}	0.131^{***}	0.087^{***}
	very good	0.126^{***}	0.170^{***}	0.046	0.280^{**}	0.152
	considerably worse	-0.215^{***}	-0.028	-0.250^{***}	-0.116	-0.258^{***}
	somewhat worse	-0.078^{***}	-0.050	-0.084^{***}	-0.077^{**}	-0.089^{***}
national economy (future)		—	—	—	—	—
	somewhat better	0.067^{***}	0.066^{**}	0.072^{**}	0.005	0.076^{**}
	considerably better	0.176^{***}	0.170^{***}	0.237^{**}	-0.249^{**}	—
	very bad	-0.160^{***}	-0.224^{***}	-0.146^{*}	-0.077	-0.113
	bad	-0.108^{***}	-0.096^{**}	-0.134^{***}	-0.149^{***}	-0.063
personal economy (present)		—	—	—	—	—
	good	0.085^{***}	0.107^{***}	0.091^{***}	0.042	0.104^{***}
	very good	0.107^{***}	0.082	0.162^{**}	0.139	0.093
	considerably worse	-0.128^{**}	-0.122	-0.085	-0.153	-0.159
	somewhat worse	-0.061^{***}	-0.035	0.021	-0.084^{**}	-0.105^{***}
personal economy (future)		—	—	—	—	—
	somewhat better	0.063^{***}	0.098^{***}	0.072^{**}	0.054	-0.003
	considerably better	0.061	0.053	-0.011	0.254^{**}	0.030
controls		yes	yes	yes	yes	yes
observations		8,310	1,928	2,152	1,959	2,269
McFadden's pseudo R^2		0.144	0.162	0.152	0.135	0.104
% predicted correctly		0.687	0.708	0.712	0.719	0.658

Results from logistic regression. Independent variable: POP. ***, **, * indicate statistical significance at the 1%, 5%, 10% level, robust standard errors. All coefficients represent the effect (in percentage points) of a shift from the neutral to the respective category with all subjective economic variables held at their neutral value and all other covariates held at their mean. In 2008, two observations were dropped due to perfect prediction with the highest positive category of the future national economy variable.

In one case, however, we find a large significant effect with an unexpected sign. In 1998, respondents who are very optimistic about the future are *less likely* to approve the way the current government is handling things. However, it should be noted that 1998 was an election year and the negative coefficient on the future national economy expresses good expectations that are connected with the changed future government. In other words, voters expect a better future because they are unhappy with the government and expect a party change during the next election.

In general, the presented findings indicate that economic perceptions play an important role in the voters' evaluation of the government, confirming our hypothesis regarding question Q1. The effect, however, is somewhat volatile over time which reflects the instability problem that exists in the macro-level popularity literature. Obviously, from time to time other (non-economic) factors dominate the political agenda.

Grievance Asymmetry Our second assumption was that negative economic outcomes are punished while good ones are not rewarded. Regarding our findings in Table V, we must reject this hypothesis. First, we do find reward to positive assessments of the economy. Second, the response to negative and positive assessments of the current or future economy is fairly symmetrical. Over all years, the absolute effect of a positive assessment is very close to the effect of a negative assessment, although there are some years in which the effect between positive and negative assessments differs. Nevertheless, the difference between the effect of positive and negative assessments of the economy is not statistically different from zero, i.e. there is no evidence of a grievance asymmetry among voters.[15]

[15]Comparing the effect of a bad/very bad assessment of the present national economy versus a good/very good economy, we find weak statistical evidence for a grievance asymmetry. In a model in which all economic variables are recoded to three-category variables, we find an asymmetry with respect to the present and future national economy in the full sample. The effect of a bad assessment is significantly larger than the corresponding effect of a positive assessment.

Retrospective versus Prospective Behavior The issue of retrospective or prospective behavior (Q3) touches upon the question of voter rationality. In their macro-level study using the Index of Consumer Sentiments, MacKuen et al. (1992) find that voters "respond with the sophistication of the banker", taking only their expectations about the future economy into account. Other models assume voters as "peasants" who take the current or past economy into consideration.

Our results suggest that voters are both backward- and forward-looking. Although the current national and personal economy has (in most cases) a larger effect than a change in expectations, economic prospects can significantly affect a government's standing in the poll. Based on the first column in Table V, assume that a voter's expectations about the national and personal future change by one point. Compared to the reference group, the probability of approving the government would increase by roughly 13 percentage points from approximately 40 to 53 percent.

All in all, we find that German voters are both retro- and prospective.

Sociotropic versus Egotropic Behavior The rational voter model assumes that voters maximize their own utility and reward or punish governments respectively ("What have you done *for me* lately?"). In this sense, we should expect that only assessments of the personal economy play a role in evaluating the government. A seminal study by Kinder and Kiewiet (1979), however, finds that U.S. voters mainly vote sociotropic since the government is not held responsible for their personal situation.

Our findings suggest that this U.S. result cannot be carried over to the German case. Respondents react both to the national and personal economic situation and both perspectives are equally important. This finding is in line with other studies that estimate vote functions for Sweden, Denmark, and the United Kingdom (see Paldam, 2008, p. 543, and citations therein) who also find that voters are socio- *and* egotropic.

Popularity versus Vote Functions Finally, we want to discuss question Q5: How well do popularity functions proxy vote functions? For some researchers there are no differences between both concepts[16], but a direct comparison has not been performed yet, neither on the micro- nor the macro-level.[17] Yet, vote and popularity functions are usually mentioned in one breath (e.g. Paldam, 2008) despite a number of obvious conceptual differences (see Nannestad and Paldam, 1994).

Of course, both votes and opinion polls are ways to express public opinion, which then serves as a signal to the political process and very likely affects political/economic outcomes. However, only the vote is "the real thing" (Nannestad and Paldam, 1994) as polls have no direct implications in the political process. Moreover, actual voting is influenced by election campaigns and voters will probably have more information about the party platforms prior to elections.[18]

There is, however, one major difference between government popularity and voting that has not been discussed in the literature. With respect to popularity, respondents can choose to approve or not. Disapproval with the government, however, does not necessarily imply that respondents vote against that government. The dissatisfaction might be connected to specific politicians (not parties) that will not run for the next election. Analogously, respondents who express satisfaction with the government can still vote against the government parties if they believe the alternative to be even better. This might, for example, be the case when other political issues are expected to play a role in the future that are better handled by another party. Thus, the difference between vote and popularity functions is a matter of (political) alternatives. Regarding popularity functions, respondents can either choose "yes" or "no", but when it comes to voting they can vote for the government, the opposition, or not at all.

[16] Paldam (1991, p. 9), for example, states that "[t]he two functions are so alike that I shall speak of VP-functions."

[17] On the micro-level no popularity function estimates exist. On the the macro-level results are hardly comparable since elections are comparatively rare events that allow only simple statistics while popularity functions are sometimes based on more than 50 years of monthly data.

[18] On the other hand, it should be noted that most vote functions rely on answers regarding vote *intention*. In this case, the last two points are very weak.

Table VI Satisfaction with the government and vote intention

	vote intention	
	government party	no government party
satisfied with the government	2,095 (62%)	1,307 (38%)
not satisfied with the government	1,085 (28%)	2,823 (72%)

Figures in parentheses indicate row percentages.

Some descriptive statistics underline the point (Table VI). In our sample, about 38 percent of all respondents who are satisfied with the government do not intend to vote for the government parties. Likewise, 28 percent of all those who are not satisfied with the current government still plan to cast a vote for the government.

To see to what extent popularity functions can be used to approximate the relationship between the voting decision and the subjective assessment of the economy, we present an estimated vote function in Table VII. The dependent variable for the vote function ($VOTE$) is a dummy variable indicating the respondent's vote intention for the current government at the time of the interview. It is set to one if the respondent intends to vote for one of the incumbent government parties, and zero otherwise. For comparison, we present a popularity function for the same sample.

Almost all economic variables in the vote function show the expected sign, i.e. a better assessment of the economy increases the probability of voting for one of the government parties, and *vice versa*. In that sense, vote and popularity functions are very similar. However, the absolute size of the coefficients is much smaller in the vote function. A bad national economy, for example, reduces the probability of expressing satisfaction with the government by 13 points while it reduces the re-election probability by only 5 points. In terms of statistical significance we see that the estimated effect of economic variables is generally less significant in the vote function. Expectations about the personal economy have no significant effect in the vote function.

Table VII Vote and popularity function

		vote	**popularity**
avg predicted probability		0.275	0.395
national economy (present)	very bad	-0.037	-0.179^{***}
	bad	-0.051^{**}	-0.131^{***}
		—	—
	good	0.075^{***}	0.118^{***}
	very good	0.056	0.132^{***}
national economy (future)	considerably worse	-0.123^{***}	-0.205^{***}
	somewhat worse	-0.027	-0.079^{***}
		—	—
	somewhat better	0.041^{**}	0.069^{***}
	considerably better	0.125^{**}	0.178^{***}
personal economy (present)	very bad	-0.083^{*}	-0.154^{***}
	bad	-0.029	-0.099^{***}
		—	—
	good	0.082^{***}	0.095^{***}
	very good	0.079^{*}	0.108^{***}
personal economy (future)	considerably worse	0.061	-0.136^{**}
	somewhat worse	-0.034	-0.067^{***}
		—	—
	somewhat better	0.000	0.060^{***}
	considerably better	-0.058	0.061
controls		yes	yes
observations		7,310	7,310
pseudo R^2		0.466	0.154
% predicted correctly		0.855	0.693

Results from logistic regression. Independent variable: $VOTE$, POP. ***, **, * indicate statistical significance at the 1%, 5%, 10% level, robust standard errors. All coefficients represent the effect (in percentage points) of a shift from the neutral to the respective category with all subjective economic variables held at their neutral value and all other covariates held at their mean.

However, in relation to the average predicted probability the coeffcients of vote and popularity function are much closer, especially with respect to positive assessments of the economy. Relatively, a positive assessment of the current or future government increases the probability of re-election/expressing satisfaction by about the same amount. The relative effect of a good personal financial situation is even stronger in the vote function. A good personal economy

increases the probability of re-election by 30 percent compared to 24 percent in the popularity function. The negative relative effect of economic variables on the vote, however, is generally much smaller. A bad national economy decreases the re-election probability by only 18 percent compared to 33 percent in the popularity function.

Moreover, vote intention is heavily influenced by party identification. Those who voted for government parties in the last election have a 67 percentage points (!) higher probability of electing one of the government parties. This is almost equal to the effect of changing all economic variables from worst to best. Party identification also strongly influences satisfaction with the government but the effect is much smaller (26 points). Therefore, the role of party identification is another major difference between vote and popularity functions. The difference might be even stronger if we consider true votes compared to vote intention.[19]

5 Summary and Conclusion

Elections and opinion polls are two channels by which the electorate sends signals to policymakers. During the last 40 years both channels have been analyzed extensively, mostly at the macro level. The relationship between voting behavior and the economy has also been studied using individual data. However, results for vote and popularity functions are fairly unstable and many questions in the literature remain unsolved or at least controversial (Paldam, 2008). In the context of popularity functions at the micro-level, these questions have not been discussed.

This paper is one of the first attempts to investigate popularity functions at the micro level. Doing so does not only provide a better understanding of popularity functions but also allows a direct comparison of vote and popularity functions which was not possible before. The use of popularity ratings as a proxy for election results, however, crucially hinges on the assumption

[19] We also estimated vote functions for each single year (see Table XI in the Appendix). Economic variables are often not statistically significant and the coefficients are small in size. In all cases, vote intention is mainly explained by past voting behavior which is highly significant in all years.

that vote and popularity functions are similar concepts. Moreover, comparatively few studies investigate vote and popularity functions for Germany and we provide further empirical evidence.

	Main results:
Q1	We can confirm the responsibility hypothesis, i.e. the economy has a strong influence on the popularity of the government.
Q2	There is no evidence for a grievance asymmetry. Voters punish the government for a bad economy, but also reward them for a good economy.
Q3	Respondents behavior is both retrospective and prospective. In many cases, retrospective items have a stronger effect on government popularity.
Q4	Respondents are both sociotropic and egotropic. Both perspectives are equally important in size.
Q5	Popularity functions are imperfect proxies for vote functions. Both government popularity and the vote are affected by the economy, but the effect is weaker for popularity functions. The vote is strongly influenced by party identification.

Table VIII Summary of results

The results of our study can be summarized as follows: (1) The popularity of the German government depends strongly on the voters' assessment of the economy. We can, thus, confirm the responsibility hypothesis. (2) More precisely, voters punish the government if the perceived economic situation is bad, but they also reward governments for a good economy. There is no evidence of a grievance asymmetry. (3) Moreover, we find that German voters take current economic conditions as well as expectations about the future into consideration when they evaluate the government. They are neither pure "peasants" nor "bankers" in the sense of MacKuen et al. (1992). (4) It is also shown that voters not only react to their personal economic situation, but also to the general economic situation of the country. This implies that voters hold the government responsible for the national, but also their individual economic situation. (5) Finally, vote and popularity functions were compared at the micro-level, finding that popularity functions are only imperfect proxies for vote functions. Economic variables play an important role in the evaluation of the government, but when it comes to voting German voters are mainly driven by party identification. Table VIII summarizes our results regarding our five research questions.

What conclusions can we draw from these results?

First, the economy matters for the voters' assessment of the government. More precisely, it is the *subjective* assessment of the economy which affects the evaluation of the government. This is also true for expectations about the future. Consequently, governments can improve their standings in the polls by convincing the electorate of a bright economic future without necessarily improving current conditions. In that sense, it seems that Downs' rational voter can be fooled. The extent to which politicians can influence subjective assessments or expectations, however, depends on many factors, e.g. the politicians' persuasiveness or the voters' economic education. Moreover, these results highlight the role of the media in the politico-economic process, as the media has a major influence on how the true economic situation is translated into a subjective assessment by the individual voter. Finally, our results show that the influence of the economy on government popularity is very stable over time. The instability at the macro-level might stem from the fact that only few specific variables (unemployment, inflation) enter the popularity function.

Second, German voters hold the government responsible for the personal economic situation, which is in stark contrast to findings for American voters who mainly blame themselves for personal misfortunes (Kinder and Kiewiet, 1979). These findings clearly reflect the role of the state in both societies (Esping-Andersen, 1990). This does not mean, however, that views about the role of the state have to be equally distributed among voters (see, e.g., Alesina and Fuchs-Schündeln, 2007). Which groups of voters (e.g. left- or right-winged) punish the government for a bad personal economy is an interesting question for future research.

Third, popularity functions are imperfect substitutes for the analysis of vote functions. Though the results are qualitatively similar, the quantitative effect of economic issues differs considerably. In particular, using popularity functions as a proxy for vote functions might severely overstate the role of the economy in elections. In other words, the economy affects government

popularity but voting depends mainly on party identification, which is very stable over time. A decline in party identification, however, might increase the role of the economy in future elections.

This study is one of the first investigations of popularity functions at the micro-level. The analysis of individual data might help to understand the mechanisms behind government support as well as the aggregate relationship between government popularity and the economy which has regulary been shown to be unstable. Nevertheless, further comparisons of vote and popularity functions are necessary to confirm the use of popularity data as a useful proxy for vote functions. Therefore, further research for other countries and different datasets would be desirable.

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A Detailed Results

Table IX Popularity function

	all years	**1991**	**1992**	**1998**	**2008**
avg predicted probability	0.452	0.599	0.393	0.301	0.521
national economy (present)	0.118^{***}	0.093^{***}	0.082^{***}	0.110^{***}	0.111^{***}
national economy (future)	0.087^{***}	0.064^{***}	0.105^{***}	0.038^{**}	0.095^{***}
personal economy (present)	0.083^{***}	0.090^{***}	0.101^{***}	0.071^{***}	0.087^{***}
personal economy (future)	0.057^{***}	0.066^{***}	0.023	0.071^{***}	0.053^{***}
male	-0.042^{***}	-0.025	-0.065^{***}	-0.035	-0.034
East dummy	-0.021	0.022	-0.019	0.028	-0.130^{***}
age	-0.003	-0.007	-0.001	-0.002	-0.013^{***}
age (squared)	0.000^{***}	0.000^{**}	0.000	0.000	0.000^{***}
education	-0.008	-0.032^{***}	-0.017	-0.024^{**}	0.008
voted for govt	0.264^{***}	0.306^{***}	0.280^{***}	0.231^{***}	0.130^{***}
observations	8,310	1,928	2,152	1,959	2,271
McFadden's pseudo R^2	0.133	0.156	0.142	0.128	0.099
% predicted correctly	0.684	0.702	0.702	0.714	0.656

Results from logistic regression. Independent variable: POP. ***, **, * indicate statistical significance at the 1%, 5%, 10% level, robust standard errors. Coefficients represent marginal effects (in percentage points) with all other covariates held at their mean. *education* measures different levels of education; *East* is a dummy indicating respondents in East Germany; *voted for govt* is a dummy variable set to one if respondent voted for a current government party in the last election.

Table X Popularity function with categorial variables

		all years	**1991**	**1992**	**1998**	**2008**
avg predicted probability		0.401	0.400	0.321	0.344	0.531
	very bad	-0.192^{***}	-0.307^{*}	-0.071	-0.189^{***}	-0.205^{**}
	bad	-0.123^{***}	-0.001	-0.086^{*}	-0.103^{***}	-0.159^{***}
national economy (present)		—	—	—	—	—
	good	0.115^{***}	0.142^{***}	0.112^{***}	0.131^{***}	0.087^{***}
	very good	0.126^{***}	0.170^{***}	0.046	0.280^{**}	0.152
	considerably worse	-0.215^{***}	-0.028	-0.250^{***}	-0.116	-0.258^{***}
	somewhat worse	-0.078^{***}	-0.050	-0.084^{***}	-0.077^{**}	-0.089^{***}
national economy (future)		—	—	—	—	—
	somewhat better	0.067^{***}	0.066^{**}	0.072^{**}	0.005	0.076^{**}
	considerably better	0.176^{***}	0.170^{***}	0.237^{**}	-0.249^{**}	—
	very bad	-0.160^{***}	-0.224^{***}	-0.146^{*}	-0.077	-0.113
	bad	-0.108^{***}	-0.096^{**}	-0.134^{***}	-0.149^{***}	-0.063
personal economy (present)		—	—	—	—	—
	good	0.085^{***}	0.107^{***}	0.091^{***}	0.042	0.104^{***}
	very good	0.107^{***}	0.082	0.162^{**}	0.139	0.093
	considerably worse	-0.128^{**}	-0.122	-0.085	-0.153	-0.159
	somewhat worse	-0.061^{***}	-0.035	0.021	-0.084^{**}	-0.105^{***}
personal economy (future)		—	—	—	—	—
	somewhat better	0.063^{***}	0.098^{***}	0.072^{**}	0.054	-0.003
	considerably better	0.061	0.053	-0.011	0.254^{**}	0.030
year 1991						
year 1992		-0.103^{***}				
year 1998		-0.130^{***}				
year 2008		-0.000				
male		-0.041^{***}	-0.027	-0.062^{***}	-0.028	-0.028
East dummy		-0.025^{*}	0.022	-0.019	0.023	-0.123^{***}
age		-0.003	-0.008	-0.002	-0.001	-0.013^{***}
age (squared)		0.000^{***}	0.000^{**}	0.000	0.000	0.000^{***}
education (low)						
education		0.007	0.009	0.130	-0.096	0.089
education		-0.024	-0.038	0.112	-0.087	0.059
education		-0.017	-0.073	0.189	-0.087	0.040
education (high)		-0.033	-0.081	0.065	-0.150^{**}	0.103
voted for govt		0.242^{***}	0.309^{***}	0.262^{***}	0.248^{***}	0.133^{***}
observations		8,310	1,928	2,152	1,959	2,269
McFadden's pseudo R^2		0.144	0.162	0.152	0.135	0.104
% predicted correctly		0.687	0.708	0.712	0.719	0.658

Results from logistic regression. Independent variable: POP. ***, **, * indicate statistical significance at the 1%, 5%, 10% level, robust standard errors. All coefficients represent the effect (in percentage points) of a shift from the neutral to the respective category with all subjective economic variables held at their neutral value and all other covariates held at their mean. In 2008, two observations were dropped due to perfect prediction with the highest positive category of the future national economy variable.

Table XI Vote function, single years

		1991	**1992**	**1998**	**2008**
avg predicted probability		0.212	0.150	0.140	0.613
national economy (present)	very bad	−0.048	−0.068	−0.088**	0.070
	bad	−0.016	−0.043	−0.060***	−0.039
		—	—	—	—
	good	0.061**	0.089***	0.036	0.053
	very good	0.044	0.085	0.128	−0.143
national economy (future)	considerably worse	−0.121	−0.079*	0.012	−0.268***
	somewhat worse	−0.052	0.001	0.007	−0.074**
		—	—	—	—
	somewhat better	0.011	0.054*	0.041	0.057
	considerably better	0.041	0.243*	0.150	
personal economy (present)	very bad	−0.112	0.016	0.138	−0.186*
	bad	−0.024	−0.021	−0.006	−0.046
		—	—	—	—
	good	0.107***	0.060**	0.084***	0.046
	very good	0.162**	0.082	0.079	−0.055
personal economy (future)	considerably worse	0.043	−0.090	−0.060	0.180
	somewhat worse	−0.059	0.001	−0.024	−0.033
		—	—	—	—
	somewhat better	0.037	−0.015	−0.023	−0.005
	considerably better	0.025	−0.059	−0.071	−0.212*
voted for govt		0.617***	0.577***	0.703***	0.737***
controls		yes	yes	yes	yes
observations		1,723	1,828	1,704	2,055
pseudo R^2		0.451	0.463	0.566	0.376
% predicted correctly		0.856	0.863	0.889	0.841

Results from logistic regression. Independent variable: $VOTE$. ***, **, * indicate statistical significance at the 1%, 5%, 10% level, robust standard errors. All coefficients represent the effect (in percentage points) of a shift from the neutral to the respective category with all subjective economic variables held at their neutral value and all other covariates held at their mean.

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