The Macroeconomy and Individuals' Support for Democracy

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The Macroeconomy and Individuals' Support for Democracy[*]

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Abstract

How important are national macroeconomic indicators for people's satisfaction with democracy? This paper empirically explores the link from macroeconomic variables to support for established democratic systems. We combine country-level data on growth, inflation, and unemployment from the OECD with survey data from the Eurobarometer for nine Western European countries for the period 1976-2001. We regress individual satisfaction with democracy on macroeconomic variables and individual controls. Our regressions include country-specific time trends as well as fixed effects for countries and survey-years. Pooling observations from nine countries, we find that growth (inflation and unemployment) is positively (negatively) correlated with satisfaction with democracy. The effect goes beyond what can be explained by individual characteristics and is non-negligible if interpreted in light of the recent economic crisis. Our findings are robust to alternative specifications using logit and ordered logit models.

Keywords: Satisfaction with democracy, Economic Growth, Political Economy

JEL: H11, O42, P16

1   Introduction

The economic crisis that has evolved in consequence of the American subprime crisis since 2007 brought political challenges and economic hardship to countries that had become used to economic prosperity. Mass demonstrations took place in many cities as people wanted to express their dissatisfaction with the situation and how it was dealt with. In the context of the European debt crisis in summer 2010 the president of the European Commission Mr. Barroso expressed his fear that "democracy might disappear" in the most heavily affected Southern European countries; it was argued that macroeconomic conditions could worsen to an extent that would be impossible to deal with for governments and would therefore make them susceptible to popular uprisings (Groves, 2010). In an extension of the 'responsibility hypothesis'[1] we indeed expect poor economic performance to weaken political backing by the population more generally. Survey data from the International Social Survey Program supports the notion that citizens see governments responsible for welfare, growth, employment and price stability (ISSP Research Group, 2008).

We use the crisis and concerns about democratic stability as an occasion to look at the old question of how political support depends on economic conditions from a new angle. It is very relevant to investigate this relationship again in the light of current developments. In Ireland, for instance, per capita income has dropped to the level of ten years ago and is expected to drop further (Bruton, 2010). Can we learn something from the past about how this might affect citizens' attitudes? Our research is in the tradition of research on political support (see Norris (1999a) for a comprehensive collection) but with democratic satisfaction we use an outcome variable that has been used less often.[2]

We explore the importance of macroeconomic conditions for citizens' political support in stable, established democracies. In our analysis we rely on satisfaction with 'the way democracy works' (SWD) as an indicator of political support.[3] We combine country-level data on growth, inflation, and unemployment from the OECD with survey data for nine Western European countries for the period 1976-2001 from the Eurobarometer and estimate how individuals' attitudes towards democracy react to macroeconomic variables.

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[1]'Voters hold the government responsible for economic events" (Lewis-Beck and Paldam, 2000).

[2]We follow the conceptualization of political support along five dimensions by Norris (1999b): political community, regime principles, regime performance, regime institutions, political actors. Government popularity would refer to the most specific dimension of 'political actors' wheras satisfaction with democracy is understood as an evaluation of 'system performance', a more diffuse but nonetheless relevant aspect of political support.

[3]According to Dalton (1999) this gives us an instrumental evaluation of the performance of democracy, which we argued above is one dimension of political support.

Previous work using the same indicator, SWD, describes effects of institutional quality (Wagner et al., 2009) and inflation and unemployment (Clarke et al., 1993) on the satisfaction with democracy. But as it is common in cross-country comparisons these studies use data aggregated at the national level. Among the studies on democratic satisfaction only two use individual level data: Halla et al. (2008) investigate the role of environmental policy for individuals' satisfaction with democracy, while Wells and Krieckhaus (2006) document an effect of corruption. Both of these papers have the drawback of using only few points in time, which essentially limits their inference to variation in the cross-section of countries. They do not take into account changes in national economic conditions over time.

Since satisfaction with democracy is just another indicator, our analysis is conceptually close to research on political support in general. One particularly broad strand of the literature analyzes government popularity. It finds that voters evaluate macroeconomic outcomes retrospectively and vote accordingly in subsequent elections.[4] Revolutionary action or political extremism are likely to indicate the absence of political support and are thus also of interest. Several papers look at economic determinants of extremist behaviors: Brückner and Grüner (2010) find a negative relationship between growth and right-wing extremist voting at the aggregate level. A drawback of their approach is that they cannot control for individual characteristics. Moving to the micro-level, Lubbers et al. (2002) show how support of extreme right-wing parties increases with unemployment. MacCulloch and Pezzini (2007) provide evidence that the preference for revolution increases when the economy performs poorly.

Earlier empirical work on the relationship between the economy and political support has two important shortcomings: None of the above studies tests for the influence of several macro-economic indicators at the same time and none uses a long time dimension combined with individual level data. Results come largely from cross-sectional variation or are based on aggregate data, which is the more problematic, the more heterogeneous countries are in the sample, or the more crucial individual characteristics are in determining democratic satisfaction.

In this paper we address these two shortcomings. We use a linear probability model to regress individuals' satisfaction with democracy on personal characteristics and national macroeconomic variables. In contrast to the existing literature, we use a sample of homogeneous countries and rely on over-time instead of cross-country variation. Our analysis pools observations from several countries together

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[4]This literature is very broad and we refer the interested reader to the survey on vote and popularity functions by Nannestad and Paldam (1994).

but exploits variation in country-specific economic conditions over time. The use of individual-level data with a long time dimension allows controlling for important factors at the individual level such as sex, income, education, and labor force status and at the same time using country-fixed effects to abstract from cultural differences in political attitudes. We restrict our analysis to a set of nine EU countries for the period from 1976 to 2001. By concentrating on established systems, we avoid bias from changing institutions. Data stems from the Eurobarometer for individual characteristics (GESIS, 2008) and from the OECD (2010) for macroeconomic indicators.

Our estimations indicate a significantly positive relation between growth rates and scores of satisfaction with democracy (SWD). This result is robust to the inclusion of individual controls, nation-specific time trends, and fixed effects for countries and survey years. Inflation and unemployment exhibit negative effects on SWD. This shows that results from previous studies, which did not systematically look at the relevance of economic conditions but focused on one or the other indicator, carry over to our more comprehensive approach. We go beyond previous research and show that omission of either of these variables affects the other coefficients. Furthermore, we find that macroeconomic conditions have an influence that goes beyond what is measured by personal economic characteristics like individual income. This insight is new compared to papers which restrict themselves to national aggregates.

The next section describes the dataset and in section 3 we present our empirical model and the specifications we estimate. In section 4 we present our results followed by some robustness checks in section 5 and discussion in section 6. Section 7 concludes.

2 Data

Our analysis combines survey data with national macroeconomic data for 24 years in 9 countries. Individual level data was obtained from the Eurobarometer and macroeconomic data from the OECD (2010). Descriptive statistics for all included national and individual variables are displayed in tables 4 and 5 in the appendix. The tables show that there is variation in our dependent variable 'SWD' as well as in the explanatory variables 'growth', 'inflation', and 'unemployment' within countries over time. Figure 1 illustrates that SWD varies over time and across countries. It also reveals that there are substantial differences in levels of SWD across countries

possibly due to cultural specificities. The following paragraphs introduce the data in more detail.[5]

The Eurobarometer data set is a repeated cross section of individuals in the European Union. It starts with 5 countries in 1970; other countries are added when they entered the European Union. In every round, about 1000 respondents per country complete the questionnaires. As indicator of support for democracy we used answers to the following question: 'On the whole, are you very satisfied, fairly satisfied, not very satisfied or not at all satisfied with the way democracy works in <country>?'.[6] We refer to this as 'satisfaction with democracy' or SWD.

The variable SWD was collected for the first time in 1973 and then every year from 1976 to 2001 except for the year 1996. We want to have the longest possible time series and therefore restrict our analysis to the 9 European countries that were included in the Eurobarometer for the entire period. These are France, Belgium, The Netherlands, Germany (since 1991 including East Germany), Italy, Luxembourg, Denmark, Ireland, and the United Kingdom. We dropped observations from 1995, where education was not recorded, such that our sample contains observations for 24 years.

Total GDP (constant prices), consumer price index and unemployment rates were obtained from the OECD reference series, while GDP per head is part of the Annual National Accounts. Unemployment rates are not available for 1976 for Spain and for the years 1976 to 1991 for Germany. We approximated unemployment rates for these country-year pairs by the ratio of total unemployment over population 15-64 years old from the OECD references series. We calculated growth as the relative annual change in GDP (constant prices) and inflation as the percentage change in the consumer price index.

3   Model Setup and Specification

In contrast to most of the related literature, we rely on micro-level data instead of country averages. In our understanding this is vital because democracy needs the consent of individuals–not only to be legitimate but also to ensure long run stability. The individual's attitude towards the system is a function of national as well as individual characteristics and we have to rely on micro-level data to gain insight into the drivers of *individuals'* democratic support.

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[5]Exact variable definitions can be found in table 6 in the appendix.

[6]<country> is replaced by the name of the country in which the respondent was interviewed.
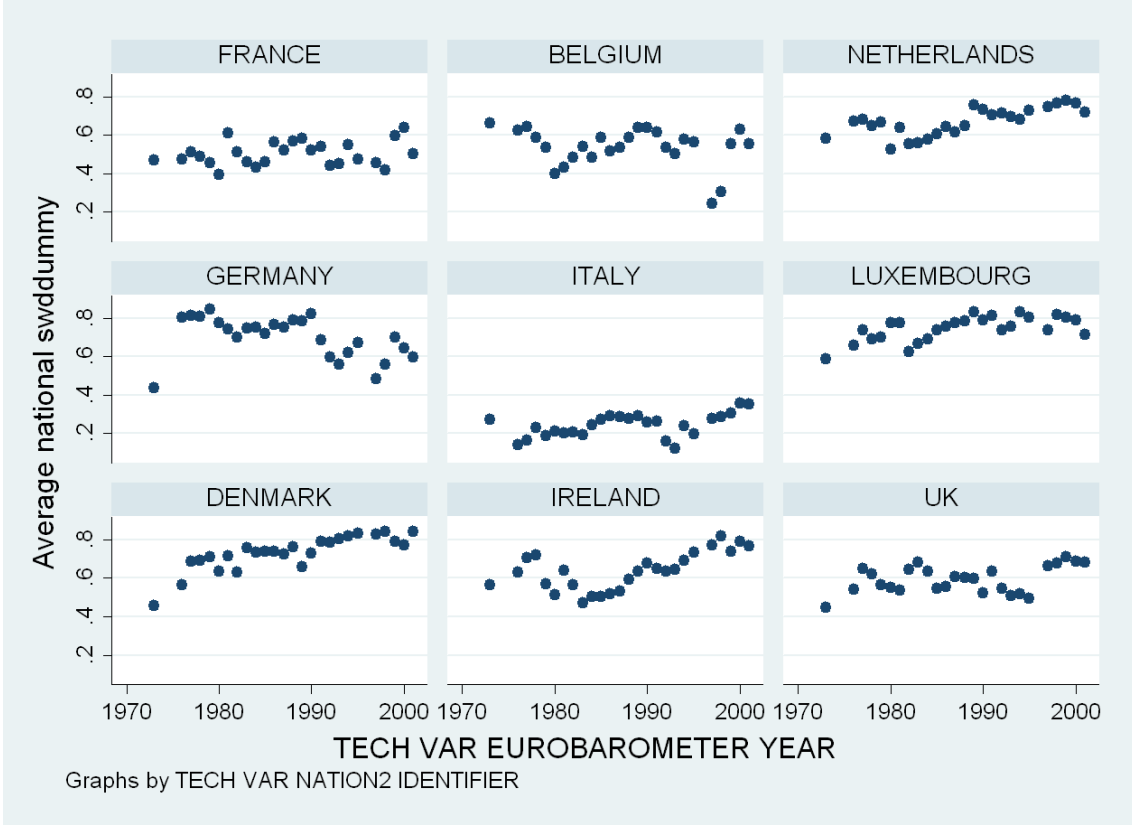
Figure 1: Percentage of individuals satisfied with democracy over time

We pooled observations from all countries together and implemented a linear probability model to estimate the following equation:

$$\text{SWD}_{it} \quad = \quad \beta_0 + \text{macro}_t\beta_1 + \text{individual}_{it}\beta_2 + u_{it} \tag{1}$$

The dependent variable 'SWD' is a dummy derived from the question how satisfied an individual is with the way democracy works in his or her country. It collapses answers 'very satisfied' and 'fairly satisfied' into 'satisfied' (SWD=1) and answers 'not very satisfied' and 'not at all satisfied' into 'not satisfied' (SWD=0).[7]

We estimate different specifications of equation (1). All have individual satisfaction with democracy as dependent variable on the left hand side but, on the right hand side, we varied the vectors 'macro' and 'individual'. We included inflation and

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[7]While much easier to interpret, this binary recode ignores information on the strength of individuals' democratic support and the linear model does not take into account the domain restriction on the dependent variable. We estimated a logit model to address the latter concern and find very similar results. For ease of computation and interpretation we report only results from the linear probability model as is suggested by Angrist and Pischke (2009). We also estimated an ordered logit model using the original 4-point scale of SWD, which confirms our results from the binary case. Marginal effects are strongest for the outcome 'fairly satisfied'. Results are available upon request.

unemployment at the national level because they have been proved influential in previous studies (for SWD e.g. in Wagner et al. (2009), for right-wing extremism Knigge (1998) and for general life satisfaction e.g. Di Tella and MacCulloch (2005)). As growth, inflation, and unemployment are correlated in our sample, including all three is crucial to obtain reliable results on the effects of either of the three. At the individual level we controlled for being unemployed and not being part of the labor force, for income, education, sex, age, marital status, and personal life satisfaction.

4   Results

We first discuss the impact of the macroeconomic variables and then the effects of individual level variables. If not indicated otherwise, all estimations are at the invidual level and include country-fixed effects as well as country-specific time trends. The latter control for trends in country-specific effects and are important because SWD is in most (but not all) countries upward trending.[8]

4.1   Macroeconomic Variables

We included different macroeconomic indicators successively in addition to individual characteristics to shed light on the importance of each of them and the relationship between them.[9] We find that per capita income has a significant effect but the effect is partly mediated by other macroeconomic indicators (table 1). When we included growth or inflation in addition to GDP, the coefficient is reduced by almost half (columns 2 and 3) and becomes insignificant when we also controlled for national unemployment levels (columns 4 and 5). An increase in per capita income of US$1000 is associated with an increase in the probability of being satisfied with democracy of about 0.7 percentage points in the specifications of columns 2 and 3. For standard deviations in per capita GDP of US$2000 to US$10000 , this amounts to variations in satisfaction with democracy in the range of 1 to 7 percentage points. Since in the last columns GDP is insignificant we conclude that omitting unemployment levels from the regression introduces a substantial upward bias to the coefficient of GDP (columns 2 and 3).

Economic growth is always statistically significant. Without other macroeconomic controls except for per capita income one percentage point higher growth comes on average with a 1 percentage points higher probability of satisfaction (col-

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[8]Results without trends are available from the authors.

[9]We used GDP per head as starting point because previous studies on happiness show that per capita income is highly correlated with individual satisfaction, see e.g. Di Tella et al. (2003).

Table 1: Impact of Macroeconomic and Individual Level Variables on SWD (Individual Data)

dependent: SWD	(1)	(2)	(3)	(4)	(5)
macroeconomic variables					
GDP per head	0.0115**	0.0066*	0.0067*	-0.0086	-0.0084
	(0.005)	(0.004)	(0.003)	(0.007)	(0.006)
growth		0.0115***	0.0115***	0.0090***	0.0088***
		(0.002)	(0.002)	(0.003)	(0.002)
inflation			-0.0001	-0.0053	-0.0082**
			(0.003)	(0.004)	(0.003)
uerate				-0.0166***	-0.0151***
				(0.004)	(0.003)
individual characteristics					
unemployed	-0.1033***	-0.1033***	-0.1033***	-0.1021***	-0.0438***
	(0.014)	(0.013)	(0.013)	(0.013)	(0.008)
outoflf	0.0032	0.0031	0.0031	0.0032	0.0014
	(0.008)	(0.008)	(0.008)	(0.008)	(0.005)
married2	0.0112*	0.0111*	0.0111*	0.0113*	-0.0098*
	(0.005)	(0.005)	(0.005)	(0.005)	(0.005)
educ	0.0042*	0.0042*	0.0042*	0.0042	0.0017
	(0.002)	(0.002)	(0.002)	(0.002)	(0.002)
male	-0.0006	-0.0007	-0.0007	-0.0006	0.0037
	(0.004)	(0.004)	(0.004)	(0.004)	(0.003)
age	-0.0051***	-0.0051***	-0.0051***	-0.0052***	-0.0027**
	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)
age^2	0.0001***	0.0001***	0.0001***	0.0001***	0.0000***
	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)
rich	0.0372***	0.0367***	0.0367***	0.0375***	0.0229***
	(0.007)	(0.007)	(0.007)	(0.007)	(0.005)
poor	-0.0340***	-0.0342***	-0.0342***	-0.0341***	-0.0135**
	(0.006)	(0.006)	(0.006)	(0.006)	(0.006)
satislfe1					-0.4086***
					(0.037)
satislfe2					-0.3382***
					(0.025)
satislfe3					-0.0809***
					(0.006)
_cons	0.3619***	0.3936***	0.3938***	0.7768***	0.9225***
	(0.091)	(0.068)	(0.068)	(0.143)	(0.131)
N	383634	383634	383634	383634	338783
R^2	0.118	0.119	0.119	0.12	0.166

* $p<0.10$, ** $p<0.05$, *** $p<0.01$
All estimations include dummies for survey years, nations and control for country-specific time trends.
Standard errors are corrected for clustering at nation level.
Dependent variable is a dummy.

umn 2). When all three macroeconomic variables are included, growth obtains a smaller coefficient than before (column 4). This is intuitive as unemployment and inflation are both negatively correlated with growth in our dataset such that the coefficient on growth is upward biased if we omit those. Still, the significance indicates that growth had an influence in addition to what was captured by inflation and unemployment. One hypothesis to rationalize this finding is that growth proxies for expectations of income, inflation and employment in the future.[10] When we interpret the coefficients with respect to variation in the explanatory variable, we find that a standard deviation increase above the mean in growth rates implies an increase in SWD of about 2 percentage points.

An unemployment rate of one standard deviation above the mean comes with a decrease of 5 percentage points in this probability. Inflation only exhibits a significantly negative relationship with SWD when individual life satisfaction is controlled for (column 5).

4.2   Individual Characteristics

We focus the discussion on columns 4 and 5 and describe first results for the specification without life satisfaction and then show how results change if we control for it. We begin with individual unemployment: People being unemployed showed a 10 percentage points lower probability of being satisfied with democracy when life satisfaction is not included. From column 4 it is evident that individuals' view on the democratic system was affected by macroeconomic and individual conditions at the same time. That is, national unemployment was an important factor beyond *direct* individual concernment.[11] In contrast, those who were out of the labor force did not evaluate democracy significantly differently than those who were employed.

Income exhibited a significantly positive effect on SWD. Those individuals who belonged to the three lowest income deciles, the "poor", were less satisfied with democracy (about 3.4 percentage points) than those who belonged to the fourth, fifth, sixth or seventh decile. "Rich" individuals, that is persons belonging to the three upper income deciles, were more satisfied with democracy (3.8 percentage points). Again Individuals with more years of education were more likely to express satisfaction with democracy but the effect was only weakly significant. Respondents who were married or stated to be "living as married" were on average more satisfied

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[10]We address this hypothesis in section 5.1 in the context of the possible endogeneity of growth rates.

[11]It does not necessarily follow that the unemployment rate reflects collective concerns of ididividuals. It may well be the case that the national unemployment rate affects beliefs and/or expectations, for instance with respect to future job security, social transfers, or tax rates.

with democracy by 1.2 percentage points. Yet, the effect is only weakly significant. The influence of age is negatively humpshaped. Older people were less satisfied with democracy but the relationship reverses at some point in life. The effect of sex on SWD was not significant.

In column 5 we added life satisfaction as another personal control variable. In contrast to the other controls, it is not an objective measure but an attitudinal statement: People were asked how satisfied they are with their lives.[12] Life satisfaction is an important factor in explaining SWD. Being not at all satisfied with one's life, translated into a probability of not being satisfied with democracy that is 40 percentage points higher than for a person that was very satisfied with his life. This indicates a close link between the perceived personal situation and the view on the democratic system. Life satisfaction is also correlated to most of the other individual characteristics: The coefficients of unemployment, education, age as well as the income dummies, rich and poor, are smaller and the coefficient of married changed sign when we controlled for life satisfaction (compare columns 4 and 5). This is not suprising as socio-economic variables are known to influence life satisfaction (for an overview see (Frey and Stutzer, 2002)).

These results imply that the effects of variables like unemployment, marital status, and potentially income were overestimated when life satisfaction was not included. The change in coefficients of macroeconomic variables was less drastic; growth and unemployment remained significant and stayed similar in size. However, inflation became insignificant.[13]

To summarize our results, we find that growth, unemployment, and inflation are all significant at the same time and also exhibit the expected signs. Furthermore, personal economic variables are significant and also show the expected signs. The results indicate that national economic performance is important beyond direct individual concernment. In addition to their current personal situations people also take national performance into account when evaluating the political system.[14] Moreover, personal life satisfaction has by far the strongest effect on SWD.

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[12]Analogously to satisfaction with democracy there are four answer categories: 1=not at all satisfied, 2=not very satisfied, 3=fairly satisfied, 4=very satisfied. We constructed dummies, where 'satislfe1' represents category 1, 'satislife2' category 2 etc. The omitted category is 4, people indicating to be very satisfied with their life.

[13]Previous studies indicate that macroeconomic variables affect individual life satisfaction and happiness (see Deaton (2008) or Di Tella et al. (2001)). So, as for individual variables changes of coefficients from column 4 to 5 could be due to the omission of life satisfaction.

[14]As already noted in footnote 11 the significance of macroeconomic variable does not necessarily imply a collective motive. Macroeceonomic variables may be solely important because they affect beliefs and expectations about individual well-being.

5 Robustness

In this section we address two important issues to demonstrate the robustness of our findings. First, we investigate the importance of lagged macro variables for our results and possible reverse causality issues. Secondly, we present results from estimations at the aggregate level. This facilitates the comparison of our results with findings from previous studies which often relied on aggregate data.

5.1 Lagged Growth Rates and Endogeneity

Growth rates from previous periods may be influential in addition to contemporaneous rates because real effects need time to materialize. Thus, we tested whether lagged growth rates have an impact on SWD. We also included future growth rates to address a potential endogeneity problem. The significance of growth rates is robust to both exercises.

First, column 1 in table 2 shows that the coefficients of macroeconomic variables remain similar when we control for lagged growth rates (see column 5 in table 1). The coefficient of growth hardly changes (0.85 instead of 0.88), the coefficient of unemployment decreases, and the coefficient of inflation increases in size. This is intuitive as the development of unemployment rates as well as inflation is at least partly determined by economic development and thus lagging behind.[15] As lagged growth rates did not gain significance, we did not include them in any other regression.

Secondly, one obvious objection to our model is that not growth has an incluence on SWD but instead higher satisfaction levels lead to better economic performance. To address this issue we show that growth remains significant when we include future growth (column 2). Future growth obtains a highly significant coefficient which is even larger in size than the coefficient of contemporaneous growth. While this might be due to reverse causality it could also be caused by serial correlation of growth rates. A third explanation is that future growth proxies for growth expectations which have a positive effect on satisfaction scores. These expectations may be influenced by growth forecasts and media reports. Since our data does not allow to control for expectations we cannot distinguish these hypotheses.

Importantly, the coefficient on future growth rates absorbs correlation between SWD today and growth tomorrow. Thus, the coefficient of growth reflects only contemporaneous correlation between SWD and growth. This is more likely to be

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[15]If we omit lagged growth and it has a positive influence on employment today and a positive influence on satisfaction, then the coefficient on unemployment is downward biased because unemployment has a negative effect on satisfaction. The argument for inflation is analogous.

an effect from growth on SWD than the reverse. Since growth still obtains a highly significant coefficient we feel assured that our results are not a pure artefact of endogenous growth rates.[16]

5.2 Aggregate Level Regressions

Analyses at the country level cannot inform about how individual satisfaction scores are formed but have to collapse either the ordered data to an average or a binary recode to a percentage measure of support. Changes in these national averages can come by various channels and are less likely to be informative than an analysis with data at the individual level. However, as a robustness exercise we neglected the individual dimension of our data set and checked whether there is a relationship between satisfaction with democracy and macroeconomic conditions at the aggregate country level. These results can then be compared with previous studies on SWD that used country averages over time as observations (e.g. Wagner et al., 2009). We used the year-wise country averages of the SWD dummy as dependent variable, which represents the percentage of people who are satisfied with democracy in a given year in a country (see table 3).[17]

The results are consistent with studies by other authors and our own findings. If we look at columns (1) to (3), growth is significantly positive. A one percentage point increase in growth is associated with an increase in the share of the population stating that they are satisfied with democracy of about 0.8 percentage points. In the full specification (column 4), however, growth is only weakly significant. Most likely the upward differential in the coefficient of growth (columns 3 to 4) comes from higher growth capturing also the impact of reduced unemployment on democratic satisfaction.[18] An increase in national unemployment of 1 percentage point decreased satisfaction with democracy by 1.6 percentage points on average. Comparing aggregate estimations (column 4, table 3) with our individual-level approach (column 5, table1), it becomes evident that coefficients have the same sign but partly differ with respect to size and also significance. Only the coeffcent of unemployment does not change. We conclude that analyzing the relationship between the macroeconomy and SWD at the individual level gives additional insights as compared to aggregate studies.

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[16]We are working on an extension of the dataset to cover the years until 2008, covering the beginning of the economic crises. This would give us exogenous changes in growth rates.

[17]When we use average satisfaction scores instead of the average over SWD-dummies as dependent variable, growth is again significant. Results are available upon request.

[18]If unemployment rates change mainly because of changes in economic growth, then it is even informative to look at regressions with growth only.

Table 2: Lagged Growth and Endogeneity

dependent: SWD	(1)	(2)
macroeconomic variables		
GDP per head	-0.0093	-0.0052
	(0.006)	(0.006)
growth	0.0085***	0.0068**
	(0.002)	(0.002)
inflation	-0.0080**	-0.0076*
	(0.004)	(0.004)
uerate	-0.0138**	-0.0143***
	(0.005)	(0.003)
growthlag	0.0034	
	(0.004)	
growthfut1		0.0079***
		(0.002)
individual characteristics		
unemployed	-0.0438***	-0.0441***
	(0.008)	(0.008)
outoflf	0.0013	0.0013
	(0.005)	(0.005)
married2	-0.0098*	-0.0098*
	(0.005)	(0.005)
educ	0.0017	0.0017
	(0.002)	(0.002)
male	0.0036	0.0037
	(0.003)	(0.003)
age	-0.0027**	-0.0028**
	(0.001)	(0.001)
age^2	0.0000***	0.0000***
	(0.000)	(0.000)
rich	0.0228***	0.0225***
	(0.005)	(0.005)
poor	-0.0135**	-0.0136**
	(0.006)	(0.006)
satislfe1	-0.4083***	-0.4083***
	(0.037)	(0.037)
satislfe2	-0.3380***	-0.3378***
	(0.025)	(0.025)
satislfe3	-0.0808***	-0.0806***
	(0.006)	(0.006)
_cons	0.9384***	0.8456***
	(0.128)	(0.134)
N	338783	338783
R^2	0.1661	0.1664

* $p<0.10$, ** $p<0.05$, *** $p<0.01$
All estimations include dummies for survey years, nations, and control for country-specific time trends.
Standard errors are corrected for clustering at nation level.
Dependent variable is a dummy.

Table 3: Impact of Macroeconomic Variables on percentage SWD (Country Panel)

dependent: SWD	(1)	(2)	(3)	(4)
growth	0.0083***	0.0084***	0.0079***	0.0048*
	(0.003)	(0.003)	(0.003)	(0.003)
GDP per head		0.0041	0.0050	-0.0019
		(0.004)	(0.005)	(0.005)
inflation			-0.0020	-0.0070**
			(0.003)	(0.003)
uerate				-0.0155***
				(0.003)
constant	0.4395***	0.3592***	0.3672***	0.5741***
	(0.040)	(0.084)	(0.085)	(0.092)
N	269	260	260	260
R^2	0.8796	0.8795	0.8797	0.8914

* p<0.10, ** p<0.05, *** p<0.01
All estimations include dummies for nations and survey years and country-specific time trends.
Dependent variable is the average of the SWD-dummy in a given country.

6 Discussion

We begin with a discussion of the economic relevance of our results. Furthermore, we provide a critical review of satisfaction with democracy as an indicator of system support.

6.1 Relevance of Results and Implications

The coefficients and marginal effects we estimated are based on annual data. Thus, what we report are effects of economic conditions on SWD per year. In the light of the Financial Crisis our results suggest that on average, satisfaction with democracy should have decreased by non-negligible numbers. For example, the real growth rates for 2009 were -7.6 for Ireland, -5 % for Italy, and still -4.2 % for the European Union on average (European Union, 2010) implying a decrease in SWD of about 3.7 to 6.7 percentage points when we use the coefficent from column 5 in table 1. This would imply a decrease by up to one fourth of average satisfaction in Italy and a decrease by almost ten percent for Ireland. However, the economic downturn stretches over more than one period. We cannot say how SWD would change if macroeconomic conditions are poor over longer horizons. It is possible that people adapt to worsening economic conditions such that their satisfaction is on average affected less than if there is only a short downturn. It is, however, also imaginable that individuals become increasingly dissatisfied if the macroeconomy fails to recover for several years.

Moreover, different macroeconomic indicators and their effects can be interdependent and it is as yet not understood in which way. We have shown that per capita income, growth, inflation, and unemployment are all significant if we include current period measures. It might still be that further lagged or future values show different correlation patterns, a question which goes beyond our micro level approach and is rather an issue for macroeconometric research.

Our analysis documents the impact of objective individual variables like unemployment and income but also the strong influence of perceived personal life satisfaction on SWD. At the same time, our results point out that macroeconomic variables are simultaneously important. We are not able to distinguish whether this is because people evaluate the economic development from a collective national perspective or whether the influence of national variables merely reflects individual concernment via expectations and/or beliefs.

Abstracting from the problem of disentangling the channels, a tentative implication of our results for economic policies can be drawn. Economic policy that results in good economic performance will increase peoples' political support directly via national economic performance and indirectly when it materializes at the individual level. However, the most important factor in explaining SWD, life satisfaction, cannot be easily addressed by economic policy in an obvious way.

6.2   SWD and Alternative Dependent Variables

Our main contribution in this paper is to extend existing research on SWD by combining micro and macro level approaches. As outlined in the introduction SWD is one established measure of political support which is widely used and available for a long time series. However, it is not an indisputable indicator. In the following we will provide a critical review of SWD.

To begin with, we are aware that for most countries in our sample the political and the economic system are mingled and do expect people to evaluate both jointly. This is unproblematic for our analysis because it is the attitude to the existing system that we are interested in. As Linde and Ekman (2003) point out, SWD may be problematic for another reason: People may attach different dimensions to 'the way democracy works' and answers will then measure the contentment with the democratic idea for some respondents or satisfaction with incumbent government performance for others while even disagreement with capitalism for others.[19] There-

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[19]It is not clear, empirically, how valid this critique is. Looking at the relationship between economic crisis and support for markets and democracy in Latin America Graham and Suktahnkar (2004) find that in their evaluation of democracy respondents do distinguish between democracy as a system of government and the manner in which particular governments are performing.

fore, our results should not be interpreted too specifically as results on satisfaction with democracy but more as findings about political support more broadly defined.

Peoples' vote intention for right wing parties could be another measure of political support since it represents support for antidemocratic groups (as done in Knigge (1998)). Alternatively, one could also use individuals' preferences for revolution to overturn their societies as a measure of the absence of political support (MacCulloch and Pezzini, 2007). The taste for revolution, however, is less appropriate with respect to the sample of established democracies we consider.

The use of subjective questions as dependent variables has been criticized by Bertrand and Mullainathan (2001) and, thus, it might appear optimal to use behavioral indicators of democratic support instead of SWD or vote intention. Yet, a behavioral outcome that is a universal, cross-country valid indicator for (anti-) democratic attitudes is hard to define. One obvious starting point is actual voting behavior and political participation. Given that elections take place normally every four to five years this would reduce our sample size substantially. Additionally, for which party you cast your vote or whether you vote at all also depends on the 'supply' of parties, i.e. on the availability and programmes of parties in your country, and strategic considerations. It would be interesting to extend our analysis to other indicators of political support but this is beyond the scope of this paper and left for future research.

7 Conclusion

This paper explored how people's support for democracy depends on national economic performance. We took this question to the individual level and combined individual-level survey data on SWD (Eurobarometer) with macroeconomic data from the OECD. Our sample covers France, Belgium, the Netherlands, Germany, Italy, Luxembourg, Denmark, Ireland, and the United Kingdom from 1976 to 2001.

Our results indicate that growth, inflation, and unemployment matter indeed. Annual GDP growth rates below average were associated with an increase in the percentage of respondents stating that they were not satisfied with the way democracy works. Inflation and unemployment had the opposite effect: Higher values were associated with a decrease in satisfaction levels. For drops in growth rates as experienced by European countries during the recent crisis, our estimates predict that satisfaction scores could decrease substantially.

While in line with previous work, our analysis uncovered important new aspects. First, we included growth, inflation, and unemployment simultaneously and together

with individual level controls. All three macroeconomic indicators were found significant at the same time. This implies that omission of either of those is likely to bias results because neither is a catch-all measure for economic performance. Furthermore, we showed that individuals did not only react to prices and employment indicators but also to growth. Secondly, we showed that the impact of the macroeconomy went beyond what could be explained by personal affection as captured through income, employment status, or life satisfaction. With respect to future research, this last point raises the important question, why macroeconomic variables are influential, how they affect individuals' beliefs, and whether they evaluate the system from a collective perspective independent of their own situation.

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APPENDIX

A   Data Definitions and Descriptives

Table 4: Summary Statistics for the Macro Variables

MACRO	FR	BE	NE	GE[a]	IT	LU	DE	IR	UK	all
GDP per head[b]	20.48	21.63	22.28	20.59	20.38	34.37	22.62	15.81	20.53[c]	22.05
	(2.70)	(3.30)	(3.68)	(3.29)	(3.29)	(10.42)	(3.49)	(6.05)	(3.30)	(6.51)
growth (%)	2.49	2.31	2.66	2.49	2.52	4.66	2.32	4.96	2.43	2.90
	(1.34)	(1.64)	(1.53)	(1.58)	(1.73)	(3.06)	(1.93)	(3.26)	(1.91)	(2.23)
inflation (%)	5.46	4.04	3.30	2.90	8.76	4.02	5.46	7.30	6.46	5.31
	(4.32)	(2.60)	(2.26)	(1.74)	(6.04)	(2.88)	(3.66)	(6.14)	(5.15)	(4.51)
uerate (%)	7.89	8.12	6.13	5.06	8.60	1.68	6.14	12.00	8.20	7.21
	(2.04)	(1.78)	(2.40)	(2.27)	(2.14)	(0.85)	(1.59)	(4.33)	(2.36)	(3.41)
#observations	24	24	24	24	24	24	24	24	24	249

Standard deviations in brackets below estimates.
Calculations use only the years used for the regressions, i.e. 1976-1994, 1997-2001.
Sources: OECD, for details see table 6.

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[a]Since 1991 East-Germany is included. Before data refers only to West-Germany.
[b]GDP per head in US$1000, constant prices, constant PPPs, reference year 2000.
[c]In UK GDP per head available only for 22 years.

Table 5: Summary Statistics for the Individual Variables

IND	FR	BE	NE	GE	IT	LU	DE	IR	UK	all
satisdmo	2.40	2.45	2.71	2.61	1.96	2.89	2.87	2.62	2.49	2.53
	(.80)	(.83)	(.72)	(.75)	(.78)	(.74)	(.77)	(.86)	(.85)	(.83)
swddummy	.51	.54	.67	.61	.24	.75	.74	.63	.55	.57
	(.50)	(.50)	(.47)	(.49)	(.43)	(.43)	(.44)	(.48)	(.50)	(.49)
unempl	.06	.07	.04	.07	.05	.12	.05	.07	.06	.6
	(.24)	(.25)	(.21)	(.26)	(.22)	(.11)	(.23)	(.26)	(.25)	(.24)
outoflf	.41	.44	.51	.40	.49	.48	.37	.46	.42	.44
	(.49)	(.50)	(.50)	(.49)	(.50)	(.50)	(.48)	(.50)	(.49)	(.50)
married2	.66	.65	.69	.61	.59	.65	.67	.58	.65	.64
	(.47)	(.48)	(.46)	(.49)	(.49)	(.48)	(.47)	(.49)	(.48)	(.48)
educ[a]	4.82	4.89	5.14	4.29	4.04	5.01	5.29	4.14	3.57	4.50
	(3.09)	(3.02)	(3.14)	(2.94)	(3.45)	(2.99)	(3.40)	(2.73)	(2.64)	(3.10)
male	.50	.51	.48	.48	.49	.52	.50	.50	.49	.49
	(.50)	(.50)	(.50)	(.50)	(.50)	(.50)	(.50)	(.50)	(.50)	(.50)
age	42.02	43.53	42.35	44.58	42.62	42.74	44.19	44.43	43.71	43.13
	(17.54)	(17.90)	(16.96)	(17.40)	(17.61)	(17.00)	(17.87)	(17.82)	(18.26)	(17.68)
left	.64	.45	.54	.55	.70	.50	.43	.34	.43	.51
	(.48)	(.45)	(.50)	(.50)	(.46)	(.50)	(.50)	(.47)	(.50)	(.50)
right	.36	.55	.46	.45	.30	.50	.57	.66	.57	.49
	(.48)	(.50)	(.50)	(.50)	(.46)	(.50)	(.50)	(.47)	(.50)	(.50)
poor	.28	.25	.29	.29	.30	.25	.30	.20	.23	.27
	(.45)	(.43)	(.46)	(.45)	(.46)	(.43)	(.46)	(.40)	(.42)	(.44)
middle	.35	.27	.35	.34	.28	.30	.35	.24	.30	.31
	(.48)	(.44)	(.48)	(.47)	(.45)	(.46)	(.48)	(.43)	(.46)	(.46)
rich	.19	.19	.22	.22	.20	.17	.21	.14	.17	.19
	(.39)	(.39)	(.41)	(.41)	(.40)	(.38)	(.41)	(.35)	(.38)	(.39)
satislife1	.06	0.03	0.01	0.03	.07	.01	.01	.04	.03	.04
	(.25)	(.18)	(.10)	(.17)	(.26)	(.12)	(.08)	(.21)	(.18)	(.18)
satislife2	.18	.11	.05	.16	.21	.06	.03	.10	.10	.12
	(.38)	(.32)	(.22)	(.37)	(.41)	(.23)	(.18)	(.29)	(.29)	(.32)
satislife3	.62	.58	.49	.64	.59	.53	.37	.51	.55	.55
	(.49)	(.49)	(.50)	(.48)	(.49)	(.50)	(.48)	(.50)	(.50)	(.50)
satislife4	.14	.28	.44	.18	.13	.40	.59	.35	.32	.30
	(.34)	(.45)	(.50)	(.38)	(.33)	(.49)	(.49)	(.48)	(.47)	(.46)
#obs.[b]	41668	41095	43369	58929	44978	16475	42933	40807	55082	385336

Calculations use only observations from the years used in the regressions, i.e. 1976-1994, 1997-2001, and observations where all variables used in the regressions are not missing.
Standard deviations in brackets below estimates.
Source: Eurobarometer.

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[a]This approximates additional years of education above a country-specific threshold.

[b]#observations varies slightly for some variables. For satislife1-4 #observations decreases by approximately 10 %.

Table 6: Definitions of Variables Used

variable name	series name / explanation	source
GDP per head	1. Gross domestic product: GDP per head, US$, constant prices, constant PPPs, reference year 2000; rescaled by factor 1/1000	OECD Annual National Accounts
CPI[a]	Consumer Price Index, Monthly, (base 2005 = 100)	OECD Reference Series
CPI[b]	Consumer Price Index, Monthly, (base 2007 = 100)	OECD Economic Outlook
unrate	Harmonised Unemployment Rates, Monthly	OECD Reference Series
growth	$growth_t = \frac{GDP_t - GDP_{t-1}}{GDP_{t-1}}$	own calculation
inflation	$inflation_t = \frac{CPI_t - CPI_{t-1}}{CPI_{t-1}}$	own calculation
SWD	satisfaction with the way democracy works, 1=not at all satisfied, 2=not very satisfied, 3=fairly satisfied, 4=very satisfied	Eurobarometer
unempl	dummy for those being unemployed at the time of the survey	Eurobarometer
outoflf	dummy for those not in the labor force, subsuming housewives, students, military, and retired	Eurobarometer
married2	dummy for being 'married' or 'living as married'	Eurobarometer
educ[c]	age when respondent finished full-time education	Eurobarometer
sex	sex=1 if male, sex=2 if female	Eurobarometer
male	dummy for males	own calculation
age	age of the respondent in years	Eurobarometer
income	Income is coded in categories which vary over time and from country to country. We use this variable to defer the relative positions of individuals in the income distribution.	Eurobarometer
poor	dummy for income in the lowest three income deciles	own calculation
middle	dummy for income in the four middle income deciles	own calculation
rich	dummy for income in the three highest income deciles	own calculation
satislife	satisfaction with life, 1=not at all satisfied, 2=not very satisfied, 3=fairly satisfied, 4=very satisfied	Eurobarometer

[a]All countries except Ireland

[b]Ireland

[c]Education is coded such that the value of *educ* approximates the number of years of education above a certain threshold level. *educ* = 1 means that the individual quit full-time education at an age of up to 14 years, while *educ* = 9 means the individual was 22. Inbetween the variable is linearly increasing and in addition there is an outcome for those still studying (*educ* = 10). This implies a country-specific threshold, equivalent to education in years usually attained at the age of 14. We aknowledge that the way we use this variable is subject to measurement error.