ISSN 2042-2695

CENTRE *for* ECONOMIC PERFORMANCE

CEP Discussion Paper No 1343

April 2015

Is Happiness a Predictor of Election Results?

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Abstract
Is it in politicians' interest to focus policy on subjective well-being (SWB)? Many governments and international organisations have recently begun to measure progress at least partly in terms of the population's SWB or "happiness". This paper investigates the extent to which citizens themselves judge national success in such terms. Using cross-country panel data, the analysis shows that the electoral fate of governing parties is associated not only with the state of the macroeconomy—as a substantial literature on 'economic voting' suggests—but also with the electorate's wider well-being. A country's aggregate level of SWB is able to account for more of the variance in government vote share than standard macroeconomic variables. This is consistent with a simple political agency model, and has implications for the incentives faced by politicians to act in the interests of voters.

Keywords: Subjective well-being, political agency, elections
JEL codes: I31; D72

This paper was produced as part of the Centre's Wellbeing Programme. The Centre for Economic Performance is financed by the Economic and Social Research Council.

I thank Tim Besley, Andrew Clark, Angus Deaton, Jan-Emmanuel de Neve, Richard Layard, Gus O'Donnell, Nick Powdthavee, Daniel Sturm, and various seminar audiences for very helpful advice, comments and suggestions. I gratefully acknowledge financial support from the US National Institute on Aging (Grant R01AG040640) and the Economic & Social Research Council.

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Published by
Centre for Economic Performance
London School of Economics and Political Science
Houghton Street
London WC2A 2AE

1 Introduction

Although GDP has long been the main indicator of national progress, there is a growing interest among researchers and policymakers in finding measures that better reflect a population's well-being (Fleurbaey, 2009). One option is to ask people directly how happy or satisfied they are with their lives (Krueger and Stone, 2014). Following the recommendations of the Stiglitz Commission on the Measurement of Social and Economic Progress (2010) as well as reports by the EU (2009), OECD (2013) and US National Research Council (2014), many countries and international organisations are beginning to collect self-reported well-being—or "happiness"—data in order to measure societal progress and guide policymaking (O'Donnell et al., 2014).[1] However, it is not yet clear whether citizens themselves evaluate progress and performance in these same terms, or whether it is in politicians' electoral interest to focus policy on subjective well-being (SWB).

This paper employs SWB data together with general election results from a long-run panel of European countries, and finds that voters hold incumbent governments to account for the happiness of society. This has implications for the electoral incentives faced by politicians to enact policy focused on improving the quality of people's lives. A growing literature on political economy shows that voters look to past government performance in order to update their beliefs about incumbents and make forward-looking vote choices (Besley, 2006).[2] By holding governments accountable at the ballot box, this "retrospective voting" behaviour enables voters to constrain the opportunistic behaviour of politicians (Barro, 1973; Ferejohn, 1986) and selectively retain high quality incumbents (Fearon, 1999). Electoral accountability means that, provided the benefits of re-election are sufficiently large, the threat of being voted out of office induces politicians to formulate policy in the interests of voters.

In line with the general focus on GDP as the principal measure of government performance, the vast majority of empirical work on political accountability has examined links between the state of the economy and the electoral fate of governing parties. A voluminous research literature has established that the electorate holds incumbent governments accountable for macroeconomic outcomes.[3] One of the most-replicated and

[1]For example, the UK Office for National Statistics has added subjective well-being questions to a number of its labour force and household surveys, and has committed to developing broad measures of national well-being to supplement its existing indicators of national success like GDP (ONS, 2011). In the USA, the Bureau of Labor Statistics has also recently begun to include questions on respondents' emotional state to its American Time Use Survey (ATUS).

[2]This retrospective voting behaviour is central to a number of models that seek to illustrate, *inter alia*, the source of political business cycles (Rogoff, 1990; Rogoff and Sibert, 1988), the welfare implications of political competition (Besley, Persson and Sturm, 2010) and the separation of powers (Persson, Roland and Tabellini, 1997), the way in which politicians set tax levels (Besley and Case, 1995*a*,*b*) and engage in inefficient redistributive transfers (Coate and Morris, 1995), and the influence of political institutions on levels of corruption (Ferraz and Finan, 2008, 2011).

[3]For reviews of the 'economic voting' literature, see, e.g., Lewis-Beck and Stegmaier (2000) and

well-known (particularly by politicians themselves) findings in economics is that voters reward officeholders at the ballot box during periods of economic prosperity and punish them during downturns (e.g. Duch and Stevenson, 2008; Fair, 1978; Fiorina, 1981; Key, 1966; Kramer, 1971; Lewis-Beck, 1988; Pissarides, 1980). Evidence of 'economic voting' suggests it is in the interests of politicians to ensure a buoyant economy; however, the focus on macroeconomic outcomes leaves open the possibility that lawmakers may be left unrestrained in a wide range of other policymaking areas that matter to the quality of people's lives.

Since the early 1970s, the European Commission has been surveying the citizens of each of its member states twice a year on a number of issues including their well-being. Since the question's first inclusion in the *Eurobarometer* in 1973, a random sample of well over one million respondents has now been asked the following: *"On the whole, are you i) very satisfied, ii) fairly satisfied, iii) not very satisfied, or iv) not at all satisfied with the life you lead?"* The responses to this type of self-reported well-being question have become the focus of a burgeoning economic literature. Oswald and Wu (2010) demonstrate a strong correlation between subjective measures of the well-being of different places and objective measures of the quality of life derived using compensating differentials. SWB is also sensitive to the main macroeconomic indicators over the business cycle (Di Tella, MacCulloch and Oswald, 2003; Stevenson and Wolfers, 2008) as well to a number of non-material but nevertheless policy-relevant factors such as noise and air pollution, health, education, community cohesion, corruption, the effectiveness of government services, and crime rates (Clark, Layard and Senik, 2012; Dolan, Peasgood and White, 2008; Helliwell et al., 2014).

By replacing macroeconomic measures of national progress with a broader measure of SWB in an otherwise standard cross-national economic voting analysis, this paper shows that a country's level of life satisfaction is a robust predictor of election results. The magnitude of the relationship, which is robust to controlling for the state of the macroeconomy, is substantively important: a one standard deviation change in a country's self-reported well-being over time is associated with a swing in incumbent vote share of around 8.5 percentage points. As well as using falsification or "placebo" tests that employ well-being reports taken from surveys in post-election years, the analysis shows the findings are robust to adjusting life satisfaction responses for a number of individual demographic and party-political determinants of well-being as well as to various alternative specifications.

The results are interpreted within the context of a simple political agency model, in which an incumbent politician is an agent of the voters.[4] Electors decide whether

Nannestad and Paldam (1994).

[4]For excellent reviews of the literature on political agency—which began with the seminal work of Barro (1973)—see Besley (2006) and Persson and Tabellini (2002).

or not to retain officeholders, but are unable to directly observe either their actions or type. Instead, in the spirit of Ferejohn's seminal model of electoral accountability, they are 'only able to assess the effects of governmental performance on their own well-being' (Ferejohn, 1986, p.11). Within this framework, an implication of retrospective voting is that it incentivises politicians. The data suggest that incumbents enjoy an electoral payoff not only for making voters materially better off—as the existing evidence of economic voting suggests—but also for ensuring the electorate's wider level of subjective well-being.

The findings augment the literature on economic voting and contribute to a small body of work that links non-economic outcomes with electoral behaviour (Bechtel and Hainmueller, 2011; Berry and Howell, 2007; Healy and Malhotra, 2009; Karol and Miguel, 2007). Finally, the analysis relates to a growing literature that links subjective well-being with political behaviour (e.g. Dolan, Metcalfe and Powdthavee, 2008; Flavin and Keane, 2012; Stutzer and Frey, 2006) as well as partisanship and ideology (Di Tella and MacCulloch, 2005). In the paper closest in spirit to the analysis presented here, Liberini, Redoano and Proto (2013) use British Household Panel Survey (BHPS) data to find an association between individual well-being and self-reported voting intentions over time in the UK.

The paper is structured as follows. Section 2 outlines the theoretical framework in which the results are interpreted. Sections 3 and 4 summarise the data and empirical strategy. Results are presented in section 5. Section 6 discusses academic and policy implications as well as possible limitations and avenues for further research. Section 7 concludes.

2 Conceptual Framework

The political agency approach of Besley (2006) provides an ideal framework in which to consider how a voter's well-being informs her decision whether or not to reelect an incumbent. This framework has been applied among others by Besley and Smart (2007) and Ferraz and Finan (2011), and is a simple formulation of a principal-agent problem with both adverse selection and moral hazard in which an incumbent politician is an agent of the voters. Within this standard two-period model, elections play a role in selecting good incumbents for a second period, whilst also providing incentives for bad politicians to set well-being maximising policy in order to "pool" with good types in the hope of being re-elected.[5]

[5]The simple model presented in this section is intended to establish the basic prediction of a positive relationship between voter well-being and incumbent re-election. For a number of extensions to this 'canonical' model, such as the introduction of additional time-periods and term limits, see Besley (2006). For examples of alternative models that also combine moral hazard with adverse selection, see Alt, Bueno de Mesquita and Rose (2011); Ashworth (2005); Banks and Sundaram (1998). These alternative models as well as the extended models of Besley (2006) lead to the similar basic prediction to be tested

Voters decide whether to re-elect politicians, but are unable to directly observe either their actions or type. This informational asymmetry is central to the notion of rational ignorance (Downs, 1957), which highlights the high cost of acquiring and filtering relevant information relative to the low probability of a vote being decisive to an electoral outcome. Even though people often lack knowledge about political and economic issues,[6] Fiorina (1981, p. 6) nevertheless notes that voters 'typically have one comparatively hard bit of data: they know what life has been like during the incumbent's administration'. Observing one's own satisfaction with life is essentially costless and requires no complex knowledge of public policy issues.

A basic agency model

Consider a simple model with two time periods $t \in \{1, 2\}$ and two types—good and bad—of politician $i \in \{g, b\}$. In each period, the politician makes a policy decision $x_t \in \{0, 1\}$. The payoffs are dependent upon the state of nature $s_t \in \{0, 1\}$, each of which occurs with equal probability. Given the action $x_t(s_t i)$ of the incumbent, voters receive a payoff of H—which is interpreted as a high level of SWB—if $x_t = s_t$ and zero otherwise.

Good politicians formulate policy to maximise voters' well-being, but bad politicians get a private benefit of $r_t \in \{0, R\}$ from choosing $x_t \neq s_t$.[7] This benefit is on top of E, which is enjoyed by all politicians and can be thought of as any psychological benefits ("ego rents") derived from being in office as well as a basic salary. The private benefit r_t is drawn each period from distribution $G(r)$, whose mean is μ. The model assumes all players discount the future with a common discount factor $\gamma < 1$ and that $R > \gamma(\mu + E)$.

The timing and informational structure are as follows. Nature determines the state of the world at the beginning of each period, and draws the type of the politician (if she is newly elected) from a distribution where $Pr(i = g) = \pi$. Both are observable by the politician but not by the voter. Nature then draws r_1 from $G(r)$, after which the politician chooses her policy action $x_1(s_1 i)$, which is also unobservable by the voter. At the end of the period, voters observe their well-being (their payoff) and either vote to reelect the incumbent, or take a random draw from the pool of politicians. In the second period, nature again draws r from $G(r)$, the politician chooses her policy, and payoffs accrue to the players.

Solving the game backwards, Besley (2006) shows that a perfect Bayesian equilibrium (PBE) can be defined in which voters look to their well-being in order to update their beliefs about the incumbent politician. In period 2 there are no re-election incentives,

in this paper, namely that, all else equal, incumbent reelection chances are increasing in voter welfare.

[6] See Campbell et al. (1960) for a classic study of voters' (lack of) knowledge about politics and economics (see Lewis-Beck et al., 2008, for an update).

[7] Choosing to set $x_t \neq s_t$ can be interpreted in a number of ways, ranging from a politician exerting low effort, to giving in to special interests or pursuing a narrow ideological agenda, all the way to outright corruption.

so each politician will take her preferred action: good politicians will seek to maximise voter well-being, whereas bad politicians will set $x_t \neq s_t$. Voters thus have an interest in selecting good politicians for the second period.

The key prediction to be tested in this paper is that at the end of period 1, voters will re-elect the incumbent if they receive the high level of well-being H. Good politicians always provide H, whereas a politician who fails to deliver it is a bad type for sure. The probability that a bad politician will deliver the high level of well-being is $Pr(r_1 \leq \gamma(\mu + E))$. If voters observe H and use Bayes' rule, they will update their beliefs about the incumbent and vote to reelect her, since the probability of a politician being good is greater than the proportion π of good politicians in the pool of candidates. That is,

$$\begin{aligned} Pr(i = g|H) &= \frac{Pr(H|i = g)Pr(i = g)}{Pr(H)} \\ &= \frac{Pr(H|i = g)Pr(i = g)}{Pr(i = g) + Pr(i = b)Pr(r_t \leq \gamma(\mu + E))} \\ &= \frac{\pi}{\pi + (1 - \pi)Pr(r_1 \leq \gamma(\mu + E))} \geq \pi. \end{aligned}$$

This has implications for the incentives given to politicians. Bad types face a trade-off in period 1 between extracting rents and being voted out of office, or behaving as a good type and enjoying the benefits of a second term. Provided r_1 is sufficiently small, they will set $x_t = s_t$ to maximise voters' well-being and secure reelection. The sections that follow take this retrospective voting prediction to the data, where high levels of SWB are expected to relate positively to the vote share received by incumbents.

Studies of economic voting provide an empirical test for the retrospective voting hypothesis using the state of the economy as a proxy for the electorate's welfare. Self-reported measures of 'experienced utility'—often loosely labelled as "happiness"—differ from the more standard economic concept of 'decision utility' derived from revealed preference, meaning that welfare is treated here in terms that go beyond consumption (Kahneman, Wakker and Sarin, 1997; Rabin, 1998).[8] In this paper, SWB is employed as a broader and more direct measure of voter welfare. That is, rather than treating the voter's payoff solely in economic terms, H is interpreted as referring to the voter's overall sense of well-being, which depends on both material as well as non-material factors.

[8]Although the concepts of experienced and decision utility remain distinct from each other, recent evidence shows SWB is also a relatively good predictor of choices and actions (Benjamin et al., 2012), suggesting that measures of SWB such as life satisfaction can potentially be used as an imperfect proxy for the more standard notion of decision utility. Proxying the traditional concept of welfare with SWB is imperfect, however, since the study find that in certain situations the connection between decision and experienced utility is much less clear and is in some cases systematically reversed (see also Kahneman and Thaler, 2006; Perez-Truglia, 2010).

3 Data

Electoral Data. The main outcome variable is *cabinet vote share*, which is the total percentage of votes won by all of the parties that are in government prior to each election. Further models instead consider the vote share received by the main coalition party only. The sample consists of 153 parliamentary elections. Each country's first election in the sample is used as a control, and four are dropped from the analysis,[9] leaving 134 observations in the baseline regression models. Election results are drawn from the University of Bremen's Parliament and Government Composition (ParlGov) database. Electoral turnout data is taken from the Voter Turnout Database compiled by the Institute for Democracy and Electoral Assistance.

SWB data. Data cover a panel of 15 European countries between 1973 and 2012. Life satisfaction data are drawn from the *Eurobarometer*, a survey carried out (typically) twice a year by the European Commission. For each wave, a random sample of approximately 1,000 individuals from each European Union country is interviewed. The SWB question asks respondents: *"On the whole, are you i) very satisfied, ii) fairly satisfied, iii) not very satisfied, or iv) not at all satisfied with the life you lead?"*. Self-reported life satisfaction is only one way to measure SWB, but these evaluative, cognitive judgements are the most widely used metric in the economic literature as well as by policymakers. Other measures of interest encompass positive and negative affect as well as meaningfulness (see Kahneman and Riis, 2005, for a discussion of differences between experienced/hedonic and evaluative measures of SWB).[10]

The four category evaluative SWB question has been included in the survey at least once every year from 1973 to 2012 (apart from 1974). The *Eurobarometer* began with the original 9 EU member states in 1973, and has expanded along with the EU. In this paper I look at an unbalanced panel of the 15 longest-duration EU members during the 1973-2012 period, for which the maximum time-series is 39 years and the mean is 33 years.[11] The countries included are: Austria, Belgium, Denmark, Finland, France, Germany, Greece, Ireland, Italy, Luxembourg, Netherlands, Portugal, Spain, Sweden,

[9] These are: Italy in 1994 and 1996, where the incumbent governments were technocratic ones led by Carlo Azeglio Ciampi and Lamberto Dini respectively; and the second Greek elections of 1989 and 2012, where Ioannis Grivas and Panagiotis Pikrammenos led non-partisan caretaker governments after both years' first elections had produced unworkable hung parliaments. In each case, there is no incumbent party vote share to predict.

[10] Further research may investigate any relationships between these alternative measures of self-reported well-being and electoral behaviour. A somewhat separate question from that investigated in this paper is whether election-day happiness or positive/negative affect is able to account for variation in voting behaviour. Healy, Malhotra and Mo (2010) show, for example, a robust association between local college football wins in the 10 days prior to an election and the vote share of incumbents, a finding they attribute to the positive emotional state of voters.

[11] A number of further states joined the EU (and thus also the *Eurobarometer*) in 2004, but are not included here as there is only a relatively small number of SWB surveys, and even fewer matching electoral data points, available for these countries.

and the United Kingdom. Each election result is matched with the *Eurobarometer* survey wave that is closest in time prior to that election. A *Eurobarometer* wave is available on average around four months before each election (mean=4.12, standard deviation=3.38).

For a summary of the variety of ways in which the validity and reliability of this kind of self-reported well-being measure have been demonstrated, see Krueger and Stone (2014). As is standard in the literature, the responses are coded onto a 1-4 scale (with 4 corresponding to the *"very satisfied"* response). In the initial baseline models, I calculate the mean of a country's life satisfaction responses (on the 1-4 scale) at each survey, employing the country-survey-mean SWB at the closest survey prior to each election as a predictor of the result of that election. In further models, I first adjust life satisfaction responses for individual demographic and partisan characteristics, and then employ the country-survey mean of these adjusted SWB responses to predict voting patterns. In all models, national levels of subjective well-being are standardised such that they have a mean of zero and standard deviation of one.

Macroeconomic Data. Economic variables are taken from the OECD. GDP is measured per capita in purchasing power parity dollars at 2005 prices, the unemployment rate is the percentage of the working population out of work, and inflation is the percentage change in consumer prices. Economic growth is the percentage change in per capita GDP from year $t-1$ to year t. Each election is matched with the country-year value of these macroeconomic indicators. Further analysis uses a one year lag (see below). Like national subjective well-being, all macroeconomic input variables are standardised.

Further Controls. An important finding of the research on economic voting is that cross-national evidence is often unstable due to variation in institutional design across countries and the extent to which it is clear who is responsible for outcomes (Powell and Whitten, 1993). This 'clarity of responsibility' thesis suggests, for example, that where parties govern in coalitions—in which responsibility is diffuse—voters find it more difficult to hold incumbents accountable for performance. Following this literature, I hold constant a number of standard contextual variables. These further controls include the number of parties in government and the length of time in months since the last election (i.e. the length of the parliament), as well as a measure of the fragmentation of the party system, which is the Effective Number of Parties (ENP) calculated following Laakso and Taagepera (1979) as $ENP = \frac{1}{\sum (s_i)^2}$ where s is percentage of parliamentary seats held by party i prior to the election.

Summary statistics of the main variables are shown in Table 1, and broken down by country in Table A4. As can be seen, there are persistent differences across countries in SWB as well as the vote shares typically won by governing parties. Country fixed effects are included in all of the analysis in order to exploit within-country variation and partial out any such differences in well-being and voting behaviour that occur as a result of time-invariant factors like, for example, culture, climate and political system.

4 Methods

4.1 Baseline

To test the prediction that high levels of well-being are positively associated with the electoral success of incumbent governments, I estimate the baseline equation

$$V_{it} = \beta_1 SWB_{it} + V_{it-1} + X'_{it} + \xi_i + \gamma_t + \varepsilon_{it} \quad (1)$$

where V_{it} is the percentage vote share received by all of the parties in government in country i at election t, and SWB_{it} is the aggregate level of SWB in country i prior to election t. V_{it-1} is the vote share that these parties collectively received at the previous election and X'_{it} is a vector of situational controls including the length of the parliament, the number of parties in government, and the fragmentation of the party system. Country fixed effects ξ_i are included in all models, as are a set of year dummies γ_t. Finally, ε_{it} is an error term adjusted for clustering at the country level.

4.2 Further Checks

Timing. A number of further checks are carried out in order to ensure any association observed in the baseline equation is robust. I first perform falsification or "placebo" tests in which I include the level of SWB taken from surveys *following* each election as a predictor of the result of that election in order to ensure any association observed is not spurious.

There is a potential danger that the election-year macroeconomic indicators used as regressors may be influenced by developments in the economy that occur in the months *following* the election, particularly if that election takes place in the early months of the year. As a result, Table A1 replicates the main results using a one year lag of the macroeconomic variables, which does very little to alter the main findings.

Macroeconomic Covariates. The use of country and year fixed effects as well as a vector of contextual controls helps to reduce the problem of omitted variable bias. Nevertheless, the most obvious omitted variable, given the extensive literature on economic voting, is time-variant and thus not picked up by the fixed effect: the state of the economy, which may affect both the SWB of the population (e.g. Di Tella, MacCulloch and Oswald, 2003) as well as having a direct impact on voting behaviour (e.g. Fair, 1978; Kramer, 1971). That is, SWB may simply serve as a proxy for the state of the economy, which is already known to matter for electoral outcomes. To attempt to deal with this and investigate whether SWB has additional explanatory power, or whether the well-known state-of-the-economy effect works through the economy's impact on voters' well-being, I introduce the election-year economic growth rate as a regressor to proxy for the state

of the economy. Of course, the headline growth rate is only partially informative about the state of the economy, so the unemployment as well as the inflation rates are also gradually introduced.

Specification. To ensure the results are not biased by the inclusion of the control for incumbents' previous vote share, I re-estimate equation 1 omitting this lagged electoral score. Given the relatively small sample size, I also report models that bootstrap the standard errors (with 250 replications). Finally, I run the baseline regression using the vote share received by the Prime Minister's (or equivalent) party only as the dependent variable, rather than the collective vote share of the whole coalition.

Turnout. One important concern is that the result might be biased by variation in turnout driven by the level of the electorate's well-being.[12] As a result, I establish whether or not turnout can be predicted by SWB by running a regression similar to equation 1, but replacing cabinet vote share with percentage turnout on the left-hand side.

4.3 Levels, changes and asymmetries

I next explore whether voters are more responsive to the country's level of, or any recent changes in, well-being, as well as whether there are any non-linearities in the relationship. First, rather than using a country's level of SWB as a predictor of government vote share, I employ the change in a country's mean SWB such that

$$V_{it} = \beta_1 \Delta SWB_{it} + V_{it-1} + X'_{it} + \xi_i + \gamma_t + \varepsilon_{it} \tag{2}$$

where ΔSWB_{it} is either the change in the standardised aggregate life satisfaction variable over the length of the whole parliament (i.e. since the previous election) or the shorter-term change from year $t-1$ to year t (i.e. the calendar year prior to the election-year to the election-year).

Finally, I use piecewise (or 'segmented') regression models to investigate any asymmetries in the relationship. In other words, I attempt to ascertain whether voters are more moved to punish or reward incumbents for up- or downturns in the country's well-being. Where ΔSWB_{it} is the main predictor of vote share, I create a spline that separates negative from positive changes in SWB, such that

$$V_{it} = \beta_1 \Delta SWB^{+}_{it} + \beta_2 \Delta SWB^{-}_{it} + V_{it-1} + X'_{it} + \xi_i + \gamma_t + \varepsilon_{it} \tag{3}$$

where ΔSWB^{+} is equal to the change in SWB when it is positive (and 0 otherwise), and ΔSWB^{-} is equal to the change when it is negative (and 0 otherwise). To make the coefficients more intuitive, the absolute value of negative changes is used, such a negative

[12]For evidence suggesting a link between political participation and SWB, see Dolan, Metcalfe and Powdthavee (2008); Flavin and Keane (2012); Stutzer and Frey (2006).

coefficient suggests that an "increase" in negative Δ SWB is negatively associated with cabinet vote share.

4.4 Further Robustness: Alternative SWB Aggregation Method

Adjustment for Demographic Determinants of SWB. This section outlines an alternative strategy for aggregating well-being responses to a national measure of SWB, which is carried out as a further robustness check of the main results. Whereas the baseline regression uses the simple country-survey mean of life satisfaction responses as the measure of SWB_{it}, I also estimate a two-stage procedure similar to Di Tella, MacCulloch and Oswald (1999) that includes individual predictors of SWB. The first stage estimates a life satisfaction equation using the whole Eurobarometer sample for the period, such that

$$SWB_{ijt} = \beta_1 X'_{ijt} + \gamma_t + \varepsilon_{ijt} \tag{4}$$

where SWB_{ijt} is the life satisfaction of individual i in country j at the survey t, X' is a vector of demographic characteristics including age, gender, marital status and education, and γ_t are survey-specific fixed effects. This obtains a measure of SWB that is unexplained by the individual characteristics of respondents. A further benefit of this approach is that it allows for the introduction of survey-specific intercepts, which partial out differences in the survey over time that may lead to question-ordering or context effects that recent studies suggest can have an impact on life satisfaction responses (Deaton, 2012; Sacks, Stevenson and Wolfers, 2013). The country-survey mean of the residuals from this regression might be thought of as what Di Tella, MacCulloch and Oswald (1999) label a country's level of "pure" SWB, on which government policy ought to be focused. Aggregate residual life satisfaction is then used as an alternative measure of a SWB_{it} in equation 1. Table A2 shows the first-stage micro-level regressions.

Adjustment for Party-Political Determinants of SWB. Another important concern is that coefficents may be biased if the life satisfaction of partisan individuals varies simply as a result of the ideological colour of the party in office. Di Tella and MacCulloch (2005) show, for example, that partisan individuals have higher life satisfaction when their chosen party is in office. If this is the case, electoral preference for the incumbent party drives life satisfaction rather than the other way around as the model predicts.[13] To deal with this potential problem of reverse causality, I also control for

[13]A related concern is often raised in the economic voting literature. In studies that rely on surveys of voters' economic perceptions, subjective perceptions of macroeconomic performance may be biased by individuals' partisan political leanings (Evans and Andersen, 2006). This shouldn't be a major problem here for two reasons. First, this analysis uses aggregate SWB: assuming a two-party system with a roughly equal number of partisans on each side, whenever one party is in power their partisans will have slightly higher well-being and the other slightly lower, cancelling each other out in the aggregate. Second, conditioning on the previous vote share of the parties in power functions as a control for the partisanship of the country.

individuals' ideological proximity to the sitting government, such that

$$SWB_{ijt} = \beta_1 X'_{ijt} + \beta_2 Z_{ijt} + \gamma_t + \varepsilon_{ijt} \tag{5}$$

where Z_{ijt} is the distance between the individual i's own ideology and that of the incumbent government of country j at time t.

This procedure relies on a reduced sample, since in some but not all Eurobarometer rounds respondents are asked to place themselves on a 1-10 ideological scale (on which 1 is the most left-wing). The response to this question is matched with the ideological position of the government in power at the time of the survey. This is computed by taking the mean of the four main left-right scales used in the political science literature (Benoit and Laver, 2006; Castles and Mair, 1984; Hooghe et al., 2010; Huber and Inglehart, 1995) of all of the parties in government, weighted by their respective vote shares. Both ideology scales—individual and government—are normalised to lie between 0 and 1, and the difference between the individual's and the government's position is then used as a the *ideological distance* variable. Ideological distance enters significantly into the life satisfaction equation, and is negatively signed as expected: column 2 of Table A2 shows that individuals who are ideologically farther away from their national government do indeed have systematically lower life satisfaction than people who are in closer ideological agreement with those in power.[14] The aggregate of the residuals from this regression is then used as an alternative measure of SWB_{it} in equation 1.

5 Results

The main findings are that i) the vote share received by governing parties is sensitive to the aggregate SWB of the electorate, ii) this association is robust to the inclusion of the main macroeconomic indicators as well as individual-level demographic and partisan determinants of SWB, and iii) the electorate's aggregate SWB is able to explain more of the variance in the vote share enjoyed by governing parties than any one of the three main macroeconomic indicators. This section outlines these findings in more detail, along with results from a number of alternative specifications and robustness checks.

[14] An alternative strategy to show this, reported in column 3 of Table A2, leads to similar results. Following Di Tella and MacCulloch (2005), I estimate a regression including dummies for left-wing and right-wing partisans (those responding 1-3 and 8-10 on the left-right scale respectively), and interact these with the "right-wingness" of the government, measured by the ideological scale of the government (on which higher values indicate that government is more right-wing). The results show that right-wingers are happier, and left-wing partisans less so, the more right wing is the government.

Main Results

As expected from the simple model, column 1 of Table 2 shows a relationship that is both statistically and substantively significant between life satisfaction and cabinet vote share. Since all variables are z-scored, model (1) suggests that a one standard deviation change in SWB over time is associated with around an 8.5 percentage point (86% of a standard deviation) swing in the vote share enjoyed by the governing coalition.

Columns (2) to (4) of Table 2 replicate the well-established finding that the electoral fate of incumbents is associated with the state of the macroeconomy. All three indicators are significantly linked with cabinet vote share. A one standard deviation change in the election-year economic growth rate is associated with a 4.5 percentage point change in government vote share, whilst a one standard deviation change in the unemployment rate over time is predictive of a swing of around 3.5 percentage points.

The remaining models in Table 2 consider the robustness of the result presented in column 1 to the gradual inclusion of macroeconomic controls. When included together in column (5), both economic growth and SWB remain positively and significantly related to cabinet vote share. The negative association between unemployment and government electoral success loses significance, however, once SWB is included as a covariate, suggesting that voter well-being may be a mediator through which the effect of the unemployment rate feeds through to voting behaviour. Once all three macroeconomic indicators are included along with SWB in column (9), both SWB and the economic growth rate independently emerge as good predictors of the electoral fate of incumbent governments. A one standard deviation change in SWB and the economic growth rate are associated with percentage point swings of 6.6 and 3.5 respectively.

The relative r-squared values reported across the models shed light on which alternative measures of national welfare are most predictive of electoral outcomes. They suggest that the inflation and unemployment rates fare comparatively worse than SWB and economic growth, which are both good predictors of cabinet vote share. However, a country's level of self-reported life satisfaction is able to predict more of the variance in the electoral success of governing parties than any one of the three main macroeconomic indicators. The models most able to explain variance in government vote share are those that employ both economic variables, and the election-year growth rate in particular, together with the broader measure of SWB.

Further checks

In order to investigate whether the correlation between vote share and SWB found in Table 2 is spurious, model (2) of Table 3 runs a falsification or "placebo" test. Here, the level of SWB of a country in the year *following* each election is used as a predictor of that election. The well-being of the electorate in this case is not significantly related with the

election result. A similar test (not reported) using surveys two years after each election produces the same null result. Column (1) shows, however, that the aggregate level of SWB in the country-year prior to the election (rather than the closest prior survey to the election as in the baseline) is significantly predictive of the result.

Column (3) reports a model that bootstraps the standard errors (with 250 replications), which does little to alter the main result. Column (4) omits the strong control for the vote share of the cabinet parties at the previous election, which similarly does not significantly affect the main finding. Column (5) shows the main result is not being driven by electoral turnout, which is unrelated to the level of SWB.[15] Model (6) uses the prime minister's (or equivalent) party vote share only—rather than the collective governing coalition vote share—as the outcome, which does not alter the main findings of the paper: A one standard deviation change in a country's SWB over time is associated with around a 6 percentage point swing in the vote share enjoyed by the main coalition party in power.

Table 4 reports results from the two-stage procedure outlined above, rather than simply looking at the mean aggregate life satisfaction responses in each country-survey. Table A2 in the appendix shows the first-stage micro-level regressions. The second-stage models shown in Table 4 show the relationship between the aggregate of the residuals from the micro-level equation 4 and cabinet vote share. Columns (1) and (2) begin by looking at the case in which only the survey-specific intercepts and no demographic controls are included in the first stage (that is, X' is left empty). The positive relationship between life satisfaction and incumbent electoral success remains robust, a result that is not altered when various demographic well-being determinants such as age, gender and education are adjusted for in columns (3) and (4). After controlling for well-being differences based on individuals' ideological proximity to the sitting government in models (5) and (6), the main finding of the paper remains unchanged.

Finally, Table A1 replicates the results using a one year lag of the macroeconomic variables. In the baseline equation, the election-year macroeconomic indicators are used. However, employing the previous year's macroeconomic indicators does very little to alter the main findings. A one standard deviation change in SWB (measured a mean of 4 months [SD=3] prior to the election) and the economic growth rate in the year prior to the vote are associated with swings of 6.7 and 2.5 percentage points respectively.

[15]One concern with this model is that it may overlook variation in whether voters are legally obliged to vote. Differences in compulsory voting will largely be accounted for with the country fixed effect; however, controlling for any within-country changes in electoral laws, a model (not reported) that includes a dummy for compulsory voting does not change the result.

Levels and changes

Table 5 reports models that aim to test whether it is the level of, or recent changes in, SWB that are most predictive of electoral outcomes. Here, the level variables are standardised as in the previous tables, such that they have a mean of zero and a standard deviation of one. The Δ variables refer to election-year changes (i.e. changes from the year prior to the election to the year of the vote) in this standardised variable. The findings suggest there are both level and change effects at play in terms of SWB, but that the change effect dominates in terms of GDP. Table A3, reported in the appendix, repeats this analysis using changes that occur over whole parliament (i.e. since the last election) rather than the more recent change from the year prior to the election to the election year.[16]

Asymmetries

Models (4) to (6) in Table 5 report piecewise regression models that investigate whether voters are more moved to punish or reward incumbents for any recent positive or negative changes in either their SWB and/or the country's GDP. Column (5) replicates the finding in the economic voting literature (e.g. Bloom and Price, 1975) that voters are more sensitive to changes in national income when those changes are negative, with voters punishing governing parties for recessions more than they reward them for equivalent periods of economic expansion.

Introducing separate variables for positive and negative election-year changes in SWB in column (4) leads to a similar finding. Conditional on the level, an election-year change SWB is significantly associated with an electoral loss to governing parties when that change is negative, but any election year increases in SWB are not significantly associated with electoral outcomes.

6 Discussion

The results provide evidence that the vote share received by governing parties is sensitive to the electorate's SWB. This is consistent with rational voting models in which voters learn about an incumbent's quality through observable outcomes such as their own welfare (e.g. Alt, Bueno de Mesquita and Rose, 2011; Ashworth, 2005; Banks and Sundaram, 1998; Besley, 2006). One major advantage of the use of SWB data is that it allows for a direct test of the predicted association between voter welfare and incumbent retention. Further, since observing one's own satisfaction with life is essentially costless and does not

[16]Introducing both short- and longer-term changes in SWB together into the equation (not reported), the short-run change dominates, with the whole-parliament change becoming statistically insignificant. These findings echo those in the economic voting literature, suggesting that election-year changes are more important to voters than any changes over the whole election cycle (Tufte, 1978).

require voters to have a thoroughgoing understanding of complex economic and political issues, the use of such measures also sits well with the informational asymmetry at the heart of many political agency models.

The central findings of the paper contribute to an on-going debate on how best to evaluate policy outcomes and measure national progress. The evidence presented here suggests that government initiatives to measure success in terms of SWB align with citizen expectations: voters do themselves seem to evaluate government performance at least partly in terms of their SWB. This has important implications for the incentives faced by politicians to undertake costly actions to improve the electorate's SWB. The simple model studied in this paper suggests that this type of retrospective voting behaviour gives governments electoral incentives to continue to measure the SWB of their citizens and use the data to guide policymaking focused on the electorate's comprehensive well-being.

Although the findings are consistent with a simple explanatory political agency model, econometrically this paper has focused—much like the existing literature on economic voting—on the prediction rather than causal explanation of electoral outcomes. The analysis demonstrates that SWB is strongly predictive of election results, and that this finding is robust to the inclusion of country and year fixed effects, the main macroeconomic indicators, and various demographic and partisan determinants of individuals' life satisfaction, as well as a number of alternative specifications. Nevertheless, further research may look to exploit any natural experiments in order to more clearly identify the effect and more closely investigate the mechanisms through which well-being feeds into voting behaviour, for example by attempting to isolate and compare the sanction and selection effects expounded in the model, or examining the extent to which voters distinguish between policy-relevant and policy-irrelevant sources of their well-being when it comes to evaluating government performance.[17]

Electoral outcomes are best predicted in the sample by a combination of *both* SWB together with economic growth. The simple model posits that voters observe their well-being—their payoff H—in order to update their beliefs about the incumbent. In this way, it assumes that SWB is a mediator through which economic performance feeds through into voting behaviour: insofar as a buoyant economy improves people's life satisfaction, it provides voters with information about the politician's type. Consistent with this assumption, the unemployment rate becomes non-predictive of electoral outcomes once it

[17]That is, an interesting question beyond the scope of this paper is whether governments are rewarded for high levels of societal well-being that are brought about through sound policy, or are they lucky recipients of a reward that is not based on their actions, much like CEOs that are rewarded for economy-wide rises in stock prices (cf. Bertrand and Mullainathan, 2001). A handful of recent empirical papers suggest that voters do indeed often fail to filter, holding incumbents accountable for outcomes that are beyond their control such as shark attacks, floods, and droughts (Achen and Bartels, 2003), macroeconomic fluctuations driven by international oil prices (Wolfers, 2007), and even college football results (Healy, Malhotra and Mo, 2010). Determining what is and is not relevant to voters' well-being is very difficult, however, since government is expected to play a role—at least as a safety net—in so many areas of life.

is included in an equation together with SWB, suggesting that voters may reward governments for lower rates of unemployment precisely because of the negative (direct and indirect) effects that high unemployment rates have on people's well-being (Clark and Oswald, 1994; Di Tella, MacCulloch and Oswald, 2003; Luechinger, Meier and Stutzer, 2010). However, the finding that economic growth has a relationship that is to some extent independent of aggregate SWB suggests this assumption may be too strong. The finding that both are separately important accords with recent work suggesting "happiness is not everything"—that is, that well-being is multifaceted and seems to be dependent upon a number of factors including both life satisfaction as well as material prosperity (Benjamin et al., 2014; Glaeser, Gottlieb and Ziv, 2015).[18]

Although the evidence is consistent with rational accounts of electoral behaviour, retrospective voting may also be subject to emotional and cognitive biases (Healy and Malhotra, 2013). First, voters seem to blame the government for their low levels of life satisfaction but fail to reward them for higher levels. This asymmetry in the relationship between negative and positive changes in SWB and electoral outcomes is consistent with idea that individuals are prone to a 'self-serving bias' (Miller and Ross, 1975), whereby they attribute success to their own efforts but attribute failure to situational factors and the actions of others. Second, the finding that voters are informed more acutely by recent events, rather than a full evaluation of a politician's time in office, accords with the idea of individuals using an 'availability heuristic' by basing their decision on easily recallable pieces of information such as their current or recent sense of well-being (Tversky and Kahneman, 1973). Further empirical work can exploit SWB data to investigate these as well as other cognitive and emotional biases in voting behaviour further. At the same time, careful theoretical work is required in order to incorporate systematic voter biases into political economy models. This is important not only for our understanding of how these biases influence voting behaviour, but also to determine their consequences in terms of the incentives that are given to politicians to act in the interests of voters.

7 Conclusion

The literature on retrospective voting—the notion that citizens vote according to how well the country has fared during an incumbent's time in office—is extensive, but concentrates almost exclusively on the performance of the domestic economy. Given that governments act in a variety of policy domains, there seems little *a priori* reason for voters to evaluate incumbent performance solely on economic outcomes. For example, recent evidence on the impact of the Moving to Opportunities experiment in the United States—which gave the opportunity, via random lottery, to families living in high-poverty public housing

[18]For a further discussion, see Becker and Rayo (2008).

projects to move to less-disadvantaged neighbourhoods—shows that the programme led to improvements in SWB but had no significant effect on employment or earnings (Ludwig et al., 2013). Whereas one might expect the well-being increases associated with such a programme to have at least some bearing on participants' beliefs about incumbent politicians, a narrow focus on economic variables would expect such policy outcomes to be unrelated to voting behaviour. Although policymakers have only recently begun to think of success and progress in terms of national happiness, the data presented here from a cross-country panel stretching back to the 1970s suggest that voters themselves seem to have long evaluated government performance in terms that go beyond GDP.

Employing SWB as a broad and direct proxy for social welfare, the analysis provides a novel test of political economy models that predict a positive association between voters' welfare and their propensity to reelect incumbent governments. Importantly, such models emphasise the incentives that this political accountability provides for incumbents to undertake costly actions to improve the quality of people's lives. The data suggest it is in politicians' interest not only to make voters financially better off, but also to take steps to comprehensively measure citizens' welfare and formulate policy focused on their subjective well-being.

8 Tables

Table 1: Summary statistics

Variable	Obs	Mean	Std. Dev.
Cabinet Vote Share (%)	134	43.28	9.51
Previous Vote Share (%)	134	46.71	10.35
Subjective Well-being	134	3.09	0.31
Economic Growth (%)	134	1.87	2.65
Unemployment Rate (%)	134	8.06	4.32
Inflation Rate (%)	134	4.95	4.90
GDP per capita ($2005)	134	26,144	8,771
No. of Parties in Gov'	134	2.16	1.14
Effective No. of Parties	134	4.51	1.66
Parliament Length (months)	134	42.92	13.24

Table 2: Subjective Wellbeing and Electoral Outcomes

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
	Cabinet Vote Share							
Subjective Well-being	0.86***				0.72***	0.74***	0.82***	0.64***
	(0.11)				(0.12)	(0.14)	(0.11)	(0.18)
Economic Growth		0.45***			0.36***			0.36***
		(0.11)			(0.09)			(0.10)
Unemployment Rate			-0.34**			-0.16		-0.06
			(0.12)			(0.13)		(0.15)
Inlfation Rate				0.27**			0.19	0.15
				(0.12)			(0.11)	(0.13)
Observations	134	134	134	134	134	134	134	134
R^2	0.62	0.61	0.57	0.55	0.67	0.63	0.63	0.68

Robust standard errors in parentheses, adjusted for clustering at the country level. All variables standardised (mean=0, SD=1). All regressions also include: country fixed effects, year dummies, previous vote share, no. of parties in gov', ENP, length of parliament.
* $p < 0.1$, ** $p < 0.05$, *** $p < 0.01$.

Table 3: Robustness to Alternative Specifications

	SWB_{-1year}	SWB_{+1year}	Bootstraped SEs	No previous vote share	Alternative DVs	
	(1)	(2)	(3)	(4)	(5)	(6)
		Cabinet Vote Share			Turnout	PM Vote Share
Subjective Well-being	0.66***	0.34	0.86***	0.74***	0.06	0.64***
	(0.17)	(0.17)	(0.14)	(0.16)	(0.16)	(0.20)
Observations	126	128	134	134	134	131
R^2	0.55	0.56	0.62	0.54	0.67	0.57

Robust standard errors in parentheses, adjusted for clustering at the country level. Bootstrap SEs reported in model (3) are based on 250 replications. All variables standardised (mean=0, SD=1). Unless otherwise stated, all regressions also include: country fixed effects, year dummies, previous vote share, no. of parties in gov', ENP, length of parliament.
* $p < 0.1$, ** $p < 0.05$, *** $p < 0.01$.

Table 4: Robustness: Adjusting for Individual-level Determinants of SWB

	(1)	(2)	(3)	(4)	(5)	(6)
	Cabinet Vote Share					
Adjusted SWB	0.84***	0.65***	0.76***	0.60***	0.54**	0.55**
	(0.10)	(0.19)	(0.12)	(0.18)	(0.23)	(0.23)
Economic Growth		0.38***		0.38***		0.35***
		(0.09)		(0.10)		(0.09)
Unemployment Rate		-0.06		-0.06		-0.06
		(0.16)		(0.15)		(0.17)
Inflation Rate		0.15		0.15		0.14
		(0.13)		(0.13)		(0.14)
Country FEs	✓	✓	✓	✓	✓	✓
Year FEs	✓	✓	✓	✓	✓	✓
Observations	134	134	134	134	127	127
R^2	0.61	0.68	0.61	0.68	0.63	0.68
SWB Adjusted For:						
Survey FEs	✓	✓	✓	✓	✓	✓
Demographic Controls			✓	✓	✓	✓
Partisanship Controls					✓	✓

Robust standard errors in parentheses, adjusted for clustering at the country level. All variables standardised (mean=0, SD=1). All regressions also include: country fixed effects, year dummies, previous vote share, no. of parties in gov', ENP, length of parliament. Adjusted SWB is obtained from an initial micro-level life satisfaction regression, which includes survey fixed effects and differing combinations (depending on the model) of individual determinants of SWB responses (see main text for details).

* $p < 0.1$, ** $p < 0.05$, *** $p < 0.01$.

Table 5: Levels and Election-year Changes

	(1)	(2)	(3)	(4)	(5)	(6)
	Cabinet Vote Share					
Levels						
Subjective Well-being	0.65***		0.56***	0.60***		0.52***
	(0.12)		(0.13)	(0.10)		(0.11)
GDP per capita		-0.00	-0.01		-0.04	-0.04
		(0.11)	(0.09)		(0.12)	(0.09)
Changes						
Δ SWB	0.89**		0.72**			
	(0.34)		(0.28)			
Δ GDP		0.90**	0.67**			
		(0.33)	(0.25)			
Piecewise Changes						
Spline: Δ SWB < 0				-2.08***		-1.73***
				(0.38)		(0.28)
Spline: Δ SWB > 0				-0.49		-0.48
				(0.50)		(0.47)
Spline: Δ GDP < 0					-1.52**	-1.08*
					(0.69)	(0.59)
Spline: Δ GDP > 0					0.58*	0.34
					(0.28)	(0.29)
Observations	126	126	126	126	126	126
R^2	0.61	0.57	0.64	0.64	0.58	0.67

Robust standard errors in parentheses, adjusted for clustering at the country level. All regressions include: country fixed effects, year dummies, previous vote share, no. of parties in gov', ENP, length of parliament. GDP is measured per capita; it is logged and then de-trended. The outcome and level variables are standardised (mean=0, SD=1). Δ variables refer to changes in the standardised level variable from the year prior to the election to the year of the election. Splines are the absolute value of the change variable when it is negative (positive), and zero otherwise.
* $p < 0.1$, ** $p < 0.05$, *** $p < 0.01$.

Appendix

Table A1: Macroeconomic variables lagged 1 year

	(1)	(2)	(3)	(4)	(5)
	Cabinet Vote Share				
Subjective Well-being	0.87***	0.71***	0.81***	0.82***	0.62***
	(0.11)	(0.11)	(0.13)	(0.11)	(0.18)
GDP per Capita (-1 Year)	-0.04				-0.11
	(0.11)				(0.12)
Economic Growth (-1 Year)		0.21**			0.27**
		(0.09)			(0.10)
Unemployment Rate (-1 Year)			-0.09		-0.03
			(0.12)		(0.19)
Inflation Rate (-1 Year)				0.19	0.23
				(0.12)	(0.14)
Observations	134	134	134	134	134
R^2	0.62	0.64	0.62	0.63	0.66

Robust standard errors in parentheses, adjusted for clustering at the country level. All variables standardised (mean=0, SD=1). All regressions also include: country fixed effects, year dummies, previous vote share, no. of parties in gov', ENP, length of parliament. SWB is recorded at the closest prior survey to the election (mean 4 months before); macroeconomic variables refer to the country-year prior to the election.
* $p < 0.1$, ** $p < 0.05$, *** $p < 0.01$.

Table A2: Individual-Level Predictors of SWB

	(1)	(2)	(3)
	Life Satisfaction		
Age	-0.024***	-0.022***	-0.022***
	(0.000)	(0.000)	(0.000)
Age^2	0.000***	0.000***	0.000***
	(0.000)	(0.000)	(0.000)
Medium Education Level (vs. low)	0.127***	0.110***	0.107***
	(0.007)	(0.007)	(0.007)
High Education Level (vs. low)	0.299***	0.272***	0.271***
	(0.010)	(0.009)	(0.009)
Married (vs. single)	0.114***	0.116***	0.116***
	(0.005)	(0.005)	(0.005)
Live as Married	0.143***	0.153***	0.152***
	(0.009)	(0.010)	(0.010)
Divorced	-0.114***	-0.111***	-0.113***
	(0.007)	(0.007)	(0.007)
Widowed	-0.117***	-0.100***	-0.102***
	(0.006)	(0.006)	(0.006)
Separated	-0.239***	-0.217***	-0.221***
	(0.010)	(0.010)	(0.011)
Male (vs. female)	-0.026***	-0.033***	-0.032***
	(0.002)	(0.002)	(0.002)
Individual Left-Right Placement		0.027***	
		(0.001)	
Ideological Distance from Government		-0.080***	
		(0.026)	
Individual is Left-wing (vs. centrist)			-0.048***
			(0.017)
Individual is right-wing			-0.099***
			(0.019)
Right-wingness of Government			0.025***
			(0.007)
Left-Wing Indiv' * Right-Wingness of Gov'			-0.015***
			(0.003)
Right-Wing Indiv' * Right-Wingness of Gov'			0.026***
			(0.003)
Survey Dummies	Yes	Yes	Yes
Observations	1023943	762218	762218
R^2	0.04	0.05	0.05

Robust standard errors adjusted for country-survey clustering in parentheses. Dependent variable: Life Satisfaction (1-4 scale). Left- and right-wing indicators refer to individuals responding 1-3 and 8-10 on the left-right placement scale respectively. Ideological proximity to the government is the difference between an individual's own ideological placement and the ideological position of the sitting government (see text for more details).
* $p < 0.1$, ** $p < 0.05$, *** $p < 0.01$.

Table A3: Levels and Whole Parliament Changes

	(1)	(2)	(3)	(4)	(5)	(6)
	Cabinet Vote Share					
Levels						
Subjective Well-being	0.78***		0.74***	0.77**		0.73***
	(0.23)		(0.20)	(0.27)		(0.23)
GDP per capita		-0.07	-0.10		-0.07	-0.10
		(0.10)	(0.11)		(0.11)	(0.11)
Changes						
Δ SWB	0.02		-0.12			
	(0.21)		(0.25)			
Δ GDP		0.29***	0.27***			
		(0.07)	(0.07)			
Piecewise Changes						
Spline: Δ SWB < 0				0.05		-0.13
				(0.56)		(0.61)
Spline: Δ SWB > 0				-0.02		-0.17
				(0.35)		(0.35)
Spline: Δ GDP < 0					-0.42***	-0.36**
					(0.13)	(0.15)
Spline: Δ GDP > 0					0.15	0.16
					(0.10)	(0.11)
Observations	119	119	119	119	119	119
R^2	0.61	0.60	0.65	0.61	0.61	0.66

Robust standard errors in parentheses, adjusted for clustering at the country level. All regressions include: country fixed effects, year dummies, previous vote share, no. of parties in gov', ENP, length of parliament. GDP is measured per capita; it is logged and then de-trended. The outcome and level variables are standardised (mean=0, SD=1). Δ variables refer to changes in the standardised level variable since the last election. Splines are the absolute value of the change variable when it is negative (positive), and zero otherwise.

* $p < 0.1$, ** $p < 0.05$, *** $p < 0.01$.

Table A4: Summary Statistics by Country

Country	AUT	BEL	DEU	DNK	ESP	FIN	FRA	GBR	GRC	IRL	ITA	LUX	NLD	PRT	SWE	Total
First Available SWB	1995	1973	1973	1973	1985	1995	1973	1973	1981	1973	1973	1973	1973	1985	1995	
First Election in Sample	1994	1971	1972	1971	1982	1991	1968	1970	1977	1969	1972	1968	1972	1983	1994	
Last Election in Sample	2008	2010	2009	2011	2011	2011	2012	2010	2012	2011	2008	2009	2012	2011	2010	
Number of Elections	6	13	11	16	9	5	10	11	13	12	11	9	13	9	5	153
Cabinet Vote Share (%)	54.49	49.64	50.40	36.61	38.98	55.42	38.15	37.63	39.61	40.95	43.75	54.44	42.86	39.67	40.19	43.28
	(10.46)	(9.67)	(5.50)	(6.87)	(6.25)	(8.97)	(9.71)	(4.76)	(3.93)	(8.05)	(5.54)	(4.60)	(11.81)	(7.95)	(6.38)	(9.51)
Subjective Well-being	3.10	3.15	3.03	3.55	2.98	3.19	2.84	3.18	2.57	3.16	2.76	3.30	3.38	2.58	3.37	3.09
	(0.10)	(0.15)	(0.06)	(0.08)	(0.08)	(0.08)	(0.10)	(0.10)	(0.23)	(0.09)	(0.15)	(0.05)	(0.07)	(0.15)	(0.08)	(0.31)
Economic Growth (%)	2.24	1.80	1.37	1.54	1.72	3.16	1.31	1.71	0.36	3.06	2.35	3.28	1.00	1.89	3.92	1.87
	(1.09)	(1.21)	(2.76)	(1.90)	(2.18)	(1.40)	(1.72)	(2.09)	(3.69)	(4.05)	(2.74)	(4.42)	(2.00)	(3.21)	(1.44)	(2.65)
Unemployment Rate (%)	3.98	8.22	7.14	6.19	17.48	8.40	9.27	6.49	10.10	11.36	8.28	2.63	6.30	7.24	7.22	8.06
	(0.42)	(2.37)	(2.50)	(2.38)	(4.85)	(1.45)	(2.33)	(3.38)	(5.13)	(4.43)	(1.51)	(1.88)	(2.86)	(2.85)	(1.49)	(4.32)
Inflation Rate (%)	1.86	4.14	2.28	5.43	4.68	1.99	4.06	6.67	9.17	8.37	7.99	3.60	2.95	4.42	1.14	4.95
	(0.98)	(3.49)	(1.70)	(3.80)	(2.05)	(1.19)	(4.25)	(5.98)	(8.32)	(7.11)	(6.15)	(2.93)	(2.23)	(3.87)	(0.95)	(4.90)
GDP per capita (2005$)	32267	25072	26013	25761	23063	30093	24823	23519	20262	22617	23149	45656	29179	19277	31208	26144
	(3430)	(5543)	(4811)	(5562)	(4343)	(3349)	(4108)	(6600)	(3739)	(10398)	(4976)	(16814)	(6308)	(2973)	(3523)	(8771)
Num Parties in Gov'	2.00	4.25	2.60	2.33	1.00	4.00	2.11	1.00	1.20	1.82	2.88	2.00	2.33	1.13	1.75	2.16
	(0.00)	(0.45)	(0.52)	(1.18)	(0.00)	(0.82)	(0.33)	(0.00)	(0.63)	(0.60)	(1.25)	(0.00)	(0.49)	(0.35)	(1.50)	(1.14)
ENP	3.60	8.16	3.55	5.31	3.32	5.82	5.21	3.16	2.88	3.32	4.98	4.23	5.16	3.33	4.34	4.51
	(0.34)	(1.56)	(0.52)	(0.66)	(0.42)	(0.12)	(0.99)	(0.32)	(0.37)	(0.58)	(1.28)	(0.48)	(1.12)	(0.66)	(0.47)	(1.66)
Parl' Length (months)	33.40	38.58	44.20	32.00	43.63	48.25	52.33	47.90	40.40	41.45	47.88	60.75	39.83	38.50	48.00	42.92
	(14.50)	(9.90)	(6.43)	(11.65)	(5.13)	(0.50)	(11.83)	(15.21)	(7.63)	(18.57)	(12.60)	(1.75)	(15.00)	(13.75)	(0.00)	(13.24)

Mean (standard deviation). First election for each country used as a control. Last available SWB for all countries is 2012.

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