What explains the dynamics of citizens’ satisfaction with democracy? An integrated framework for panel data

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1. Introduction

Democracy predicates on citizens’ political approval and support. Their support for democracy is central for the stability and longevity of democracy. In this respect, satisfaction with democracy is considered one important measure because it gauges citizens’ evaluation of the performance of the democratic system as a whole (e.g., Norris 1999; Linde and Ekman 2003).

The literatures on modernization theory, institutional design, and democratic performance propose different explanations for citizens’ satisfaction with democracy (SWD). These can be generally grouped into three categories: differences in SWD can be explained by (a) citizens’ socio-demographic status, (b) their evaluations of the democratic process, and (c) their political performance evaluations (see e.g. Aarts and Thomassen 2008; Aarts et al., 2014; Christmann and Torcal 2017; Dahlberg et al., 2015; Norris 2011; Scharpf 1999; Stecker and Tausendpfund 2016; Torcal and Trechsel 2016). According to work in these literatures, citizens’ SWD has different individual-level causes and these tend to complement each other when tested in cross-sectional studies (Sanders et al., 2014). Yet we do not know whether and exactly how they complement each other. This current caveat in the literature is a product of undertheorizing – or at least not explicitly theorizing – but also of data availability. Although SWD is frequently asked in surveys around the world, repeated measures for the same individuals over a longer period of time are rarely available. Filling this gap is important for improving our precision in theoretical explanations and for understanding the empirical dynamics of citizens’ SWD.

In this paper, our contribution is twofold. First, we combine all three strands of explanation in one longitudinal framework to theorise that different explanations predict different parts of citizens’ dynamics in SWD. That is, unlike previous studies, we are explicitly theorizing the relationship between the micro-level explanations and aspects of time. Second, in further contrast with earlier work, in which repeated cross-sectional survey data was employed, we use nine-wave panel data from the Netherlands with a focus on intra-individual change over a long period of time (2007–2016). This approach yields the benefit of holding many possible confounding contextual variables constant while simultaneously allowing to trace changes over time and their potential origins. With these data we will for the first time be able to study exactly how prominent theories of political system support explain the overall dynamics in citizens’ SWD.

Specifically, we argue that the different micro-level explanations for SWD complement each other because they represent relatively stable and more time-varying factors. Relatively stable explanatory factors,
such as individuals’ socio-economic status, should explain mean group differences because of their over-time stability. They allow distinguishing, for example, between those citizens who are broadly satisfied and those who are not. Other prominent explanatory factors that are more time-varying, such as citizens’ process and performance evaluations, should explain short-term differences between individuals at particular points in time, simply because they fluctuate more over time. Together, time-invariant predictors should explain general levels of SWD, and more variable factors should offer an explanation for short-term fluctuations, independent of the general trend. In other words, all three micro-level models of political support interact in a longitudinal framework and account for the dynamics in SWD once ‘time’ as a variable is explicitly considered.

To test our hypotheses, we employ latent growth curve modelling that allows us to be very explicit about which part of the over-time dynamics an explanatory factor likely predicts: general means, general trends or individual-level variations around the trend at particular points in time. Our most important result is that we find strong empirical three micro-level models of political support interact in a longitudinal framework for analysing SWD that enables researchers to simultaneously assess long-term and short-term explanations, using survey panel data. Our findings provide researchers with specific recommendations on how to include prominent theories of political support in their models.

2. Explaining the dynamics of satisfaction with democracy

The prominent literatures on modernization theory, institutional design, and democratic performance together propose three micro-level models for explaining citizens’ political system support. Doing that not only helps us understand the observed dynamics, but it also offers important insights into the meaning of a renowned indicator of political support. In addition, the findings carry methodological implications for the literature. We provide an integrated framework for analysing SWD that enables researchers to simultaneously assess long-term and short-term explanations, using survey panel data. Our findings provide researchers with specific recommendations on how to include prominent theories of political support in their models.

Our findings have important implications for the literature on SWD. Substantively, they suggest that researchers should recognise the potential and limitations of different theories explaining citizens’ political system support. Doing that not only helps us understand the observed dynamics, but it also offers important insights into the meaning of a renowned indicator of political support. In addition, the findings carry methodological implications for the literature. We provide an integrated framework for analysing SWD that enables researchers to simultaneously assess long-term and short-term explanations, using survey panel data. Our findings provide researchers with specific recommendations on how to include prominent theories of political support in their models.

2. Explaining the dynamics of satisfaction with democracy

The prominent literatures on modernization theory, institutional design, and democratic performance together propose three micro-level models for explaining citizens’ satisfaction with democracy (SWD), based on citizens’ socio-economic status, democratic process evaluations, and political performance evaluations, respectively. Studies regularly argue for and empirically test their plausibility. In this paper, we do not test the individual causal claims in these literatures. Our aim is different: we argue that these three micro-level models complement each other on the time dimension in that they explain different parts of individuals’ over-time dynamics in SWD.

The proposition is based on the idea that common predictors of SWD show different levels of over-time stability and can be easily incorporated into a common longitudinal framework that distinguishes between citizens’ levels, trends, and differences at particular points in time and thus around the general trend. More precisely, since some of the predictors are more or less time-invariant, such as socio-economic status, they should explain differences in levels of SWD. For example, under normal circumstances, an individual’s personal characteristics such as gender or education do not change very much over a longer period of time. Given these characteristics’ relative stability over time, they should contribute to the dynamics of SWD by explaining mean differences in levels. In support of this, previous research has shown that differences in socio-economic status are systematically related to levels of SWD, yet not to trends (Aarts et al., 2014; see also Norris 2011 or Önnudóttir and Harðarson 2011). It suggests that socio-economic status should only explain variation in general levels of SWD.

In contrast, other common explanatory factors of SWD, notably those pertaining to democratic process and performance evaluations, are more prone to fluctuate and should in first instance explain short-term differences in SWD at particular points in time. Factors such as GDP growth rates, governmental responsiveness, individual politician’s or party’s behaviour, or policy priorities change frequently and regularly show to affect citizens’ attitudes and behaviour in different ways (see for instance Lewis-Beck and Stegmaier 2000; Reher 2015), but they are unlikely to affect a citizen’s entire development over time. Therefore, factors related to democratic process and performance evaluations should account for differences in citizens’ SWD only at specific time-points.

To illustrate our reasoning, Fig. 1 shows hypothetical developments of SWD across time for four individuals. The dashed lines in the upper part show two individuals with generally higher levels of SWD, whereas the solid lines in the lower part depict two individuals with generally lower levels of SWD. Based on common theories, we argue that socio-economic differences should account for the general differences between these two groups of individuals because of socio-economic status’ relative over-time stability. But the four individuals also differ in other respects. In individual years, these citizens’ levels of SWD differ, for instance, because of their evaluations of a country’s politicians, a country’s economic performance, or because of the results of parliamentary elections. These factors and their effects are more short-lived and only push individuals off their general trajectory in particular years, as Fig. 1 illustrates. Such factors thus only account for short-term differences in citizens’ SWD at particular time-points.

Based on these theoretical considerations, we propose to distinguish between aspects of time and specifically between three components in the dynamics of (individual) SWD: differences in general levels and trends, and differences at particular points in time and thus around the trend. All three components relate to different explanatory theories of political support and they jointly explain the over-time dynamics of SWD on the individual-level. This forms our general expectation, from which we can infer a number of specific hypotheses.

3. Hypotheses

Our first hypothesis holds that citizens with higher socio-economic status, i.e. income and education, show higher levels of SWD, for two reasons. Firstly, because of the cognitive skills and resources that citizens with higher socio-economic status typically have. Norris (2011, 116), for instance, argues that in the absence of information about the performance of democracy, people tend to be ‘agnostic or sceptical in their judgements’ and thus more likely to show lower levels of SWD. Both, cognitive resources and skills, are necessary to be aware of and
evaluate the performance of democracy. Secondly, people that are generally better-off should be more satisfied with democracy for reasons of self-interest. Based on social dominance theory, Turner and Reynolds (2003, 201) argue, for example, that ‘subordinate groups are more likely to reject the status quo than are dominant groups, consistent with the self-interest of both’. In sum, citizens with higher socio-economic status are expected to be more satisfied with democracy because of their cognitive skills and resources and out of self-interest.

Evidence for the impact of socio-economic status on SWD is, however, mixed. In some studies, the effect of socio-economic status on SWD tends to be small and often even insignificant (Anderson and Guillory 1997; Ommundtörd and Harðarson 2011; Wells and Kriekhaus 2006). However, Norris’ (2011) analysis of World Value Survey data shows positive effects for income and negative effects for education. And in a recent longitudinal analysis of Eurobarometer data Aarts et al. (2017) do find evidence for an increasing gap in SWD between low- and high-educated persons in six out of nine European countries over a time span of 42 years. These mixed empirical findings underline the need to be more nuanced in the predictions. In line with our theory and adopting a longitudinal perspective, we distinguish between levels and trends in SWD (see also our illustration in Fig. 1). Since citizens’ socio-economic status is relatively stable over time it should only affect the general level of SWD, yet not the trend. These expectations are summarized in hypotheses 1 and 2:

**H1.** Citizens with higher socio-economic status have generally higher levels of satisfaction with democracy than citizens with lower socio-economic status.

**H2.** Citizens with different socio-economic status are indistinguishable in their trends of satisfaction with democracy over time.

Based on the second micro-level model dominant in the literature, political process evaluations should influence citizens’ SWD, and we add that this effect is short-term only. According to Norris (2011, 117), ‘process accounts emphasize that citizens focus upon the intrinsic quality of democratic governance, or the quality of governance by the people’. Process theories predict that rational citizens will evaluate a regime positively, if they perceive that the regime’s choices ‘reflect the “will of the people”’ (Scharpf 1999, 6). In the absence of available indicators measuring directly process evaluations, they are regularly approximated through indicators of trust in representative institutions (e.g. Christmann and Torcal 2017; Grimes 2000; Hobolt 2012; Torcal and Trechsel 2016). The focus on representative institutions in this approximation reflects that process evaluations are about ‘the quality of governance’ and ‘the will of the people’. The focus on the attitude of trust is justified by the assumed causal relationship between evaluations and trust (Kaina 2008): Positive evaluations lead to higher trust. Applied to theories of political system support, trust in representative institutions should thus result in higher levels of SWD because positively evaluated representative institutions are a sign that citizens believe ‘the will of the people’ is respected.

There is a long-standing debate on the distinctiveness of trust and SWD as well as on the causal flow between them (see for example Grönlund and Setälä 2007; Weber et al., 2017). Both concepts belong to the wider set of political support measures that can be arrayed on a scale from specific to diffuse support with increasing levels of abstraction (Easton 1965; Norris 1999). While Norris (1999) considers trust to be further towards the ‘specific support’ end of the scale than SWD, both causal directions between them seem plausible (Weber et al., 2017). In this paper, we are not evaluating any causal claims and simply follow the existing literature predicting that process evaluations, approximated with trust in representative institutions, explain variation in SWD.

Since process evaluations are ultimately assessments of current political processes and structures, they should explain differences in citizens’ SWD in particular years only and thus around the general trend (see also illustration in Fig. 1). This expectation is our third hypothesis:

**H3.** Trust in representative institutions at a particular point in time is positively associated with citizens’ satisfaction with democracy at the same point in time.

Thirdly, based on performance accounts, evaluations of a system’s performance should have positive effects on citizens’ SWD, but we add that they should be short-term because these evaluations fluctuate more over time. According to Norris (2011, 127), performance evaluations ‘rely upon more instrumental criteria based on the regime’s perceived record of policy outputs or outcomes’. Performance theories thus predict that rational citizens will evaluate the regime favourably, if they think the regime offers enough in terms of ‘government for the people’ (Scharpf 1999, 11).

Relevant political outputs or outcomes can take on many different forms. Research has argued, for example, for governmental policy performance (Ommundtörd and Harðarson 2011; Christmann and Torcal 2017; Curini et al., 2012; Reher 2015; Sanders et al., 2014) or economic outputs (Clarke et al. 2009; Sanders et al., 2014; Christmann and Torcal 2017; Sanders 2000) affecting people’s SWD. But also a regime’s electoral output or performance in the form of producing electoral winners and losers has repeatedly been found to influence people’s SWD (for example Anderson et al., 2005; Blais and Gelcaire 2007; Blais et al., 2017; Curini et al., 2012; Singh et al., 2012). This is arguably also part of a regime’s output. Specifically, electoral winners regularly show to have higher levels of SWD because they have precisely the instrumental reasons that performance accounts consider (Essiasson 2011). Similar to above, these performance evaluation factors are time-varying and should predict differences in SWD between individuals at particular points in time only (see again Fig. 1). They should thus also have short-term effects on SWD. Our fourth hypothesis is therefore:

**H4.** Performance evaluations (policy, economic and electoral) at a particular point in time are positively associated with citizens’ satisfaction with democracy at the same point in time.

4. Data, measures and method

4.1. Panel data

We test our hypotheses on panel data that have been collected in the Longitudinal Internet Studies for the Social Sciences, or LISS Panel study. The LISS Panel study, conducted by the institute for data collection and research CentERdata (Tilburg University, Netherlands), started in October 2007. The panel is based on a probability sample from the Dutch administrative registers of households and individuals (GBA – Gemeentelijke Basis Administratie) maintained at Statistics Netherlands. In summer 2007, all members of more than 10,000 Dutch-speaking private households were approached with a (personalized) letter, followed by a short telephone or face-to-face recruitment interview. At the end of this interview, the respondent was asked to participate in the web-based panel. The initial response in 2007 was 48 per cent of 9844 useable household addresses, resulting in close to 5000 participating households and almost 10,000 participating individuals. Details can be found on the website liissdata.nl and in Scherpenzeel and Das (2011).

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1 In Appendix 1, we report additional analyses in support of our approach of (1) treating the two concepts as distinct and (2) assuming a causal path running from trust in representative institutions to SWD, rather than in the reverse.

2 In our sample, around 82 percent of all respondents participated as the sole household member.
The monthly interviews are completed by an average of over 70 per cent of respondents.Attrition on the respondent-level is about 12 per cent annually whereas attrition on the household-level is somewhat lower at 10 per cent per year. CentERdata has set up a package of measures in order to stimulate the continued participation of respondents, including small financial stimuli and the provision of a computer if necessary. Panel mortality has been counteracted with (probability-based) refreshment samples, which have been recruited in 2009, 2011–12, and 2013–14.

For this paper, we use nine waves of data, which were collected in December of each year. Our data span the period 2007–2016 with the number of respondents ranging between 6811 (2007) and 5394 (2010). Response rates are high and range between 68 per cent (2009) and 89.1 per cent (2016), and we conduct analyses on a total of 962 panelists who participated in all relevant surveys waves in the period 2007–2016. Few, if any, data collection projects offer opportunities to study citizens’ satisfaction with democracy and its covariates over such a long period of time while simultaneously maintaining such data quality (but see Esaiasson et al., [2020] using the Swiss Household Panel).

4.2. Measurements

In the LISS panel, SWD is a direct question posed to respondents as part of a battery on different institutions (‘How satisfied are you with the way in which the following institutions operate in the Netherlands? Democracy ’). It is measured on a continuous 11-point scale ranging from ‘very dissatisfied’ (= 0) to ‘very satisfied’ (= 10). Survey questions on satisfaction with democracy are widely used as indicators of political support (for a critical view on the use of the measure, see Canache et al., 2001; Linde and Ekman 2003; Ferrén 2016). We already know that the indicator captures both elements of performance- and non-performance-related evaluations (see, for example, Linde and Ekman 2003; Norris 1999), and it thus ranks halfway in Norris’ (1999) reconceptualization of Easton’s (1965) distinction between diffuse and specific political support. According to Norris’ (1999, 10), it measures ‘regime performance’ and concerns the performance of the democratic system as a whole. Even though the ambiguity and recurring cautionary notes, satisfaction with democracy remains a popular and important indicator measuring citizens’ political system support (see also Anderson et al., 2005; Blais and Gélineau 2007; Kumlin and Esaiasson 2012; Linde and Ekman 2003; van Ham et al., 2017). Indeed, a recent and novel assessment of the survey item against different views and evaluations of democracy across Europe concludes that the item provides ‘a relatively reliable measure of citizens’ perceptions of how well the liberal dimension of democracy works in their country’ (Ferrén 2016, 306).

Fig. 2 shows a random sample of our respondents and their development over time in SWD between 2007 and 2016, illustrating already the variations our integrated framework seeks to explain. While some respondents are pretty stable at either a high or low level of SWD throughout the period of time, others fluctuate over time and sometimes respondents are pretty stable at either a high or low level of SWD –5 points on the 11-point scale. This individual-level variation is characteristic for our entire sample because the variance between people substantially differs per time-point and ranges between 2.46 (2007) and 3.84 (2016) (see Appendix 2, Table A.1). There is also a statistically significant yet decidedly smaller variance within people of 0.01 (see Table 1), meaning that people not only differ from each other but that they also change over time. On the aggregate level, the average SWD per time point ranges between 6.09 (2011) and 6.51 (2010) (see Appendix 2; Table A.1), suggesting positive evaluations of democracy throughout the period of study. In sum, these descriptive statistics show that SWD varies significantly between and within people. With our integrated longitudinal framework, we seek to explain both simultaneously, the between- and within-person variance.

Across panel waves SWD is roughly normally distributed (see Table A.1 in Appendix 2) amongst our panelists. However, analyses also suggest these panelists are different from those respondents that dropped out because of panel attrition. For example, Little’s MCAR test is statistically significant and a logistic regression analysis of who would participate in all nine waves shows that gender and political interest have large effect sizes: being a man and being more politically interested each increases the odds of participating throughout by 54 percent and 32 percent, respectively (see Table A.2 in Appendix 2). Finally, Table A.1 in Appendix 2 shows that non-panelists are statistically significantly (< .05) less satisfied than panelists in almost all waves. All of this suggests – not surprisingly – that participants in our decade-long panel are different from the non-panelists. In a robustness test, we also replicate our substantive results when applying a survey weight accounting for attrition (see Appendix 3 for more information).

We measure respondents’ socio-economic status through levels of education and income (Anderson and Guillory 1997; Norris 2011; Onnudöttir and Harðarson 2011), provided by respondents once a year. The ordinal-level variable of education contains information on respondents’ highest level of education with a diploma. It ranges from primary school (= 1) to university (= 6). Income reports respondents’ self-declared personal net monthly income starting with no income (= 0) and ending with ‘more than EUR 7500’ (= 12). Except for the second to last category, ‘EUR 5001 to EUR 7500’ all categories represent intervals of EUR 500.

To operationalize process evaluations, we use a multi-item index measuring trust in representative institutions. Since process evaluations pertain to evaluations of the ‘quality of governance by the people’ (Norris 2011, 117), we only use trust objects connected to the representative process, namely the government, parliament, politicians, and parties; each is measured on an eleven-point scale. For each time point we construct individuals’ average trust across these items. These indices show to have good measurement properties with mean inter-item correlations between 0.74 and 0.85 and Cronbach’s alpha values between 0.92 and 0.96. Principal component analyses also suggest one factor per time-point and all items have roughly the same loadings (around 0.5). The resulting indices have means ranging between 4.75 (2012) and 5.5 (2010) on the eleven-point scale. We operationalize all other concepts with a single indicator each. Evaluations of the economy are measured through a survey item asking respondents to indicate their level of satisfaction with ‘the economy’ on a scale from 0 to 10. Policy performance is operationalized through the survey question ‘How satisfied or dissatisfied are you, generally speaking, about what the government has done lately?’ with response options ranging from ‘very dissatisfied’ (= 1) to ‘very satisfied’ (= 5). Finally, a measure of electoral victory is inferred from respondents’ reported vote choice in previous elections. When the respondents’ vote choice is included in the government coalition, this is an indication of electoral victory. For our analysis, we only use the recall questions in waves immediately following the three national elections in 2006, 2010

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4 Information on panel respondents’ background characteristics can be found in Table A.3 in Appendix 2.

5 Pearson’s r correlations between education and income in 2007 are moderate (~0.31) and statistically significant at the 99%-level.

6 Pearson’s r correlations between economic and policy evaluations range between 0.30 (2007) and 0.47 (2013); all are statistically significant at the 99%-level. And correlations between trust and policy evaluations range between 0.54 (2010) and 0.67 (2012) and all are statistically significant at the 99%-level.

The wording of this question only differs in trivial terms from those asked in national election surveys.
and 2012, which means that we use recall items in wave 0 (2007), wave 3 (2010), and wave 5 (2012). Electoral victory is thus measured on three occasions, each time with a different variable.

As with other surveys, voter turnout is over-reported also in the LISS data by about 10 percentage points in each election (see Selb and Munzert 2013). However, recalled voting behaviour is remarkably accurate: across the three elections, the average absolute deviation in the LISS sample ranges between 0.66 (2010) and 0.99 (2006) percentage points with the highest party-vote deviations recorded for the populist PVV (between 1.9 and 3.4 percentage points). For the recall question in 2007 voters of the Balkenende-IV cabinet – PvdA, CDA and CU – are coded as electoral winners (=1). The Rutte-I cabinet (2010–2012) consisted of the governing parties VVD and CDA and so respondents who indicated in 2010 having voted for either of them were coded as electoral winners (=1). Finally, the Rutte-II cabinet (2012–2017) includes the VVD and PvdA as the governing parties. Respondents who recalled a vote choice for either of them in 2012 were coded as electoral winners (=1) in the same year. Figure A.1 in Appendix 4 summarises the parties’ vote shares across all three elections.

Our argument in this paper rests on the assumption that some explanatory factors are more time-varying than others. Autocorrelations provide empirical support for this assumption. For example, autocorrelations for education and income in our sample are very high throughout the period of our study and suggest that people hardly change in their level of education or income over a period of 9 years: education (mean = 0.99; range = 0.983–0.994) and income (mean = 0.941; range = 0.914–0.96). This also makes theoretically sense because formal education should hardly change past a certain age. Income is more volatile, especially during an economic crisis. Yet, according to the autocorrelations, the within-person variation is also very limited here. In contrast, our measures of process and performance evaluations show distinctly lower autocorrelations and thus substantially more within-person variation: Trust (mean = 0.725; range = 0.618–0.8), economic evaluations (mean = 0.593; range = 0.438–0.693), policy performance (mean = 0.495; range = 0.277–0.626). Since any cut-off point for judging a measure as time-variant or -invariant will be arbitrary, we refrain from engaging in such an exercise. Defining cut-off points would also not be quite in line with our claim. For, we only maintain that some explanatory factors are more time-varying than others. The autocorrelations reported above provide unequivocal support for this claim.

4.3. Method

To test our hypotheses, we need a method that allows us to explicitly model aspects of time because some of our hypotheses predict (non) differences in levels or trends (H1 and H2) while others predict differences at particular points in time only and thus around the general trend (H3 and H4). To illustrate, consider again Fig. 1, showing the hypothetical dynamics in SWD for four citizens. Essentially, our hypotheses require us to estimate (non) differences (1) between citizens’ general starting positions (intercepts; H1), (2) between their general developments over time (slopes; H2), and (3) between citizens’ levels at specific points in time (time-specific levels; H3 and H4) in one joint

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7 Although elections were held in November 2006, formation talks only finished on the 22nd February 2007. Voters only knew then whether they belonged to the ‘winners’ of that particular election. Therefore, our measurement point of December 2007 for electoral victory of the 2006 election is appropriate.
model.

Latent growth curve model (LGC) fulfills these requirements because it focuses on ‘the systematic inter-individual differences in intra-individual change’ (Stoel et al., 2004, 241). It is based on the analysis of covariance structures and incorporates elements of factor analysis and test theory embedded in a general framework of hierarchical modelling (see Duncan et al., 2011; Preacher et al., 2008). LGC assumes between-individual differences in starting positions and in developments, represented by latent intercepts and slopes, respectively. Time is explicitly built into the factor loadings of the intercept and slope (Duncan et al., 2011). This allows investigating the covariates of starting positions and developments over time as well as the covariates of differences at particular points in time. Unlike any other statistical approach, LGC allows incorporating these multiple equations in a single model, allowing us to test our overarching hypothesis of a common longitudinal framework.

To illustrate LGC more formally, a linear growth model takes on the following form of level-1 intra-individual change with person-years as units of analysis:

$$y_{it} = \pi_{0i} + \pi_{1i}t + \eta_{it}$$

where $y_{it}$ is the observed value of the trajectory variable $y$ (here, SWD) for the $ith$ person at time point $t$, $\pi_{0i}$ represents time (here, survey wave 0, 1, 2, .., 9), and $\pi_{1i}$ refers to the intercept and slope of over-time development, respectively. Intercepts and slopes are allowed to vary across person $i$ and the variance is captured in latent factors. It means that we do not need to assume that everyone has the same starting position or takes the same development – an assumption that also seems untenable given Fig. 2. Instead, we capture the variation in different starting positions and different developments in two latent variables, the latent intercept and the latent slope. The $\pi_{0i}$ captures additional time-varying covariates, which may have different values for a given person in each survey wave and which can affect someone’s SWD ($y_{it}$) at a specific time. In our analysis we treat trust in representative institutions as measured at the beginning of the time period as a predictor of intercept ($\pi_{0i}$) and latent slope ($\pi_{1i}$) across all individuals. In other words, these two parameters represent the average population intercept and slope, respectively. The parameters $B_{0i}$ and $B_{1i}$ are the coefficients for the vector of covariates, $X_{it}$, that predicts the latent intercept and latent slope. Applied to our case, these covariates are a person’s socio-economic status. Finally, $\eta_{0i}$ and $\eta_{1i}$ capture the deviation or residual of the person’s trajectory intercept or slope from the predicted value. We can combine equations (1), (2a) and (2b) by simply substituting the right-hand sides of the latent intercept and latent slope equations for $x_{0i}$ and $x_{1i}$ in equation (1), respectively (see Bollen and Curran 2006; Finkel et al., 2007).

In summary, it means that employing LGC models allows us to integrate three prominent micro-level theories explaining citizens’ SW in one model and thus test to what extent they can account for different parts of the dynamics of citizens’ SW. Since we model all relationships simultaneously, the model also considers all covariates at once and simply models them as either primarily affecting the intercept and slope or as primarily affecting SWD scores in individual years. Compared to other analytical strategies, especially those applied to repeated cross-sectional data, LGC modelling allows being very specific as to which parts of the dynamics of citizens’ SW are explained by individual predictors. With a single model we can test a longitudinal framework of several common theories of political support that decomposes the dynamics.

We estimate a single model that includes two latent factor analyses (latent intercept and latent slope), two regressions to explain between-respondent differences in intercepts and slopes and nine regressions to explain between-respondent differences at particular points in time. Fig. 3 shows the path diagram. Black solid lines represent the test theory part of the model whereas dashed grey lines denote the factor analysis part. We estimate all models in R (package lavaan, version 0.6–7 [Rosseel 2012]) with maximum likelihood estimates (N = 962). We address concerns of heteroskedasticity and autocorrelation by including auto-correlated disturbances; each error term of a measure of SWD influences its successive value.

5. Empirical results

Before testing our hypotheses, we need to determine the general development that our sample of respondents followed, i.e., the shape of the growth curve. For that we first build a model including only SWD scores without any predictors. We constrain all parameters related to the latent intercept to a value of 1 to denote initial status and all parameters related to the slope to values representing the progression of time. Since no data collection took place in 2014, the LISS panel contains nine waves between 2007 and 2016; the waves are numbered consecutively from 0 through 6, 7 being missing and continuing with waves 8 and 9. Assuming first a linear growth curve, the same values are used for the constraints on the loadings of the latent slope to reflect the progression of time. Common model fit indices for this LGC model suggest a good fit (CFI = 0.975; TLI = 0.977; RMSEA [90% CI] = 0.063 [0.056; 0.069]). Howev
The results of the complete model are presented in Table 1 and Table 2 and are only split up for presentational purposes. Table 1 shows the results of modelling levels and trends in SWD as a function of socio-economic status (H1 and H2), while Table 2 reports the results of modelling differences between individuals’ SWD in particular years and thus above and beyond the general trend (H3 and H4).

Model fit indices (CFI, TLI, and RMSEA) show that the data fit the assumed structure well. In addition, the p-value associated with the RMSEA above 0.05 indicates a particularly close-fitting model. Most importantly, all of this supports our general hypothesis about the dynamics of SWD consisting of different components that can be explained by different factors.

Turning to our specific hypotheses tests, the first column in Table 1 reports the predicted increase in the intercept for an increase of two standard deviations (because of rescaling) in levels of education and income. Educational level has a statistically significant effect on respondents’ common intercept of SWD. Education has a positive effect, where approximately every additional 3 educational levels (two standard deviations) increase the predicted initial score on SWD by 0.33 (p < .05) on the eleven-point scale; this corresponds to a third of a unit. It means that people of higher educational status have a higher level of SWD at the beginning of the period. This is in line with H1 even though the effect is not large. Contrary to our hypothesis, income has no statistically significant effect on the latent intercept of SWD. Therefore, the level of SWD is not higher among people with higher incomes. One possible explanation for this result is that income is not closely related to SWD in all parts of Europe, and spending patterns differ between countries. The intercept variance in this conditional model with the intercept variance in the basic model without covariates (see Table A.1 in Appendix 5) shows a reduction from 1.66 to 0.74; this corresponds to a decrease in variance of approximately 58 percent, only explained by the two socio-economic variables. It means that differences in socio-economic status are indeed a good explanation for differences in citizens’ general level of SWD.

The second column in Table 1 further shows that citizens’ socio-economic status does not explain their trend in SWD. Neither variable has a statistically significant effect on the latent slope and the variance in the slope does not decrease either, compared to the unconditional growth model. It supports H2 and means that individuals with different levels of education or income in 2007 did not follow different trends in SWD in the following nine years. In other words, someone’s socio-economic status does not help us predict how the person’s SWD will develop over the next decade. This is as might be expected, since there are no obvious theoretical reasons for such an effect to occur.

Turning to our tests of H3 and H4, Table 2 reports findings on the extent to which evaluations of processes and performances are associated with SWD in particular years and thus above and beyond the general trend. According to the results, trust in representative institutions and economic evaluations have consistently significant and positive associations with SWD. For instance, an increase in trust in representative institutions of two standard deviations (on average 3.63 on the eleven-point scale) pushes respondents’ SWD upwards and off the general trend in SWD with a magnitude of between 0.83 and 1.23. On average, this corresponds to a one-unit increase in SWD. It means that respondents showing an increase in trust in representative institutions in a particular year also reported higher levels of SWD in the same year, independent of their general level or trend in SWD. This result is highly supportive of H3.

However, economic evaluation is an even stronger predictor of SWD in individual years, after controlling for differences in levels, trends, and important confounders in individual years. According to the estimates in Table 2, an increase in economic evaluations of two standard deviations (on average 3.14 on the eleven-point scale) pushes respondents’ SWD upwards in individual years by between 1.28 and 1.82. The effect is also the strongest amongst the four tested predictors of SWD in particular

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8 Given what we know about the individual-level determinants of attitudes towards democracy (see Ferrin and Kriesi 2016), it seems strange that income would have no effect. To test for the robustness of this result, we tested the main model with three alternative income measures (gross income in categories and income measured in totals, net and gross) as well as curvilinear effects. The results are robust to all of these different specifications.
years, which suggests that citizens’ SWD in particular years is more heavily influenced by performance (rather than process) evaluations. Together with trust in representative institutions, economic evaluations are the only indicator that consistently produces statistically significant results because neither evaluation of policy performance nor electoral victory have any consistent independent effects on SWD in particular years. According to the results, only winning the 2010-election does make a difference (see Table 2). Respondents who voted for the subsequent winners of the 2010-election, VVD or CDA, have a predicted average increase in their levels of SWD in 2010 of 0.15 (p < .05). We speculate that this surprising and independent effect might be explained by the political circumstances of the election and its results.

Elections were held in June 2010 and the minority government (Rutte-I) was only formed after long negotiations in October and with the support of Wilders’ party, the PVV. For the first time in 92 years neither a Christian democratic nor socialist party led the government. Moreover, for the first time since a century, a liberal party led the government and provided the Prime Minister. According to our results, the 2010-election was also a special event for electoral winners. This finding is further substantiated in Fig. 4 showing the simple average individual-level change in levels of SWD between 2009 and 2010 by voting decisions in the 2010-election for our group of respondents. Voters of the surprise winner and kingmaker PVV and of the first-time governmental leader VVD are the only voters (together with SP voters) to have positive and statistically significant change scores in SWD. It suggests that party-specific circumstances might have increased levels of SWD for voters in the 2010-election above and beyond the general trend. Overall, the findings on performance evaluations thus partially support H4.

6. Conclusion

In this paper, we combined several prominent micro-level models explaining SWD to one common longitudinal framework by explicitly considering aspects of time, and we validated this framework against unique panel data from the Netherlands 2007–2016. Previous literature had only shown that the models tend to complement each other but we did not know how. In the foregoing, we have shown how this might work. People’s socio-economic status explains their general levels of SWD but not the trend, and process and performance evaluations explain differences at particular points in time only and thus around the trend. These findings have larger implications for future theoretical and empirical work on SWD and political support, more generally.

Firstly, our findings suggest that aggregate-level stability in SWD over time, often observed by previous work, is probably a function of stability and short-term changes. The latter likely cancel each other out in aggregate-level analyses. However, detecting changes around the general trend can be particularly important as signs for a changing society. There is relatively little long-term panel data including measures of satisfaction with democracy, which means that our proposed modelling strategy may not be appropriate for other data.

Secondly, our results have practical implications for future research. They imply that any future research can and should be more explicit in whether the main interest lies in predicting differences in general levels, trends, or at particular points in time. Similarly, they also have implications for how coefficients can be interpreted in future work, depending on which data is used. Future time-series cross-sectional work needs to be most careful in interpreting the coefficients. Socio-economic status can only explain general levels, not trends, while evaluations can only predict levels of SWD at particular points in time, and again no trends. Such future work may also want to include economic and political performance indicators and not just people’s evaluations thereof, as past research has shown that these drive levels in SWD (see for example Christmann and Torcal 2017). Here our focus was on individual-level dynamics and thus evaluations of economic and political performance.

Thirdly, the findings of this paper reiterate the complex relationship between SWD and citizens’ socio-economic status as well as electoral victory. It could be that economic wealth still matters but perhaps personal income is a too narrow definition and the entire household’s wealth should be considered instead. Another alternative is that there are heterogeneous effects at play but we leave both options for future theoretical and empirical research. Our results also suggest a potentially more complex relationship between electoral victory and SWD but further investigation is beyond the scope of this paper.

Fourthly, even though our empirical domain was limited to the Netherlands over a period of nine years, it seems clear that SWD as it is commonly measured in international survey research has a strong short-term evaluative component, just like Norris (1999) suggested. We should therefore be cautious in using this measure as an (or even the) indicator of political support, which is thought to be more immune to short-term influences.

Finally, connected to the previous point is a further important limitation of our study: the focus on the Netherlands as one particular case. A
single-country focus has the advantages of holding constant many contextual factors but necessarily these factors might also be relevant for accounting in further variation in people’s SWD. These could be, for example, the electoral system or the fragmentation of the party system – both features are rather distinct in the Netherlands. On the other hand, even if the Netherlands shows internationally relatively high and stable levels of SWD, there is no a priori reason to believe that the mechanisms explaining SWD across individuals and over time deviate from those in other countries. Given that our data are drawn from one case, it is impossible for us to account for them. Yet they are theoretically and empirically plausible, given previous research and extensions of our work should investigate them.

Funding

Kölln acknowledges funding from Aarhus University Research Foundation (ref. AUFF-E2017-7-13), Riksbankens Jubileumfond (ref. RIK18-1267-2), and the Swedish Research Council for Health, Working Life and Welfare (ref. 2013–2692).

Data availability

Data is is available on the website of the LISS Panel: https://www.lisspandata.nl.

Acknowledgement

Earlier versions of this paper were presented to colleagues at the 2015 ECPR General Conference in Montréal, the 2015 EPSA conference in Vienna, the 2016 Etafa in Brussels, the workshop ‘Measuring individual dynamics with political science data’ at the University of Essex, and at Aarhus University’s Political Behaviour research meeting. We are very grateful for to participants and especially discussants for their help and advice. For additional suggestions and comments, we would like to thank Anna Kern, Christopher Anderson, Dieter Stier, Pir Zetterberg, and Palle Svensson. We are also grateful to three anonymous reviewers for comments that greatly improved the paper.

Appendix A. Supplementary data

Supplementary data to this article can be found online at https://doi.org/10.1016/j.electstud.2020.102271.

References
