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Dominik Vogel | Alexander Kroll

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Testing Theoretical Expectations against Panel Data

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# The Stability and Change of PSM-related Values across Time: Testing Theoretical Expectations against Panel Data

Dominik Vogel

ORCID: 0000-0002-0145-7956

Alexander Kroll

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## ABSTRACT

This article is a response to calls in prior research that we need more longitudinal analyses to better understand the foundations of PSM and related prosocial values. There is wide agreement that it is crucial for theory-building but also for tailoring hiring practices and human resource development programs to sort out whether PSM-related values are stable or developable. The article summarizes existent theoretical expectations, which turn out to be partially conflicting, and tests them against multiple waves of data from the German Socio-Economic Panel Study which covers a time period of sixteen years. It finds that PSM-related values of public employees are stable rather than dynamic but tend to increase with age and decrease with organizational membership. The article also examines cohort effects, which have been neglected in prior work, and finds moderate evidence that there are differences between those born during the Second World War and later generations.

## INTRODUCTION

Over the last two decades research on the motivation of public employees has become one of the most vital fields in public administration research. This research was highly influenced by the first article on public service motivation (PSM) by Perry and Wise (1990, 368). They defined PSM as “an individual’s predisposition to respond to motives grounded primarily or uniquely in public institutions and organizations”.

Twenty years of research has resulted in a good deal of new evidence on the motivational basis of public service. Amongst others, PSM has been found to be strongly related to public servants’ job satisfaction (e.g., Bright 2008; Moynihan and Pandey 2007a), organizational commitment (e.g., Moynihan and Pandey 2007a; Taylor 2007), organizational citizenship behavior (e.g., Kim 2006; Pandey, Wright, and Moynihan 2008), use of performance information in decision-making (Kroll and Vogel 2014; Moynihan and Pandey 2010). There is also growing evidence on a positive relationship between PSM and the performance of individuals and organizations (e.g., Kim 2005; Ritz 2009; Bellé 2013; Petrovsky and Ritz 2014). Nevertheless, in addition to common method bias concerns, here are still unanswered questions (Perry and Hondeghem 2008, 302 seq.; Wright and Grant 2010, 693), most of which are either time related or aim at issues of causality. These questions are at the very heart of PSM, and some of them will be addressed in this article, as we explain in the following sections.

The main question this article focuses on is whether PSM is a stable trait or a dynamic one, since understanding this distinction is crucial for public management practice and research. For practice, recruiting and attracting the “right” people will be the most promising strategy if PSM values are found to be mostly stable traits, whereas investments in the development of prosocial attitudes (HR programs with a strong focus on an organization’s mission and prosocial impact) are like to pay off if these attitudes are dynamic states. For theory, clarifying this distinction will help to better understand the origins of PSM. If prosocial values are relatively stable, then variation among public organizations is the consequence of attraction effects, meaning that employees with greater or lesser PSM will self-select into different organizations and sectors, whereas in the case of instability, socialization can play an important role.

The article’s contribution is two-fold: First, it draws on prior work and puts forward a preliminary theory of PSM change, involving variables such as socialization, age, and birth cohorts. Some of the hypotheses derived from such a theory, however, are at least partially conflicting or speculative and need to be formulated as alternatives. That is, previous findings and theorizations are far from definitive, which is why this article provides an additional empirical test.

The second contribution arises from the article’s statistical design. Studying how (and if) public employees’ values evolve across time requires use of a panel data set that provides repeated measures for a longer period of time. Since this study is to our knowledge the first one using these kinds of data for this purpose, we believe that our article does not provide “just another” empirical test. Instead, we want to emphasize

that it provides one of the most appropriate empirical analyses and therefore contributes to a better qualification of existing theories of PSM change. Only the use of panel data will allow to fully examine theories that try to explain changes in employee attitudes over time, and it is therefore an essential component of theory-building.

Though we consider our research design as appropriate and robust, we regard our findings by no means as final. In fact, using data from the German Socio-Economic Panel (SOEP) study comes at the expense of not being able to use established PSM scales– a limitation we want to state upfront. However, we utilize three items that we think resemble the concept of public service motivation, and which we therefore refer to as PSM-related values, following the example by Park and Rainey (2008).

## THEORIZING CHANGE AND STABILITY OF PSM-RELATED VALUES

### A Review of the Literature

This section reviews literature on the change and stability of PSM-related values. It begins by examining conceptual and empirical work on PSM and evaluates both with regard the clues it provides on the development of prosocial values. This leads to the formulation of two alternative hypotheses, suggesting that PSM-related values could be both, stable or dynamic. Since there are different explanations of why such values might change across time, we further unpack the “instability hypothesis”, including literature from outside of the area of PSM and discussing three specific mechanisms: a) organizational socialization, b) aging, and c) cohort effects.

When theorizing about PSM, a good starting point is to take a look at the original definition provided by Perry and Wise (1990, 368) who refer to PSM as “[...] an individual’s predisposition to respond to motives grounded primarily or uniquely in public institutions and organizations”. The term “predisposition” points towards stability and implies that PSM is a trait-like concept which differs among types of people. Though there is not much empirical research on the stability of PSM, there is work on comparable dispositions in the fields of sociology, political science, and psychology. The explanation behind the idea of stability is that, though values can change during adolescence (“impressionable years” hypothesis), individuals’ social and political predispositions remain stable during a life time, just like other personality traits.

Evidence for this view comes from early work by Judd and Milburn (1980), Jennings and Markus (1984), Huesmann et al. (1984), and Sears and Funk (1999), who used panel data spanning across periods of four to 37 years, showing that ideological values, partisan orientations, anti-social attitudes as well as attitudes towards racial integration, helping minorities, or the government’s role in society turn out to be fairly stable predispositions. More recent research corroborates previous findings, suggesting that political attitudes are quite stable once they have been developed, even when accounting for genetic influences in twins (Hatemi et al. 2009), and that attitudes are generally more stable than related behaviors (Hooghe and Wilkenfeld 2008).

Even when considering work attitudes instead of social values, and thus including literature from organizational behavior, there is – again – support that such attitudes are to a good extent stable, implying that they are based on latent predispositions which vary among employees but not so much over time. A meta-analysis on job satisfaction showed, for example, that the satisfaction values that employees' reported over a period of on average three years are strongly correlated ( $r=.48$ ), even if employees had switched jobs ( $r=.35$ , Dormann and Zapf 2001). Using five years of data, Bowling, Beehr, and Lepisto (2006) similarly find that job satisfaction, organizational commitment, career commitment, and career satisfaction are quite stable; explain this by these variables' relatedness to a more generic positive affective disposition that some employees seem to have. A final study that should be added here is one on the change and stability of attitudes of military personnel on topics such as military spending, influence and supremacy (Bachman et al. 2000). The findings of this study are in line with other literature discussed in this section: These attitudes are stable and the result of self-selection (students with positive military attitudes are more likely to join the armed forces) rather than socialization in the military.

Despite the research presented above suggesting that social and work attitudes comparable to those often associated with PSM can be conceptualized as static personal dispositions, there is also research suggesting prosocial values might vary over time. Correlational studies found effects of red tape or transformational leadership on PSM (Moynihan and Pandey 2007b; Park and Rainey 2008; Wright, Moynihan, and Pandey 2012). This could be considered as evidence in favor of the view that PSM is dynamic, because otherwise it should not covary with red tape or leadership.

However, the same observation could be explained by selection effects, which is one reason this evidence is far from being definitive. Since these studies used cross-sectional designs, it is also possible that employees with more PSM have selected into organizations with little red tape and great transformational leadership, which would be in line with the general assumption on which the PSM-fit literature is built (Ryu 2014).

Another argument in support of the "instability hypothesis" comes from research which has linked motivation crowding theory to PSM (Jacobsen, Hvitved, and Andersen 2013; Moynihan 2010). The expectation here is that extrinsic incentives or external control will reduce prosocial motivation due to impaired self-determination and self-esteem. For our research, the takeaway from this is that if PSM can be "crowded out", then it must be a dynamic state. Although, to our knowledge, there has not been a study using a pre-test/post-test experimental design to show decreases in PSM as a consequence of extrinsic motivation interventions, there is convincing evidence for a crowding-out effect of intrinsic motivation (Frey and Jegen 2001), a concept closely related to PSM (Moynihan 2010).

Even more compelling support for PSM as a dynamic state is provided by two very recent studies that both examine students' PSM right before entering the job market. Using three-year panel data Kjeldsen and Jacobsen (2013) find that students' PSM significantly decreases between finishing their training and starting a public- or private sector job. Ward (2014) reports a similar long-term decline in PSM looking at a time span

of eight years, though he also notes that participating in a national community service program (AmeriCops) initially led to a significant increase in PSM.

In this section, we discussed literature on the question of whether PSM is a stable trait or a dynamic state. Since we found evidence for both perspectives, while incorporating literatures from areas beyond PSM, we must formulate two alternative propositions, which at this point confirm what Wright and Grant (2010, 693) hypothesized about the nature of PSM: “Given that even traits may exhibit both stability and considerable within-person variability driven by individual responses to external circumstances [...], it may be likely that both mechanisms play some role.”

H<sub>1a</sub>: Employees’ PSM-related values are *stable* across time.

H<sub>1b</sub>: Employees’ PSM-related values are *dynamic* across time.

### Organizational Socialization Effects

Thus far, our literature review has provided evidence for the possibility that PSM is a stable or a dynamic construct. The following sections focus on the explanation of potential differences in PSM across time in greater detail.

One mechanism that is able to explain changes in PSM is organizational socialization, which can be defined as “the process by which an individual acquires the values, knowledge, and expected behavior needed to participate as an organizational member” (Chatman 1991, 462). The logic behind this mechanism is that working in organizations can affect individuals’ attitudes in a way that personal values become more congruent with those of the organization over time. And this effect will be stronger, the longer the organizational membership lasts. For the case of the PSM this could mean that working in public administration might reinforce public and prosocial values in employees because such values are an important part of every public organization’s missions (even if not formalized in a mission statement) and are likely to serve as a compass for day-to-day work.

There is a good deal of evidence for socialization effects. Chatman (1991) finds that new employees are more likely to have higher levels of value-congruence with their organizations one year after the hire if they were engaged in social activities and mentor relationships. This effect was significant even when controlling for measures of person-organization fit prior to joining the organization. Similar socialization effects were documented by Cable and Parsons (2001) who studied employee attitudes for over two years. One of the points they make is that socialization can be accelerated if organizations engage in tactics which help newcomers understand and navigate through the organization and which facilitate support from experienced insiders. Both of these studies focused on the socialization of newcomers right after their entry, but an article by Robinson (2012) provides more of a long-term perspective. Focusing on the period between 1947 and 2007, he finds that Supreme Court justices are more likely to defer to the president in separation of powers cases if they have worked in the executive branch prior to their appointments. He also shows that their support intensifies as executive

branch tenure increases. This is an interesting observation, as it shows that socialization can affect people's attitudes and behaviors even after leaving the organization in which they have been socialized.

However, there is also some evidence that socialization in public-sector organizations can harm employees' PSM. Kjeldsen and Jacobsen (2013) documented a decline in PSM, though this was explained by a "reality shock" that students experienced when starting their work life rather than by a long-term socialization process. Moynihan and Pandey (2007b) found clear support for a significant negative impact of organizational tenure and explained this as follows. First, it might be possible that bureaucratic forms of government lower the enthusiasm of motivated and well-intentioned workers (Gore 1993). Another possibility is that the bureaucratic character of public organizations might lead to the adoption of a bureaucratic personality as a result of goal displacement. The original purpose of the organization – which can be seen as PSM-related – and therefore the PSM-oriented goals of the employee have been replaced by rule observance (Merton 1940). Employees must adapt in their everyday work to the requirements of bureaucracy, become part of the directive management system and therefore lose sight of their original PSM-related goals. A third argument is that long standing employees may recognize the inefficiency of the organization in achieving its goals more and more, and this perception undermines employees' PSM. As a result of this, employees get increasingly frustrated as time passes because they do not see the possibility to actualize their PSM and thus have to lower their expectations (Romzek and Hendricks 1982). This is also supported by a study by Giauque et al. (2012), who argue that high levels of PSM (especially compassion and self-sacrifice) are subject to a misfit between public servants and the organization they work for. It is arguable that this misfit is getting even more visible, the longer one works for the same organization and thus might lead to a decrease in PSM.

We found evidence for a positive and a negative effect of organizational socialization in public organizations, materializing through organizational tenure, which is why we formulate two alternative hypotheses.

H<sub>2a</sub>: The length of organizational membership has a *positive* impact on public employees' PSM-related values.

H<sub>2b</sub>: The length of organizational membership has a *negative* impact on public employees' PSM-related values.

### Age and Cohort Effects

In our review above, maturation was associated with the stability of social and political attitudes. The assumption was that, though there can be variation in younger years, attitudes such as those affiliated with PSM are less likely to change after they have been developed at the beginning of an adult's life. However, there is also research questioning this hypothesis. Alwin and Jon A. Krosnick (1991), for example, found that, though attitudes are unlikely to change direction when people get older, their intensity



might still be able to vary. For the case of PSM, this could mean that older employees are very unlikely to turn from being highly prosocially driven to highly anti-socially motivated (or vice versa), but it would still be possible to observe variation around a person's lifetime PSM mean.

Most of the research on PSM or its sub-dimensions suggests that if age has an effect, it is a positive one (Anderfuhren-Biget 2012; Houston 2000; Perry 1997; Pandey and Stazyk 2008; Leisink and Steijn 2008). Vandenabeele (2011), for example, argued that older people might be more concerned about giving something to following generations and make lasting contributions to society. Relatedly, Kohlberg (1973) argued that older people reach a higher stage of moral development and therefore attach more importance on PSM-related values. It is also possible that older people might have a different attitude towards public service values than younger because they have a higher stock of social capital (Putnam 2000).

The evidence in favor of a positive effect seems to be overwhelming. However, we need to keep in mind that we also presented support earlier in this article for the claim that PSM-related values will not significantly vary when employees get older, which led to the formulation of hypothesis 1a, and which is also supported by at least four PSM studies (Bright 2005; Naff and Crum 1999; Bright 2009; Moynihan and Pandey 2007b). Furthermore, we note that prior research has mainly used cross-sectional data, which is why these findings need further validation based on longitudinal data. Earlier we theorized that there is evidence for prosocial attitudes to be dynamic (hypothesis 1b). Here, we propose a specific form of change – a gradual increase for every additional year of age.

H<sub>3</sub>: Aging has a *positive* impact on public employees' PSM-related values.

A final perspective we discuss is the one of cohorts. When studying people's attitudes and values across time, researchers have directed their attention to birth cohorts in order to account for specific historic events and experiences that have differed among generations. For example, research has shown that political values of those who were young adults during the 1960's are significantly different from those who belong to other generations (Davis 2004). The, a panel study (Alwin and Jon A. Krosnick 1991) on change and stability of sociopolitical orientations, discussed earlier, only found significant results when looking at intra-cohort patterns instead of the pooled data set as whole. Accounting for cohorts is particularly relevant when one's interest is in examining the effect of age. For example, if older employees show higher levels of PSM-like values, we cannot be certain that this is due to an age effect as long as we have not found the same effect for different birth cohorts.

In this context, it seems appropriate to use the concept of (social) generations which is—like the cohort concept—mainly based on the year of birth. In contrast to the idea of cohorts, a generation is not characterized by a fixed time-period of five or ten years (for example those who are born between 1950 and 1959), but instead considers historical and sociological circumstances to build up generational categories (Jaeger

1985; Pilcher 1994). Jaeger (1985, 276) defines a generation as follows: “[T]hose who receive the same impressions during their formative years form a generation. In this sense, a generation consists of a close circle of individuals who make up a holistic unit through their dependence upon the same historical events and changes which they experienced during their formative years in spite of other differences”. Cohort effects could be in line with the stability or instability of PSM, which is why we do not specify a particular pattern (differently sloped lines); we would expect and just put forward a simple hypothesis.

H<sub>4</sub>: PSM-related values vary among different generations of employees.

## DATA AND METHODS

### Sample

The data this study uses are from the German Socio-Economic Panel Study (SOEP).<sup>1</sup> SOEP is a panel study which surveys the same people every year and mainly focuses on socio economic data such as income or education. The first survey was conducted in 1984, and currently about 20,000 people are surveyed every year. The SOEP is similar to projects like the Panel Study of Income Dynamics (PSID) in the U.S. or the British Household Panel Survey (BHPS).

We used a subsample of the whole SOEP data set because only four out of all available waves (1992, 1995, 2004, and 2008) could be utilized for the purpose of our research. This restriction had to be made because two of the three dependent variables have been included only in these four years. The sample is restricted to those individuals who worked in the civil service at all four waves (n=348), which is the only way to learn more about public-sector employees longitudinally and in accordance with prior research.<sup>2</sup>

Respondents were born between 1940 and 1975, and therefore were between 17 and 52 years old at the first wave in 1992 and between 33 and 68 years old at the last wave in 2008. The average age was 35 in 1992 and 51 in 2008. 51 % of respondents are female. Mean organizational tenure was 9.5 years in 1992 and 23.6 years in 2008. More descriptive information can be found at the end of this section in table 1

### Measures of PSM

Unfortunately, the SOEP study does not directly assess PSM by using the original scale by Perry (1996) or other established (short) scales. Nevertheless, there are three items in the SOEP that can be classified as PSM-related values. Two are derived from the following question: “Various things can be important for various people. Are the following things currently [very important; important; less important; not at all important] for you?” The items are “to be politically and/or socially involved” and “to be

there for others". The third item was included in a different question: "Generally speaking, how much are you interested in politics?" Respondents had to rate this item on a four-point Likert scale, using the options very much; much; not so much; not at all. In this article the items are referred to as (1) "social and political involvement", (2) "care for others", and (3) "interest in politics".

These items were chosen because they share a good deal of commonality with specific sub-dimensions of PSM (Perry 1996) and can be seen as reasonable measures of them. The first item "social & political involvement" can be attributed to the second dimension "commitment to public interest". It is, for example, related to the reversed item "It is hard for me to get intensely interested in what is going on in my community" from Perry's (1996, 10) initial scale. Both pick up on the importance of social and political aspects and the importance of being involved. The second item "care for others" is not directly related to Perry's (1996) scale, but it comes very close to measures ("I care about benefiting others", "opportunities to help others are important to me") which were found to be highly correlated with PSM in a study by Wright, Christensen, and Pandey (2013). The item taps into the compassion dimension of PSM and reflects the importance of social relationships and a general awareness of social issues.

"Attraction to policy making" is probably the most-controversial PSM dimension. Perry's (1996) items for this sub-dimensions have been criticized as being too narrow, not internally valid, and barely transferable to contexts outside of the United States (e.g., Giauque et al. 2011; Kim 2008; Kim 2009). Recent work on the measurement of PSM suggested relabeling this dimension to "interest in politics and policies" (Vandenabeele 2008), and an in-depth qualitative study by Ritz (2011) pointed out, among other things, that people's general political interest is an important pillar of this dimension. We therefore believe that our third item ("interest in politics") taps into the political dimension of PSM. Though it cannot capture all the different aspects of the political dimension discussed by Ritz (2011), we think it is fair to assume and in line with prior work concluding that employees who are generally more prosocially driven are also more likely to be more politically interested.

Though all three items are not directly taken from a PSM scale, they are able to pick up on basic aspects of three of the PSM sub-dimensions. We are aware that this is a limitation, but it seems to be the price we have to pay if we want to make use of a representative, balanced panel survey that provides information for a period of nearly two decades. As already mentioned in the introduction to this article, we use the term "PSM-related values" in order to indicate these differences in the measurement of PSM. We did not combine the three items into a PSM scale because when factor analyzed, loadings ranged between .20 and .58, and the Eigenvalue was below the threshold of one.

## Methods and Modeling

To test the hypotheses formulated above, this article's empirical section is structured along three main questions: a) How stable or dynamic are PSM-related values

over time? b) How can we explain change across time, and what is the role of age and tenure? c) Is there evidence in favor of cohort effects? To answer questions a) and c), we mainly use descriptive analyses. For a) we borrow an approach from Rice and Hilton (1996) and use it to compare the percentages of employees who changed or did not change their responses to repeated PSM-related questions over a period of sixteen years. For c) we graphically compare the PSM-related values for different cohorts, while accounting for employee age, and we accompany this analysis with a t-test (see Liu et al. 2001 for a similar approach). Our analysis strategy is conservative, that is, we interpret all descriptives in favor of the null hypothesis, unless clear patterns emerge.

To examine question b), we make use of a fixed-effects (FE) panel regressions, which are well-suited for the analysis of time-related effects. In contrast to OLS regressions, which are often used to explain differences among employees, FE panel regressions are able to explain individual changes in the attitudes or behaviors of given employees over time. By fixing the effects at the person level, panel regressions eliminate all unobserved heterogeneity and between-person variation among individuals from the model and thus partial-out time effects “within” individuals (Wooldridge 2010, 286; 302; Allison 2005, 13). This is why FE panel regressions can be used to determine whether time-related change in an independent variable can account for time-related change in PSM-related values. In this regard, our focus is on how changes in age and organizational tenure affect variation in public sector employees’ prosocial values. Prior research which has examined these effects cross-sectionally has raised several issues such as high collinearity or the limited informative value of, for example, simply comparing “older” with “younger” employees. FE panel regressions are better able to deal with these issues. First, repeated measurements increase the number of degrees of freedom, which makes it less likely that standard errors will be overestimated if independent variables are highly correlated. Second, instead of simply comparing a cross-section of older and younger people, panel regressions examine effects (in our case on PSM-related values) when younger people “turn into” older ones while keeping person specific influences constant (Baltagi 2005; Hsiao 2007).

Studying variation in employees’ PSM-related values means that we can only include independent variables in our models that also covary over time. That is, variables which need to be treated as constants across time are, by definition, not able to account for time-related changes in PSM. This is why we cannot include factors such as gender or birth cohort in our regressions – they might be able to explain PSM differences among employees, but they cannot explain changes “within” individuals over time. However, this does not mean that time-invariant variables have been ignored in our estimations. They can just not be identified in the models as they are perfectly collinear with the person-level fixed effects (Gormley and Matsa 2014). In this regard, it is noteworthy that FE estimations are better able to handle omitted variable bias than other types of regressions because they hold all – even unobserved – time-invariant and person-specific predictors constant.

Here, we want to briefly discuss the selection of control variables. Changes in these variables over time may lead to increases or decreases in PSM, which is why it is

important to account for these factors. Our models are quite robust to omitted variable bias because individuals serve as their own controls, but we expect some change in the variables we identify in this paragraph and therefore will statistically control them. Though we are not able to go into all the details and theoretical expectations here, we want to explain the reasoning behind our modeling approach – the exact operationalizations of all our variables can be found in the appendix. On the one hand, we wanted to include important time-variant correlates of PSM that have been identified in prior work, such as a person’s hierarchical level (measured using the magnitude prestige scale<sup>3</sup>; Wegener 1992), income, and satisfaction with job, health, and life (Moynihan, DeLeire, and Enami 2013; Perry 1997; Moynihan and Pandey 2007b; Bright 2008). On the other hand, we wanted to incorporate other job-related and -unrelated variables that can vary over time and would therefore be able to explain changes in PSM-related values. Job-related change is captured through job change, type of work contract (Battaglio 2010), and overtime hours (Wright and Grant 2010). Job-unrelated events which might affect employees’ prosocial values are marriage and the birth of children (Camilleri 2007). Though there might be more factors which could have an effect on changes in PSM, we can only include variables which are existent in the SOEP data set. Again, all time-invariant variables are controlled by design when using FE panel regression.

	Mean	S.D.	Range	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)	(15)
(1) imp. social + pol. involv.	2.08	0.67	1-4	1.00														
(2) care for others	3.17	0.52	1-4	0.14	1.00													
(3) political interest	2.43	0.73	1-4	0.42	0.05	1.00												
(4) age	42.49	9.52	metric	0.13	-0.10	0.20	1.00											
(5) org. tenure	16.26	10.28	metric	-0.04	-0.05	0.10	0.45	1.00										
(6) job prestige	74.38	29.33	30-216	0.24	0.08	0.23	0.27	0.07	1.00									
(7) job change	0.19	0.40	0-1	0.07	0.09	0.00	-0.18	-0.27	-0.04	1.00								
(8) married	0.72	0.45	0-1	-0.04	0.06	0.00	0.27	0.11	0.07	-0.06	1.00							
(9) job satisfaction	7.06	1.88	0-10	0.06	0.03	0.03	-0.01	-0.05	0.10	0.01	-0.01	1.00						
(10) temporary work contract	0.31	0.46	0-1	0.03	-0.01	-0.02	-0.07	-0.14	0.01	0.02	-0.03	0.01	1.00					
(11) overtime per week	7.33	12.31	metric	0.15	0.09	0.19	0.01	-0.01	0.00	0.04	0.00	0.03	0.06	1.00				
(12) life satisfaction	7.04	1.57	0-10	0.07	0.06	0.12	-0.01	0.04	0.08	0.02	-0.04	0.46	0.05	0.04	1.00			
(13) satisfaction w. health	6.87	1.94	0-10	0.09	0.07	0.09	-0.06	-0.10	0.05	0.01	-0.02	0.43	0.05	-0.01	0.46	1.00		
(14) Birth of 1st child	0.19	0.39	0-1	-0.04	0.06	0.03	-0.13	-0.03	0.03	0.09	0.20	-0.02	0.02	-0.07	0.03	0.04	1.00	
(15) Birth of add. child	0.13	0.33	0-1	0.00	0.09	0.02	-0.08	-0.04	0.01	0.08	0.19	-0.03	-0.09	-0.03	-0.02	-0.02	0.28	1.00
(16) income (log)	7.68	0.48	metric	0.19	-0.05	0.31	0.31	0.19	0.41	-0.03	0.02	0.12	-0.09	0.11	0.14	0.01	-0.06	-0.03

Table 1: Descriptive Statistics and Average Correlations

## Limitations

There are a few limitations that must be acknowledged. First, the panel data we use might be slightly biased towards the “stability hypothesis” because all PSM-related values are measured using four-point scales, which by definition do not allow a great deal of variation. However, other PSM studies have shown that it is possible to detect significant variation across time using similarly constrained 5-point scales (Ward 2014; Kjeldsen and Jacobsen 2013). Second, panel attrition might affect the results if many employees drop out of the panel and if these people are significantly different from those who remain in the study. We do not think that the SOEP panel data are prone to systematic attrition problems,<sup>4</sup> mainly because the annual response rate is fairly high (90%-94%), and out of those who were a part of the panel in 1992 (our first wave) the vast majority of respondents (60%-70%, varying for different sub-groups) were retained until 2008 (the last wave) (Kroh 2011). Third, common-source bias can be an issue if all data were collected using the same survey instrument (Jakobsen and Jensen 2015). FE panel regressions are able to deal with this problem reasonably well since data are collected from multiple repeated surveys, and social desirability – if present – is likely to be eliminated from the estimations, as it might vary among individuals but rather remains constant across time. That is, shared error variance may lead to biased intercepts but is less likely to affect the slopes, and the latter are of main interest in FE panel regression analysis. Fourth, we have already discussed the drawback that it was not possible to use the original PSM scales, but also argued that the measures we use tap into employees’ prosocial values and that the benefits of having panel data for these measures outweighs the costs of their being single items. Fifth, the explanatory power of our models is relatively low, which is in part due to the limited variation our four-point measures allow. Another reason for the overall low model fit is that most of the control variables turned out to make barely any significant contributions to the model. However, we do not consider this as a major issue, as the effect size of our main variables is far from being small – a one standard-deviation increase in age and tenure across time is associated with a change in PSM ranging between .19 and .34 standard deviations.

## RESULTS

The first part of this section is devoted to the question of how stable or dynamic PSM-related values are over time. Table 2 gives an overview of the development of the three PSM-related values over time. Part A shows how many “moves” on average an individual has made over time. One move equals to a change of one point on a Likert scale. On the 4-point scale used here, one can at most “move” from 1 in 1992 to 4 in 1995

(= 3 moves), to 1 in 2004 (= 3 moves) and back to 4 in 2008 (= 3 moves) or vice versa. A maximum of 9 movements was possible. The mean was calculated by summing up all moves of an individual and dividing it by the total number of participants (n = 336).

	social & political involvement	care for others	interest in politics
<i>Part A</i>			
Mean # of Points Moved	1.28	0.96	0.84
<i>Part B</i>			
Stable	32.1 %	41.4 %	47.9 %
Absolute Movement = 1	26.5 %	26.8 %	28.9 %
Absolute Movement = 2	27.7 %	26.5 %	15.5 %
Absolute Movement = 3	9.2 %	5.1 %	7.1 %
Absolute Movement = 4+	4.5 %	0.3 %	0.6 %
<i>Part C</i>			
Stable 1992 and 1995	60.7 %	67.6 %	72.6 %
Stable 1995 and 2004	56.0 %	68.2 %	70.2 %
Stable 2004 and 2008	64.3 %	69.4 %	76.8 %
Stable 1992 and 2008	59.8 %	66.7 %	62.2 %

Table 2: Stability of PSM-related values

For all three variables the mean number of movements is relatively small. “Social and political involvement” shows the highest one with 1.3, followed by “care for others” (1.0) and “interest in politics” (0.8). This implies that a participant in the sample changes their attitude towards “care for others” on average only to a small degree over the observed four waves (16 years). The value for “social and political involvement” is a bit higher, the one for “interest in politics” a bit lower. Nevertheless, all three variables show a high stability if compared to the maximum of 9 moves possible.

Part B in Table 1 gives a more detailed summary of individual’s “movements”. The first row shows the ratio of those participants who did not change their attitude at all (Stable). This varies between 32 % (“social and political involvement”) and 48 % (“interest in politics”). One-third to nearly half of participants did not change their opinion over the observed 16 years. Interpreting the categories “movement = 1” and “movement = 2” is a little more difficult. Some readers might consider moving a Likert scale up or down by one point over a period of sixteen years as support for the stability hypothesis. Others might argue that a one-point change on a scale which only consists of four categories is evidence for the dynamic changes in PSM. Since we stated in the method section that we will be careful with our readings of results if they are ambiguous, we refrain from interpreting the so-called one-point movers (26.5 % – 29 % of the respondents) as support for either perspective. Instead, we want to take a closer look at the two-point movers, because two movements should provide a clearer pattern – either



two moves in the same direction (“change trend”) or one move up/down and one move back to the original position (“stability”). Disentangling these two scenarios shows much clearer results (numbers not reported in the table): Between 90 % and 94.4 % of all two-point movers moved back to their original response category. That is, the response pattern of almost all of these employees (which make up between 15.5 % and 27.7 % of the sample) provides evidence in favor of the stability hypothesis ( $H_{1a}$ ). If we add these employees to those who did not move at all, we can see that the large majority of employees (even if we leave the one-point movers aside) possesses rather stable PSM-related values.

In Part C of Table 1, we can see the share of those who did not change their mind between two waves. The results, again, provide evidence for the stability of the three concepts. This part also allows a first judgment of the issue of unequal time-distances between the four waves in the dataset, which could cause difficulties. But as we can see in Table 1, this is not the case. The biggest time difference between 1995 and 2004 does not result in a higher amount of movements. The figures for the biggest time distance between 1995 and 2004 are not remarkably different from those of other years. We also ran a supplementary analysis and calculated the Cronbach’s alpha values for each of the three variables across panel waves. The alpha values are .77 (involvement), .68 (care) and .89 (politics), suggesting that there is a great deal of consistency and stability in all three constructs.

Table 3 provides the results of the FE panel regressions, which explain changes in PSM-related values over time, while accounting for the effects of 13 time-variant variables. Hypotheses 2a and 2b involved the effect of organizational tenure, and as we can see in the table, the findings indicate a negative relationship and thus support the latter hypothesis. The effect on “interest in politics” is significant, whereas the one on “social & political involvement” has a negative sign but its p value is just above the 10% significant criterion ( $p=0.101$ ). The results also support hypothesis 3 – age has a positive effect on development of prosocial values. In two out of three models age has a significant effect, and a look at the standardized coefficients (not reported in the table) tells us that age is the independent variable with the highest explanatory power (standardized coefficients  $\beta = .32$  and  $.34$ ).<sup>5</sup>

	(1) social & political involvement	(2) care for others	(3) Interest in politics
Age	.023*** (.004)	-.004 (.544)	.027*** (.001)
Organizational tenure	-.012 (.101)	-.001 (.845)	-.021*** (.009)
Job prestige	-.000 (.940)	.001 (.220)	-.002 (.172)
Job change since last wave	.076 (.165)	.027 (.552)	.008 (0.838)
Marital status: Married	-.021 (.775)	-.002 (.973)	-.006 (.931)
Job satisfaction	-.007 (.603)	.008 (.472)	-.013 (.301)
Work contract: Permanent	-.065 (.149)	.011 (.769)	.002 (.965)
Overtime per week	.001 (.538)	.003* (.065)	.001 (.412)
Satisfaction with life	-.001 (.972)	.023* (.098)	.004 (.765)
Satisfaction with health	.023 (.110)	-.002 (.858)	.017 (.136)
Birth of 1st child	-.047 (.551)	-.071 (.271)	.147** (.012)
Birth of additional child	.138 (.117)	.091 (.210)	-.045 (.529)
log(income)	-.038 (.663)	.039 (.570)	-.047 (.458)
<i>Within-R<sup>2</sup></i>	.0301	.0203	.0407
<i>n (individuals)</i>	333	333	333
<i>rho</i>	.535	.447	.736

Table 3: Fixed effects panel regression on PSM-related values

Unstandardized regression coefficients; *p*-values in parentheses

Linear panel regressions with fixed effects and clustered std. errors (person-level)

\*  $p < .1$ . \*\*  $p < .05$ . \*\*\*  $p < .01$

Although many control variables have been included, only three of them show significant effects on at least one of the dependent variables. These independent variables are not the main focus of this article, but we will comment briefly on them, considering that they explain time-related change in PSM-related values and not, as in so

many other studies, differences among employees. Increases in overtime and life satisfaction across time are positively related to increases in “care for others”. Both effects are not surprising, but the causal direction of the overtime-PSM effect might be reversed – more prosocial motivation makes civil servants put more effort and time into their jobs in order to make a greater impact on society (Kroll and Vogel 2014; Moynihan, DeLeire, and Enami 2013; Ritz 2009). The birth of the first child fosters employees’ “interest in politics”, while holding all other 12 variables in the model constant. What is interesting about this effect is that it indicates that such a life changing event, even if not directly related to an employee’s work, can make an impact when examining changes in PSM and should be considered in future longitudinal modeling approaches.

After we have shown that PSM-related values increase when people get older, one age-related question is still unanswered: Is there— in addition to the age effect— a cohort effect? In other words, do younger or older people have different levels of PSM-related values if they belong to different generations? To analyze cohort effects, we divided the sample into four different generations. Those four generations have been adapted from German historical and sociological research (Jureit and Wildt 2005; Kraft and Weißhaupt 2009). They relate to German history and therefore are not fully consistent with, for example, generations in a U.S. context.<sup>6</sup> The first generation consists of those born during World War II (in this sample 1940 to 1945). They grew up during and immediately after the war and had a childhood which was quite distinctive from the second generation in the sample; the post-war generation. This generation was born between 1946 and 1955 and benefited from the strong economic growth after 1950 – the so-called “*Wirtschaftswunder*” (“economic miracle”). Nevertheless, childhood was characterized by the reconstruction of the country. This generation was also heavily involved in the protests of 1967/1968. The post-war generation is followed by the baby-boomer generation. In Germany, this generation covers those who are born between 1956 and 1965. Finally, Generation X – those who are born between 1966 and 1975 – is included in this study. This generation is characterized by a distinctive turn away from the values of the previous two generations, which had been characterized by very strong political and social involvement. Generation X was also the first generation after World War II that was confronted with an economic recession.

Figure 1 gives a graphical overview of the development of the three PSM-related values when employees get older, separated by generations. Hypothesis four stated that we expect different values for different generations, without hypothesizing a direction. Considering our earlier comment that our interpretations will be conservative, when looking at the three cohorts “postwar generation”, “Baby Boomer”, and “Generation X”, we have to conclude that there are no major descriptive generation-related differences. What is interesting, though, is that there are also no generation-specific trends (different slopes), which is again support for the stability hypothesis.

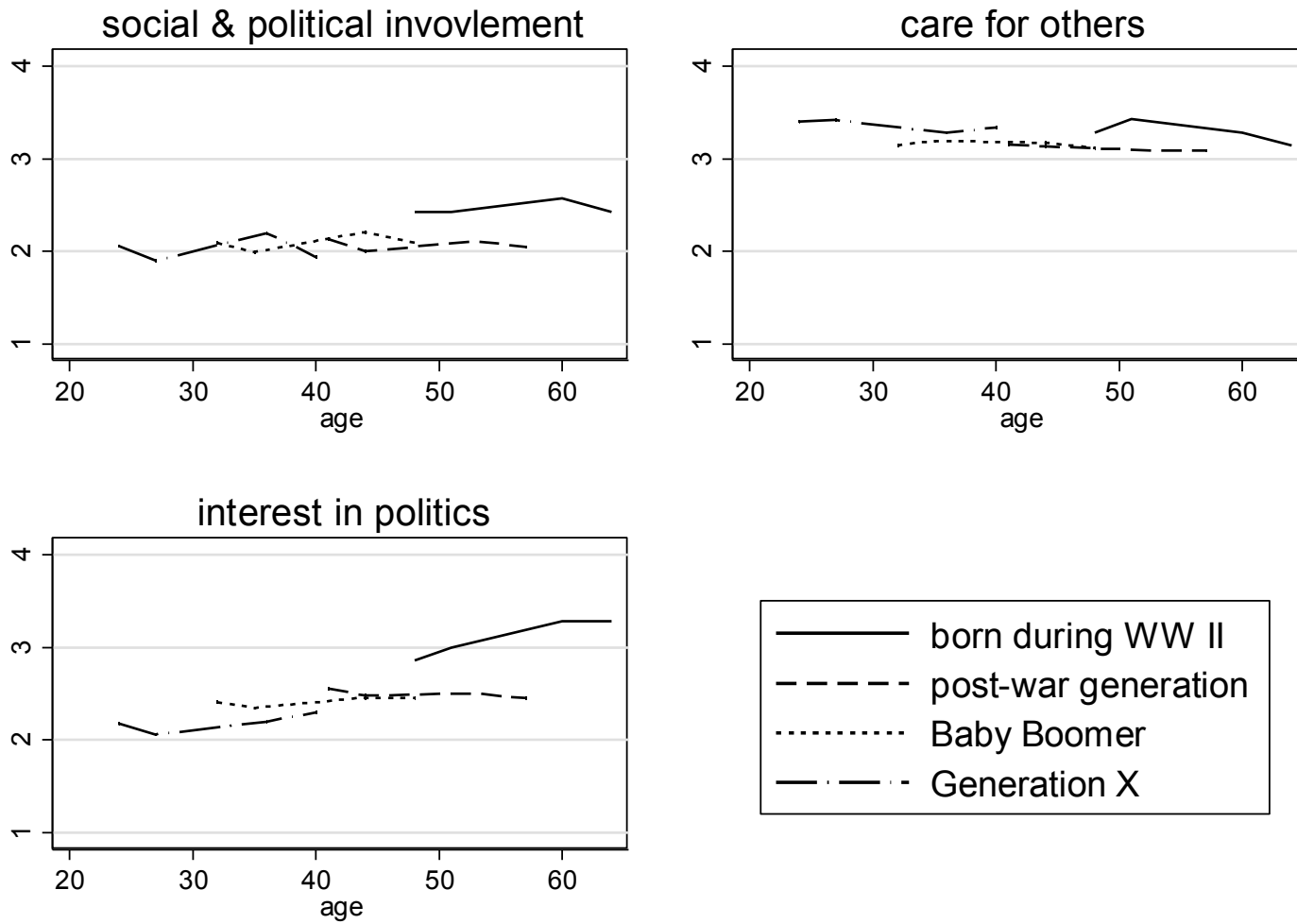


Figure 1: Cohort Effects

Our reading of the results is different for the generation of employees born during the Second World War. Though, again, the values for this generation do not follow a clear trend, employees of this generation show generally stronger prosocial attitudes compared to other employees (different intercepts). This difference also holds if we keep age constant: When comparing employees between the age of 50 and 60, higher values with regard to “social and political involvement” and “interest in politics” can be found for the World War II generation compared with the post-war cohort (differences regarding “care for others” do not emerge). These differences, which were found for two out of three PSM-related values, are also significant when performing a two-tailed t-test ( $p < 0.05$ ). On average, the World War II generation possesses stronger prosocial values compared to the average mean of all other cohorts.

## DISCUSSION

In this section we will discuss our findings, link them back to the theoretical debate, and explain this study’s contribution to the literature on PSM. We will also make suggestions for future research but reserve a discussion of practical implications for the end of this article.

Are PSM-related values stable or dynamic across time? Our panel data analysis does not provide a definite answer to this question, but there seems to be more support for the stability hypothesis. A large majority of respondents did not show any variation in their prosocial attitudes over a 16-year period, and if they did, they often changed back to their original value in the wave after the original change occurred. Based on these findings we would *not* go so far as to suggest that time-related variation in PSM is impossible, that cross-sectional variation is the consequence of selection effects, or that PSM should only be used as an exogenous variable. However, the results help us to better understand the difference between short-term and long-term change in PSM values. Though variation (most likely a decline) in PSM right after significant “life interventions” such as graduating from college and beginning work life are quite possible (Ward 2014; Kjeldsen and Jacobsen 2013), our data suggest that such variation is likely to fade away over the long term. This observation is also in line with the sociological “impressionable years hypothesis”, which states that we can expect the greatest change in social attitudes during young adulthood.

The following designs could be fruitful to explore our findings in greater depth: Pre-test/post-test experimental studies should account for age differences in their samples in order to sort out whether changes in PSM as the result of an intervention can be found for younger as well as older employees. An interesting design to further examine the “fading effect” we mentioned would be to compare employees’ PSM levels in organizations which offer no one-off or regular training that include components addressing the organizations’ mission and prosocial impact.

Does organizational socialization have a positive or a negative effect? Our findings point towards a negative impact on PSM-related values. We find it interesting that this effect was stronger in the “interest in politics” model compared to the other two models (social involvement and care for others). This indicates that public-sector socialization first and foremost increases employees’ skepticism about politics and politicians, while it affects their general other orientation only to a lesser extent. This could be explained by observations, such as that public administrators during their tenure will get exposed to “pork barreling”, the spoils system, and the “dark side” of politics (Giauque et al. 2012, 187). However, despite differences in significance levels, we see more broadly that working for the same organization for many years seems to have the potential to frustrate employees. That is, familiarity with an organization can make its weaknesses more transparent—organizational inefficiencies, red tape, or mission drift—which might foster cynicism rather than prosocial values. We find this negative effect somewhat surprising, particularly when considering that a growing PSM-fit literature would suggest that the influence of socialization should depend on the value congruence between employees and organizations and that finding a significant across-the-board effect would be unlikely (Ryu 2014).

Does age have a positive impact? Yes, it does. When employees get older, their PSM-related values become stronger; and age even turned out to be the strongest predictor of PSM change in our analysis. When getting older, the idea of “giving back to society” seems to become more important, and peoples’ other-orientation increases. Finding significant opposite effects for age and tenure, while using multiple panel regressions, helped to better make sense of contradictory results produced by prior cross-sectional research in the presence of multicollinearity. For future research, at a minimum, our suggestion is to include both variables when studying changes in PSM across time. However, we also see great value in better understanding the negative effect of organizational tenure by studying its contingencies, such as an interaction effect between tenure and person-organization value congruence. Here, the assumption would be that where value congruence is greater, the negative effect of tenure might turn into a positive one.

Do PSM-related values vary among different generations of employees? The short answer is “no”. For three out of four generations we did not find any significant differences. However, what we found was that employees born during the Second World War had significantly stronger prosocial attitudes than all other employees. The explanation of this observation could be as follows: Those who were born during the Second World War have been socialized and built their values in a time when PSM-related values were emphasized more distinctively. This cohort was also directly confronted with the consequences of the Nazi regime and the war their parents’ generation began. Because of this, they reflected on what had happened and began to rebel against their parents at the late 1960’s. It seems to be plausible that this cohort developed a value

set emphasizing PSM-related values and especially values of political involvement more than other cohorts.

There are two takeaway points for future research. Overall cohort effects do not seem to matter a great deal and, at least based on our findings, could be ignored in cross-sectional models. However, if a data set (at least for Germany) includes respondents born during or right after the Second World War, it seems to be worthwhile to control for the effect of this cohort, which otherwise might inflate the impact of age. For future research, though, it becomes more and more unlikely that respondents from this cohort will be a part of public administration surveys since these employees will most likely be retired.

## CONCLUSION

This article used panel data spanning across a period of sixteen years to study the stability and change of PSM-related values of public-sector employees. It found that these values are stable rather than dynamic but tend to increase with age and decrease with organizational membership. It also showed that employees born during the Second World War have higher levels of PSM compared to members of other generations but explained that this distinction was unique and that there is little evidence for the general importance of cohort effects.

We have already discussed specific avenues for future research, but would like to emphasize again that we need additional panel data research to better understand the foundations of PSM. To examine whether the observations we have made in this article are specific to public employees, we need replication studies that use private-sector employees as a comparison group. In order to be better able to theorize about the determinants of PSM, future work needs to control for people's initial level of PSM and thereby directly address the issue of selection versus socialization effects.

For the practice of public management, we can take away the following points from our analysis. First, the best way to create a PSM-driven workforce is to hire people who score high on these values. Since such attitudes have proven to be quite stable over longer periods of time, a person's motivational level when entering the organization is very likely to be the best predictor of future PSM scores. In order to attract this type of employee, managers will need to emphasize such values in job listings and information supplied to applicants, and link them to their organization's mission. In addition, PSM should play a more important role in HR selection processes. Integrating PSM into assessment centers might be a promising way to select PSM-driven employees. Second, to nurture PSM-like values through HR development programs, single training events are most likely not sufficient. Our observation that prosocial values do not vary a great deal across time suggests that the effects of single interventions—even if significant in pre-post trials—are likely to fade away, and we speculate that its needs

repetitive stimuli in order to affect people's attitudes in the long run, but this clearly calls for further research. Third, considering that older employees have higher levels of PSM, practitioners will have to reevaluate this group's role in public administration. Using visualizations of an organization's social impact and direct customer contact have been found to be promising strategies to motivate prosocially driven employees. Based on our findings we suggest that such strategies may have the greatest impact if managers target older employees who are, as we have shown, more receptive to the idea that helping others is an important aspect of government work. Fourth, the finding that organizational tenure has a negative effect on PSM-related values indicates that public organizations—on average—tend to crowd out people's PSM. One way to address this issue is job rotation among different organizations, though more research is needed on the causes of this effect and possible mitigation factors.

## NOTES

<sup>1</sup> The data of the German Socio-Economic Panel Study (SOEP) are collected and provided by the German Institute for Economic Research (DIW Berlin). For further details on the SOEP see Wagner, Frick, and Schupp 2007.

<sup>2</sup> Though the SOEP study presently includes about 20,000 participants, it only consisted of 13,400 in 1992 which is the starting point of our study. 2,013 participants were employed in the public sector, out of which only 348 were public sector employees across the sixteen years our study focuses on and thus constitute our final sample. The reasons for this drop in numbers are retirement, switching to the private sector, death, emigration, maternity leave, and privatization etc. A few more observations were lost due to missing values which were treated using listwise deletion.

<sup>3</sup> The magnitude prestige scale is a measurement scale for occupational prestige which is specifically developed for the German context and comparable to the Standard International Occupational Prestige Scale (SIOPS) or the International Socio-economic Index of Occupational Status (ISEI).

<sup>4</sup> This is supported by the fact that there is an almost uncountable number of publications which are based on the SOEP panel data, some of which, in particular, have studied the panel's data quality. To get an overview, see: <https://data.soep.de/search/publications>.

<sup>5</sup> Although age and organizational tenure are quite strongly cross-sectionally correlated ( $r = .55$ ), multicollinearity does not seem to be a problem. High collinearity leads to the overestimation of standard errors and hence to the underestimation of significant effects. However, the results show significant coefficients for both variables despite the presence of seemingly large standard errors, indicating that our findings are quite robust.



<sup>6</sup> Compared to the United States, the so called “baby boom” with increased fertility rates started later in Germany. Because of the aftermath of the Second World War, fertility rates did not increase until 1956. The higher fertility rates lasted until 1965 (Federal Statistical Office 2015). Therefore, those who are born between 1956 and 1965 are considered to be the baby-boomer generation. In general, “Generation X” describes the generation following the baby boomer generation. It is a point of discussion in which year “Generation X” ends and “Generation Y” begins. However, this is not important in our case because the youngest person in the data set is born in 1975, and this is clearly part of Generation X (Bickel and Brown 2005).

## APPENDIX A – OPERATIONALIZATIONS

Variable	Operationalization
social & political involvement	Various things can be important for various people. Are the following things currently ... for you? ... be politically and/or socially involved (1 = not at all important; 4 = very important)
care for others	Various things can be important for various people. Are the following things currently ... for you? ... be there for others (1 = not at all important; 4 = very important)
interest in politics	Generally speaking, how much are you interested in politics? (1 = not at all; 4 = very much)
age	[wave] - [year of birth]
organizational tenure	When did you start your current position? [answer was subtracted from wave]
job prestige	Value on the Magnitude Prestige Scale (Wegener 1992). Value is assigned based on the German Federal Statistical Office's occupational classification of 1992 (KLAS). The procedure has been documented in Frietsch and Wirth (2001)
job change since last wave	Dummy-Variable (0 = no; 1 = yes) was generated based on the following question Did you change your job or start a new one after December 31, [wave - 2]? (0 = no; 1 = yes)
job satisfaction	How satisfied are you today with the following areas of your life ... ... with your job? (0 = totally unhappy; 10 = totally happy)
work contract: permanent	Is your contract of employment for an unlimited or limited period? (0 = limited period; 1 = unlimited period)
overtime per week	How was your situation with regards to overtime last month? Did you work overtime? If yes, how many hours?
satisfaction with life	In conclusion, we would like to ask you about your satisfaction with your life in general. (0 = completely dissatisfied; 10 = completely satisfied)
satisfaction with health	How satisfied are you today with the following areas of your life ... ... with your health? (0 = totally unhappy; 10 = totally happy)
birth of 1 <sup>st</sup> child	Generated variable indicating whether the first child of a participant was born since the last wave (0 = no; 1 = yes)
birth of additional child	Generated variable indicating whether a child of a participant was born since the last wave (except for the first child) (0 = no; 1 = yes)
log(income)	How high was your income from employment last month (gross)?
generation	1 = 1940-1945 (born during WW II) 2 = 1946-1955 (post-war generation) 3 = 1956-1965: (Baby Boom Generation) 4 = 1966-1975 (Generation X)

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