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Trusting the State, Trusting Each Other? The Effect of Institutional Trust on Social Trust

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Abstract Trust in state institutions is a prominent explanation of social trust. However, previous—mainly cross-sectional—analyses provide limited causal evidence regarding the relationship between institutional trust and social trust and it is thus essentially unknown whether an observed relationship reflects reverse causality (social trust forming institutional trust), or both forms of trust reflecting deep-seated dispositions (common confounding). Against the backdrop of the shortcomings of previous cross-sectional analyses, this paper utilizes two Danish panel surveys containing measures of both types of trust for the same individuals surveyed at multiple points in time over a long time-span (up to 18 years) to address the potentially reverse and/or spurious relationship. Using individual fixed effects and cross-lagged panel models, the results provide strong evidence of trust in state institutions exercising a causal impact on social trust, whereas the evidence for a reverse relationship is limited.

Keywords Social trust · Institutional trust · Panel data

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Introduction

Social trust concerns the trustworthiness of the abstract, generalized other about whom little information exists (Robinson and Jackson 2001). As such, social trust serves as a heuristic when individuals interact with anonymous others and is therefore of great import in increasingly atomistic modern societies. Trustful individuals tend to have a more positive outlook on the intentions of others, which in turn leads to more pro-social behavior and enables cooperation for the common good with positive consequences for society as a whole (Stolle 2001). Empirically, the positive effects of social trust have been substantiated in a number of studies. At the individual-level it has been shown that social trust promotes volunteering, donations to charity and common interest organizations (Sønderskov 2011a; Uslaner 2002), tax payment (Scholz and Lubell 1998), recycling (Sønderskov 2011b), and contributions to the provision of public goods in general (Gächter et al. 2004; Thöni et al. 2012). Moreover, studies at the aggregate level—across nations or sub-national units—show, for example, that societies inhabited by more trustful citizens, experience higher levels of economic growth (Bjørnskov 2009; Knack and Keefer 1997), more effective democratic government (Knack 2002; Tavits 2006), and less dishonest behavior (Neville 2012). In short: social trust promotes desirable collective outcomes.

From the viewpoint of policy-makers and others working to improve the well-functioning of societies, the logical follow-up question to the evidence of the beneficial effects of social trust is how this valuable resource can be built up? This implies understanding the roots of trust; a topic that has received considerable scholarly attention in the past two decades with a number of dominant perspectives crystallizing. Among the most influential perspectives is the so-called *cultural* perspective, which sees trust as an enduring trait learned early in life, primarily from parents (Dohmen et al. 2012; Uslaner 2002). According to this perspective, trust is largely immune to subsequent experiences after its initial formation in childhood, and therefore stable throughout life and even across generations (Uslaner 2002, 2008). By implication, the cultural account leaves little room for policy or other measures to raise levels of trust.

Contrary to the stability implied by the cultural perspective, the broader class of theories of trust formation referred to as *experiential* (Dinesen 2012a; Glanville and Paxton 2007) emphasize how trust is formed by experiences throughout life, and thus malleable. Following Putnam's (1993) pathbreaking study, which identified the vitality of civil society as a key explanation of differences in development in the Italian regions, scholars have emphasized participation in voluntary organizations as a prominent explanation in this regard. In essence, participating in voluntary organizations is thought to foster social trust by stimulating repeated social interactions between individuals. While this theoretical conjecture leaves room for optimism with regard to raising social trust, the empirical evidence for the proposition that participation in voluntary organizations furthers trust is sparse—especially when reverse causality (i.e. trust leading to participation) is taken into account (Bekkers 2012; Claibourn and Martin 2000; Stolle 2001; Uslaner 2002; van

Ingen and Bekkers 2015). Nannestad (2008, p. 423) eloquently summarizes this in his review of research on social [generalized] trust: "It seems that most empirical studies have not been kind to the civic society explanation of generalized trust, and that this is true especially for studies addressing endogeneity problems properly."

Given the limited evidence for the trust-generating qualities of civil society, scholars have turned to other experiential explanations of trust. In this regard, institutional influences have received massive attention followed by mounting empirical support (Dinesen 2012b, 2013; Freitag and Bühlmann 2009; Levi 1996; Mishler and Rose 2001; Nannestad et al. 2014; Rothstein and Eek 2009; Rothstein and Stolle 2008; Wang and Gordon 2011; You 2012). The theoretical rationale underlying this perspective is that people's perceptions of the trustworthiness of others are informed by the rules that govern citizens' behavior. More specifically, the fairness and effectiveness of *state* institutions, e.g., the judiciary, the police or the parliament, provide important cues about both the norms of others as well as the incentives for behaving dishonestly. Fair and efficient state institutions form the basis for trusting others by signaling that untrustworthy behavior is uncommon, and will be sanctioned regardless of who commits the exploit (Rothstein and Stolle 2008).

The institutional account is experiential in the sense that people's perceptions of the generalized other (their social trust) are thought to be formed by their experiences with representatives of state institutions, that is, public employees such as bureaucrats and police officers. More specifically, the effect of such experiences on social trust is often argued to be mediated by *perceptions* of the fairness and effectiveness of state institutions (Rothstein and Stolle 2008; You 2012; Sønderskov and Dinesen 2014; Wang and Gordon 2011)—or what is commonly referred to as *institutional trust*.[1] In other words, the institutional perspective argues that institutional quality at the macro level gives rise to positive individual-level experiences with representative of institutions, which builds institutional trust, which in turn influences people's social trust. It is the latter part of this causal chain that we are concerned with in this paper, namely the potential effect of individual-level institutional trust on social trust.

However, concluding that elevating trust in institutions is a means for promoting social trust would be premature in the present state of research. Specifically, previous analyses have almost exclusively been based on cross-sectional observational data and are therefore faced with two classical challenges: ruling out the reverse causal relationship (i.e. social trust influencing institutional trust), as well as confounding by unobserved factors simultaneously influencing both types of trust. Against the backdrop of the causal indeterminacy of previous studies, the main contribution of this paper is addressing the potential problems of reverse causality and common confounding of the relationship between institutional trust and social trust. That is, we seek to provide causal evidence regarding the (potential) influence

[1] Inspired by Zmerli et al. (2007) definition of confidence in political institutions, we define institutional trust as an individual's perception of the credibility, fairness, competence and transparency of state institutions.

of institutional trust on social trust and thereby implicitly address whether improving institutional quality is a viable strategy for increasing social trust.

We accommodate the problems of previous cross-sectional studies by using individual-level panel data; specifically, two Danish panel surveys containing measures of both types of trust for the same individuals surveyed at multiple points in time over a long time-span, as well as a large number of covariates of trust. We address the issue of reverse causality by means of cross-lagged models and that of common confounding by means of individual fixed effects. The results provide strong evidence in favor of trust in state institutions exercising a causal impact on social trust, whereas the evidence for the reverse relationship is limited.

Causal or Confounded? The Relationship Between Institutional Trust and Social Trust

A large number of studies have demonstrated a correlation between institutional trust and social trust at both the aggregate country-level as well as at the individual level across different contexts and populations (Brehm and Rahn 1997; Dinesen 2011; Freitag and Bühlmann 2009; Keele 2005; Mishler and Rose 2001; Nannestad et al. 2014; Rothstein and Stolle 2008; Sønderskov and Dinesen 2014; You 2012; Zmerli and Netwon 2008; Zmerli et al. 2007). The problems of these studies, mainly using observational cross-sectional data, are neatly summarized in a cross-country analysis at the individual level, which found a strong relationship between the two forms of trust and subsequently concluded that "this raises the matter of the origins of these attitudes and the extent to which they overlap and reinforce each other" (Zmerli and Netwon 2008, p. 719). This statement embodies the two major problems with previous analyses based on cross-sectional data. First, while institutional trust may influence social trust, it is also plausible that the relationship runs in the other direction (or is bidirectional). Second, given the observational nature of the data previously employed, it is difficult to entirely rule out that any relationship between the two types of trust is not due to confounding by factors preceding both, e.g. deep-seated psychological traits that are partly innate or the results of early life socialization. While methodological concerns at heart, both challenges originate in the aforementioned distinction between cultural and experiential accounts of social trust. We review both in turn.

As noted, the experiential perspective underlying the institutional explanation of trust focuses on how positive experiences with representatives of ("good") institutions spill over to trust in institutions, which then provide the basis for social trust. Conversely, the cultural perspective, with its emphasis on the dominance of early-life socialization (Uslaner 2002), leaves little room for subsequent experiences, including those laying the foundation for institutional trust, in forming social trust. Hence, from this perspective, any relationship between the two forms of trust is more likely to reflect that social trust, learned early in life, is projected on to state institutions and their representatives resulting in institutional trust (Brehm and Rahn 1997). Similarly, focusing on the macro-level, Bjørnskov (2009) argues that high levels of social trust lead to better governance, which may in turn have positive

effects on trust in state institutions (see also Boix and Posner 1998). In other words, the two theoretical perspectives on the roots of trust yield opposite predictions with regard to the causal direction between institutional trust and social trust.

Disentangling the direction of causality between the two types of trust is very difficult based on observational cross-sectional data. The best evidence in this regard is the analysis by Brehm and Rahn (1997), who apply instrumental variable techniques on repeated cross-sectional data from the US (specifically, the General Social Survey 1972–994) to identify the bidirectional causal relationship between the two forms of trust. They find a strong reciprocal relationship with the effect of institutional trust on social trust being substantially stronger than the reverse relationship. Mishler and Rose (2001) also use instrumental variable techniques to estimate the relationship between the two types of trust, but only on one cross-section of individuals across a number of countries. Their analysis does not show a relationship between the two types of trust. However, as always when using instrumental variables to identify causal effects, the results critically hinge on the exclusion restriction (that is, the assumption of instrument exogeneity), which can be questioned in both of the cited studies.[2] Only one individual-level study has examined the relationship between institutional trust and social trust using panel data (Sønderskov and Dinesen 2014), and this points to a causal impact of institutional trust on social trust with no feedback effect.[3] At the aggregate level, a time series study of US states points to the reverse relationship, although it focuses on the narrower concept of trust in government (Keele 2005). Hence, while both directions of causality appear theoretically plausible, there is only limited empirical evidence regarding the causal arrows between institutional trust and social trust.

Even if institutional trust can be assumed to be exogenous to social trust, the problem of common confounding (i.e. unobserved heterogeneity) also looms large when using observational cross-sectional data. Again, this issue relates to the debate about the roots of social trust. More specifically, the leading proponent of the cultural perspective, Uslaner (2002), argues that the specific mechanism underlying parental socialization of social trust is in fact social transmission of optimism, which he considers a stable personality trait. This illustrates the second challenge regarding the relationship between institutional trust and social trust, namely common confounding by deep-rooted, enduring psychological traits. Personality traits are perhaps the most obvious candidates in this regard. Because personality traits have been shown to be partially innate and are generally formed early on in life (Bouchard and McGue 2003; Costa and McCrae 1988, 1992), they may likely precede both types of trust. Indeed,

[2] More specifically, many of the instruments employed for one of the two forms of trust could equally well be argued to function as instruments for the other type of trust (e.g., victimization and cohort dummies used as instruments for social trust, and aggregate unemployment and ideological self-placement used as instruments for institutional trust in Brehm and Rahn (1997).

[3] The present study extends parts of the analyses in Sønderskov and Dinesen (2014), which used a subset of the data and methods employed here to explore the causal relationship between social and institutional trust in order to substantiate that improved institutional quality helps explain increasing social trust in Denmark. Specifically, the present study uses an additional panel data set (the SPAPS data; see below), which allows for more refined measurement of social trust as well as controlling for personality traits. The present study also employs fixed effects estimation, whereas Sønderskov and Dinesen (2014) solely rely on cross sectional analyses and cross-lagged models.

recent studies have shown that social trust is influenced by personality, either in terms of the broader traits in the Big Five personality scheme—especially *Agreeableness*, *Openness* and *Neuroticism* (Dinesen et al. 2014; Mondak and Halperin 2008)—or more specific facets such as optimism and a sense of control (Couch and Jones 1997; Uslaner 2002; see also Hirashi et al. 2008; Oskarsson et al. 2012). In fact, social trust has in itself been suggested to be a facet under the trait Agreeableness in the Big Five framework (cf. Dinesen et al. 2014). Here, our purpose is not to examine whether social trust is a separate concept or not, but instead to highlight that social trust may likely be rooted in personality traits one way or the other. While given less attention than social trust, there is also research pointing to the personality correlates of institutional trust. Mondak and Halperin (2008) show that political trust (in local officials) is influenced by the Big Five personality traits, specifically the traits Agreeableness and Openness.

For our purposes, the key aspect of finding that both types of trust may, in part, be rooted in personality, is that this implies that the observed correlation between the two may be spurious; that is, in fact reflecting confounding by personality traits, which have remained unobserved in previous observational analyses.[4] Moreover, while we find personality to be among the most likely deep-rooted traits to influence the two forms of trust, the same logic of potential confounding extends to other similar traits—e.g., intelligence, which has also been shown to correlate with social trust (Hooghe et al. 2012; Oskarsson et al. 2012; Sturgis et al. 2010). In other words, based on previous analyses we cannot rule out confounding of the relationship between institutional and social trust by deep-seated psychological traits.

In summary, based on the literature, there are good reasons to expect that social trust (also) influences institutional trust, i.e., that causality works in reverse, and that deep-founded psychological traits simultaneously influence both types of trust, i.e., cause common confounding. As a means for bypassing these two key challenges, and thus provide stronger leverage for causal inference, we employ individual-level panel data, including a rich set of control variables, as we explain below.

Research Design

The Advantages of Individual-Level Panel Data

Employing panel data allows for two types of analyses well-suited for examining causal relationships: *cross-lagged models* and *fixed effects models* (Finkel 1995). The main purpose of the cross-lagged—or lagged dependent variable—model is to examine the direction of the relationship between two potentially endogenous variables. This is examined by means of regressing each of the endogenous variables measured at one point in time (t_0) on previous levels (i.e. temporally preceding measures; t_{-1} etc.) of the other endogenous variable while controlling for previous levels of the dependent variable. In our case, this implies regressing social

[4] It should be noted that Zmerli and Newton (2008) control for happiness/life satisfaction, but this can at best be seen as a measure of very specific aspects of personality.

trust measured at t_0 on institutional trust measured at t_{-1} (and t_{-2} when three waves exist) as well as social trust measured at t_{-1} (and t_{-2}). And vice versa using institutional trust as the dependent variable. If previous levels of institutional trust predict future levels of social trust, while simultaneously controlling for previous levels of social trust, it is taken as an indication of a causal effect of institutional trust on social trust—even if the reverse relationship is also detected (see Glanville et al. (2013) for an application to social trust). Besides addressing reversed causality, the lagged dependent variable model also implicitly addresses confounding by unobservables to some extent by means of controlling for lagged social trust, which is likely to pick up some of the potential confounding.

More to the point, the fixed effect estimator specifically addresses confounding of the relationship between the independent variable and the dependent variable. This is done by means of using only within-respondent variation in the independent and the dependent variable. By implication, the fixed effect estimator effectively controls for all time-invariant characteristics pertaining to the individual (e.g. predispositions rooted in genes or early-life socialization), which may confound the relationship between the variables of interest. In our case, this means that the potential confounding of the relationship between the two types of trust stemming from, e.g., innate psychological traits or early life socialization is removed by means of the fixed effect estimator.

Despite its obvious qualities with regard to minimizing bias from omitted variables compared to regular cross-sectional analyses, the panel design is not a panacea for addressing confounding. Time-varying factors (e.g. experiences occurring between the points of measurement of trust) are not controlled in the fixed effects or the crossed lagged models. Consequently, we include a rich set of control variables when examining the relationship in both the cross-lagged models and, when meaningful, in the fixed effects models. This also serves the additional purpose of judging the relative merits of institutional trust in explaining social trust compared to other important predictors. In addition to the standard socioeconomic (education, income and unemployment) and demographic (gender, age and place of birth) control variables, we also include measures of the Big Five personality traits (Costa and McCrae 1988)—likely confounders of the relationship between the two types of trust as noted above—in one of the cross-lagged models.[5] Controlling for the Big Five personality traits thus rules out one important potential source of confounding overlooked in previous analyses. Finally, we also control for religiosity, associational involvement and, as indicated earlier, optimism. Religiosity has been shown to correlate negatively with social trust, at least in some studies (Uslaner 2002; for a study showing no effects see Welch et al. 2007). Although recent empirical research has indicated little association between associational involvement and social trust—or, to the extent a relationship exists, reverse causality—we include this variable to conduct a conservative test of the relationship between institutional and social trust. The positive outlook associated with

[5] We can only include the personality traits in the cross-lagged models (in one of the datasets) as they are only measured in one wave of the data. However, given the stability of these traits, much of their potential effect is removed by virtue of analyzing difference *within* individuals in the fixed effects models.

optimism is suggested to be projected on to the trustworthiness of other people (Uslaner 2002), and a wealth of studies have verified the positive relationship building on cross-sectional data (e.g. Brehm and Rahn 1997; Delhey and Newton 2003; Uslaner 2002). Again, however, it is difficult to rule out the reverse relationship, but to err on the side of caution we also include optimism to avoid confounding. However, because including contemporaneous measures of associational involvement and optimism may likely lead to endogeneity bias, we include lagged versions of these variables to limit this problem.

In summary, by employing cross-lagged models and fixed effect models, as well as including a rich set of relevant control variables, we are able to examine the direction of the relationship between the two forms of trust and rule out a number of plausible forms of common confounding. This provides us with new leverage for assessing whether institutional trust exerts a causal impact on social trust.

Data Sources

We use two Danish panel surveys in our analysis: a panel collected in connection with the Danish part of the European Value Survey (the *EVS-DK panel*) (Danish Data Archive 2002, 2009),[6] and the Danish Social and Political Attitudes Survey (*SPAPS*), which is a panel survey based on the European Social Survey (ESS).[7]

The EVS panel was collected by means of face-to-face interviews with a random sample of the Danish adult population in 1990 with subsequent follow-ups in 1999 and 2008. Conversely, SPAPS was collected in 2011/12 as a follow-up survey of respondents having participated in various rounds of the ESS. Specifically, all respondents that participated in the first and fourth round of the ESS (conducted in 2002/2003 and 2008/2009, respectively) and 600 randomly selected respondents that participated in the second round of the survey (conducted in 2004/2005) were contacted to participate in the SPAPS follow-up survey. While the respondents were interviewed face-to-face in the ESS, the SPAPS follow-up was collected by means of a web-survey (CAWI) in which those who did not respond to the web-survey were subsequently contacted for a telephone interview (CATI). The two panels thus differ in length with the EVS panel containing three waves over a long period of time (18 years), and SPAPS containing two waves over a shorter period of time (between 3 and 9 years). Both surveys are subject to panel attrition. Specifically, of the 1,030 originally interviewed in 1990 in the EVS panel 442 agreed to participate in both 1999 and 2008 thus resulting in a retention rate of 43 %. In the SPAPS panel, the retention rate was 47 %. While panel attrition (as always) compromises the representativeness of the sample for the population at large, we believe that this downside is, in our case, outweighed by the improved causal leverage (especially given the previous scarcity of causal evidence) following from panel data.

[6] The full 1990–2008 panel dataset (Danish Data Archive 2009) only includes respondents who chose to participate in the 2008 wave. We have merged this dataset with the 1990–1999 dataset (Danish Data Archive 2002) to retain respondents who did not participate in 2008.

[7] Data and code for replication are available on the Political Behavior Dataverse webpage at http://dx.doi.org/10.7910/DVN/12SK8B.

Finally, in addition to varying in number and length of time lags, mode of data collection and sample size, the two surveys also vary in how social trust and institutional trust (and other relevant covariates) are measured as we explain in detail below. While these differences make it difficult to compare the results across the two panels, we see it as a way of probing the robustness of the findings. If we are able to produce results that are qualitatively similar across the two surveys, we take it as a strong indication of their robustness. Table 1 summarizes the properties of the two panel surveys.

In sum, the Danish data are very well suited for exploring the relationship between the two types of trust. Relying exclusively on Danish data obviously raises the question of generalizability. After all, Denmark—along with the other Nordic countries—is remarkable with respect to high levels of both social trust (Delhey and Newton 2005; Sønderskov and Dinesen 2014) and, to a lesser extent, institutional trust (Zmerli et al. 2007), which may suggest limited generalizability. We return to this issue in the conclusion.

Measures

As noted above, both forms of trust are measured differently in the two panel surveys employed. In the EVS social trust is measured by the frequently used question, "Generally speaking, do you think that most people can be trusted or that you cannot be too careful in dealing with other people?" with the dichotomous response option, "Most people can be trusted" and "You cannot be too careful", of which the first indicates social trust. In SPAPS, social trust is measured by the 11-point equivalent of the dichotomous trust questions as well as by two items regarding the fairness ("Do you think that most people would try to take advantage of you if they got the chance, or would they try to be fair?") and the helpfulness of others ("Would you say that most of the time people try to be helpful or that they are mostly looking out for themselves?"), which are also measured on 11-point scales. An additive scale based on the three items showed high internal consistency (alpha values ranging from 0.72 to 0.76 across waves) and has been shown to constitute a valid measure of trust in previous studies (Dinesen 2011; Reeskens and Hooghe 2008; Zmerli and Newton 2008). Table 6 in the Appendix contains more information about the measures of social trust.

Table 1 Overview over data

Panel	EVS-DK	SPAPS
Waves (interview year)	3 (1990–1999–2008)	2 (2002/2004/2008–2012)
Response rate (first wave)	74 %	68/65/54 %
Observations (first wave)	1030	1506/600/1610
Response rate (all waves)	43 %	47 %
Observations (all waves)	442	1752
Mode of collection	Face to face	Wave 1: face to face; Wave 2: CAWI/CATI

Response rate (all waves) and observations (all waves) refer to respondents who responded in all waves of the survey

Institutional trust has been measured in different ways in previous studies; much of the work done in the US has specifically looked at trust in political institutions/government (Hetherington 1998), whereas most of the work outside of the US has focused on trust in state institution more broadly defined (Rothstein and Stolle 2008; Sønderskov and Dinesen 2014; Zmerli and Newton 2008). Here, we follow the latter approach and measure institutional trust by four questions tapping trust in different state institutions. Three institutions are common for the two datasets: the parliament, the judiciary, and the police. The fourth institution is *the public sector* in EVS and *politicians* in SPAPS. The trust questions were assessed on a four point scale running from "A great deal" to "none at all" in the EVS panel, whereas they were assessed on an 11-point scale running from "No trust at all" to "Trust completely" in SPAPS. Rothstein and Stolle (2008) argue in favor of distinguishing between trust in different types of institutions, but a principal factor analysis reveals that trust in the four institutions reflect a single latent factor in both datasets, which is in line with previous findings building on European data (Zmerli and Newton 2008). Consequently, we constructed a simple additive scale of institutional trust (ranging from low trust (0) to high trust (1)) based on trust in the four noted institutions.[8] Across the various waves in the panels, the scales showed internal consistency with Cronbach's alpha values ranging from 0.66 to 0.81.

The issue of measurement of social trust and institutional trust is non-trivial for our results. Recent research has shown that measurement matters profoundly for the relationship between the two forms of trust. Zmerli and Newton (2008) thus show that the relationship is substantially stronger when using more refined and reliable measures of both forms of trust; i.e. using multi-item scales rather than single items. This implies that the measures of social trust and institutional trust included in SPAPS are arguably better suited for examining the (causal) relationship between the two than the equivalent measure in the EVS panel. Hence, whereas finding no relationship in the EVS panel may be attributed to weak measurement, detecting a relationship—especially if it parallels that found in SPAPS—should be taken as a strong indication that a connection exists.

Table 2 shows descriptive statistics for the two trust variables across the waves in the two data sets. The data corroborate earlier studies (Sønderskov and Dinesen 2014; Zmerli et al. 2007) in showing elevated levels of institutional trust and exceptional high levels of social trust in Denmark.

Optimism is operationalized by a measure of life satisfaction, which is considered to be one of its core components (Uslaner 2002).[9] Associational involvement is measured by a dummy variable separating respondents actively participating in at

[8] To assess the robustness of the results reported in the analyses, we tried generating the scales for institutional and social trust using factor scores instead of simple additive scales. The measures based on the additive scale and the factor score approaches are very highly correlated ($r > 0.98$) and the results of the analyses of trust are substantively the same regardless of the method.

[9] Self-efficacy is another core component of optimism according to Uslaner (2002), but valid measures of this variable are only available in wave 2 of the SPAPS data. However, including this measure of self-efficacy in our models when possible does not substantively alter the results.

Table 2 Trust levels across panels and waves

Data	Social trust			Institutional trust		
	Mean	SD	n	Mean	SD	n
SPAPS, wave 1, 2002	0.70	0.15	618	0.69	0.15	595
SPAPS, wave 1, 2004	0.69	0.16	265	0.69	0.14	265
SPAPS, wave 1, 2008	0.69	0.16	845	0.68	0.16	845
SPAPS, wave 2, 2012	0.72	0.15	1728	0.68	0.16	1728
EVS-DK, wave 1, 1990	0.71	–	326	0.60	0.16	326
EVS-DK, wave 2, 1999	0.75	–	326	0.59	0.15	326
EVS-DK, wave 3, 2008	0.81	–	326	0.65	0.15	326

The descriptive statistics are based on the respondents included in Models 1 (SPAPS) and 2 (EVS-DK), respectively

least one voluntary organization from non-involved respondents.[10] The Big Five personality traits (specifically, Agreeableness, Conscientiousness, Extraversion, Neuroticism, and Openness to Experience) are measured in the second wave of SPAPS by a brief 10-item inventory—two items for each trait—inspired by previous short batteries (Mondak 2010). The two indicators of Openness are, however, only weakly correlated, so we opted for using them separately. Further details about measurement—including that of the SES and demographic variables—are found in Table 6 in the Appendix.

Analysis

We now turn to the empirical analysis. We first examine the causal relationship between the two forms of trust by means of cross-lagged models and subsequently employ fixed effects models to address common confounding.

Direction of the Relationship: Cross-Lagged Models

We estimate parallel cross-lagged models for both types of trust, but start with the models of primary interest, that is, the models with social trust as the dependent variable. These are reported in Table 3. To facilitate comparison, we report parallel models based on SPAPS and the EVS panel with two exceptions: we include two lags in the analyses based on the EVS panel, but only one in the SPAPS panel (because the latter only contains two waves), and we control for personality only in the SPAPS panel (because this variable is not available in the EVS panel). Despite model similarity, the results can mainly be compared with regard to the significance of the independent variables as the coefficients are not comparable given the diverging measurement of social trust in the two datasets (continuous versus dichotomous). Six cross-lagged models are estimated for each type of trust. Model 1 (SPAPS) and 2

[10] This measure is arguably crude, and a measure based on the specific composition of associations (related to the distinction between *bonding* and *bridging* associations; cf. Putnam 2000) would have been preferable.

Table 3 Cross-lagged model of social trust

Model Data	1 SPAPS	2 EVS-DK	3 SPAPS	4 EVS-DK	5 SPAPS	6 EVS-DK
Institutional trust t_{-1}	0.13** (4.97)	2.43* (2.09)	0.15** (3.26)	3.17* (2.11)	0.14** (5.04)	3.04* (2.29)
Institutional trust t_{-2}		−0.89 (−0.82)		−1.00 (−0.72)		−1.16 (−0.98)
Social trust t_{-1}	0.43** (17.52)	1.45** (4.39)	0.34** (7.70)	1.71** (4.14)	0.38** (14.25)	1.61** (4.24)
Social trust t_{-2}		0.38 (1.13)		0.51 (1.10)		0.38 (0.93)
Life satisfaction t_{-1}			−0.02 (−0.38)	0.62 (0.45)	−0.01 (−0.44)	−0.28 (−0.26)
Life satisfaction t_{-2}				0.74 (0.79)		1.06 (1.27)
Organizational activity t_{-1}			−0.02* (−2.00)	0.18 (0.45)		
Organizational activity t_{-2}				0.05 (0.12)		
Religiosity t_{-1}			−0.01 (−0.30)	0.71 (0.75)	−0.00 (−0.09)	0.72 (0.87)
Religiosity t_{-2}				−0.66 (−0.71)		−0.80 (−0.95)
Extraversion t_0			−0.05 (−1.45)		0.01 (0.44)	
Neuroticism t_0			−0.04 (−0.99)		−0.03 (−1.31)	
Conscientiousness t_0			−0.05 (−1.12)		−0.02 (−0.92)	
Agreeableness t_0			0.14** (2.87)		0.06* (2.27)	
Openness (imaginative) t_0			0.04 (1.25)		0.04 (1.75)	
Openness (philosophical) t_0			0.03 (1.07)		0.00 (0.17)	
Gender (female)			0.03** (2.81)	−0.39 (−0.84)	0.02** (3.26)	−0.49 (−1.17)
Place of birth (native)			0.06 (1.65)	0.92 (0.91)	0.02 (1.17)	0.84 (1.22)
Age t_0			0.00 (1.42)	−0.00 (−0.13)	0.00** (3.57)	−0.01 (−0.68)

Table 3 continued

Model Data	1 SPAPS	2 EVS-DK	3 SPAPS	4 EVS-DK	5 SPAPS	6 EVS-DK
Highest education t_0						
Primary school			Reference			
Vocational			0.02 (1.01)	−0.09 (−0.16)	0.02 (1.20)	−0.68 (−1.41)
Shorter post-secondary			0.03 (1.26)	−0.36 (−0.62)	0.02 (1.63)	−0.65 (−1.29)
Medium-long post-secondary			0.04 (1.56)	1.40 (1.67)	0.03** (2.60)	0.76 (1.11)
Relative income t_0						
Below 25 percentile			Reference			
Within IQR			0.01 (0.51)	−0.31 (−0.51)	−0.00 (−0.09)	−0.25 (−0.47)
Above 75 percentile			0.02 (0.90)	0.66 (0.83)	0.01 (1.00)	0.66 (1.00)
Not disclosed			−0.04 (−1.43)	−1.13 (−1.90)	−0.03* (−2.28)	−1.09* (−2.17)
Unemployed (yes) t_0			−0.05* (−2.26)		−0.02 (−0.86)	
Constant	0.35*** (16.12)	−0.60 (−0.88)	0.21* (2.55)	−2.89 (−1.17)	0.22** (4.89)	−0.89 (−0.46)
N	1728	326	568	256	1617	318
R^2/McFadden's R^2	0.25	0.12	0.26	0.24	0.29	0.22

Models using the SPAPS data are estimated using OLS regression with robust standard errors. Entries are unstandardized regression coefficients with t-statistics in parentheses and R^2 as measure of model fit. Models using the EVS-DK data are estimated with the logit estimator and robust standard errors. Entries are unstandardized logit coefficients with z-statistics in parentheses and McFaddens R^2 as measure of model fit. t_0 refers to 2011 (SPAPS data) or 2008 (EVS-DK); t_{-1} refers to either 2008, 2004 or 2002 (SPAPS) or 1999 (EVS-DK); t_{-2} refers to 1990. Since t_{-1} varies across observations in the SPAPS data (except from in Model 3), Models 1 and 5 include dummy variables representing the three t_{-1} values. Including interaction terms to estimate separate effects of institutional trust for different time points of t_{-1} reveals that the effect of institutional trust is significant across all t_{-1} values; this is depicted in Fig. 1 (left panels)

**; * $p < 0.01$; 0.05 (Two-sided test)

(EVS) are the simple cross-lagged models without control variables. Model 3 (SPAPS) and 4 (EVS) add the control variables available in both panels (with the potentially endogenous control variables, associational activity and life satisfaction, lagged in the same way as the trust variables). In model 5 and 6 we omit associational activity because non-response on this variable leads to a marked drop in sample size (see Table 6 in the Appendix).[11] The latter models thus prioritize representativeness and statistical precision over potential bias from an omitted variable.

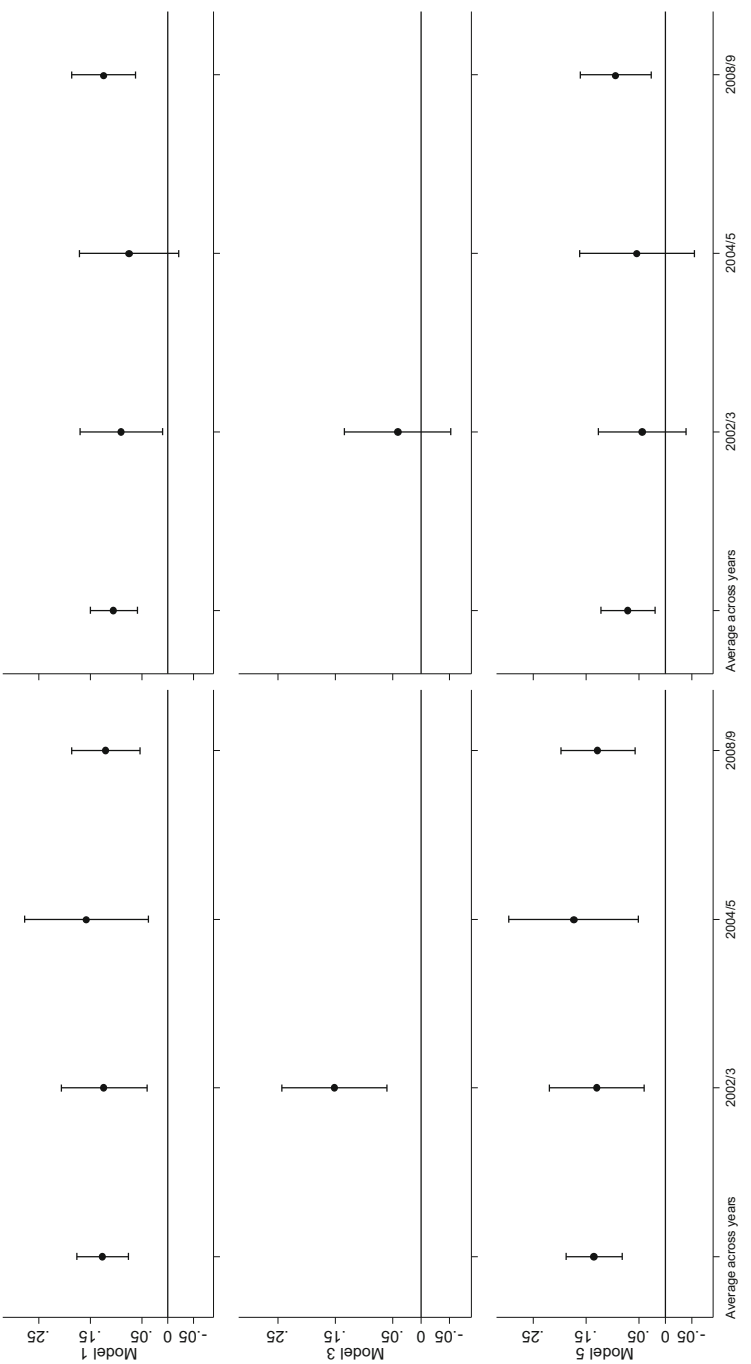
Looking at the six models with social trust as the dependent variable in Table 3, we see that previous levels of institutional trust at t_{-1} are significantly correlated with subsequent levels of social trust in all models, while the correlation is insignificant for institutional trust at time t_{-2} in the EVS panel. In other words, institutional trust measured with one time lag is robustly and positively related to social trust independent of the survey used (and thus the measurement of social trust). Given that we have included lagged versions of social trust and a rich set of control variables we take this as a clear indication that institutional trust exerts a causal impact on social trust. It is also worth noting that lagged institutional trust is significantly related to social trust *regardless* of when wave 1 of the SPAPS panel was collected as shown in Fig. 1 (left panels). The figure shows the average effect of institutional trust (the effect reported in Table 3) as well as the marginal effect of institutional trust depending on the year of data collection of the first wave (estimated with an interaction between survey round/year and institutional trust).[12]

Based on the estimates from Model 5, the predicted effect of an increase in institutional trust from its minimum to its maximum value (zero to one) is 0.14 on the social trust scale (also scaled from zero to one). Basing the effect on a more modest change in institutional trust—the interquartile range (0.60–0.80)—suggests a smaller, but non-trivial effect of 0.03. The corresponding effects based on Model 6—here expressed as the change in the average predicted probabilities for expressing trust—are 0.40 (changing institutional trust from minimum to maximum) and 0.06 (a change over the interquartile range).[13] Although the effects are modest, it is notable that the effect of institutional trust is relatively strong compared to the other predictors in the models, and it is also the only predictor that is consistently significant across all models. Previous levels of social trust are also significantly related to subsequent levels of social trust in all models, thus suggesting that the relative ordering of individuals in social trust is rather stable over time. The personality trait Agreeableness also shows a positive relationship with trust, which squares with previous findings in the literature (Mondak and Halperin 2008; Dinesen et al. 2014). The measures of two prominent alternative explanations of social trust in the literature, associational activity and life satisfaction (optimism), are not consistently significant and the same generally goes for the remaining control

[11] This is most pronounced in SPAPS because questions regarding associational activity were only asked in one of the three surveys comprising wave 1 (specifically, in round 1).

[12] Note that Model 3 only contains data for the first wave from 2002/3 (due to inclusion of associational activity, which is only measured in this wave in SPAPS, so there are no heterogeneous effects to report from this model).

[13] The change in the average predicted probabilities are based on the observed value approach (Hanmer and Kalkan 2013), in which all covariates are held at their observed values for each unit.



Notes: Point estimates and 95% confidence intervals from model 1/1it, 3/3it and 5/5it, respectively, with the addition of an interaction term between t_{-1} value and trust.

Fig. 1 The effect of institutional/social trust across t_{-1} values in the SPAPS panel

Table 4 Cross-lagged model of institutional trust

Model Data	1it SPAPS	2it EVS-DK	3it SPAPS	4it EVS-DK	5it SPAPS	6it EVS-DK
Institutional trust t_{-1}	0.54** (20.37)	0.44** (8.01)	0.45** (8.16)	0.44** (6.02)	0.53** (18.36)	0.43** (6.61)
Institutional trust t_{-2}		0.13* (2.48)		0.17** (2.63)		0.11 (1.97)
Social trust t_{-1}	0.10** (4.43)	−0.00 (−0.00)	0.04 (0.87)	−0.00 (−0.16)	0.07** (2.74)	−0.00 (−0.05)
Social trust t_{-2}		0.01 (0.63)		0.02 (0.97)		0.01 (0.45)
N	1728	326	568	256	1617	318
R^2	0.31	0.27	0.28	0.34	0.33	0.30

All models are estimated using OLS regression with robust standard errors. Entries are unstandardized regression coefficients with t-statistics in parentheses. All model specifications correspond to their respective counterparts in Table 3 with respect to control variables (estimates not shown) and sample. t_0 refers to 2011 (SPAPS data) or 2008 (EVS-DK); t_{-1} refers to either 2008, 2004 or 2002 (SPAPS) or 1999 (EVS-DK); t_{-2} refers to 1990. Since t_{-1} varies across observations in the SPAPS data (except from in Model 3it), Models 1it and 5it include dummy variables representing the three t_{-1} values. Including interaction terms to estimate separate effects of institutional trust for different time points of t_{-1} values reveals that the effect of social trust is often insignificant across the t_{-1} values in both models; this is depicted in Fig. 1 (right panels)

**; * $p < 0.01$; 0.05 (Two-sided test)

variables. In other words, institutional trust not only exerts a causal impact on social trust, it is also the strongest and most consistent predictor compared to the long list of ostensibly important control variables in the models.

What about the reverse relationship? Table 4 reports cross-lagged models equivalent to those reported in Table 3, but with institutional trust as dependent variable (consequently, the models are dubbed Model 1it and so forth). As we are mainly interested in the potential feedback loop from social trust to institutional trust, we only report the coefficients on social trust and omit the coefficients for the control variables from the table. The results are less consistent than in the models with social trust as the dependent variable and differ slightly between the two surveys. They suggest a weak effect or no effect of social trust on institutional trust. In the EVS panel, the coefficients for social trust are not only insignificant, but also essentially zero. In SPAPS, the effect of social trust on institutional trust is significant in Model 1it and 5it, but not in Model 3it. Moreover, the right panels of Fig. 1 reveals that lagged social trust—in contrast to the

Table 5 Individual-level fixed effects model of social trust

Model Data	7 SPAPS	8 SPAPS	9 EVS-DK	10 EVS-DK
Institutional trust	0.18** (4.34)	0.24** (9.38)	1.19 (1.64)	1.50* (2.24)
Life satisfaction	0.14** (3.67)	0.12** (5.18)	0.28 (0.48)	0.30 (0.59)
Organizational activity	0.03** (2.62)		0.30 (1.37)	
Religiosity	0.01 (0.34)	0.04* (2.22)	−0.35 (−0.68)	−0.42 (−0.90)
Highest education				
Primary school	Reference			
Vocational	−0.01 (−0.37)	0.02 (1.27)	−0.20 (−0.54)	−0.08 (−0.27)
Shorter post-secondary	0.00 (0.06)	0.02 (1.83)	−0.34 (−0.84)	−0.15 (−0.44)
Medium-long post-secondary	0.01 (0.23)	0.02 (1.33)	0.23 (0.40)	0.11 (0.22)
Relative income t_0				
Below 25 percentile	Reference			
Within IQR	−0.00 (−0.10)	−0.01 (−1.47)	0.47 (1.78)	0.35 (1.47)
Above 75 percentile	0.01 (0.52)	−0.00 (−0.17)	0.35 (0.95)	0.39 (1.15)
Not disclosed	−0.02 (−0.98)	−0.01 (−1.32)	−0.63 (−1.87)	−0.51 (−1.68)
Unemployed (yes)	0.02 (0.57)	0.01 (0.48)	0.47 (0.95)	0.12 (0.27)
Constant	0.44** (10.00)	0.37** (12.95)	–	–
N (observations/individuals)	1156/579	3282/1642	593/249	710/297

All models are estimated using individual fixed effects and also include time dummy/dummies. Models 7 and 8 are estimated using a linear fixed effects estimator, while Models 9 and 10 are estimated using the fixed effects logit estimator. Entries are estimated coefficients with standard errors in parentheses. Note that models based on the three wave EVS data also include respondents that were only interviewed twice, which explains why the number of observations does not equal three times the number of individuals in these models

**;* $p < 0.01$; 0.05 (Two-sided test)

effect of lagged institutional trust on social trust—is only significantly related to institutional trust for respondents interviewed first time in 2008/9 across the three models.

In the SPAPS panel, both types of trust are measured using a scale based on items having identical range and the resulting scales have approximately the same variance (cf. Table 2). This allows us—with some caution—to compare the estimated effects of institutional trust on social trust with the reverse effect. As witnessed by Fig. 1, the effect of social trust on institutional trust is consistently smaller than the reverse effect and typically close to half in size. Although none of the coefficients are significantly different across the two dependent variables, the many instances of insignificant effects of social trust combined with its consistently lower coefficients lead us to conclude that—on balance—there are only weak indications of a feedback effect from social trust to institutional trust. In conclusion, the cross-lagged models collectively provide clear evidence for a causal impact of institutional trust on social trust, while there is some evidence of social trust exerting a limited impact on institutional trust.

Taking the results from the cross-lagged models regarding the causality between the two forms of trust as point of departure, we treat institutional trust as the exogenous variable in the fixed effect models below. However, given that a feedback effect from social trust to institutional trust cannot be completely ruled out, we acknowledge that some endogeneity bias due to reversed causality may be present in the fixed effects models. Nevertheless, these models still serve to illuminate whether the relationship between the two forms of trust is confounded by unobserved time-invariant factors.

Assessing Confounding: Individual Fixed Effects Models

Having found a significant effect of lagged institutional trust on subsequent social trust while controlling for prior levels of social trust, we already have an indication that our results are not subject to confounding by stable unobservable factors as these would to some extent be picked up by preceding levels of social trust. However, we now conduct an alternative test of this by using fixed effects estimation, which relates mean deviations in institutional trust to mean deviations in social trust within individuals over time, and thus bypasses confounding by time-invariant unobservables (Angrist and Pischke 2009). Table 5 reports four fixed effects models with social trust as the dependent variable, two based on SPAPS (Model 7 and 8) and two based on the EVS (Model 9 and 10). The models also include time-varying control variables. As in the cross-lagged models, including associational involvement leads to a marked drop in observations (especially in SPAPS, cf. note 8) and we therefore estimate models both with and without this variable.[14]

The results reported in Table 5 strongly suggest that the relationship between institutional trust and social trust is not confounded by time-invariant unobservables (or the other time-varying independent variables in the model). Institutional trust thus displays a positive significant relationship with social trust in three out of four models (it only fails to reach significance in the model based on the fewest observations), which shows that individual-level changes in social trust generally

[14] Note also that the logistic fixed-effects estimator only uses individuals with variation in the dependent variable (social trust) across waves, which implies that the test is performed on a limited sample.

track changes in institutional trust. Based on the coefficients from Model 8 and 10, a change over the range of mean deviations in institutional trust is predicted to increase social trust by 0.34 and 0.30 (on the 0–1 scale), respectively (the latter effect is the average change in the predicted probability of expressing social trust). Restricting the change in institutional trust to the interquartile range of within-person mean deviations (0.18 for both models), the predicted changes in social trust are 0.04 and 0.06, respectively. Again, this points to modest, but non-trivial effects of institutional trust. Moreover, institutional trust again emerges as the variable most consistently significantly related to social trust. While it is less surprising that, for example, education does not have a significant impact on trust given the limited within-individual variation in a panel survey of adults, it is revealing that no consistent effect is found for the two other prominent explanations of trust relating to life satisfaction and associational involvement. This further adds to the picture of institutional trust being the single-most important predictor of social trust—and an influence that cannot readily be explained by time-invariant unobservable factors.

Conclusion and Discussion

The aim of this paper has been to examine whether the well documented association between institutional and social trust reported in previous cross-sectional studies can plausibly be given a causal interpretation; more specifically, that institutional trust influences social trust. Using two individual-level panel datasets from Denmark, this is indeed what we find. Employing cross-lagged models to assess the direction of causality and fixed effects models to rule out confounding by plausible, but hard-to-observe, time-invariant confounding factors, we find strong evidence of institutional trust influencing social trust. Moreover, in comparative terms, institutional trust emerges as the most important predictor of social trust when controlling for a rich set of likely confounders. Finally, our results are inconsistent with regard to the reverse relationship, but a more limited feedback effect from social trust to institutional trust cannot be ruled out.

Our findings have marked implications for our understanding of the roots of social trust. Contrary to the cultural account, which argues that social trust is a deep-founded dispositional trait, our results clearly suggest that social trust is likely to change over time, and that experiences that shape trust in state institutions play an important part in this regard. This is good news in the sense that it testifies to levels of social trust not being set in stone, but rather something that can be built up by means of combatting corruption and other institutional malfunctions that lead citizens to distrust institutions and, subsequently, other people (Sønderskov and Dinesen 2014). However, as the other side of the coin, this also implies that drops in institutional quality can erode social trust, and policy-makers should thus be conscious about how corruption and specific policies may affect trust in institutions (Rothstein and Stolle 2003; Serritzlew et al. 2014).

As a considerable strength of our design, we have shown that our findings are robust to various measurements of the dependent variable and over a significant time span. However, as always when focusing on data from one specific country, one might reasonably question the external validity of the results. That is, do our results concerning the causal influence of institutional trust on social trust generalize to other settings? We

cannot know without hard data, but *prima facie* there is no reason to believe that Denmark is an environment particularly prone for a positive relationship between the two forms of trust. On the contrary, one could argue that given the high preexisting levels of social trust and institutional trust in Denmark, there should be less room for any effects of improvement in the latter (and perceptions hereof) on the former. Whether the effects in other countries are stronger—or in the same direction for that matter—remain to be seen. The availability of comparable cross-national panel data sets including the relevant trust variables would clearly be a marked improvement in this regard.

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Appendix

See Table 6.

Table 6 Measurement of variables

Variable	Measurement in EVS-DK	Measurement in SPAPS
Social trust	Response to question: "Generally speaking, do you think that most people can be trusted or that you cannot be too careful in dealing with other people?" 0 = "You cannot be too careful" 1 = "Most people can be trusted"	Scale consisting of the following three questions: "Generally speaking would you say that most people can be trusted, or that you can't be too careful in dealing with people" "Do you think that most people would try to take advantage of you if they got the chance, or would they try to be fair?" "Would you say that most of the time people try to be helpful or that they are mostly looking out for themselves?" All questions were measured on an eleven-point scale ranging from 0 ("You can't be too careful"/"Most people would try to take advantage of me"/"People mostly look out for themselves") to 10 ("Most people can be trusted"/"Most people would try to be fair"/"People mostly try to be helpful") The final scale is calculated as the mean of the three items and rescaled from 0 to 1 with high values indicating high trust. It only includes respondents having validly answered at least two of the three questions. The composite scale has a Cronbach's alpha between 0.72 and 0.76 in the various waves of SPAPS

Table 6 continued

Variable	Measurement in EVS-DK	Measurement in SPAPS
Institutional trust	Scale consisting of trust in the following four state institutions: the parliament, the judiciary, the police, and the public sector. The trust questions were assessed on a four point scale running from "A great deal" to "none at all". The final scale was calculated as the mean of the four items and rescaled to range from 0 and 1 with high values indicating high trust. It only includes respondents having validly answered at three of the four questions. The composite scale has a Cronbach's alpha between 0.66 and 0.70 across the three waves	Scale consisting of trust in the following four state institutions: the parliament, the judiciary, the police, and politicians The trust questions were assessed on an 11-point scale running from "No trust at all" to "Trust completely" The final scale was calculated as the mean of the four items and rescaled to range from 0 and 1 with high values indicating high trust. It only includes respondents having validly answered at least three of the four questions. The composite scale has a Cronbach's alpha between 0.76 and 0.81
Associational activity	Dummy variable that takes the value of 1 if the respondent reports being active or doing voluntary work for at least one type of voluntary association. The list of possible associations varies slightly across the surveys, but all surveys include a broad catch-all category. The battery used to measure involvement was not included in the 2004 and 2008 versions of the SPAPS data. For unknown reasons the response rate for this question was low in the 1990 EVS-DK data	
Life satisfaction	"How satisfied or dissatisfied are you with life nowadays?". Measured on a ten-point scale ranging from 1 ("Very dissatisfied") to 10 ("Very satisfied"). Rescaled from 0 to 1	"All things considered, how satisfied are you with your life nowadays?" Measured on an 11-point scale ranging from 0 ("Very dissatisfied") to 10 ("Very satisfied"). Rescaled from 0 to 1
Religiosity	"How important is God in your life". Measured on a ten-point scale ranging from 1 ("Not at all important'") to 10 ("Very important'"). Rescaled from 0 to 1	"How religious are you?". Measured on an 11-point scale ranging from 0 ("Not at all religious") to 10 ("Very religious"). Rescaled from 0 to 1
Big five personality traits		Respondents' self-placement on ten statements consisting of the word pairs listed below. Each word marked the extreme of an 11-point continuum on which the respondent was asked to place her-/himself. All scales/variables are rescaled from 0 to 1 with higher values indicating higher scores on the trait. All items are only included in the second wave of SPAPS
Agreeableness		"Cold" (0) vs. "Warm" (10); "Friendly" (0) vs. "Unfriendly" (10) (reversed) Correlation between the two items, r = 0.35. Calculated as the mean of the two items
Conscientiousness		"Hardworking" (0) vs. "Lazy" (10) (reversed); "Responsible" (0) vs. "Irresponsible" (10) (reversed). r = 0.29. Calculated as the mean of the two items
Extraversion		"Introverted" (0) vs. "Extraverted" (10); "Quiet" (0) vs. "Talkative" (10) r = 0.59. Calculated as the mean of the two items

Table 6 continued

Variable	Measurement in EVS-DK	Measurement in SPAPS
Neuroticism		"Calm" (0) vs. "Nervous" (10); "Robust" (0) vs. "Fragile" (10) r = 0.40. Calculated as the mean of the two items
Openness to experience		"Unimaginative" (0) vs. "Imaginative" (10); "Philosophical" (0) vs. "Down to earth" (10) (reversed). r = 0.06. Therefore we opted for including each of the items separately in the model
Gender (female)	0 = male, 1 = female	
Age	Age in years	
Place of birth (Native)	0 = Not born in Denmark, 1 = born in Denmark	
Education	Highest level of education measured in four categories (Primary school, vocational training, shorter post-secondary education (<2 years), and medium or long post-secondary education)	
Household income	Measured in four categories with three categories indicating the relative level of household income compared to the other respondents in the same wave of the survey (below the 25 percentile, within the interquartile range, or above the 75 percentile) and the fourth category indicating non-response. The SPAPS measure is based on a question with 12 predefined answers while the EVS measure is based on an open question	
Unemployment (yes)	0 = employed, student, retired etc., 1 = unemployed	

Descriptive statistics/reliability coefficients/correlations are based on the 1728/326 respondents included in Models 1 or 2. See Table 2 for further descriptive statistics for the two trust variables

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