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Self-rated health, generalized trust, and the Affordable Care Act: A US panel study, 2006–2014



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ABSTRACT

Previous research shows that generalized trust, the belief that most people can be trusted, is conducive to people's health. However, only recently have longitudinal studies suggested an additional reciprocal pathway from health back to trust. Drawing on a diverse body of literature that shows how egalitarian social policy contributes to the promotion of generalized trust, we hypothesize that this other 'reverse' pathway could be sensitive to health insurance context. Drawing on nationally representative US panel data from the General Social Survey, we examine whether the Affordable Care Act of 2010 could have had influence on the deteriorating impact of worsening self-rated health (SRH) on generalized trust. *Firstly*, using *two-wave* panel data (2008–2010, N = 1403) and employing random effects regression models, we show that a lack of health insurance coverage negatively determines generalized trust in the United States. However, this association is attenuated when additionally controlling for (perceived) income inequality. *Secondly*, utilizing data from two separate *three-wave* panel studies from the US General Social Survey (2006–10; N = 1652; 2010–2014; N = 1187), we employ fixed-effects linear regression analyses to control for unobserved heterogeneity from time-invariant factors. We demonstrate that worsening SRH was a stronger predictor for a decrease in generalized trust prior (2006–2010) to the implementation of the Affordable Care Act. Further, the negative effect of fair/poor SRH seen in the 2006–2010 data becomes attenuated in the 2010–2014 panel data. We thus find evidence for a substantial weakening of the previously established negative impact of decreasing SRH on generalized trust, coinciding with the most significant US healthcare reforms in decades. Social policy and healthcare policy implications are discussed.

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1. Introduction

On 23rd March 2010, Barack Obama as the United States (US) President signed into law the *Patient Protection and Affordable Care Act* (ACA). The enactment of the ACA represented a massive paradigm shift in North American healthcare policy (Jacobs and Skocpol, 2010), shifting from a strongly commodified system (Caplan, 1989) towards a more egalitarian healthcare system. The overarching aims of the ACA were to expand healthcare coverage, to lower healthcare costs, and to make health insurance companies more accountable (Medicaid.gov, 2017). Recent research shows that it was young adults up to 26 years, minorities, and low-income earners that benefitted most from the ACA in terms of improved

self-rated health (SRH) and greater access to affordable healthcare (Sommers et al., 2013, 2015). By 2014 – the year coinciding with the last observations of our panel data studies – at least an additional 20 million people had gained healthcare coverage (Blumenthal and Collins, 2014).

Inspired by a recent US longitudinal study based on Los Angeles data *pre-ACA* (McKay and Timmermans, 2017), which showed that high community-levels of “uninsurance” undermined social cohesion, our study pays attention to a key social capital dimension with established public health implications, namely generalized trust (Jen et al., 2010; Kawachi et al., 1999; Moore and Kawachi, 2017; Nyqvist et al., 2008; Subramanian et al., 2002). Generalized trust is the belief that most people, even strangers, can be trusted. It is frequently considered an important – if not even the *most* important (Rothstein and Stolle, 2008) – part of social capital because it facilitates cooperation between strangers, making it an invaluable solution for major collective action dilemmas (Berkman and

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Kawachi, 2014), for example fighting antibiotic resistance (Rönnerstrand and Andersson Sundell, 2015) and immunization against pandemics (Rönnerstrand, 2016). Of major interest to us is that one key experience associated with fluctuations in individual trust is a *change* in individual health status (Giordano et al., 2012). More specifically, we deal with the question how changes in people's SRH are associated with changes in individual generalized trust (Giordano et al., 2012; Giordano and Lindström, 2016) and whether the enactment of the ACA could influence the US health-trust nexus.

Since the seminal study by Kawachi et al. (1999), the past two decades have seen vast amounts of empirical evidence demonstrating positive associations between SRH and generalized trust (Gilbert et al., 2013; Murayama et al., 2012). Applying a diverse range of methods and data, most studies have implicitly assumed a causal pathway from generalized trust to health (e.g. Giordano et al., 2012; Snelgrove et al., 2009). However, scholars have only recently begun to question the (simplistic) unidirectional model of causation (Ljunge, 2014; Oshio, 2016; Rocco et al., 2014). Most recently in a temporality study employing multi-wave data from the British Household Panel Study, Giordano and Lindström (2016) provided empirical evidence for a complex *circular* relationship between generalized trust and SRH over time, i.e. a causal path from generalized trust to SRH and a 'reverse' path leading from SRH to generalized trust. They further suggested that this *circular* health/trust relationship appears more complex than the mutually reinforcing feedback loop previously postulated by Rocco et al. (2014), with those individuals with poor SRH having the greatest propensity not to trust later. This 'reverse' path from health to trust is the focus of this study.

Since the use of three-wave panel data, as employed in this study, restricts the possibilities to disentangle the causal order of two attitudinal variables (Vaisey and Miles, 2017), we refrain from re-addressing the causality question. Assuming the existence of the established positive path from generalized trust to health (Ljunge, 2014; Rocco, 2014), we focus exclusively on the 'reverse' path from health to generalized trust, which can be interpreted twofold: i) Improving SRH leads to an increase in trust; and ii) Worsening SRH leads to a decrease in trust. The latter shall be studied here. There is a broad scholarly consensus that *destroying* generalized trust is much easier than *creating* it (Levi, 1998), hence our interest in the potentially deteriorating impact of worsening health on trust.

We argue that poor health translates into a decrease in trust only under certain circumstances. Following Seligman (1997) and Uslaner (2002), generalized trust is rooted in optimism and a sense of control (see also Ross, 2011), factors that are primarily shaped during the 'impressionable years' of childhood and adolescence. Put differently: Generalized trust tends to be relatively resistant to changes during adulthood. Consequently, only life-events of significant impact, e.g. falling seriously ill or becoming unemployed (e.g. Laurence, 2015), could have the potential to turn adults from 'trusters' into 'distrusters'. We further argue that the negative impact of worsening health on generalized trust could be buffered by social policy. Egalitarian social policy measures may, for example, be targeted to provide greater access to appropriate medical support, fair sick pay, maternity/paternity leave, and opportunities for increased participation in society (Starfield and Birn, 2007). Such elements are already commonplace in most Western industrialized countries (Olafsdottir and Beckfield, 2011), and their presence may contribute to attenuating the 'reverse' pathway association between poor health and lower trust in these contexts.

Previous research shows that universal welfare states, as represented for example by the Nordic countries, create egalitarian contexts that foster generalized trust (e.g. Rothstein and Stolle, 2008). People living in liberal welfare states such as the US are, conversely, less likely to trust others (Coburn, 2000; Rostila, 2013). We argue that the ACA constitutes an egalitarian milestone in US healthcare history, with the potential to mitigate the deteriorating impact of worsening health on generalized trust. More precisely, we assume that universal healthcare systems may potentially buffer any spillover effects from poor health into other domains of life, such as labor force participation, family well-being, political participation and social life. Contexts where the welfare state adopts egalitarian healthcare provision to cushion any downward spirals caused by deteriorating health should promote more optimism and sense of control – and therefore generalized trust – than contexts characterized by a marketization of healthcare. Before the healthcare reform of 2010, large parts of the population remained either under- or uninsured, despite the three-fold increase in healthcare costs over the two decades *pre*-ACA (Moses et al., 2013). The healthcare reform of 2010, unfortunately, failed to realize truly universal healthcare coverage (see also Béland et al., 2016), possibly due to the Supreme Court decision in June 2012 allowing *optional* Medicaid expansion for states (Rosenbaum and Westmoreland, 2012). As a result, an estimated 28 million Americans remained uninsured three years after its enactment (Kantarjian, 2016). Nevertheless, the ACA was a 'game changer' in that it dramatically increased the number of US residents eligible for healthcare insurance schemes.

While the US has suffered from a substantial and steady decline in generalized trust since the early 1970s (Fukuyama, 1999; Putnam, 2000; Twenge et al., 2014; Uslaner, 2002), empirical evidence regarding possible interventions how to stop or even reverse this negative trend is scarce. We seek to address this literature gap by re-visiting the US health-trust nexus and investigating whether associations between poor SRH and low generalized trust in the US have been affected by the 2010 healthcare reforms. Observing such a period-effect would further support the claim that by buffering the adverse effects of worsening health on generalized trust, increasing access to affordable healthcare positively contributes to community well-being and social cohesion beyond health effects alone (McKay and Timmermans, 2017; Sohn and Timmermans, 2017). Importantly, we assume that it is less any *direct* experience of 'Obamacare' that should matter for mitigating the effect of worsening health on generalized trust but rather the optimism stemming from the prospect of an upcoming, more egalitarian healthcare system designed to benefit previously marginalized groups.

We hypothesize that the negative impact of worsening health conditions on generalized trust was stronger *pre*-ACA than *post*-ACA. By employing longitudinal survey data from two different three-wave panel studies of the US General Social Survey, we:

- i) Analyze whether individual health insurance coverage impacts generalized trust,
- ii) Investigate if the health-trust relationship in the US holds using a three-wave panel design;
- iii) Examine whether the negative impact of fair/poor SRH on generalized trust was stronger *pre*-than *post*-healthcare reform
- iv) Test whether any effects regarding the impact of SRH on trust are stratified by age, distinguishing between those that were immediately affected by the ACA (18–25 year olds) vs. those aged 26+ (affected by the ACA from 1 January 2014)

2. Data and methods

2.1. Data

Our data come from the biennially conducted US General Social Survey (GSS), which is the most widely used survey for studying attitudinal trends in the United States since 1972 (Smith et al., 2015). The target population includes English and Spanish speaking persons (18 years+) living in non-institutional arrangements within the US. Samples are full-probability samples and interviews were conducted face-to-face. Data are anonymous, publicly available and free to download. Total response rates (for baseline years) ranged from 69% (2014) to 71% (2012); panel attrition ranged from 17 to 24% *per* wave. Beginning in 2006, each new round of the GSS also started a new four-year/three-wave panel study. We employed two different GSS three-wave panel studies for our purposes: the first started in 2006 with re-interviews in 2008 and 2010; the second started in 2010, with repeated measures in 2012 and 2014. One panel study covered the four-year period immediately before the enactment of the ACA, the other being fielded amidst the initial years of the healthcare reform.

We briefly illustrate the four-year/three-wave panel design of the GSS by explaining sample procedures for the first ever GSS panel study (base year: 2006). In 2008, a random selection ($N = 2023$) from the previous 2006 GSS study ($N = 4510$) was drawn. Of those 2023 respondents, 1536 (response rate: 76%) took part in the follow-up study. Only those that took part in the second interview (2008) had the possibility to take part in a third and last re-interview in 2010. In the last wave, the response rate was 83% ($N = 1276$). The same panel design was adopted in panel study 2 (2010–14). Table A1 (online appendix) summarizes the original sample sizes and the panel response rates of the two GSS panel studies that we employed. After listwise deletion of cases with missing values on continuous control measures our sample sizes were $N_{2008-2010} = 1403$; $N_{2006-2010} = 1652$; and $N_{2010-2014} = 1187$.

2.2. Dependent variable

Generalized trust was measured using a three-item scale (Glanville et al., 2013) that refers to the following questions: i) “Generally speaking, would you say that most people can be trusted or that you can’t be too careful in dealing with people?” (TRUST); ii) “Would you say that most of the time, people try to be helpful, or that they are mostly just looking out for themselves?” (HELPFUL); and, iii) “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?” (FAIR). Respondents could answer indicating either a pro-trust position (for example ‘most people can be trusted’), a distrust position (for example, ‘can’t be too careful’) or indifference (‘other/it depends’). We followed standard practice and merged those that were undecided (‘it depends’) with those clearly stating a tendency toward distrust (Uslaner, 2002). Each item was coded so that ‘1’ indicated a pro-trust attitude (can trust, helpful, fair) and ‘0’ reflected distrust (can’t be too careful, look out for themselves, take advantage of you). Previous research shows that this three-item scale reliably and consistently measures generalized trust (Glanville and Paxton, 2007; Paxton, 1999). Cronbach’s alpha coefficient was 0.68 in our samples in both panels. The three-item trust scale reflects the grand mean of those three items, ranging from 0 (lowest possible trust) to 1 (highest possible trust). There were almost no missing values (1% among the three separate trust items that make up for the 2010–2014 trust scale. However, in about 23% of the occasions (649 out of 2837) in the 2006–2010 panel study, the trust score only relied on TRUST whilst FAIR and HELPFUL had missing values. However, TRUST is one of the most widely used and tested single-

item attitudinal measures (Uslaner, 2012), and it is highly correlated ($r = 0.83$) with the three-item scale.

2.3. Covariates

2.3.1. Self-rated health (SRH)

SRH is considered a valid predictor of morbidity and all-cause mortality (Idler and Benyamini, 1997; Lopez, 2004; Schnittker and Bacak, 2014), even after adjusting for gender, age, ethnicity, marital status and BMI (Dowd and Zajacova, 2007). SRH has been shown to be the most reliable tool for the prediction of health in longitudinal study design (DeSalvo et al., 2006). SRH also picks up aspects of individuals’ psychological health, namely perceived stress levels (Mackenbach et al., 2002; Toivanen, 2011), making it a robust subjective indicator of overall health status.

The two GSS panel studies (2006–10 and 2010–14) employed slightly differing SRH measures, i) a four-point SRH measure (“Would you say your own health, in general, is excellent, good, fair, or poor?”) (Bowling, 2005; Olafsdottir, 2007; Warren and Hernandez, 2007); and ii) the global five-point SRH measure (“Would you say your own health, in general, is excellent, very good, good, fair, or poor?”). Since its onset, the GSS had featured the four-point SRH measure, only recently running the five-point SRH measure alongside it. Previous GSS survey experiments showed marginal distribution differences between ‘fair’ and ‘poor’ SRH responses when comparing these two items (Smith, 2005). We followed standard practice (see e.g. Carl and Billari, 2014; Giordano et al., 2012) and dichotomized SRH, distinguishing between excellent/good SRH (plus ‘very good’ in the five-point version) on the one hand (0), and fair/poor SRH (1) on the other. This allowed us to merge the four- and five-point SRH measures into one single dichotomous SRH measure. Given the very high correlation between the two SRH measures (0.93 in 2006–10 and 0.92 in 2010–2014), this seemed justified, and it allowed us to keep a sufficiently large sample size ($N > 1000$) in the 2010–2014 panel study. By summarizing the information on self-assessed health this way, we also performed inter-item cross-validation, allowing us to disregard cases where deviations between the two SRH measures were found ($n = 100$ in 2006–2010; $n = 136$ in 2010–2014).

2.3.2. Control variables

Descriptive overviews about our control variables and their question wording can be found in Table A2, Table A3 and Table A4 (all in the online appendix). Analyses involved both random effects (RE) and fixed-effects (FE) regression models (see later). Since the former do not automatically control for time-constant variables, we used *gender*, *race*, and *age* as covariates in our RE models. *Race* has repeatedly been identified as a crucial determinant of generalized trust in the US (e.g. Wilkes, 2011). Similarly, striking differences in trust are observed among different US birth cohorts, with generational replacement being argued as one main reason for the steady decline in US trust (Clark and Eisenstein, 2013). A recent twin-study established substantial and significant associations between *education* and generalized trust (Oskarsson et al., 2017). We thus distinguished respondents with a bachelor/graduate university degree from those having a minor or no degree. Previous research (Mewes, 2014) argued that workplaces provide ideal breeding grounds for generalized trust, because they create contexts where people from diverse backgrounds cooperate. Moreover, Laurence (2015) showed in a longitudinal study from the UK, that job displacement was associated with a subsequent decrease in generalized trust. We, therefore, controlled for *labor force status*, distinguishing i) respondents in fulltime employment (reference group) from those in part-time work, unemployment, retirement, education, and other non-specified activities. Glanville et al. (2013)

found that social connections significantly determined changes in generalized trust. Due to an insufficient number of observations regarding connectivity in the 2010–2014 data, we employed *marital status* as a proxy variable (see also Lindström, 2012). Since *religiosity* is found to positively determine generalized trust (e.g. Schultz et al., 2008), we also monitored people's frequency of attending religious meetings. *Fear of crime* is assumed to decrease people's trust in others (Uslaner, 2012: 128f.) and was operationalized by being afraid of walking at night in the respondent's neighborhood. As Putnam (2000: 205) found a positive relationship between small communities and trust, we included a measure for community size. Since Southerners tend to be less trusting than people living in other US regions (Wilkes, 2011: 1608), we also controlled for US region (the GSS recognizes nine different regions), utilizing 'South Atlantic' (comprising the following states: Delaware, Maryland, West Virginia, Virginia, North Carolina, South Carolina, Georgia, Florida, District of Columbia) as the reference category.

Interestingly, measures of income inequality such as *income* and *perceived material living conditions* were absent among the list of controls in the previously mentioned two-wave panel study by Glanville et al. (2013). A recent longitudinal study based on UK and US panel data showed that changes in income predict changes in generalized trust (Brandt et al., 2015). Therefore, we controlled for logged family income in constant US Dollars (base year: 1986) having adjusted for household size (Hout, 2004; OECD, 2013). Acknowledging that the 2007–08 financial crisis might have influenced the relationship between income and trust, we also included two *subjective* income inequality measures: 1.) *Satisfaction with family income* and 2.) *Perceived economic standing*.

Employing FE regression models for panel data (see later), we fully controlled for *time-invariant* confounders in these analyses. Therefore, *gender* and *race* were dropped from our list of controls. We refrained from controlling for change in US region in our FE model, due to the short time span of this study. *Fear of crime* had too many missing values in the 2010–2014 panel and was also dropped. *Age* was omitted because it perfectly correlates with time.

3. Method

Data preparation and analyses were conducted using STATA 14.2 SE (Statacorp, 2015). The first wave of the 2006–2010 panel study did not contain data on individual health insurance coverage, nor did any of the 2010–2014 panel data. Therefore, we utilized *two-wave* GSS panel data from 2008/2010 to model whether lack of health insurance coverage is statistically associated with low levels of generalized trust (descriptives regarding our categorical and continuous measures can be found in the *online appendix*, see Table A2 and Table A3, respectively). Since few respondents displayed change regarding health insurance coverage between 2008 and 2010 (*pre-ACA*), we chose an RE approach (Singer and Willett, 2003) with observations (level 1) nested in respondents (level 2). Each individual ($N = 1403$) could have up to two observations ($N_o = 2211$). Robust standard errors were used to account for clustering of error terms within respondents.

Subsequently, we made full use of the *three-wave* panel data from the 2006–2010 and 2010–2014 studies. In these analyses, we sought to answer whether the negative effect of fair/poor SRH on generalized trust *pre-ACA* (2006–2010) was mitigated *post-ACA* (2010–2014). We conducted Hausman tests (Hausman, 1978) to see whether the structure of our data justified employing random effects models, however both panels' (2006–2010; 2010–2014) tests were significant ($p < 0.001$), so we chose to estimate fixed-effects (FE) models (see e.g. Allison, 2009; Oshio, 2016) instead. The key advantage of FE models is that they, *per design*, control for

heterogeneity caused by any (unobserved) time-constant variables (Gormley and Matsa, 2014). Concentrating on variation *within* individuals over time, FE regression allowed us to treat respondents as their own controls (Allison, 2009). The foundational FE regression model adopted here reads the following:

$$Trust_{it} = \alpha_i + \mu_t + \beta X_{it} + \varepsilon_{it}$$

$Trust_{it}$ denoted the value of trust for unit i at time t . Our FE model allowed both for unit-specific (α_i) and period-specific (μ_t) fixed effects. Again, we used robust standard errors to account for clustering of error terms within respondents.

4. Findings

Investigating the impact of lack of health insurance on generalized trust using two-wave panel data from 2008 to 2010 (see Table A2, online appendix, for a descriptive overview about our measures), respondents reporting health insurance coverage were significantly more trusting (95%CI = 0.482–0.521) than those without (95%CI = 0.330–0.402). Generalized trust was significantly higher among respondents with good SRH (95%CI = 0.482–0.526) than among those reporting poor SRH (95%CI = 0.303–0.376). Table 1 summarizes our RE analyses findings.

Including all controls except for material living conditions, lack of health insurance coverage exerted a statistically significant ($p < 0.05$) negative impact on generalized trust (Model 1, Table 1). After adding family income, satisfaction with family income, and perceived financial standing (either separately or all together, as in Table 1, Model 2), the negative correlation between lack of health insurance coverage and generalized trust was attenuated. This supports the hypothesis that, *pre-ACA*, the mechanism behind the negative relationship between lack of health insurance coverage and generalized trust among US residents was income inequality (Rözer and Volker, 2016).

Subsequently, we employed *three-wave* panel data from before (2006–2010) and after (2010–2014) the enactment of the ACA to investigate changes in the trust-health nexus. Tables A3 and A4 in the online appendix provide a descriptive overview over our measures. We exclusively focused on variation *within* respondents in these FE regression models. Any evidence for the hypothesis that the ACA re-configured the US trust-health nexus thus needs to be interpreted with caution, as our data only give indirect support. The results from FE models based on panel data from 2006 to 2010 and 2010–2014 are summarized in Table 2.

We observe that *pre-ACA*, poor SRH had a statistically significant and substantial negative impact on generalized trust. However, this association became attenuated in terms of statistical significance and effect size, *post-ACA* (2010–2014). Fig. 1 plots the marginal impact of poor SRH on generalized trust, whilst holding the control variables constant at their respective means.

Finally, we tested whether the observed change in the effect of worsening health on generalized trust mainly occurred among young adults (an immediate key feature of the ACA in 2010 was that children could remain on their parents' health insurance plans until they turned 26), or whether this was something more generalizable. We thus extended our models depicted in Table 2 by *i*) a dummy variable indicating whether respondents were aged 25 or younger by the time of interview (1 = yes/0 = no), and *ii*) by an interaction between said dummy variable and fair/poor SRH (see Table A6, online appendix for interaction term models/results). We further calculated the predicted margins for the latter interaction, whilst holding constant all other controls at their means (Table 3). Focusing on the group of respondents who reported worsening health conditions, the largest change in trust occurred among those

Table 1
Random effects regression of generalized trust on lack of health insurance coverage.

	Model 1		Model 2	
	Coeff.	Robust std. error	Coeff.	Robust std. error
2010 (Ref.: 2008)	0.013	0.015	0.013	0.015
Fair/poor SRH ^a	-0.085	0.020	-0.077	0.020
Lack of health insurance ^b	-0.046	0.020	-0.028	0.021
Bachelor/graduate degree ^c	0.162	0.021	0.133	0.022
Working part-time ^d	-0.007	0.028	0.007	0.028
Temp. not working	-0.069	0.053	-0.074	0.055
Unemployed, laid off	-0.019	0.032	0.010	0.032
Retired				
In education	0.070	0.056	0.083	0.056
Keeping house	-0.019	0.026	-0.015	0.026
Other	-0.027	0.045	-0.008	0.050
Religiosity	0.010	0.003	0.009	0.003
Widowed ^e	-0.084	0.035	-0.069	0.035
Divorced	-0.078	0.025	-0.064	0.025
Separated	-0.044	0.039	-0.033	0.038
Never married	-0.036	0.027	-0.025	0.027
26–39 years ^f	0.045	0.038	0.051	0.037
40–64 years	0.140	0.041	0.136	0.040
65 years and older	0.193	0.049	0.181	0.049
Race: black ^g	-0.124	0.029	-0.116	0.029
Race: other	-0.092	0.035	-0.085	0.034
New England ^h	0.174	0.057	0.179	0.056
Middle Atlantic	0.110	0.037	0.115	0.036
E. Nor. Central	0.130	0.032	0.133	0.031
W. Nor. Central	0.182	0.046	0.181	0.045
E. South Central	0.085	0.044	0.085	0.044
W. South Central	0.017	0.035	0.015	0.035
Mountain	0.219	0.040	0.216	0.040
Pacific	0.111	0.035	0.109	0.035
Female	0.019	0.020	0.023	0.020
Size of place	-0.000	0.000	-0.000	0.000
Fear of crime: yes ⁱ	-0.084	0.023	-0.073	0.023
Hh income: quartile 2 ^j			-0.015	0.023
Hh income quartile 3			0.018	0.027
Hh income quartile 4			0.041	0.029
Perceived economic standing			0.019	0.010
Not at all satisfied with family income ^k			-0.053	0.019
Satisfied with family income			0.027	0.019
Constant	0.250	0.048	0.181	0.058
Variance (between)	0.318		0.313	
Variance (within)	0.224		0.225	
Rho	0.667		0.660	

Notes: Statistically significant coefficients ($p < 0.05$) **bold-faced**. Coefficients for missing values/don't know/no answer are not depicted. Results from full models including those coefficients are available upon request. Reference categories: *a* = Good/(very good)/good SRH; *b* = R has health insurance coverage; *c* = highest degree lower than bachelor/graduate; *d* = working fulltime; *e* = married; *f* = 18–25 years; *g* = white; *h* = South Atlantic; *i* = fear of crime: no; *j* = 1st income quartile; *k* = more or less satisfied with family income.

Data source: 2008/2010 waves of the 2006–2010 panel study of the US General Social Survey (sample size: 2211 occasions nested in 1403 respondents).

aged 18–25, with an average increase in trust of 0.132 from *pre*- (2006–2010) to *post*-ACA (2010–2014), compared to 0.061 among those aged 26 years or more. However, confidence intervals are very imprecise, probably due to the small number of occasions where respondents were aged 18–25 ($n_0 = 207$ in 2006–2010; $n_0 = 158$ in 2010/2014). We are, therefore, not convinced that these results are generalizable.

5. Discussion

The enactment of the Affordable Care Act (ACA) during the timeframe of this study (2006–2014) provided a unique opportunity to investigate whether a change from a strongly commodified system of medical and healthcare (Caplan, 1989) to a more universal system could weaken the negative impact of poor health on generalized trust (Glanville et al., 2013). Under the ACA, healthcare provision in the US changed from being a “privilege” to a (social) “right” (Rak and Coffin, 2013). We hypothesized that this massive paradigm shift in policy affected the US trust-health relationship.

As a first step of analysis, we demonstrated that lack of health insurance coverage negatively determined generalized trust (RE models). Secondly, using FE models and three-wave panel data from *pre*- and *post*-ACA, we found that after the healthcare reform of 2010, the significant and substantial association between poor SRH and low trust seen 2006–2010 became attenuated. Further analyses revealed that this change rather occurred among the general population than among groups that particularly benefitted from the ACA. While our analysis can by no means confirm that the ACA was the sole cause of the mitigating impact of poor health on generalized trust, we have presented empirical evidence for a period-effect coinciding with one of the most significant US healthcare reforms to date.

5.1. Strengths and weaknesses

This study employed panel data from the GSS, the single most widely used survey for studying attitudinal trends in the United States, over a timeframe during which the ACA was passed. We

Table 2
Determinants of generalized trust 2006–2014, results from fixed-effects linear regression models.

	2006–2008–2010		2010–2012–2014	
	Coeff.	Robust std. error	Coeff.	Robust std. error
<i>Panelwave</i>				
2	0.045	0.014	0.028	0.013
3	0.077	0.017	0.059	0.019
Fair/poor SRH ^a	-0.055	0.028	-0.017	0.029
Bachelor/graduate degree ^b	0.069	0.050	0.081	0.072
Working part-time ^c	0.039	0.032	0.031	0.032
Temp. not working	-0.005	0.053	0.025	0.049
Unempl./laid off	0.021	0.046	0.039	0.049
In education	0.032	0.078	-0.127	0.050
Keeping house	-0.012	0.033	0.033	0.040
Other	-0.079	0.061	0.070	0.070
Freq. of attending religious meetings	0.000	0.006	-0.003	0.007
Widowed ^d	0.029	0.073	-0.101	0.095
Divorced	-0.083	0.056	-0.016	0.044
Separated	-0.080	0.041	-0.014	0.047
Never married	-0.064	0.063	0.012	0.068
Size of place	-0.000	0.000	0.000	0.000
Family income	-0.025	0.014	-0.006	0.020
Family income: not at all satisfied ^e	-0.051	0.023	-0.005	0.025
satisfied	-0.028	0.024	0.039	0.023
Perceived economic standing	-0.003	0.013	0.010	0.014
Constant	0.706	0.146	0.459	0.196
<i>Rho</i>	0.689		0.671	
Variance (between)	0.386		0.350	
Variance (within)	0.259		0.245	

Notes: Statistically significant coefficients ($p < 0.05$) **bold-faced**. Reference categories a = good/(very good)/excellent SRH; b = highest degree lower than bachelor/graduate; c = working fulltime; d = married; e = more or less satisfied with family income.

Data source: Three-wave panel studies of the US General Social Survey, 2006–2010 (sample size: 2837 occasions nested in 1652 respondents) & 2010–2014 (sample size: 2192 occasions nested in 1187 respondents).

incorporated a three-wave panel study design to investigate change within individuals over time (Vaisey and Miles, 2017).

We utilized a three-item scale for measuring generalized trust, which, according to a recent methodological contribution by Lundmark et al. (2016), is preferable over the single-item standard trust measure (Uslaner, 2012) wherever possible. A potential caveat here is that the three-item trust scale was solely based on the single-item standard trust question in about 23% of cases in the 2006–2010 panel study.

Even though we used the same 2006/2008 data as Glanville et al. (2013), there are several important differences. Firstly, we employed *three* waves of panel data not *two* (something that is considered crucial for studying actual change, see Singer and Willett, 2003: 10); secondly, we drew further data from a subsequent GSS panel study (2010–14); thirdly, SRH was only considered a confounding variable in their study. Fourthly, we cross-validated our SRH measures by combining information from the four- and five-point SRH items. Finally, we controlled for material living conditions, which were absent as measures in their study.

Though we acknowledged the circular relationship between generalized trust and SRH, (Giordano and Lindström, 2016), we focused specifically on the ‘reverse’ path from SRH to trust. That our findings support a period-effect regarding the trust-health nexus should *not* be considered proof that generalized trust is unconfoundable to health. Past studies demonstrating a positive impact of trust on SRH used, for example, data from panel surveys with much larger sample sizes and employed data from studies that followed individuals over much longer periods of time (Giordano et al., 2012).

Unobserved time-varying confounders could have affected our FE results; for example, the financial crisis of 2007–08 occurred during 2006–2010 data collection. This event has been associated with poorer health outcomes and lower trust across the United

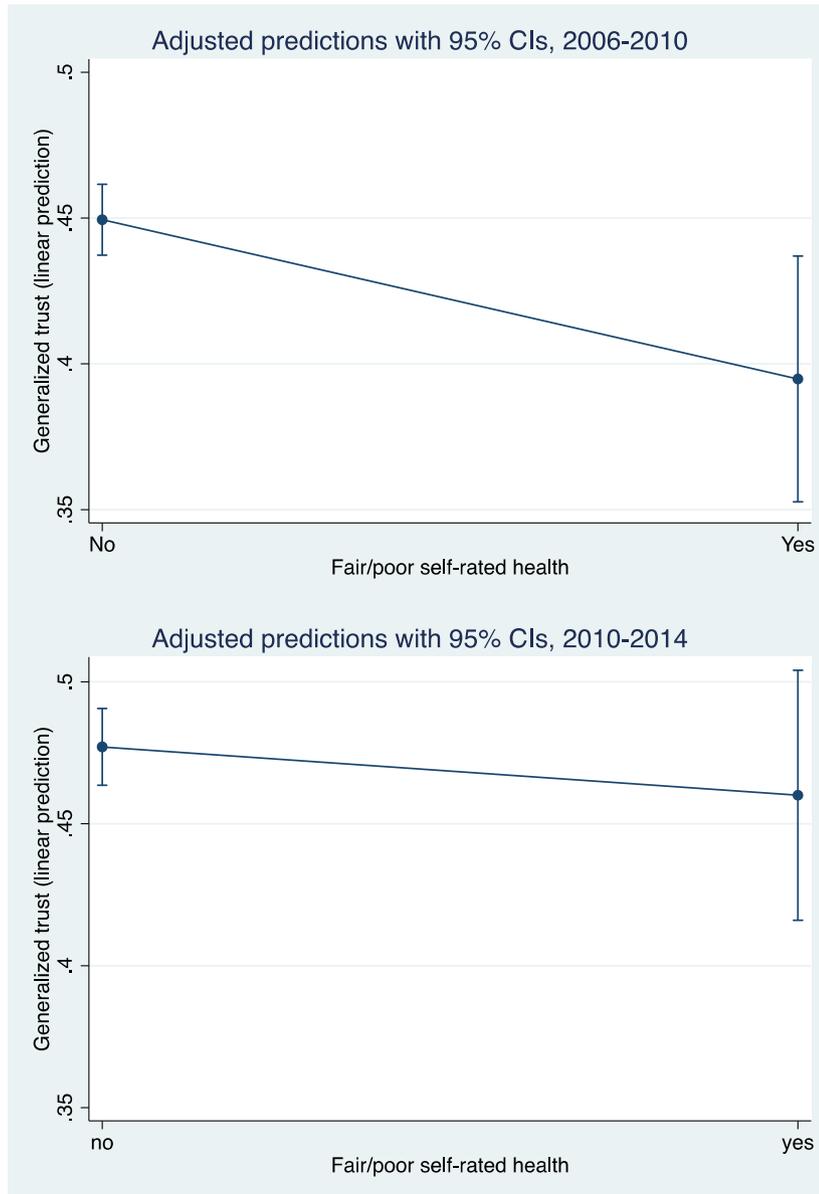
Kingdom (Lindström and Giordano, 2016); however, the same study showed that these population-level effects were short-lived. We would have liked to validate our findings based on external data; unfortunately, no alternative to the latest GSS panel study is currently available.

Subsequent studies need to investigate whether the attenuation of the US health-trust nexus *post*-ACA was a general phenomenon, or whether it mostly occurred among previously marginalized groups. While we, in an auxiliary model, tested the interaction between being under 26 (yes or no) and SRH, the insufficient sample size led to estimates that were, applied in a FE framework, too imprecise to meaningfully interpret them.

6. Conclusion

A substantial and steady decline in generalized trust in the US has been reported since the early 1970s (Fukuyama, 1999; Paxton, 1999; Putnam, 1995; Twenge et al., 2014; Uslaner, 2002; Wilkes, 2011). From an international perspective, this erosion of generalized trust is quite unique and scholars argue that it might be due to the distinct lack of universal social policy programs characterizing US politics (Rothstein and Stolle, 2008; Rothstein and Uslaner, 2005). While previous research into the mechanisms linking egalitarian welfare states with high levels of generalized trust mainly focused on reduction in income inequality (Rothstein and Uslaner, 2005; Rözer and Volker, 2016; Wilkinson and Pickett, 2010), we investigated whether the shift to a more universal system of healthcare – the ACA – coincided with a weakening of the negative impact of poor SRH on generalized trust. Results shown here offer support for the hypothesis that comprehensive healthcare provision could be an important first step in halting the decline of generalized trust in the US.

Interestingly, the ACA is still considered a ‘mixed bag’ by the US



Notes: Marginal impact of fair/poor SRH on generalized trust, control variables were held constant at their respective mean values (predictions based on models presented in Table 2)
 Data source: Three-wave panel studies of the US General Social Survey, 2006–2010 (N=1652) & 2010–2014 (N=1187)

Fig. 1. Marginal impact of fair/poor self-rated health on generalized trust, Upper graph: pre-ACA (2006–2010); lower graph: post/under-ACA (2010–2014).
 Notes: Marginal impact of fair/poor SRH on generalized trust, control variables were held constant at their respective mean values (predictions based on models presented in Table 2).
 Data source: Three-wave panel studies of the US General Social Survey, 2006–2010 (N = 1652) & 2010–2014 (N = 1187).

Table 3
 Adjusted predictions for generalized trust: 18–25 year olds vs. those aged 26+.

	2006–2008–2010		2010–2012–2014	
	Margin	95% CI	Margin	95% CI
Good/excellent SRH & aged 26+	0.458	0.443/0.472	0.473	0.457/0.490
Good/excellent SRH & aged 18–25	0.343	0.246/0.439	0.520	0.405/0.635
Fair/poor SRH & aged 26+	0.406	0.363/0.449	0.467	0.422/0.512
Fair/poor SRH & aged 18–25	0.238	-0.022/0.497	0.370	0.225/0.515

Notes: Adjusted predictions for generalized trust based on the model presented in Table A6. All other control variables were held constant at their respective means.
 Data source: Three-wave panel studies of the US General Social Survey, 2006–2010 (sample size: 2837 occasions nested in 1652 respondents) & 2010–2014 (sample size: 2192 occasions nested in 1187 respondents).

public (Corman and Levin, 2016; James and Van Ryzin, 2016). Public support for 'Obamacare' seems to be heavily structured along the lines of race (Morone, 2016) and political partisanship (Kriner, 2014; McCabe, 2016). However, given the importance of generalized trust for solving major collective action dilemmas, the ACA may have a much broader positive impact on the US than its original 'healthcare' remit (McKay and Timmermans, 2017; Sohn and Timmermans, 2017). With the 2016 Republican election victory, it will be interesting to see if the ACA will be retained in its current form, or whether US health insurance schemes will be re-commodified. Finally, future studies need to investigate the sustainability of the impact of the ACA on the health-trust nexus. Will it last, or will US citizens eventually 'revert to form', where poor health coincides with a lack of trust in others once again?

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Appendix A. Supplementary data

Supplementary data related to this article can be found at <http://dx.doi.org/10.1016/j.socscimed.2017.08.012>.

References

- Allison, P.D., 2009. *Fixed Effects Regression Models*. Sage, Thousand Oaks, CA.
- Béland, D., Rocco, P., Waddan, A., 2016. Obamacare and the politics of universal health insurance coverage in the United States. *Soc. Policy & Adm.* 50, 428–451. <http://dx.doi.org/10.1111/spol.12237>.
- Berkman, L.F., Kawachi, I., 2014. Social capital, social cohesion, and health. In: Berkman, L.F., Kawachi, I., Glymour, M.M. (Eds.), *Social Epidemiology*, 2 ed. Oxford University Press, New York, pp. 290–319.
- Blumenthal, D., Collins, S., 2014. Health care coverage under the affordable care Act – a progress report. *N. Engl. J. Med.* 371, 275–281. <http://dx.doi.org/10.1056/NEJMp1405667>.
- Bowling, A., 2005. Techniques of questionnaire design. In: Bowling, A., Ebrahim, S. (Eds.), *Handbook of Health Research Methods: Investigation, Measurement and Analysis*. Open University Press, Maidenhead, pp. 394–427.
- Brandt, M.J., Wetherell, G., Henry, P.J., 2015. Changes in income predict change in social trust: a longitudinal analysis. *Polit. Psychol.* 36, 761–768. <http://dx.doi.org/10.1111/pops.12228>.
- Caplan, R.L., 1989. The commodification of American health care. *Soc. Sci. Med.* 28, 1139–1148. [http://dx.doi.org/10.1016/0277-9536\(89\)90006-3](http://dx.doi.org/10.1016/0277-9536(89)90006-3).
- Carl, N., Billari, F.C., 2014. Generalized trust and intelligence in the United States. *PLoS One* 9. <http://dx.doi.org/10.1371/journal.pone.0091786>.
- Clark, A.K., Eisenstein, M.A., 2013. Interpersonal trust: an age-period-cohort analysis revisited. *Soc. Sci. Res.* 42, 361–375. <http://dx.doi.org/10.1016/j.socscimed.2012.09.006>.
- Coburn, D., 2000. Income inequality, social cohesion and the health status of populations: the role of neo-liberalism. *Soc. Sci. Med.* 51, 135–146. [http://dx.doi.org/10.1016/S0277-9536\(99\)00445-1](http://dx.doi.org/10.1016/S0277-9536(99)00445-1).
- Corman, J., Levin, D., 2016. Support for government provision of health care and the patient protection and affordable care Act. *Public Opin. Q.* 80, 114–179. <http://dx.doi.org/10.1093/poq/nfv049>.
- DeSalvo, K.B., Bloser, N., Reynolds, K., He, J., Muntner, P., 2006. Mortality prediction with a single general self-rated health question. A meta-analysis. *J. Gen. Intern. Med.* 21, 267–275. <http://dx.doi.org/10.1111/j.1525-1497.2005.00291.x>.
- Dowd, J., Zajacova, A., 2007. Does the predictive power of self-rated health for subsequent mortality risk vary by socioeconomic status in the US? *Int. J. Epidemiol.* 36, 1214–1221. <http://dx.doi.org/10.1093/ije/dym214>.
- Fukuyama, F., 1999. *The Great Disruption: Human Nature and the Reconstitution of Social Order*. Simon & Schuster, New York.
- Gilbert, K.L., Quinn, S.C., Goodman, R.M., Butler, J., Wallace, J., 2013. A meta-analysis of social capital and health: a case for needed research. *J. Health Psychol.* 18, 1385–1399. <http://dx.doi.org/10.1177/1359105311435983>.
- Giordano, G.N., Björk, J., Lindström, M., 2012. Social capital and self-rated health – a study of temporal (causal) relationships. *Soc. Sci. Med.* 75, 340–348. <http://dx.doi.org/10.1016/j.socscimed.2012.03.011>.
- Giordano, G.N., Lindström, M., 2016. Trust and health: testing the reverse causality hypothesis. *J. Epidemiol. Community Health* 70, 10–16. <http://dx.doi.org/10.1136/jech-2015-205822>.
- Glanville, J.L., Andersson, M.A., Paxton, P., 2013. Do social connections create Trust? An examination using new longitudinal data. *Soc. Forces* 92, 545–562. <http://dx.doi.org/10.1093/sf/sot079>.
- Glanville, J.L., Paxton, P., 2007. How do we learn to Trust? A confirmatory tetrad analysis of the sources of generalized trust. *Soc. Psychol. Q.* 70, 230–242. <http://dx.doi.org/10.1177/019027250707000303>.
- Gormley, T.A., Matsa, D.A., 2014. Common errors: how to (and not to) control for unobserved heterogeneity. *Rev. Financial Stud.* 27, 617–661. <http://dx.doi.org/10.1093/rfs/hht047>.
- Hausman, J.A., 1978. Specification tests in econometrics. *Econometrica* 46, 1251–1271. <http://dx.doi.org/10.2307/1913827>.
- Hout, M., 2004. Getting the Most Out of the GSS Income Measures (GSS Methodological Report 101). University of California, Berkeley. http://gss.norc.berkeley.edu/documents/reports/methodological-reports/MR101_Getting_the_Most_Out_of_the_GSS_Income_Measures.pdf. (Accessed 11 April 2017).
- Idler, E.L., Benyamini, Y., 1997. Self-rated health and mortality: a review of twenty-seven community studies. *J. Health Soc. Behav.* 38, 21–37.
- Jacobs, L.R., Skocpol, T., 2010. *Health Care Reform and American Politics: what Everyone Needs to Know*. Oxford University Press, Oxford.
- James, O., Van Ryzin, G.G., 2016. Motivated reasoning about public performance: an experimental study of how citizens judge the affordable care Act. *J. Public Adm. Res. Theory* 197–209. <http://dx.doi.org/10.1093/jopart/muw049>.
- Jen, M.-H., Sund, E.R., Johnston, R., Jones, K., 2010. Trustful societies, trustful individuals, and health: an analysis of self-rated health and social trust using the World Values Survey. *Health & Place* 16, 1022–1029. <http://dx.doi.org/10.1016/j.healthplace.2010.06.008>.
- Kantarjian, H., 2016. The affordable care Act, or obamacare, 3 years later: a reality check. *Cancer* 123, 25–28. <http://dx.doi.org/10.1002/cncr.30384>.
- Kawachi, I., Kennedy, B.P., Glass, R., 1999. Social capital and self-rated health: a contextual analysis. *Am. J. Public Health* 89, 1187–1193. <http://dx.doi.org/10.2105/AJPH.89.8.1187>.
- Kriner, D.L., 2014. Responsive partisanship: public support for the Clinton and Obama health care plans. *J. Health Polit. Policy Law* 39, 717–749. <http://dx.doi.org/10.1215/03616878-2743015>.
- Laurence, J., 2015. (Dis)placing trust: the long-term effects of job displacement on generalised trust over the adult lifecourse. *Soc. Sci. Res.* 50, 46–59. <http://dx.doi.org/10.1016/j.socscimed.2014.11.006>.
- Levi, M., 1998. A state of trust. In: Levi, M., Braithwaite, V. (Eds.), *Trust and Governance*. Russell Sage Foundation, New York.
- Lindström, M., 2012. Marital status and generalized trust in other people: a population-based study. *Soc. Sci. J.* 49, 20–23. <http://dx.doi.org/10.1016/j.socscij.2011.07.002>.
- Lindström, M., Giordano, G.N., 2016. The 2008 financial crisis: changes in social capital and its association with psychological wellbeing in the United Kingdom – a panel study. *Soc. Sci. Med.* 153, 71–80.
- Ljunge, M., 2014. Social capital and health: evidence that ancestral trust promotes health among children of immigrants. *Econ. Hum. Biol.* 15, 165–186. <http://dx.doi.org/10.1016/j.ehb.2014.09.001>.
- Lopez, R., 2004. Income inequality and self-rated health in US metropolitan areas: a multi-level analysis. *Soc. Sci. Med.* 59, 2409–2419. <http://dx.doi.org/10.1016/j.socscimed.2004.03.033>.
- Lundmark, S., Gilljam, M., Dahlberg, S., 2016. Measuring generalized trust: an examination of question wording and the number of scale points. *Public Opin. Q.* 80, 26–43.
- Mackenzie, J.P., Simon, J.G., Looman, C.W., Joung, I.M., 2002. Self-assessed health and mortality: could psychosocial factors explain the association? *Int. J. Epidemiol.* 31, 1162–1168.
- McCabe, K.T., 2016. Attitude responsiveness and partisan bias: direct experience with the affordable care Act. *Polit. Behav.* 38, 861–882. <http://dx.doi.org/10.1007/s11109-016-9337-9>.
- McKay, T., Timmermans, S., 2017. Beyond health Effects? Examining the social consequences of community levels of uninsurance pre-ACA. *J. Health Soc. Behav.* 58, 4–22. <http://dx.doi.org/10.1177/0022146516684537>.
- Medicaid.gov. (2017). <https://www.medicare.gov/affordable-care-act/index.html> (Accessed 22 June 2017).
- Mewes, J., 2014. Gen(d)eralized trust: women, work, and trust in strangers. *Eur. Sociol. Rev.* 30, 373–386. <http://dx.doi.org/10.1093/esr/jcu049>.
- Moore, S., Kawachi, I., 2017. Twenty years of social capital and health research: a glossary. *J. Epidemiol. Community Health* 71, 513–517. <http://dx.doi.org/10.1136/jech-2016-208313>.
- Morone, J.A., 2016. Partisanship, dysfunction, and racial fears: the new normal in health care policy? *J. Health Polit. Policy Law* 41, 827–846. <http://dx.doi.org/10.1215/03616878-3620965>.
- Moses, R.H., Matheson, D.H., Dorsey, E.R., George, B.P., Sadoff, D., Yoshimura, D., 2013. The anatomy of health care in the United States. *JAMA* 310, 1947–1963. <http://dx.doi.org/10.1001/jama.2013.281425>.
- Murayama, H., Fujiwara, Y., Kawachi, I., 2012. Social capital and health: a review of prospective multilevel studies. *J. Epidemiol.* 22, 179–187. <http://dx.doi.org/10.2188/jea.JE20110128>.
- Nyqvist, F., Finnäs, F., Jakobsson, G., Koskinen, S., 2008. The effect of social capital on health: the case of two language groups in Finland. *Health & Place* 14, 347–360. <http://dx.doi.org/10.1016/j.healthplace.2007.09.001>.
- OECD, 2013. *OECD Framework for Statistics on the Distribution of Household Income, Consumption and Wealth*. OECD. <http://dx.doi.org/10.1787/9789264194830-en>.
- Olafsdottir, S., 2007. Fundamental causes of health disparities: stratification, the welfare state, and health in the United States and Iceland. *J. Health Soc. Behav.*

- 48, 239–253. <http://dx.doi.org/10.1177/002214650704800303>.
- Olafsdottir, S., Beckfield, J., 2011. Health and the social rights of citizenship: integrating welfare state theory and medical sociology. In: Pescosolido, B.A., Martin, J.K., McLeod, J.D., Rogers, A. (Eds.), *Handbook of the Sociology of Health, Illness, and Healing: a Blueprint for the 21st Century*. Springer, New York, NY, pp. 101–115.
- Oshio, 2016. The association between individual-level social capital and health: cross-sectional, prospective cohorts and fixed-effects models. *J. Epidemiol. Community Health* 70, 25–30. <http://dx.doi.org/10.1136/jech-2015-205962>.
- Oskarsson, S., Dinesen, P.T., Dawes, C.T., Johannesson, M., Magnusson, P.K.E., 2017. Education and social trust: testing a causal hypothesis using the discordant twin design. *Polit. Psychol.* 38, 515–531. <http://dx.doi.org/10.1111/pops.12343>.
- Paxton, P., 1999. Is social capital declining in the United States? A multiple indicator assessment. *Am. J. Sociol.* 105, 88–127. <http://dx.doi.org/10.1086/210268>.
- Putnam, R.D., 1995. Bowling alone: America's declining social capital. *J. Democr.* 6, 65–78. <http://dx.doi.org/10.1353/jod.1995.0002>.
- Putnam, R.D., 2000. *Bowling Alone: the Collapse and Revival of American Community*. Simon & Schuster, New York.
- Rak, S., Coffin, J., 2013. Affordable care Act. *J. Med. Pract. Manage.* 28, 319–319.
- Rocco, L., 2014. Trust me, you will be in better health. *Health Policy* 116, 123–132. <http://dx.doi.org/10.1016/j.healthpol.2014.01.011>.
- Rocco, L., Fumagalli, E., Suhrcke, M., 2014. From social capital to health - and back. *Health Econ.* 25 <http://dx.doi.org/10.1002/hec.2934>.
- Rosenbaum, S., Westmoreland, T.M., 2012. The Supreme Court's surprising decision on the Medicaid expansion: how will the federal government and states proceed? *Health Aff.* 31, 1663–1672. <http://dx.doi.org/10.1377/hlthaff.2012.0766>.
- Ross, C.E., 2011. Collective threat, trust, and the sense of personal control. *J. Health Soc. Behav.* 52, 287–296. <http://dx.doi.org/10.1177/0022146511404558>.
- Rostila, M., 2013. *Social Capital and Health Inequality in European Welfare States*. Palgrave Macmillan, Basingstoke/New York.
- Rothstein, B., Stolle, D., 2008. The state and social capital: an institutional theory of generalized trust. *Comp. Polit.* 40, 441–467.
- Rothstein, B., Uslaner, E.M., 2005. All for all: equality, corruption, and social trust. *World Polit.* 58, 41–72. <http://dx.doi.org/10.1353/wp.2006.0022>.
- Rönnerstrand, B., 2016. Contextual generalized trust and immunization against the 2009 A(H1N1) pandemic in the American states: a multilevel approach. *SSM - Popul. Health* 2, 632–639. <http://dx.doi.org/10.1016/j.ssmph.2016.08.004>.
- Rönnerstrand, B., Andersson Sundell, K., 2015. Trust, reciprocity and collective action to fight antibiotic resistance: an experimental approach. *Soc. Sci. Med.* 142, 249–255. <http://dx.doi.org/10.1016/j.socscimed.2015.08.032>.
- Rözer, J.J., Volker, B., 2016. Does income inequality have lasting effects on health and trust? *Soc. Sci. Med.* 149, 37–45. <http://dx.doi.org/10.1016/j.socscimed.2015.11.047>.
- Schnittker, J., Bacak, V., 2014. The increasing predictive validity of self-rated health. *PLoS One* 9. <http://dx.doi.org/10.1371/journal.pone.0084933>.
- Schultz, J., O'Brien, A.M., Tadesse, B., 2008. Social capital and self-rated health: results from the US 2006 social capital survey of one community. *Soc. Sci. Med.* 67, 606–617. <http://dx.doi.org/10.1016/j.socscimed.2008.05.002>.
- Seligman, A.B., 1997. *The Problem of Trust*. Princeton University Press, Princeton.
- Singer, J.D., Willett, J.B., 2003. *Applied Longitudinal Data Analysis: Modeling Change and Event Outcome*. New York Oxford University Press.
- Smith, T.W., 2005. The Impact of Alternative Response Scales on Measuring Self-rating of Health. NORC/University of Chicago. <http://gss.norc.org/Documents/reports/methodological-reports/MR103.pdf>.
- Smith, T.W., Marsden, P.V., Hout, M., Kim, J., 2015. *The General Social Surveys, 1972–2014*. NORC at the University of Chicago, Chicago. <http://gss.norc.org/get-the-data/stata>.
- Snelgrove, J.W., Pikhart, H., Stafford, M., 2009. A multilevel analysis of social capital and self-rated health: evidence from the British Household Panel Survey. *Soc. Sci. Med.* 68, 1993–2001. <http://dx.doi.org/10.1016/j.socscimed.2009.03.011>.
- Sohn, H., Timmermans, S., 2017. Social effects of health care reform: Medicaid expansion under the affordable care Act and changes in volunteering. *Socius Sociol. Res. a Dyn. World* 3, 1–12. <http://dx.doi.org/10.1177/2378023117700>.
- Sommers, B.D., Buchmueller, T., Decker, S.L., Carey, C., Kronick, R., 2013. The affordable care Act has led to significant gains in health insurance and access to care for young adults. *Health Aff. (Millwood)* 32, 165–174. <http://dx.doi.org/10.1377/hlthaff.2012.0552>.
- Sommers, B.D., Gunja, M., Finegold, K., Musco, T., 2015. Changes in self-reported insurance coverage, access to care, and health under the affordable care Act. *JAMA* 314, 366–374. <http://dx.doi.org/10.1001/jama.2015.8421>.
- Starfield, B., Birn, A.-E., 2007. Income redistribution is not enough: income inequality, social welfare programs, and achieving equity in health. *J. Epidemiol. Community Health* 61, 1038–1041 doi: 10.1136%2Fjech.2006.054627.
- Statacorp, 2015. *Stata Statistical Software: Release 14*. StataCorp, LP, College Station, TX.
- Subramanian, S.V., Kim, D.J., Kawachi, I., 2002. Social trust and self-rated health in US communities: a multilevel approach. *J. Urban Health Bull. N. Y. Acad. Med.* 79, S21–S34 doi: 10.1093%2Fjurban%2F79.suppl_1.S21.
- Toivanen, S., 2011. Exploring the interplay between work stress and socioeconomic position in relation to common health complaints: the role of interaction. *Am. J. Ind. Med.* 54, 780–790. <http://dx.doi.org/10.1002/ajim.20982>.
- Twenge, J.M., Campbell, W.K., Carter, N.T., 2014. Declines in trust in others and confidence in institutions among american adults and late adolescents, 1972–2012. *Psychol. Sci.* 25, 1914–1923 doi: 10.1177%2F0956797614545133.
- Uslaner, E.M., 2002. *The Moral Foundations of Trust*. Cambridge University Press, Cambridge.
- Uslaner, E.M., 2012. Measuring generalized trust: in defense of the standard question. In: Lyon, F., Möllering, G., Sanders, M., Hatzakis, T. (Eds.), *Handbook of Research Methods on Trust*. Edward Elgar, London, pp. 72–82.
- Vaisey, S., Miles, A., 2017. What you can - and Can't - do with three-wave panel data. *Sociol. Methods & Res.* 46, 44–67 doi: 10.1177%2F0049124114547769.
- Warren, J.R., Hernandez, E.M., 2007. Did socioeconomic inequalities in morbidity and mortality change in the United States over the course of the twentieth century? *J. Health Soc. Behav.* 48, 335–351 doi: 10.1177%2F002214650704800401.
- Wilkes, R., 2011. Re-thinking the decline in trust: a comparison of black and white Americans. *Soc. Sci. Res.* 40, 1596–1610. <http://dx.doi.org/10.1016/j.ssresearch.2011.06.007>.
- Wilkinson, R.G., Pickett, K.E., 2010. *The Spirit Level: Why Equality Is Better for Everyone*. Penguin, London.