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### Social Class—Not Income Inequality— Predicts Social and Institutional Trust

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#### **Abstract**

Trust is the social glue that holds society together. The academic consensus is that trust is weaker among lower-class individuals and in unequal regions/countries, which is often considered a threat to a healthy society. However, existing studies are inconsistent and have two limitations: (i) variability in the measurement of social class and (ii) small numbers of higher level units (regions/countries). We addressed these problems using large-scale (cross-)national representative surveys (encompassing 560,000+ participants from 1,500+ regional/national units). Multilevel analysis led to two consistent sets of findings. First, the effects of social class on social trust were systematically positive, whereas the effects on institutional trust depended on the way social class was measured. Second, the effects of income inequality on social and institutional trust were systematically non-significant and smaller than the smallest negative effect of interest. Our findings suggest that researchers need to update their knowledge: social class—not income inequality—predicts trust.

#### **Keywords**

social trust, institutional trust, subjective and objective social class, income inequality, open data

Rising inequality and declining mobility are also bad for our families and social cohesion—not just because we tend to trust our institutions less, but studies show we actually tend to trust each other less when there's greater inequality.

Barack Obama (2013).

Social trust (trust in most other people) and institutional trust (trust in various organizations) are considered the social glue that sustains democracy, promotes economic growth, and improves population health (Fukuyama, 1995; Putnam, 1995; Uslaner & Brown, 2005). Recent evidence suggests that both social and institutional trust (hereinafter collectively referred to as "trust") have declined in many countries over the last decade (Uslaner, 2018), and the erosion of trust is often presented in the press as the root cause of the resurgence of populism and nationalism (e.g., Davies, 2018; Levin, 2020).

But what are the predictors of trust? Socioeconomic inequalities at both the individual and contextual levels have been identified as important predictors of trust: At the individual level, individuals in lower social classes are generally believed to have lower trust (Laurin et al., 2019), whereas at the contextual level, growth in income inequality is believed to be associated with a decrease in trust (Buttrick & Oishi, 2017). Despite the influence of these ideas (as reflected in the opening quote), empirical findings are not always consistent. Some studies show detrimental effects of coming from a lower-class or higher inequality place (e.g., Brandt et al., 2015;

Kawachi et al., 1997), but others show null or even opposite effects (e.g., Hastings, 2018; Van Oorschot et al., 2006).

We believe that two methodological issues may account for the inconsistent findings: (i) variability in the measurement of social class (existing studies have operationalized social class in different ways) and (ii) the small number of higher level units (most existing studies testing the effects of income inequality have compared a handful of countries/regions). Both of these methodological issues are known to increase the risk of reaching false conclusions (Button et al., 2013; Flake & Fried, 2019). To address these two problems, we aimed to test social class and income inequality as predictors of trust while using (i) multiple indicators of social class and (ii) multiple repeated cross-sectional data sets with a large number of higher level units and time points.

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#### Socioeconomic Inequality and Trust

At the individual level, people from lower social class backgrounds are generally thought to face chronic threats to their social value and to see the social world as an unfavorable place for them (Kraus et al., 2017). As such, scholars generally believe that the lower individuals' social class is, the lower their trust (e.g., see Laurin et al., 2019). Most of the existing findings pertaining to social trust are congruent with this view: People from lower social class backgrounds tend to report a lower level of social trust than people from higher social class backgrounds (Alesina & La Ferrara, 2002; Brandt et al., 2015; Lount & Pettit, 2012; Uslaner & Brown, 2005). However, the existing findings pertaining to institutional trust are more mixed: Although some studies document a positive effect of social class on institutional trust (Van der Meer, 2010; Van Oorschot & Arts, 2005), others document null, hybrid, or negative effects (Catterberg & Moreno, 2006; Van Oorschot et al., 2006).

At the contextual level, large income gaps between the rich and the poor are thought to not only divide people within society and erode social cohesion but also create wariness or perceived unfairness toward social systems (Bottero, 2004). As such, scholars generally believe that the higher income inequality is, the lower trust is (e.g., see Buttrick & Oishi, 2017). However, the existing findings pertaining to both forms of trust are mixed. Regarding social trust, some studies document a negative effect of income inequality (Kawachi et al., 1997; Uslaner & Brown, 2005), whereas others document null or inconclusive effects (Fairbrother & Martin, 2013; Hastings, 2018). Similarly, regarding institutional trust, some studies document a negative effect of income inequality (Medve-Bálint & Boda, 2014; Zmerli & Castillo, 2015), whereas others document a null effect (Alesina & La Ferrara, 2002; Twenge et al., 2014).

#### Possible Reasons for Inconsistent Findings

In our view, two main methodological issues may account for the inconsistent findings in the literature on socioeconomic inequalities and trust. The first methodological issue is related to variability in the measurement of social class. Previous studies testing the effects of social class on trust have used different operationalizations of social class. For example, some studies have used subjective indicators of social class, such as perceived rank in the social hierarchy (e.g., Lount & Pettit, 2012), whereas others have used objective indicators, combining education and income (e.g., Navarro-Carrillo et al., 2018). These two types of social class indicators are known to tap different aspects of social class and to shape different psychological experiences (Kraus & Stephens, 2012); by implication, it is reasonable to think that they might produce different effects on trust, making existing studies harder to compare to one another (Flake & Fried, 2019).

The second methodological issue is related to *the small* number of higher level units. Previous studies testing the effects of income inequality on trust have often relied on a

limited number of higher level units (e.g., countries/regions in which participants are nested). For example, the most cited paper in this literature compared only 29 countries (Knack & Keefer, 1997;  $\approx$ 10,000 citations), and the next most cited papers compared only approximately 20–60 countries (Uslaner, 2002; Wilkinson & Pickett, 2010; Zak & Knack, 2001; between  $\approx$ 2,000 and  $\approx$ 4,000 citations). A small higher level sample size is known to lead to low statistical power in detecting a true contextual effect (Maas & Hox, 2005), which increases the probability of both Type II error (false negative) and—more counterintuitively—Type I error (false positive; see Button et al., 2013); as a result, it is reasonable to think that some of the effects of income inequality reported in the literature may be driven by noise, weakening the generalizability of the findings.

#### The Present Study

In the present study, we used two large nationally representative data sets from one Western country (the United States; Study 1a) and one Eastern country (South Korea; Study 1b) and the largest existing repeated cross-national data set (Study 2) with the aim of solving the two methodological issues mentioned above.

First, to address the problem of variability in the measurement of social class, we systematically tested the effect of social class on trust using the two most widely used indicators of social class: subjective and objective social class. As in prior studies, we combined education and income to obtain a composite measure of objective social class (e.g., Piff et al., 2010). From a theoretical perspective, education and income are the two components of objective social class: Education corresponds to the institutionalized form of cultural capital (the first component), and when entering the labor market, it is converted into economic capital (the second component; Bourdieu, 1986; for empirical evidence, see Psacharopoulos & Patrinos, 2010).

Second, to address the problem of the small number of higher level units, we used two approaches. In Studies 1a and 1b, we used national data sets to test the effects of *local* income inequality over time. Focusing on local effects over time enabled us to have a large number of higher level units (Study 1a: 1,091 state-years<sup>1</sup>; Study 1b: 213 province-years). In Study 2, we used cross-national data sets to test the effects of *national* income inequality over time. Focusing on national effects over time enabled us to grasp the "big picture" while again maintaining a large number of higher level units (361 country-years).

We believe that this 2-fold solution allows for the most comprehensive and rigorous analysis of the relationship between socioeconomic inequality and trust to date and will help provide accurate answers to the following research questions:

**Research Question 1:** What are the effects of social class on social trust (Research Question 1a) and institutional trust (Research Question 1b)?

**Research Question 2:** What are the effects of income inequality on social trust (Research Question 2a) and institutional trust (Research Question 2b)?

All materials, analyzed data, instructions, and codes are available at https://osf.io/vzgh6/?view\_only=593bf8f7c28b45d2920e012de8b77765

# Study Ia and Ib: The General Social Survey (GSS) and the Korean General Social Survey (KGSS) Data

First, we used two large national survey data sets to test the effects of social class (Research Question 1) and income inequality (Research Question 2) on trust in one Western (Study 1a) and one Eastern (Study 1b) country.

#### **Method**

#### Participants and Procedure

In Study 1a, data were pooled from a nationally representative, repeated cross-sectional survey conducted in the United States: the GSS. In Study 1b, data were pooled from the South Korean version of the GSS: the KGSS.

In both studies, we considered only the years for which our focal variables were available (Study 1a: 1973-2016; Study 1b: 2003–2016). In Study 1a, the sample included 43,833 respondents from 1,091 state-years and 51 states<sup>2</sup> (56.10% females;  $M_{\rm age} = 45.77 \pm 17.54 \text{ years}$ ; 59.08% employed; 53.75% married; with a political score of  $M=2.66\pm1.97$  [0 = strong democrat,  $6 = strong\ republican$ ). In Study 1b, the sample included 18,599 respondents from 213 province-years and 17 provinces (for the list, see Table S1; 53.80% females;  $M_{\text{age}} = 45.02 \pm 16.61 \text{ years}; 57.30\% \text{ employed}; 64.09\% \text{ mar-}$ ried; with a political score of  $M = 3.03 \pm 0.98$  [1 = very liberal, 5 = very conservative). The sample size was sufficient to detect the effects of social class and income inequality as small as  $\beta s = -0.05$  with a power of  $\geq 99\%$  and  $\geq 82\%$ , respectively (for the sensitivity analysis, see Online Supplemental Materials).

#### Variables[AQ1]

Correlations between all measures are presented in Table S7.

Social trust. Participants indicated the degree to which they had trust in others by answering the following question: "Generally speaking, would you say that most people can be trusted or that you can't be too careful in dealing with people?" Participants used a scale ranging from 1 (can't be too careful) to 3 (can trust) in Study 1a (M = 1.79, SD = 0.95) and from 1 (can't be too careful) to 10 (most people can be trusted) in Study 1b (M = 5.30, SD = 3.10; for additional information, see Online Supplemental Materials).

Institutional trust. Participants indicated the degree to which they had confidence in various institutions, such as "the congress," and "major companies" (we used a priori-selected conservative threshold and disregarded items with >80% missing values). In each study, participants used a scale ranging from 1 (hardly any) to 3 (a great deal) to rate 13 (Study 1a) and 16 (Study 1b) institutions (for the list, see Table S2). We averaged the items to obtain a composite measure of institutional trust (Study 1a:  $\alpha = .78$ , M = 2.05, SD = 0.35; Study 1b:  $\alpha = .85$ , M = 1.78, SD = 0.34).

#### Social class

Subjective social class. Participants indicated their perception of their rank within their society using a scale ranging from 1 (bottom) to 10 (top; Study 1a: M = 6.12, SD = 1.87; Study 1b: M = 4.63, SD = 1.65).

Objective social class. We relied on two pieces of information to operationalize objective social class. First, we used participants' years of education (Study 1a: M = 12.74, SD = 3.18; Study 1b: M = 12.01, SD = 4.30). As this number was not directly available in the KGSS, we computed it using other education-relevant variables (see Online Supplemental Materials). Second, we used participants' inflation-adjusted household income to create household income deciles (Study 1a: M = 5.48, SD = 2.86; Study 1b: M = 5.14, SD = 2.93). As inflation-adjusted income was not available in the KGSS, we used household income categories to create year-based household income deciles. Finally, we standardized and averaged these two measurements to create a composite measure of objective social class. The correlations between subjective and objective social class were moderate (Study 1a: r = .31, p < .001; Study 1b: r = .43, p < .001).

Income inequality. We used regional Gini coefficients as a measure of income inequality. The Gini coefficient can range from 0 (perfect equality; everyone in the region has the same amount of income) to 1 (perfect inequality; one person in the region has all the income). In Study 1a, we gathered the state-year-based Gini coefficients from the American Community Survey (M = 0.47, SD = 0.02). In Study 1b, we gathered the province-year-based Gini coefficients computed by Choi (2016; M = 0.37, SD = 0.04).

#### **Results**

#### Analytical Strategy

We treated the responses of participants (Level 1;  $N_{1a} = 43,843$ ;  $N_{1b} = 18,599$ ) as nested in state- or province-years (Level 2;  $K_{1a} = 1,091$  state-years;  $K_{1b} = 213$  province-years), which were themselves nested in states or provinces, respectively (Level 3;  $L_{1a} = 51$  states;  $L_{1b} = 17$  provinces; Fairbrother, 2014). For each of our two outcome variables, we built four multilevel models.

In Model 1, we tested the *separate* effects of each social class indicator (the outcome was regressed on subjective *or* 

objective social class). In Model 2, we tested the *simultaneous* effects of all social class indicators (the outcome was regressed on both subjective *and* objective social class while controlling for five common level-1 variables [sex, age, employment status, marital status, and political orientation]).

In Model 3, we tested the effect of income inequality by adding the Gini coefficient as a predictor. Rather than using grand-mean centering (GMC; subtracting the overall national mean of the Gini coefficient from each observation), we used cluster-mean centering (CMC; subtracting the region-specific mean of the Gini coefficient from each observation). In GMC, different clusters are compared with one another, whereas in CMC, similar clusters are compared over time (Enders & Tofighi, 2007); in our case, using CMC eliminated all between-region potential confounders (e.g., regional cultural specificities) and allowed us to obtain unbiased estimations of the pooled within-region effects of income inequality over time (Hamaker & Muthén, 2020). Moreover, we controlled for the year of data collection to ensure that the effect was not simply due to the passage of time.

In Model 4, we additionally controlled for four Level-2 potential confounding variables: total population, poverty rate, unemployment rate, and GDP (Sommet et al., 2018). The main results for Models 1–4 are summarized in Table 1 (Study 1a) and Table 2 (Study 1b). We additionally built a fifth model to explore the Social Class  $\times$  Income Inequality interactions (see Tables S4–S5).

Social trust. Answering Research Question 1a, in both studies, we found that the effect of social class on social trust was systematically positive across models: the higher respondents' subjective or objective social class was, the higher their social trust (Figure 1, upper panels). Note that, when treating education and income as separate variables, the results were systematically the same across Models 1–4 (Tables S10–S11).

Answering Research Question 2a, in both studies, we found that the effect of state- or province-based income inequality on social trust was systematically nonsignificant in Models 3–4. As an absence of evidence is not evidence of absence (Quertemont, 2011), we built a minimal multilevel model including only income inequality as a predictor and partialled out the effect of time. We then compared the effect of income inequality to the smallest negative effects of interest:  $\beta = -0.05$  (in such a minimal model,  $\beta \approx r$  and  $\beta = -0.05$  can be conservatively considered a trivial negative effect). In both studies, the within-region effect of income inequality was significantly weaker than the smallest negative effects of interest, Study 1a:  $\chi^2(1, N = 10,206) = 17.11$ , p < .001; Study 1b:  $\chi^2(1, N = 15,842) = 7.49$ , p = .006, demonstrating the absence of a meaningful negative effect of income inequality on social trust (Figure 2).

Institutional trust. Answering Research Question 1b, in both studies, we found that the effects of subjective and objective social class on institutional trust were systematically different across models: (i) the higher respondents' subjective social class was, the *higher* their institutional trust (Figure 1, lower

left panel), whereas (ii) the higher respondents' objective social class was, the *lower* their institutional trust (Figure 1, lower right panel). Note that, when treating education and income as separate variables, the results were systematically the same in Models 1 but somewhat less consistent in Models 2–4 (when including covariates, the effect of income was nonsignificant; Tables S10–S11).

Answering Research Question 2b, in both studies, we found that the effect of state- or province-based income inequality on institutional trust was systematically nonsignificant in Models 3–4. We built the same minimal multilevel model as before, and in both studies, the within-region effect of income inequality was significantly weaker than the smallest negative effects of interest, Study 1a:  $\chi^2(1, N=9,702)=4.15, p=.042$ ; Study 1b:  $\chi^2([1, N=15,909)=13.69, p<.001$ , demonstrating the absence of a meaningful negative effect of income inequality on institutional trust (Figure 2).

# Study 2: The World Value Survey and European Value Study (WVS-EVS) Data

In Study 2, we used cross-national survey data sets to replicate the effects of social class (Research Question 1) and income inequality (Research Question 2) on trust in more than 100 countries.

#### Method

#### Participants and Procedure

Data were pooled from the two largest cross-national representative surveys: the WVS-EVS. We considered only the years for which our focal variables were available (1981–2016). The sample included 496,349 respondents from 361 country-years and 112 countries (52.37% females;  $M_{\rm age} = 42.10 \pm 16.67$  years; 53.93% employed; 62.83% married; with a political score of  $M = 5.60 \pm 2.30$  [1 = left, 10 = right]). The sample size was sufficient to detect effects of social class and income inequality as small as  $\beta s = -0.05$  with a power of  $\approx 100\%$  and 98%, respectively (for the sensitivity analysis, see Online Supplemental Materials).

#### **Variables**

Correlations between all measures are presented in Table S8.

Social trust. As in Studies 1a and 1b, participants indicated whether they believed that they "need to be very careful in dealing with people" (71.93%, coded as "0") or that "most people can be trusted" (28.07%, coded as "1").

Institutional trust. Similar to Studies 1a and 1b, participants indicated the degree to which they had confidence in 21 different institutions (for the list, see Table S2), such as "the government," and "major companies" (again, we disregarded items with >80% missing values), using a scale ranging from 1 (none at all) to 4 (a great deal). We averaged the items to obtain a

Table 1. Study 1a (GSS, United States): Standardized Coefficient Estimates and Standard Errors From the Multilevel Models Testing the Separate (Model 1) and Simultaneous (Model 2) Effects of Social Class and the Effects of Income Inequality Without (Model 3) and With Level-2 Control Variables (Model 4) on Social Trust (Left Part) and Institutional Trust (Right Part). [AQZ

		Social	Social Trust			Institutio	Institutional Trust	
	M1 β (SE)	M2 β (SE)	M3 β (SE)	M4 β (SE)	Μ1 β (SE)	M2 β (SE)	M3 β (SE)	M4 β (SE)
Intercept	n/a	.027	600.	600.	n/a	100.—	700′	700.—
Subjective social class—SC	.15*** (.01)	.04*** (.01)	.04*** (.01)	.04*** (.01)	(10:) ***80:	(10.) ***01.	(10.) ***60.	(10.) ***60.
Objective social class—OC	.27** (.01)	.30*** (.01)	.31*** (.01)	.32*** (.01)	02** (.01)	$02\dagger$ (.01)	04* $(.02)$	04*(.02)
$Sex\ (+0.5 = female) -\!\!-\!\!- S$		05*** (.01)	07*** (.01)	(10.) ***/0.		(10.) 00.	(10.) 00.	(10.) 00.
Age—A		(10:) ***91.	(10:) ***/1.	(10:) ***/11.		(10.) ***90	(10.) ***80	(10.) ***(0.1)
Employment status $(+0.5 = working)$ —E		_	(10.) 00.	(10.) 00.		03* $(.01)$	02 (.02)	02 (.02)
Marital status $(+0.5=married)$ —M		(10.) 10.—	(10.) 10.—	(10.) 10.–		(10.) 10.—	01 (.02)	01 (.02)
Political orientation—P		(10.) 10.—	02 (.02)	02 (.01)		05*** (.01)	(10.) ***80	(10.) ***80
Income inequality (Gini coefficient)—GN			02(.02)	.01 (.03)			03(.03)	03(.03)
Year—Y				(90') 00'			01 (.03)	(90.) 10.—
Total population—7				03 (.02)				02 (.02)
Poverty rate—V				02 (.02)				.01 (.03)
Unemployment rate— <i>U</i>				.05 (.04)				01 (.05)
GDP—G				.02 (.05)				.02 (.05)
Number of participants (N)	<u>&gt;</u> 8,314	7,514	5,333	5,333	>9,096	8,224	5,342	5,342

Note. The regression equation is  $\text{Trust}_{kld} = \beta_{0000} + \beta_{100} \times SC_{kll}$  ( $VCC_{kll}$ ) [M1]  $+ \beta_{200} \times OC_{kll}$  ( $VSC_{kll}$ )  $+ \beta_{300} \times S_{kld} + \beta_{400} \times A_{kld} + \beta_{500} \times A_{kld} + \beta_{5$ models and one single intercept could not be reported); total population, poverty rate, unemployment rate, and GDP were cluster-mean centered.  $^{\dagger}p = .05. *p < .05. *p < .01. *p > .001.$ 

5

neous (Model 2) Effects of Social Class and the Effects of Income Inequality Without (Model 3) and With Level-2 Control Variables (Model 4) on Social Trust (Left Part) and Institutional Trust (Right Table 2. Study 1b (Korean General Social Survey, South Korea): Standardized Coefficient Estimates and Standard Errors From the Multilevel Models Testing the Separate (Model 1) and Simulta-

		Social	Social Trust			Institutional Trust	nal Trust	
	MI β (SE)	M2 β (SE)	M3 β (SE)	M4 β (SE)	MI β (SE)	M2 β (SE)	M3 β (SE)	M4 β (SE)
Intercept Subjective social class—SC Objective social class—OC Sex (+0.5 = female)—S Age—A Employment status (+0.5 = working)—E Marital status (+0.5 = married)—M Political orientation—P Income inequality (Gini coefficient)—GN Year—Y Total population—T Poverty rate—V Unemployment rate—U	n/a .10**** (.01) .08**** (.01)	005 .08*es (01) .05*es (01) 01 (01) .03** (.01) .01 (.01) .01 (.01) 03** (.01)	003 .08*ek (01) .06*ek (01) 01 (01) .03*ek (01) .01 (01) 03*ek (01) .02 (03) 02 (03)	00408*** (.01)06*** (.01)06*** (.01)03*** (.01)01 (.01)01 (.01)01 (.01)02 (.03)06 (.06)03 (.04)06*** (.02)05** (.03)	n/a .03**** (.01) 16**** (.01)	.001 1   1848 (.01) 09**** (.01) 02*** (.01) 04***** (.01) 05***** (.01)		
Number of participants (N)	>17,490	16,701	14,241	07 (.03) 14,241	≥I7,539	16,767	14,307	01 (.03) 14,307

Note. The regression equation is  $Trust_{kl} = \beta_{000} + \beta_{100} \times SC_{kl} (JOC_{kl}) [M1] + \beta_{200} \times OC_{kl} (JSC_{kl}) + \beta_{300} \times S_{kl} + \beta_{400} \times A_{kl} + \beta_{500} \times M_{kl} + \beta_$ different models and one single intercept could not be reported); total population, poverty rate, unemployment rate, and GDP were cluster-mean centered.

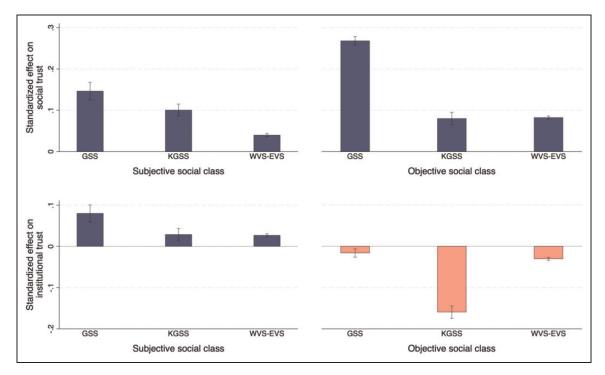


Figure 1. Standardized effects of subjective social class and objective social class on social trust (upper left and right panels, respectively) and institutional trust (lower left and right panels, respectively) in the Korean General Social Survey (Study 1a), the Korean General Social Survey (Study 1b), and the World Value Survey and European Value Study (Study 2). Note. Blue bars represent positive effects, whereas red bars represent negative effects; estimates were obtained from Models 1 testing the separate effects of social class; error bars represent 95% confidence intervals.

composite measure of institutional trust (the pooled within-country Cronbach's  $\alpha$  was  $\bar{\alpha} = .85$  [ $SD_{\alpha} = 0.06$ ], M = 2.49, SD = 0.55).

#### Social class

Subjective social class. Participants indicated their subjective social class using a scale ranging from 1 (lower class) to 5 (upper class; M = 2.68, SD = 0.99).

Objective social class. We again relied on two pieces of information to operationalize objective social class. First, because years of education was not available in the WVS-EVS, we created a continuous measurement of education by calculating country-based quintiles of education from the categories of educational attainment (M = 2.58, SD = 1.37). Second, we used self-perceived household income decile<sup>5</sup> (1 = lower step, 11 = highest step; M = 4.71, SD = 2.38). Again, we standardized and averaged these two measurements to create a composite measure of objective social class. The correlation between subjective and objective social class was moderate (r = .46, p < .001).

*Income inequality.* We used the average country-year-based Gini coefficients from the World Income Inequality Database as a measure of national income inequality (M = 36.25, SD = 8.91).

#### Results

#### Analytical Strategy

We treated the responses of the 496,349 participants (Level 1) as nested in 361 country-years (Level 2), which were themselves nested in 112 countries (Level 3). For each of our two outcome variables, we built the same series of multilevel models used in Studies 1a and 1b. To ensure that the WVS-EVS estimates were comparable to the GSS/KGSS estimates, all continuous variables were country-mean centered. This enabled us to obtain (i) the pooled within-country effect of social class (similar to Studies 1a and 1b, in which the overall national effect of social class was estimated) and (ii) the pooled within-country effect of income inequality over time (similar to Studies 1a and 1b, in which the temporal effect of income inequality was estimated). When estimating the withincountry effects of income inequality over time, we considered the 64 countries and 247 country-years for which inequality estimates were available for at least 2 years (for additional information, see Table S9). The main results for Models 1-4 are summarized in Table 3 (for Models 5, see Table S6).<sup>4</sup>

Social trust. Answering Research Question 1a, and consistent with Studies 1a and 1b, we found that the effect of social class on social trust was systematically positive across models: the higher respondents' subjective or objective social class was, the higher their social trust (Figure 1, upper panels). Note that,

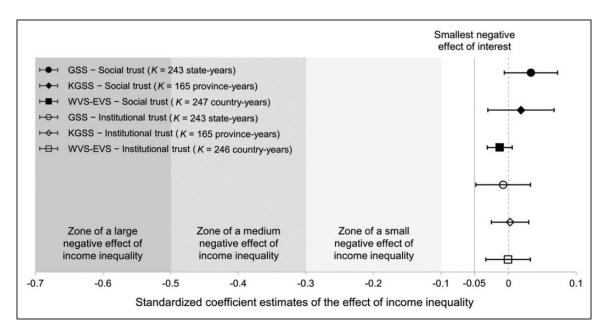


Figure 2. Standardized coefficient estimates and 95% confidence intervals from the minimal multilevel models comparing the within-state (Study Ia: the GSS), within-province (Study Ib: the KGSS), and within-country (Study 2: the World Value Survey and European Value Study) effects of income inequality to the smallest negative effects of interest. *Note*. Error bars represent 95% confidence intervals.

when treating education and income as separate variables, the results were systematically the same across Models 1–4 (Table S12).

Answering Research Question 2a, we found that the effect of national income inequality on social trust was systematically nonsignificant in Models 3–4 (Figure 3, left panel). As in Studies 1a and 1b, a minimal multilevel model revealed that the within-country effect of income inequality was significantly weaker than the smallest negative effects of interest,  $\chi^2(1, N = 331,880) = 15.55$ , p < .001, confirming the absence of a meaningful negative effect of income inequality on social trust (Figure 2).

Institutional trust. Answering Research Question 1b, and consistent with Studies 1a and 1b, we found that the effects of subjective and objective social class on institutional trust were systematically different across models: (i) the higher respondents' subjective social class was, the higher their institutional trust (Figure 1, lower left panel), whereas (ii) the higher respondents' objective social class was, the lower their institutional trust (Figure 1, lower right panel). Note that, when treating education and income as separate variables, the results were systematically the same in Models 1 but somewhat less consistent in Models 2–4 (when including covariates, the effect of income was nonsignificant; Table S12).

Answering Research Question 2b, and consistent with Studies 1a and 1b, we found that the effect of national income inequality on institutional trust was systematically nonsignificant in Models 3–4 (Figure 3, right panel). Once again, a minimal multilevel model revealed that the within-country effect of income inequality was significantly weaker than the smallest

negative effects of interest,  $\chi^2$  (1, N = 342,728) = 8.57, p = .003, confirming the absence of a meaningful negative effect of income inequality on institutional trust (Figure 2).

#### **General Discussion**

The present study aimed to address the problem of inconsistent findings in the existing literature on socioeconomic inequality and trust by testing the effects of subjective and objective social class and income inequality using two large nationally representative data sets (Studies 1a and 1b) and the largest repeated cross-national data set (Study 2).

Across all studies, we found two sets of consistent findings. First, addressing the problem of variability in the measurement of social class, we documented (i) robust positive effects of both subjective and objective social class on social trust (Research Question 1a) and (ii) opposing effects of subjective (positive effect) and objective (negative effect) social class on institutional trust (Research Question 1b). On the one hand, the positive effects of subjective social class on institutional trust are not necessarily surprising because individuals from higher social classes are usually motivated to maintain social hierarchy and support institutions (Sidanius & Pratto, 1999). In particular, individuals who subjectively feel that they occupy a more dominant position than others (regardless of their objective position) are motivated to maintain their advantaged position (e.g., opposing redistribution policies; Brown-Iannuzzi et al., 2015). On the other hand, the negative effects of objective social class on institutional trust are more surprising. These effects may reflect the fact that individuals from higher objective social classes have more cultural

Table 3. Study 2 (World Value Survey and European Value Study): Standardized Coefficient Estimates and Standard Errors From the Multilevel Models Testing the Separate (Model 1) and Simultaneous (Model 2) Effects of Social Class and the Effects of Income Inequality Without (Model 3) and With Level-2 Control Variables (Model 4) on Social Trust (Left Part) and Institutional Trust (Right Part).

		Socia	Social Trust			Institutional Trust	nal Trust	
	M1 β (SE)	M2 β (SE)	M3 β (SE)	M4 β (SE)	M1 β (SE)	M2 β (SE)	M3 β (SE)	M4 β (SE)
Intercept Subjective social class—SC Objective social class—OC Sex (+0.5 = female)—S Age—A Employment status (+0.5 = working)—E Marital status (+0.5 = married)—M Political orientation—P Income inequality (Gini coefficient)—GN Year—Y Total population—T Poverty rate—V Unemployment rate—U GDP—G	n/a .04*** (.002) .08*** (.002)	010 .02*** (.003) .07*** (.003) .00 (.002) .02*** (.003) .01 *** (.003) .00 (.003)	002 .03*** (.004) .09*** (.004) .00 (.003) .02*** (.003) .01 (.003) 01** (.003) .00 (.016) 01 (.018)	007 .02**** (.004) .08**** (.004) 01 (.004) .04**** (.004) .01 (.004) .01 (.004) 01*** (.004) 01*** (.004) 01*** (.004) 02 (.020) 05** (.019) .02 (.017) .09*****	n/a .03**** (.002) 03**** (.002)	021 .05*** (.003) 03*** (.003) .03*** (.002) .03*** (.003) 02*** (.003) .01*** (.002) .07*** (.002)	025 .05*eek (.004) 02*eek (.004) .02*eek (.003) .03*eek (.003) 02*eek (.003) .01* (.003) .06*eek (.003) .06*eek (.003)	014 .04*** (.004) .02*** (.004) .02*** (.004) .03*** (.004) .01 (.004) .06 *** (.004) 04 (.026) 01 (.046) 04 (.029) .02 (.026) 04 (.029) .02 (.026) 04 (.025)
Number of participants (N)	>277,506	170,291	96,130	72,550	>284,642	176,084	98,462	74,260

Note. The regression equation is  $\mathit{Trust}_{kld} = \beta_{000} + \beta_{100} \times SC_{kl} (lOC_{kll})$  [M1]  $+ \beta_{200} \times OC_{kl} (lSC_{kll}) + \beta_{300} \times S_{kll} + \beta_{500} \times A_{kll} + \beta_{500} \times E_{kll} + \beta_{500} \times A_{kll} + \beta_{500} \times A_{$ the Level-2 residuals, and e<sub>lal</sub> Level-1 residuals; the zero-unit digits of the \$5/SEs were omitted; continuous variables were within country-SD-based standardized; the social trust models are multilevel linear probability models; to limit the number of missing values, we used wave- and not year-based poverty rates; changes in N are due to missing values; "n/a" means not applicable (the \(\beta\)SSEs from \(\mathbb{M}\) | Were taken from two different models

\*p < .05. \*\*p < .01. \*\*p < .001.

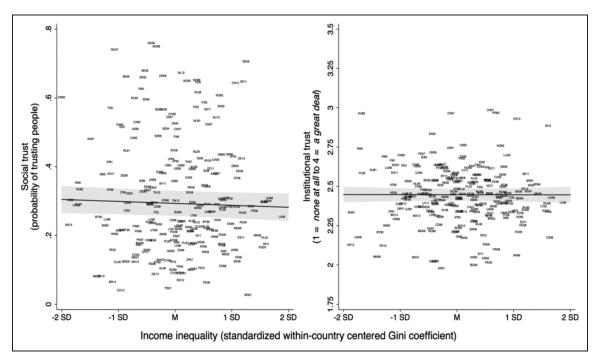


Figure 3. Within-country effects of income inequality on social trust (left panel) and institutional trust (right panel) in the World Value Survey and European Value Study (Study 2). Note. The marker labels are combinations of the two-letter code of the country name and the last two digits of the year (e.g., "DE13" means Germany in 2013); estimates were obtained from the minimal multilevel models; shaded areas represent 95% confidence intervals.

(education) and economic (income) capital, which could increase their expectations of what institutions should provide them. As these forms of capital accumulate, these individuals begin to evaluate their leaders and institutions using more demanding standards (Catterberg & Moreno, 2006), and as a result, their level of trust in institutions declines. Note that, in an additional analysis, the negative effects of education were somewhat more robust than the effects of income. This may suggest that education increases knowledge related to political issues (Persson, 2015) and fuels one's tendency to be critical of institutions.

In a second set of findings addressing the problem of the small number of higher level units, we documented that (i) income inequality affected neither social trust (Research Question 2a) nor institutional trust (Research Question 2b) and that (ii) the effects were always smaller and statistically significantly different than the smallest negative effect of interest. Again, these results are somewhat surprising because income inequality is generally viewed as having a robust corrosive effect on trust. In this respect, our findings differ not only from the findings of low-powered studies such as Knack and Keefer (1997; power: 18%) but also one of the largest existing studies, namely, Fairbrother (2014; power: 92%).6 This latter study used one sample of 194 country-years and found a small effect of income inequality over time (which became "marginal" when including covariates). Importantly, our study used a larger sample of 247 country-years (power: 98%) as well as two

other large samples including a total of 408 region-years, and was *not* able to reproduce these findings (with or without covariates). As such, our study suggests that the effect of income inequality on trust may not be as generalizable as previously thought.

This second set of findings echoes the results of recent largescale studies that failed to replicate the effects of income inequality on psychological outcomes other than trust (e.g., subjective well-being, Kelley & Evans, 2017). This suggests that the problem of the small number of higher level units may be widespread in the extant literature on the psychology of income inequality. However, these kinds of null effects may also conceal other kinds of effects. For example, the effect of income inequality might be harmful only when it is changing rapidly/noticeably (Schröder, 2016) or could be moderated by psychological factors (e.g., perceived social heterogeneity, Alesina & La Ferrara, 2002). The null effect of income inequality may also reflect the fact that laypeople have considerable difficulties accurately perceiving the actual level of inequality in their state or country (Hauser & Norton, 2017) and that actual income inequality has little predictive utility compared with perceived income inequality (Rodríguez-Bailón et al., 2020). As such, the subjective perception of inequality and ideological support for inequality may be more robust predictors of trust.

Three limitations of our study should be noted. First, social trust was a single-item measure, and future studies using

primary data should use a multi-item scale to reduce measurement error. Second, the cross-sectional design of the present study does not allow causal inference, and prospective studies using longitudinal designs are warranted. Third, although the period of time covered by Study 2 was large (17.64 years), the number of time points per country was descriptively small (M = 3.85). As cross-national secondary surveys become larger over time, future replications using more time points are warranted. Despite these limitations, the study provides the most accurate and comprehensive account to date of the socioeconomic determinants of trust. Our findings challenge some ideas traditionally expressed in the literature and suggest that researchers need to update their beliefs: subjective and objective social class—not income inequality—are useful predictors of social and institutional trust.

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#### Supplemental Material

The supplemental material is available in the online version of the article.

#### **Notes**

- 1. The term "state-years" indicates regional units observed in a particular year, such as "California-1996" (the same applies to "province-years" [Seoul-2010] and "country-years" [Turkey-2012]).
- 2. The 51st state is Washington, DC.
- 3. Upon the recommendation of a reviewer who inquired about a potential between-cluster effect of income inequality, we repeated the analysis using grand-mean-centered Gini coefficients across all studies. These new analyses led to the same conclusions as the main analysis: The effects of income inequality on social and institutional trust were nearly always nonsignificant (in 10 of 12 cases)

- and always smaller than the smallest negative effects of interest (Tables S13–S15).
- 4. Across all studies, Models 5 did not reveal any Social Class  $\times$  Income Inequality interaction; the sole exception was a significant objective Social Class  $\times$  Income Inequality interaction on institutional trust in Study 2,  $\beta = -0.01$ , p = .027. Specifically, the within-country effect of income inequality on institutional trust was "marginally" negative for higher class individuals,  $\beta = -0.05$ , p = .062, but nonsignificant for lower-class individuals,  $\beta = -0.03$ , p = .265.
- 5. Contrary to Studies 1a/1b, the WVS-EVS income measure was based on a self-perception item. Although an actual income measure was included in some country-years, it could not be used reliably due to the number of missing values (>70%). However, we used this actual income measure to create an alternative objective social class indicator, repeated the same analysis, and reached the same conclusions (Table S16).
- For the details of the sensitivity analysis, see Online Supplemental Materials.
- 7. To directly compare our results with Fairbrother's results, we repeated the analysis using his analytical strategy. Regarding the GSS/KGSS, the new analyses led to the same conclusion as the main analysis, and regarding the WVS-EVS, they replicated Fairbrother's findings (Tables S17–S19).

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