

# Revisiting the Effect of Growing Up in a Recession on Attitudes towards Redistribution

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## Abstract

Giuliano and Spilimbergo (2014) show that individuals who experienced a recession when young are more likely to favor redistribution in the short and long run. We revisit their analysis in three ways. First, we conduct a narrow replication in the General Social Survey and the World Values Survey; we successfully replicate the original results for outcomes that directly measure preferences for redistribution, but the results for other outcomes are less clear-cut. Second, adding recent survey waves yields results similar to the narrow replication. Third, a wide replication in a different dataset (International Social Survey Programme) corroborates the original results.

*JEL Codes:* P16, E60, Z13

*Keywords:* preferences for redistribution, beliefs, recession, replication

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# 1 Introduction

The question of how much a government should redistribute from the rich to the poor is at the core of political economy and is one of the key dividing lines between the political left and the political right. Understanding how preferences for redistribution are formed is therefore crucial for explaining institutional and political outcomes. In a seminal paper, [Giuliano and Spilimbergo \(2014, GS hereafter\)](#) show that individuals who experienced a recession during early adulthood are more likely to support redistribution in the short and long run. This effect materializes both in data from the General Social Survey of the United States and in international data from the World Values Survey covering 37 countries. The paper is widely cited<sup>1</sup> and has spawned a subsequent literature that studies the impacts of macroeconomic conditions when young on several other outcomes, such as job preferences ([Cotofan et al., 2020](#)), attitudes towards immigration ([Cotofan et al., 2021](#)), and voting behavior among politicians ([Carreri and Teso, 2021](#)).

In this paper, we revisit the analysis by GS in three ways. First, we attempt to replicate their main results using the same methodology and data (narrow replication). Second, we extend the data to include more recent survey waves, which increases the coverage of cohorts who experienced the Great Recession when young (long replication). Third, we use international data from a different source – the International Social Survey Programme – and compare the results to the findings in GS (wide replication).

The remainder of the paper is structured as follows: Section 2 presents our analysis for the United States based on data from the General Social Survey. Section 3 discusses our findings from the international analysis based on data from the World Values Survey and the International Social Survey Programme. Section 4 presents our conclusions.

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<sup>1</sup>As of June 16, 2022, the published paper has accumulated 729 citations on Google Scholar and 199 citations on Web of Science.

## 2 United States analysis

### 2.1 Data, variable construction, and summary statistics

**Original analysis** Before turning to the details of our replication, we summarize the key characteristics of the data for the United States analysis as described by GS. The General Social Survey is a repeated cross-sectional survey of the U.S. population and includes information on economic and political preferences. GS use the waves collected between 1972 and 2010 and construct their outcome variables from the answers to the six questions listed in Table 1. The first two questions directly measure preferences for redistribution. The third question is selected based on the intuition that individuals who believe that hard work shapes economic success are likely to oppose redistribution.<sup>2</sup> The last three questions measure political attitudes, with the intuition being that left-leaning politics is associated with greater redistribution. GS code the answers to all questions such that higher values reflect stronger preferences for redistribution and more left-leaning political attitudes.

Table 1: Questions in the General Social Survey

Variable	Question	Scale
1. Help poor	To what extent should the federal government try to improve the standard of living of poor Americans?	1–5
2. Assistance poor	Is too much or too little money spent on assistance to the poor?	1–3
3. Work-luck	Is hard work or luck more important for getting ahead?	1–3
4. Party affiliation	Do you think of yourself as a strong Republican, a strong Democrat, or someone in between?	0–6
5. Political views (ideology)	Where would you place yourself on a scale from extremely liberal to extremely conservative political views?	1–7
6. Voting Democrat	Did you vote for a Democratic presidential candidate in the most recent election?	0–1

*Notes:* The table shows abbreviated versions of the questions used to construct the outcome variables in the General Social Survey data. The exact phrasing of the questions can be found in Appendix B.

The key explanatory variable in the regressions measures whether an individual ex-

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<sup>2</sup>GS also show additional results for the third variable (“work-luck”) using a different dataset and empirical methodology. Due to difficulties in obtaining the original data underlying those estimates and space constraints, we focus on replicating the main results based on the General Social Survey and World Values Survey data here.

perienced a macroeconomic shock during ages 18–25. This age range is chosen based on research from social psychology, which documents that economic and political beliefs are formed mostly during these “impressionable years.” GS define macroeconomic shocks at the level of nine United States macro regions (census divisions). Specifically, the General Social Survey contains information on which of these regions the respondent lived in at age 16, and GS use this as a proxy for the relevant region during the respondent’s impressionable years. To measure macroeconomic shocks, the authors use yearly data on regional personal income since 1929 from the Bureau of Economic Analysis (BEA), which they correct for inflation using national CPI. They create a dummy that takes value one if a respondent experienced at least one year in which real regional per capita GDP (personal income) growth was lower than  $-3.4$  percent during ages 18–25 and zero otherwise.

Finally, GS construct a number of individual control variables from the General Social Survey, including years of education, income, religious affiliation, and indicators for female, black, marital status, and employment status.

**Replication** The supplementary material to GS includes Stata code which reproduces the main tables in the paper, starting from the final estimation data. However, the data themselves are not provided, and neither is code to arrive at these data from the raw General Social Survey and BEA files. We therefore attempt to reconstruct the data following the description in GS. We obtain the General Social Survey waves collected between 1972 and 2010 for the narrow replication as well as four additional waves collected between 2012 and 2018 for our long replication (Smith et al., 2020). We also obtain state income and population data for the years 1929–2010 from the Bureau of Economic Analysis (BEA, 2022). To deflate income, we use the annual U.S. consumer price index collected by the U.S. Bureau of Labor Statistics. We then construct the outcomes, economic shock variable, and controls (for further details, see Appendix B).

To gauge our success in reconstructing the GS final estimation data, we compare the number of observations, means, and standard deviations of all variables in our narrow replication sample to the corresponding statistics reported by GS. Table A.1 shows that

for most outcomes and control variables, we closely replicate the sample sizes reported by GS, and that the means and standard deviations of these variables are nearly identical. In contrast, we fail to replicate the mean of the economic shock variable: whereas GS report that 50 percent of respondents experienced at least one year of GDP growth lower than  $-3.4$  percent during their impressionable years, the corresponding figure in our sample is only 29 percent. In what follows, we examine potential reasons for this discrepancy.

Figure A.1 in GS plots the economic shock variable by year of birth, separately for the nine United States macro regions. We reproduce this figure in Panel A of Figure A.1 and show the corresponding plots based on our narrow replication sample in Panel B. There is much more cohort-to-cohort variation in the original GS plots. Indeed, some of this variation appears to be inconsistent with the definition of the shock variable: in several regions, a certain single cohort is exposed to an economic shock but adjacent cohorts are not. Given that the impressionable years span a period of eight years (ages 18–25) and exposure is defined as experiencing at least one year of GDP growth lower than  $-3.4$  percent during those years, at least eight consecutive cohorts should be exposed to each shock.

We contacted the authors about this discrepancy and they informed us that there was probably a coding mistake in their original analysis. Unfortunately, they did not have the original code and data to construct the shock variable anymore, such that we cannot definitely confirm that this mistake is the reason for the differences between their variable and ours. The authors also pointed to a potential alternative explanation: the BEA data are often revised after their initial release. While updated data are unable to explain the inconsistent time patterns of the shock variable in the original Figure A.1, they could potentially be the reason why we cannot replicate some of the GS results below.

## 2.2 Empirical specification

GS estimate regressions of the following form by OLS:

$$\text{Outcome}_{irt} = \alpha_1 \text{shock}_{r16, \text{imp.years}} + \alpha_2 X_i + \delta_r + \eta_t + \gamma_{r16} + \gamma_{r16} \times \text{age} + \varepsilon_{irt}. \quad (1)$$

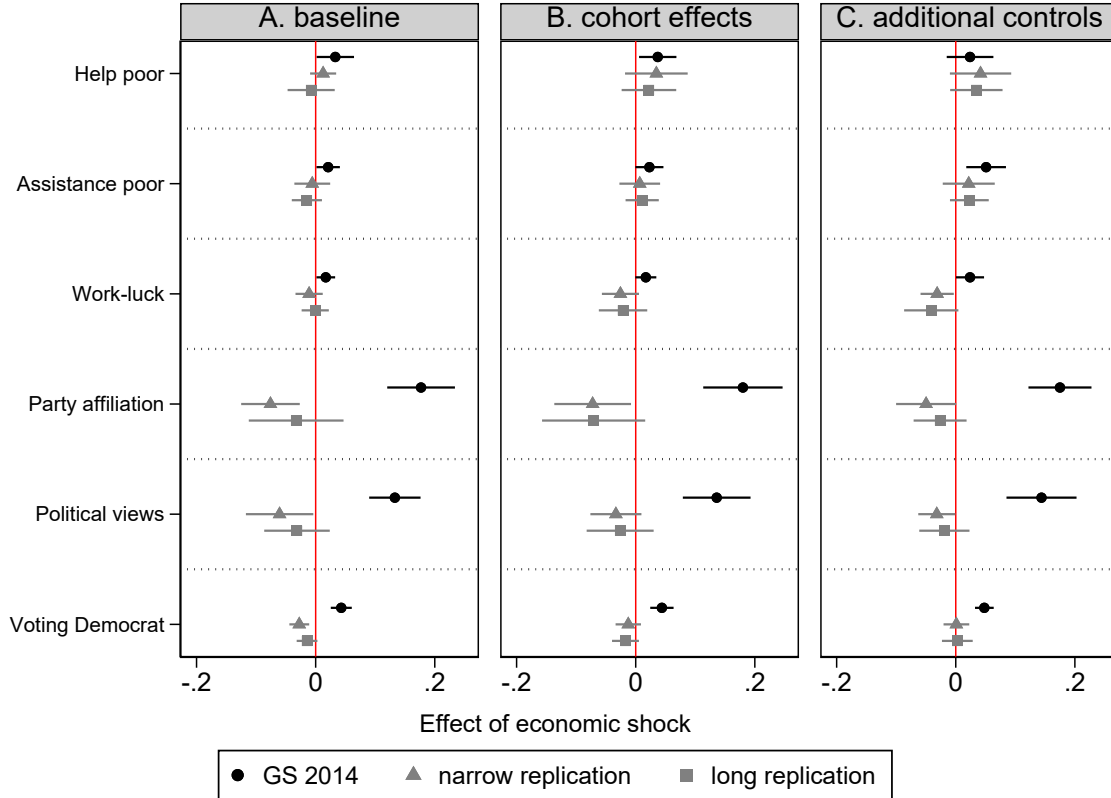
Here,  $i$  denotes individuals,  $r$  denotes macro regions, and  $t$  denotes the survey year.  $\text{shock}_{r16, \text{imp.years}}$  is the dummy for exposure to a regional economic downturn during the impressionable years based on reported region of residence at age 16.  $X_i$  is a vector of controls. The specification includes dummies for current region of residence ( $\delta_r$ ), survey year ( $\eta_t$ ), and region of residence at age 16 ( $\gamma_{r16}$ ) and their interaction with age ( $\gamma_{r16} \times \text{age}$ ). The regression identifies the effects of shocks from variation within regions over time.

GS report results from three versions of the regression in Equation 1. The first, baseline regressions include as controls  $X_i$  years of education, dummies for gender, race, age, employment status, marital status, and twelve dummies for income. A second set of regressions additionally includes cohort dummies in order to control for any potentially omitted variable that exhibits cohort-level variation. Finally, a third set of regressions further controls for family income at age 16, father’s years of education, religion at age 16, religion at the time of the interview, and interactions between current region of residence and survey year. These additional controls are meant to guard against various sources of bias; for details on the intuition, we refer to the original GS paper.

## 2.3 Results

Figure 1 summarizes our results (further details on sample sizes, coefficients on control variables, etc. can be found in Tables A.2, A.3, and A.4). Focusing first on the narrow replication, Panel A reveals that the estimates based on the baseline specification are different from those reported by GS: for all outcomes except “help poor,” we find either negative effects of experiencing a recession during the impressionable years, or effects that are statistically indistinguishable from zero, whereas GS find positive effects. Importantly,

Figure 1: United States results



*Note:* The figure presents the original estimates (GS 2014) and the estimates from the narrow and long replications of the baseline specification (Panel A), of the specification with cohort effects (Panel B), and of the specification with additional controls (Panel C, the additional controls are: cohort effects, family income at age 16, father’s years of education, religion at age 16, religion at the time of the interview, and interaction effects between current region of residence and survey year). The estimates of the replications come from OLS regressions, the whiskers represent 95% confidence bands and are computed using analytic standard errors (coefficient  $\pm 1.96\widehat{SE}$ ). The original estimates come from Tables 1–3 in GS and are based on OLS regressions, the whiskers represent 95% confidence bands and are computed using the wild bootstrap standard errors reported by GS (coefficient  $\pm 1.96\widehat{SE}$ ). All standard errors are clustered by region of residence at age 16. Sample sizes, coefficient estimates, and significance levels of the replications are reported in Tables A.3 and A.4.

this discrepancy is not due to differences in sample characteristics: as discussed above, we closely replicate the means and standard deviations of the individual characteristics in the GS data, and Table A.2 reveals that the coefficients on most of the controls in our regressions are virtually identical to the corresponding coefficients in the original paper. Therefore, the difference in results is most likely due to the discrepancies in the economic shock variable discussed above.

Panels B and C show the estimates from the less parsimonious specifications with cohort effects and additional controls. The effects of recession exposure on all outcomes tend to be more positive in these regressions. In particular, we successfully replicate the positive effects on the two outcomes that directly measure preferences for redistribution (“help poor” and “assistance poor”), with point estimates that are similar in magnitude to and not statistically different from the original GS estimates (see Table A.3). However, the effects on “work-luck” and the three outcomes measuring political attitudes remain negative (with the exception of the effect on “voting Democrat” in Panel C) and statistically different from the ones reported by GS.

Finally, Figure 1 also shows results for our long replication sample, which includes data from four additional waves of the General Social Survey. This extension leads to an average increase in sample size by about sixteen percent across all outcomes, with the largest relative increases for the most recent cohorts (see Table A.1 and Figure A.2). In particular, the sample now includes a larger share of individuals who experienced the Great Recession during their impressionable years (cohorts 1984–1991). The overall takeaway from Figure 1 is that this extension changes the estimates only very little compared to our narrow replication.

## 3 International analysis

### 3.1 Data, variable construction, and summary statistics

**Original analysis** For the international analysis, GS use data from the World Values Survey (WVS), which is an international repeated cross-sectional survey that collects information on preferences for redistribution and political attitudes, among other topics. GS use the five waves of the survey collected between 1981 and 2007 and measure outcomes using the eight questions listed in Panel A of Table 2. They code the answers to all questions such that higher values reflect preferences for more government intervention and more left-leaning political attitudes.



Table 2: Outcome variables in the World Values Survey and the International Social Survey Programme

Variable	Question	Scale
Panel A. World Values Survey (WVS)		
1. Government responsibility	Should the government take more responsibility to provide for people?	1–10
2. Income equality	Should incomes be made more equal?	1–10
3. Private-state ownership	Should government ownership of businesses be increased?	1–5
4. Society: egalitarian-competitive	Should we aim for a society with a small gap between rich and poor, or for a competitive society in which wealth is distributed according to achievement?	1–5
5. Society: welfare-low taxes	Should we aim for a society with high taxes and extensive social welfare, or a society with low taxes in which individuals take care of themselves?	1–5
6. Work-luck	Does hard work or luck bring success in life?	1–10
7. Political ideology	How would you place your political views on a scale from left to right?	1–10
8. Party affiliation	Which party would you vote for if there were a national election tomorrow? (GS classify parties on a left-right scale using external data.)	1–10
Panel B. International Social Survey Programme (ISSP)		
9. Reduce differences high-low incomes	What is your opinion of the following statement: it is the responsibility of the government to reduce the differences in income between people with high incomes and those with low incomes?	1–5
10. Reduce differences rich-poor	On the whole, do you think it should or should not be the government's responsibility to reduce income differences between the rich and poor?	1–4

*Notes:* The table shows abbreviated versions of the questions used to construct the outcome variables in the WVS and ISSP data. The exact phrasing of the questions can be found in Appendix B.

Like in the analysis for the United States, the key explanatory variable in the international analysis is a dummy for whether an individual experienced a macroeconomic shock during ages 18–25. GS construct this variable using data on economic disasters, defined as trough-peak contractions in GDP growth of at least 10 percent, from [Barro and Ursúa \(2008\)](#). Data for both this variable and the WVS are available for 37 countries, which constitute the sample for the international analysis. Finally, GS also construct a range of individual control variables using the WVS data.

**Replication** The supplementary material to GS does not include code to construct the final estimation data from the raw WVS files, and the authors informed us that they no longer have this code. We therefore attempt to reconstruct the data following the description in GS. We obtain the WVS waves collected between 1981 and 2007 for the narrow replication as well as two additional waves collected between 2010 and 2020 for the long replication (Inglehart et al., 2020). We merge these data to the data on economic disasters from Barro and Ursúa (2008) and construct the outcomes, economic shock variable, and controls (for details, see Appendix B).

Table A.5 shows summary statistics for the narrow and long replication samples next to the corresponding statistics reported by GS. Compared to the GS sample, the number of observations in the narrow replication sample is substantially larger for five of the eight outcomes. Nevertheless, the means of all outcomes and controls are mostly similar across the two samples, with some exceptions: individuals have more left-leaning political attitudes and are slightly older, less likely to be married, and more highly educated in the narrow replication sample.<sup>3</sup> There is also a non-negligible difference in the economic shock variable: 12.3 percent of individuals experienced a downturn during their impressionable years in the GS sample, compared to 19.7 percent in the narrow replication sample.<sup>4</sup> Without the original code to construct the final estimation data, we are unable to pin down the exact reasons for these differences.

We also replicate the international results in a wide sense using data from the International Social Survey Programme (ISSP), which conducts surveys similar to the WVS . We use data from ten waves collected between 1985 and 2017 and construct our outcomes using the two questions listed in Panel B of Table 2, which directly measure preferences for redistribution. We merge these data to the data on economic disasters from Barro and Ursúa (2008) and create the economic shock variable as in the WVS data. Shocks and

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<sup>3</sup>One potential source for these differences could be that the World Values Survey data has been updated since the original study was published; we are using a recent version (see Appendix B for details).

<sup>4</sup>This discrepancy is not due to differences in the shock variable itself. In particular, Figure A.2 in GS plots the economic shock variable by year of birth, separately for each country. We reproduce this figure in Panel A of Figure A.3 and show the corresponding plots based on our narrow replication sample in Panel B. The plots look nearly identical in both samples, implying a successful replication of this variable.

outcome data are available for 31 countries participating in the ISSP, which constitute our sample. Finally, we also construct individual control variables from the ISSP data, which are similar to those used in the WVS analysis (see Appendix B for details).

### 3.2 Empirical specification

GS estimate regressions of the following form by OLS:

$$\text{Outcome}_{ict} = \beta_1 \text{shock}_{c,imp.years} + \beta_2 X_i + \theta_c + \tau_t + \theta_c \times \text{age} + \omega_{ict}. \quad (2)$$

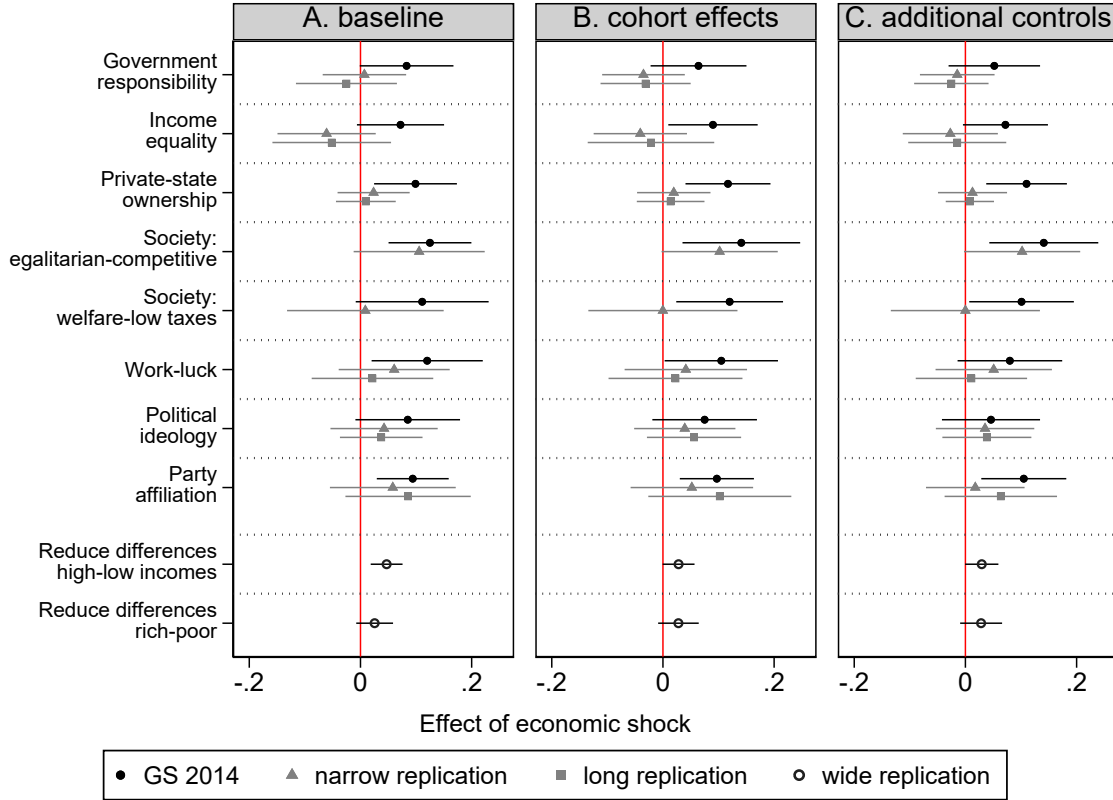
Here,  $i$  denotes individuals,  $c$  denotes countries, and  $t$  denotes the survey year.  $\text{shock}_{c,imp.years}$  is the dummy for experiencing an economic disaster during the impressionable years, and  $X_i$  is a vector of individual-level controls. The specification includes dummies for country ( $\theta_c$ ), survey year ( $\tau_t$ ), and country-specific age trends ( $\theta_c \times \text{age}$ ) and identifies the effects of shocks from variation within countries over time.

GS run three versions of the regression in Equation 2. First, the baseline specifications include basic individual controls (dummies for age, gender, marital status, unemployment status, education level, income brackets, and religion) similarly to the corresponding specifications for the analysis using the General Social Survey data. A second set of regressions adds cohort dummies. Finally, a third set of regressions further includes country-by-survey year interactions.

### 3.3 Results

Figure 2 summarizes our results (further details can be found in Tables A.6–A.9). Focusing first on the narrow replication, Panel A shows that most estimates based on the baseline specification are qualitatively similar to the GS estimates: for seven out of eight outcomes, the effect has the same sign, but is of lower magnitude, compared to the one reported by GS. These smaller impacts translate into lower statistical significance, with only one estimate reaching significance at the 10-percent level. The likely reason for

Figure 2: Results of the international analysis



*Note:* The figure presents the original estimates (GS 2014) and the estimates from the narrow, long, and wide replications of the baseline specification (Panel A), of the specification with cohort effects (Panel B), and of the specification with additional controls (Panel C, the additional controls are country-by-survey year dummies). The narrow and long replications were conducted in data from the WVS. The wide replication was conducted in data from the ISSP (variables “reduce differences high-low incomes” and “reduce differences rich-poor”). The variables “society: egalitarian-competitive” and “society: welfare-low taxes” were not collected in the two additional waves included in the long replication sample. The estimates of the replications come from OLS regressions, the whiskers represent 95% confidence bands and are computed using analytic standard errors (coefficient  $\pm 1.96\widehat{SE}$ ). The original estimates (GS 2014) come from Tables 5, A.18, and A.19 in GS and are based on OLS regressions, the whiskers represent 95% confidence bands and are computed using the wild bootstrap standard errors reported by GS (coefficient  $\pm 1.96\widehat{SE}$ ). All standard errors are clustered by country. Sample sizes, coefficient estimates, and significance levels of the replications are reported in Tables A.7–A.9.

these differences between our results and GS are the differences in sample characteristics discussed above. Panels B and C reveal that the inclusion of cohort dummies and country-by-survey year dummies does not change the narrow replication estimates much.

Figure 2 also shows results for the long replication sample, which includes additional

data on six outcomes.<sup>5</sup> For these outcomes, the sample size in the regression analysis increases by 68 percent on average, which opens up the possibility that results could change compared to the narrow replication sample. However, Figure 2 reveals that the results are not appreciably different when the newer cohorts are included.

Finally, Figure 2 shows results for the ISSP and reveals a precisely measured positive effect of exposure to economic shocks on preferences for redistribution (see Table A.9 for details). These results confirm the headline findings by GS, that is, experiencing a recession when young makes individuals more likely to support redistribution.

## 4 Conclusion

We replicate the results by GS in a narrow, long, and wide sense. Using data from the U.S. General Social Survey, we successfully replicate the positive effect of experiencing a recession when young on two outcomes that directly measure preferences for redistribution. However, we fail to replicate the effects on four other outcomes that are conceptually related but do not measure preferences for redistribution directly. Using data from the World Values Survey, we successfully replicate most of the effects in GS' analysis in a qualitative sense, although with somewhat smaller point estimates. In both the General Social Survey and the World Values Survey, adding recent survey waves to the sample does not appreciably change the estimates. Finally, we find positive effects of experiencing a recession when young on preferences for redistribution in data from the International Social Survey Programme. Taken together, our findings corroborate the original result of a positive effect of experiencing a recession when young on preferences for redistribution, but also show that effects on conceptually related variables are not as clear-cut.

**Conflict of interest** The authors declare no conflict of interest.

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<sup>5</sup>The variables “society: egalitarian-competitive” and “society: welfare-low taxes” were not collected in the two additional waves included in the long replication sample.

## References

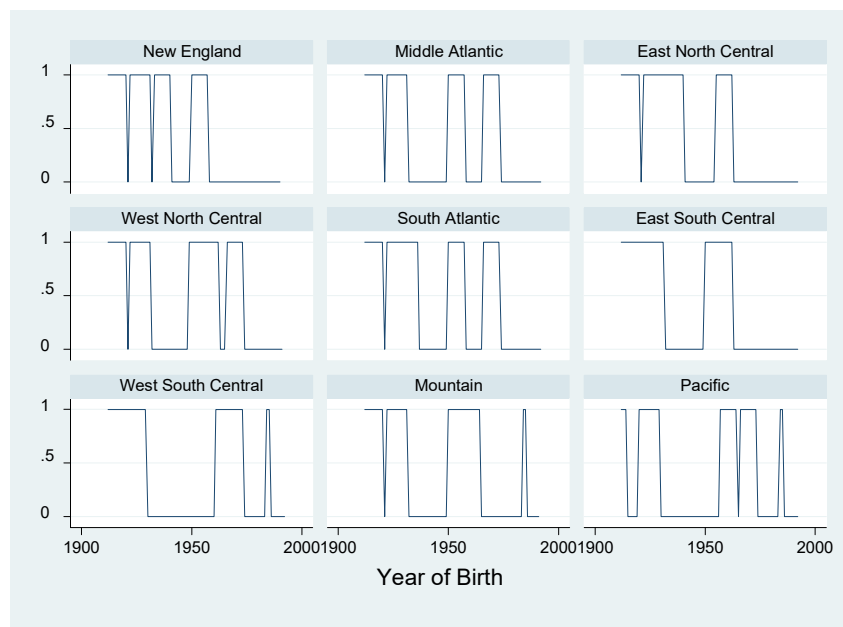
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*Principal Investigator, Peter V. Marsden; Co-Principal Investigator, Michael Hout;*  
*Sponsored by National Science Foundation, Chicago: NORC at the University of*  
Chicago [producer and distributor].

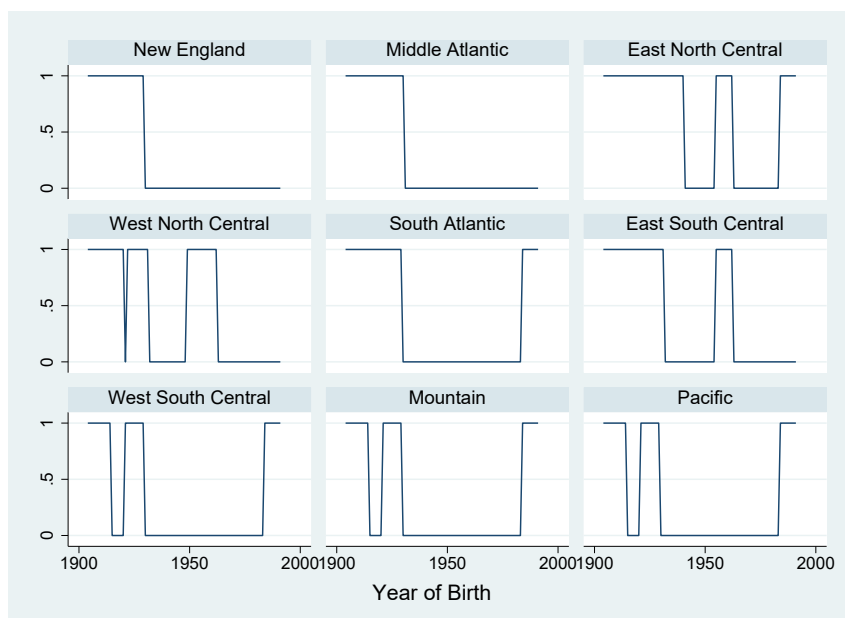
## Appendix A: Supplementary figures and tables

Figure A.1: Economic shock exposure by United States macro region and year of birth

Panel A. Figure from the original paper (GS 2014)



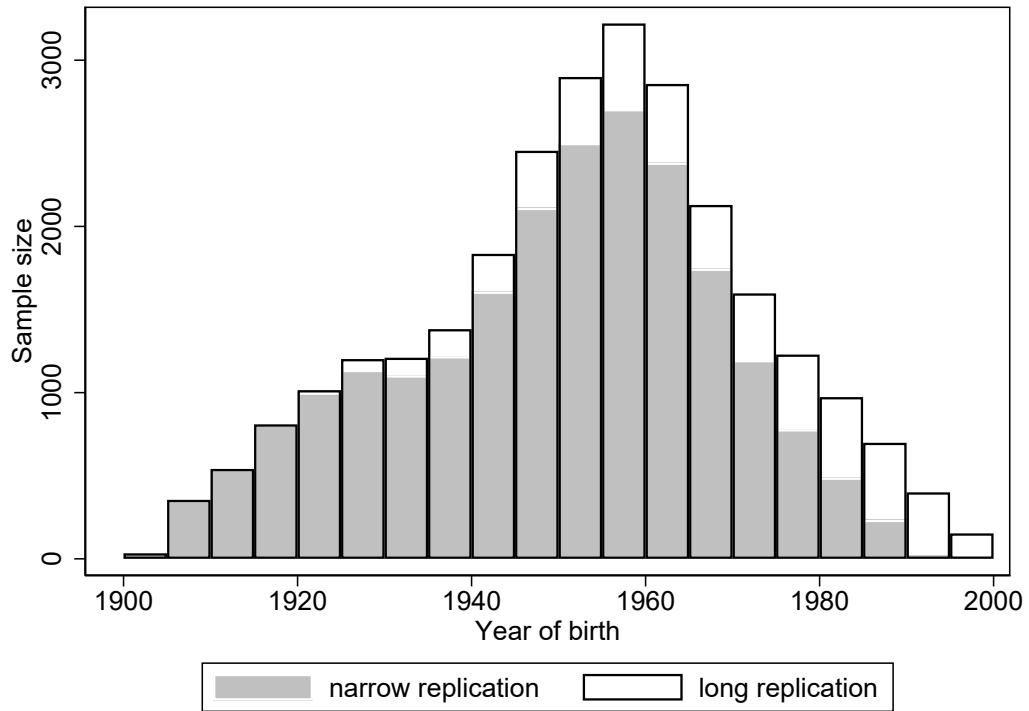
Panel B. Replication



*Notes:* The figure shows plots of the economic shock variable separately by U.S. macro region and year of birth. The shock variable is defined as a dummy that takes value one if a cohort experienced at least one year in which real regional per capita GDP growth was lower than  $-3.4$  percent during ages 18–25 and zero otherwise (see Appendix B for details). Panel A reproduces Figure A.1 in the online appendix of the original paper (page 43). Panel B shows the corresponding plots from our replication.



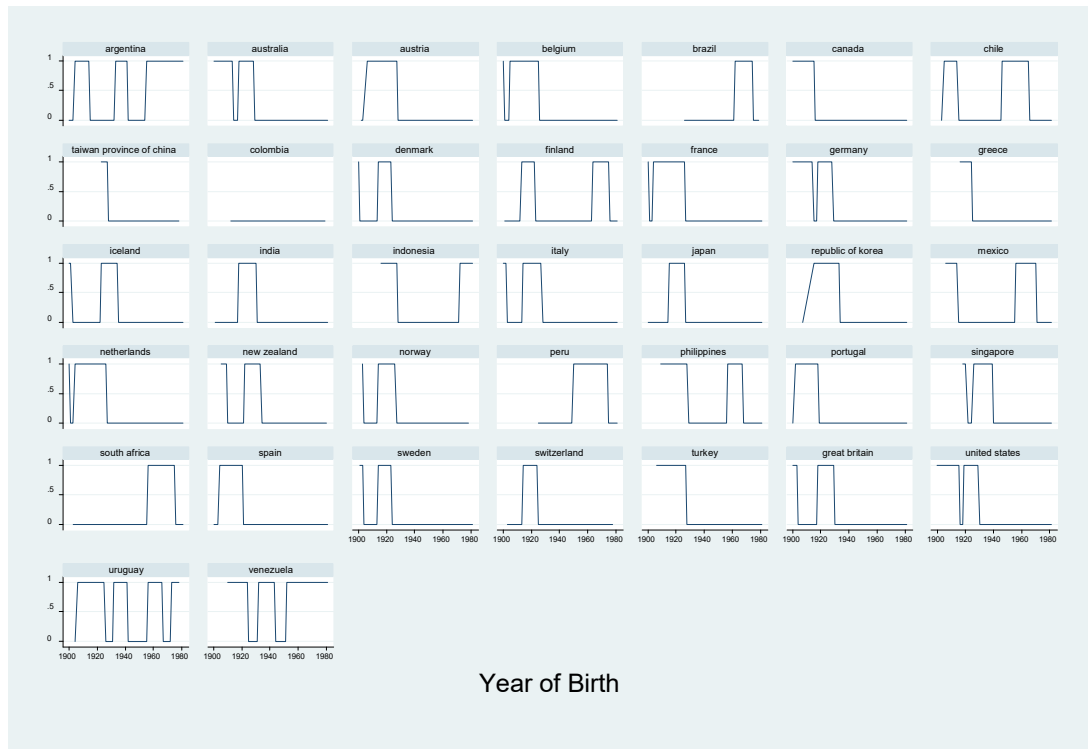
Figure A.2: General Social Survey: sample extension



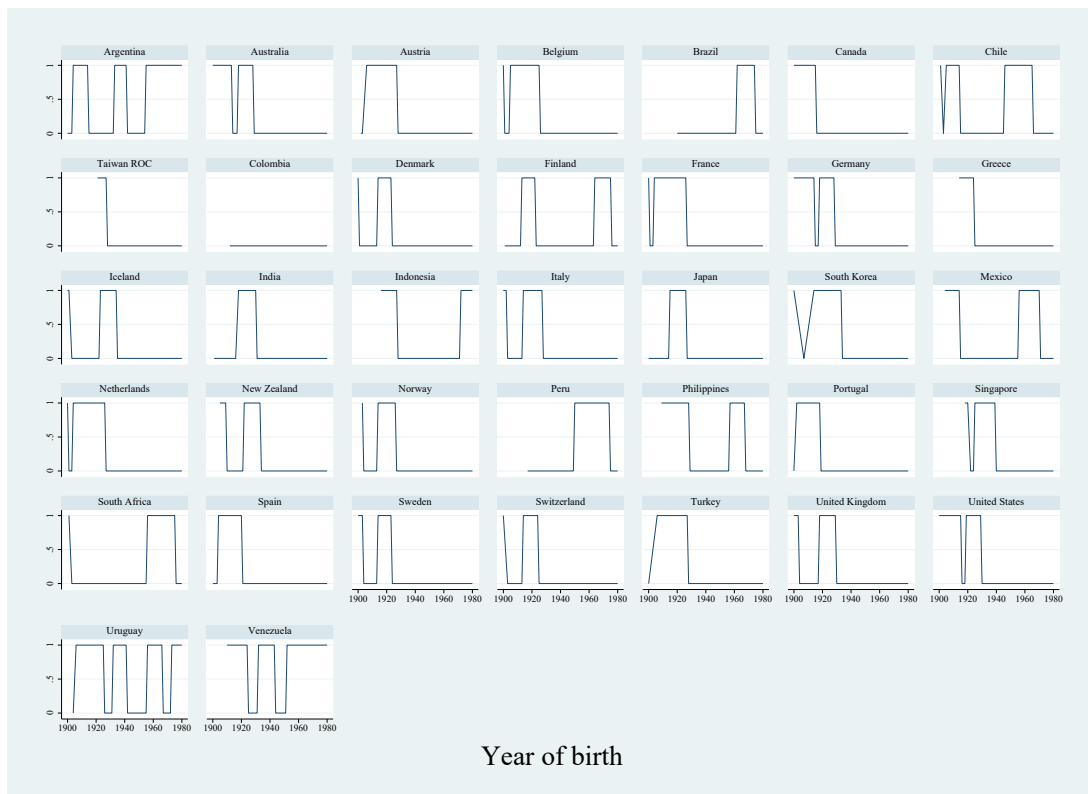
*Note:* The figure displays a histogram of the sample that is used for the long replication based on the General Social Survey data. The gray areas of the bars display the portion of the data that are used in the narrow replication (General Social Survey waves collected in 1972–2010); the white areas of the bars display the portion of the data that is added in the long replication (General Social Survey waves 2012, 2014, 2016, 2018). The sample consists of all observations in the baseline regression with “help poor” as the dependent variable (26,961 observations; see Table A.1, column 7, for more details).

Figure A.3: Economic shock exposure by country and year of birth

Panel A. Figure from the original paper (GS 2014)



Panel B. Replication



*Note:* The figure shows plots of the economic shock variable separately by country and year of birth. Recession data come from [Barro and Ursúa \(2008\)](#), Table C.2. Panel A reproduces Figure A.2 in the online appendix of the original paper (page 44). Panel B shows the corresponding plots from our replication.

Table A.1: Summary statistics for the General Social Survey

	Original (GS 2014)			Narrow replication			Long replication		
	Obs. (1)	Mean (2)	St. Dev. (3)	Obs. (4)	Mean (5)	St. Dev. (6)	Obs. (7)	Mean (8)	St. Dev. (9)
Outcomes									
Help poor	24,287	3.098	1.175	21,993	3.102	1.171	26,993	3.100	1.171
Assistance poor	15,416	2.557	0.672	15,432	2.557	0.672	19,167	2.565	0.668
Work-luck	30,694	1.459	0.697	27,960	1.456	0.697	33,050	1.449	0.696
Party affiliation	43,443	3.318	1.996	43,570	3.317	1.997	50,964	3.318	1.995
Political views	38,525	3.905	1.359	38,631	3.904	1.359	46,074	3.910	1.377
Voting Democrat	27,267	0.498	0.500	27,354	0.498	0.500	32,195	0.515	0.500
Shock									
Economic shock	24,287	0.499	0.486	21,993	0.291	0.454	26,993	0.273	0.446
Control variables									
Age	27,267	47.508	16.089	27,354	47.610	16.150	32,195	48.311	16.340
Years of education	27,267	13.432	2.991	27,354	13.423	2.997	32,195	13.558	2.972
Married	27,267	0.593	0.491	27,354	0.592	0.491	32,195	0.573	0.495
Male	27,267	0.440	0.496	27,354	0.440	0.496	32,195	0.440	0.496
Black	27,267	0.130	0.336	27,354	0.130	0.336	32,195	0.138	0.345
Unemployed	27,267	0.045	0.208	27,354	0.023	0.149	32,195	0.025	0.155
Income	27,267	10.370	2.513	27,354	10.358	2.523	32,195	10.490	2.468
Father's years of education	13,372	10.748	4.223	12,354	10.755	4.212	15,991	11.047	4.158
Income at 16	13,372	2.904	0.825	12,354	2.904	0.826	15,991	2.901	0.839
Protestant	13,304	0.605	0.489	12,354	0.606	0.489	15,991	0.580	0.494
Catholic	13,304	0.245	0.430	12,354	0.245	0.430	15,991	0.238	0.426
Christian	13,304	0.010	0.095	12,354	0.009	0.096	15,991	0.015	0.123
Jewish	13,304	0.019	0.137	12,354	0.018	0.133	15,991	0.018	0.133
Other religion	13,304	0.020	0.14	12,354	0.020	0.141	15,991	0.022	0.146
Protestant at 16	13,304	0.637	0.481	12,354	0.638	0.481	15,991	0.617	0.486
Catholic at 16	13,304	0.287	0.452	12,354	0.287	0.453	15,991	0.295	0.456
Christian at 16	13,304	0.006	0.074	12,354	0.005	0.072	15,991	0.008	0.091
Jewish at 16	13,304	0.021	0.143	12,354	0.020	0.139	15,991	0.020	0.139
Other at 16	13,304	0.010	0.099	12,354	0.010	0.098	15,991	0.011	0.102

*Notes:* The table shows the number of observations, means, and standard deviations of key variables in the General Social Survey, separately for the original GS sample (numbers are reproduced from Table A.1 on page 7 of the GS online appendix), the narrow replication sample, and the long replication sample. The statistics for the different variables are based on different estimation subsamples. Specifically, statistics for outcomes are based on the subsamples in Table 1, columns 1–6 in GS; statistics for the shock variable are based on the subsample in Table 1, column 1 in GS; statistics for the first set of control variables (age–income) are based on the subsample in Table 1, column 6 in GS; statistics for the second set of control variables (father's years of education–other at 16) are based on the subsample in Table 3, column 1 in GS. To compute the statistics for the narrow and long replication samples in columns 4–9 in this table, we use the corresponding subsamples.

Table A.2: General Social Survey: baseline specification and replication

	Help poor		Assistance poor		Work-luck		Party affiliation		Political views		Voting Democrat	
	orig. (1)	repl. (2)	orig. (3)	repl. (4)	orig. (5)	repl. (6)	orig. (7)	repl. (8)	orig. (9)	repl. (10)	orig. (11)	repl. (12)
Economic shock	0.033**	0.013	0.021**	-0.006	0.017**	-0.011	0.177***	-0.076***	0.133***	-0.061**	0.043***	-0.028***
SE	(0.016)	(0.009)	(0.010)	(0.013)	(0.008)	(0.010)	(0.029)	(0.021)	(0.022)	(0.025)	(0.009)	(0.007)
p-value		[0.223]		[0.673]		[0.299]		[0.007]		[0.039]		[0.005]
p-value (WBS)		[0.188]		[0.568]		[0.292]		[0.000]		[0.090]		[0.000]
Years of education	-0.051***	-0.036***	-0.017***	-0.017***	0.006***	0.008***	-0.033***	-0.033***	0.020***	0.020**	0.001	0.001
SE	(0.006)	(0.006)	(0.002)	(0.002)	(0.002)	(0.002)	(0.008)	(0.008)	(0.007)	(0.007)	(0.002)	(0.002)
p-value		[0.000]		[0.000]		[0.008]		[0.004]		[0.026]		[0.710]
p-value (WBS)		[0.000]		[0.000]		[0.000]		[0.022]		[0.030]		[0.762]
Married	-0.139***	-0.049*	-0.036***	-0.035***	-0.059***	-0.049***	-0.220***	-0.218***	-0.264***	-0.261***	-0.058***	-0.057***
SE	(0.016)	(0.021)	(0.009)	(0.009)	(0.008)	(0.009)	(0.036)	(0.036)	(0.014)	(0.014)	(0.008)	(0.008)
p-value		[0.050]		[0.005]		[0.001]		[0.000]		[0.000]		[0.000]
p-value (WBS)		[0.108]		[0.002]		[0.000]		[0.000]		[0.000]		[0.000]
Female	0.164***	0.140***	0.060***	0.060***	-0.075***	-0.075***	0.178***	0.177***	0.088***	0.087***	0.037***	0.037***
SE	(0.017)	(0.019)	(0.011)	(0.010)	(0.012)	(0.014)	(0.035)	(0.034)	(0.019)	(0.019)	(0.008)	(0.008)
p-value		[0.000]		[0.000]		[0.001]		[0.001]		[0.002]		[0.001]
p-value (WBS)		[0.000]		[0.000]		[0.000]		[0.000]		[0.000]		[0.000]
Black	0.635***	0.581***	0.276***	0.276***	0.101***	0.090***	1.468***	1.469***	0.296***	0.298***	0.449***	0.449***
SE	(0.036)	(0.023)	(0.012)	(0.012)	(0.010)	(0.016)	(0.064)	(0.063)	(0.021)	(0.020)	(0.016)	(0.015)
p-value		[0.000]		[0.000]		[0.000]		[0.000]		[0.000]		[0.000]
p-value (WBS)		[0.000]		[0.000]		[0.000]		[0.000]		[0.000]		[0.000]
Unemployed	0.118***	0.114**	0.066***	0.062***	0.058***	0.114***	0.113***	0.127*	0.100**	0.093	0.050***	0.068**
SE	(0.036)	(0.043)	(0.016)	(0.017)	(0.005)	(0.023)	(0.040)	(0.065)	(0.045)	(0.068)	(0.014)	(0.028)
p-value		[0.029]		[0.006]		[0.001]		[0.087]		[0.208]		[0.043]
p-value (WBS)		[0.006]		[0.012]		[0.000]		[0.160]		[0.260]		[0.056]
Observations	24,287	21,993	15,416	15,432	30,694	27,960	43,443	43,570	38,525	38,631	27,267	27,354
R2	0.09	0.10	0.07	0.07	0.02	0.02	0.11	0.11	0.05	0.05	0.15	0.15
Mean of outcome	3.102	3.103	2.557	2.557	1.459	1.456	3.318	3.317	3.905	3.904	0.498	0.498
Number of waves	-	19	-	18	-	23	-	27	-	26	-	27

*Note:* The table presents OLS estimates from GS' original paper (odd columns, see Table 1 on page 795 of GS) and OLS estimates of our narrow replication (even columns). The standard errors in GS are computed using the wild bootstrap (Stata command `cgmwildboot`). The standard errors of the replication are analytic standard errors, since the computation of wild bootstrap standard errors using `cgmwildboot` is no longer recommended and supported. The table also reports the wild bootstrap p-values, which are computed using `cgmwildboot` ("p-value (WBS)") and, for comparison, the analytic p-values. All regressions include dummies for current region of residence, survey year, region of residence at age 16 and their interaction with age (continuous variable, measured in years). All standard errors are clustered by region of residence at age 16.

\* significant at the 10%-level, \*\* significant at the 5%-level, \*\*\* significant at the 1%-level.

Table A.3: General Social Survey: comparison of the narrow replication with the original results (GS 2014)

	Help poor (1)	Assistance poor (2)	Work-luck (3)	Party affiliation (4)	Political views (5)	Voting Democrat (6)
<i>Panel A: narrow replication (baseline specification)</i>						
Economic shock	0.013 (0.009)	-0.006 (0.013)	-0.011 (0.010)	-0.076*** (0.021)	-0.061** (0.025)	-0.028*** (0.007)
Observations	21,993	15,432	27,960	43,570	38,631	27,354
R2	0.10	0.07	0.02	0.11	0.05	0.15
# waves	19	18	23	27	26	27
diff. (replication – original)	-0.020	-0.027	-0.028	-0.253	-0.194	-0.071
p-value of difference	0.318	0.069	0.069	0.000	0.000	0.000
<i>Panel B: narrow replication (specification with cohort effects)</i>						
Economic shock	0.035 (0.023)	0.007 (0.015)	-0.026* (0.014)	-0.072*** (0.028)	-0.033* (0.019)	-0.012 (0.009)
Observations	21,993	15,432	27,960	43,570	38,631	27,354
R2	0.10	0.08	0.02	0.11	0.05	0.16
# waves	19	18	23	27	26	27
diff. (replication – original)	-0.002	-0.016	-0.043	-0.252	-0.169	-0.056
p-value of difference	0.949	0.476	0.008	0.000	0.000	0.000
<i>Panel C: narrow replication (specification with cohort effects and additional controls)</i>						
Economic shock	0.042* (0.022)	0.022 (0.019)	-0.031*** (0.012)	-0.050** (0.022)	-0.032** (0.013)	0.001 (0.009)
Observations	12,354	8,045	16,206	24,900	21,824	16,570
R2	0.12	0.09	0.04	0.15	0.10	0.19
# waves	16	15	20	24	23	24
diff. (replication – original)	0.018	-0.029	-0.055	-0.225	-0.176	-0.047
p-value of difference	0.697	0.309	0.003	0.000	0.000	0.005

*Note:* The table displays OLS regression results of the narrow replication for three different specifications: the baseline specification (Panel A, corresponding to Table 1 in GS), the specification with cohort effects (Panel B, corresponding to Table 2 in GS), and the specification with cohort effects and additional controls (Panel C, corresponding to Table 3 in GS). Analytic standard errors, clustered by region of residence at age 16, are in parentheses. The table also reports the difference between the replication results and the point estimates reported by GS (replication – original) and the p-value for the null hypothesis that the replication estimate is equal to the corresponding point estimate reported by GS (p-value of difference). \* significant at the 10%-level, \*\* significant at the 5%-level, \*\*\* significant at the 1%-level.

Table A.4: General Social Survey: comparison of the long replication with the original results (GS 2014)

	Help poor (1)	Assistance poor (2)	Work-luck (3)	Party affiliation (4)	Political views (5)	Voting Democrat (6)
<i>Panel A: long replication (baseline specification)</i>						
Economic shock	-0.008 (0.017)	-0.015 (0.011)	-0.001 (0.010)	-0.033 (0.035)	-0.031 (0.024)	-0.014* (0.008)
Observations	26,993	19,167	33,050	50,964	46,074	32,195
R2	0.09	0.07	0.02	0.11	0.05	0.16
# waves	23	22	27	31	30	31
diff. (replication – original)	-0.041	-0.036	-0.018	-0.210	-0.164	-0.057
p-value of difference	0.057	0.018	0.147	0.000	0.000	0.000
<i>Panel B: long replication (specification with cohort effects)</i>						
Economic shock	0.022 (0.020)	0.011 (0.012)	-0.021 (0.018)	-0.071* (0.038)	-0.026 (0.024)	-0.017* (0.010)
Observations	26,993	19,167	33,050	50,964	46,074	32,195
R2	0.10	0.08	0.02	0.11	0.05	0.17
# waves	23	22	27	31	30	31
diff. (replication – original)	-0.015	-0.012	-0.038	-0.251	-0.162	-0.061
p-value of difference	0.645	0.496	0.005	0.000	0.000	0.000
<i>Panel C: long replication (specification with cohort effects and additional controls)</i>						
Economic shock	0.035* (0.019)	0.023 (0.014)	-0.041** (0.020)	-0.026 (0.019)	-0.019 (0.018)	0.003 (0.011)
Observations	15,991	10,755	19,884	30,242	27,236	20,205
R2	0.11	0.09	0.04	0.15	0.11	0.21
# waves	20	19	24	28	27	28
diff. (replication – original)	0.011	-0.028	-0.065	-0.201	-0.163	-0.045
p-value of difference	0.815	0.199	0.000	0.000	0.000	0.002

*Note:* The table displays OLS regression results of the long replication for three different specifications: the baseline specification (Panel A, corresponding to Table 1 in GS), the specification with cohort effects (Panel B, corresponding to Table 2 in GS), and the specification with cohort effects and additional controls (Panel C, corresponding to Table 3 in GS). Analytic standard errors, clustered by region of residence at age 16, are in parentheses. The table also reports the difference between the replication results and the point estimates reported by GS (replication – original) and the p-value for the null hypothesis that the replication estimate is equal to the corresponding point estimate reported by GS (p-value off difference). \* significant at the 10%-level, \*\* significant at the 5%-level, \*\*\* significant at the 1%-level.

Table A.5: World Values Survey: descriptive statistics

	Original (GS 2014)			Narrow replication			Long replication		
	Obs.	Mean	St. Dev.	Obs.	Mean	St. Dev.	Obs.	Mean	St. Dev.
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
Outcomes									
Government responsibility	70,057	5.635	3.066	88,478	5.829	3.029	146,064	5.901	2.977
Income equality	64,957	5.541	3.082	87,208	5.424	3.026	143,755	5.504	2.976
Private-state ownership	62,854	4.947	2.886	81,691	5.134	2.856	137,017	5.237	2.784
Society: egalitarian-competitive	7,995	3.002	1.480	7,920	3.006	1.482	-	-	-
Society: welfare-low taxes	7,920	2.755	1.401	7,847	2.752	1.401	-	-	-
Work-luck	36,516	4.234	2.979	61,906	4.210	2.829	117,038	4.262	2.788
Political ideology	32,182	4.484	2.341	76,353	5.317	2.327	127,275	5.349	2.352
Party affiliation	36,288	4.879	2.069	35,426	5.787	1.836	54,425	5.740	1.825
Shock									
Economic shock	70,057	0.123	0.329	88,478	0.197	0.397	146,064	0.163	0.370
Control variables									
Age	70,057	40.443	15.619	88,478	41.143	15.932	146,064	42.415	16.277
Male	70,057	0.497	0.500	88,478	0.495	0.500	146,064	0.493	0.500
Married	70,057	0.635	0.482	88,478	0.554	0.497	146,064	0.551	0.497
Unemployed	70,057	0.086	0.281	88,478	0.087	0.283	146,064	0.086	0.281
Education	70,057	1.857	0.759	88,478	2.075	0.759	146,064	2.055	0.753
Income	70,057	4.509	2.510	88,478	4.561	2.503	146,064	4.641	2.376
Roman Catholic	70,057	0.340	0.474	88,478	0.320	0.466	146,064	0.298	0.457
Protestant	70,057	0.183	0.386	88,478	0.154	0.361	146,064	0.119	0.324
Muslim	70,057	0.110	0.313	88,478	0.113	0.317	146,064	0.119	0.324
Orthodox	70,057	0.017	0.128	88,478	0.003	0.057	146,064	0.009	0.095
Other religion	70,057	0.189	0.391	88,478	0.215	0.411	146,064	0.224	0.417

*Note:* The table presents descriptive statistics, based on the World Values Survey, for the original sample (numbers are reproduced from Table A.1 on page 7 of the online appendix in GS), the narrow and long replication samples. The descriptive statistics are presented for different regression estimation samples. Outcomes: samples based on Table 5, columns 1–8 in GS; shock and control variables: sample corresponding to Table 5, column 1 in GS. We define the samples for the descriptive statistics of the replication samples (columns 4–9 in this table) accordingly, that is, based on the same regression specifications as in GS. The variables “society: egalitarian-competitive” and “society: welfare-low taxes” were not collected in the two additional waves included in the long replication sample.

Table A.6: World Values Survey: baseline specification and replication

	Government responsibility		Income equality		Private-state ownership		Society: egalitarian-competitive		Society: welfare-low taxes		Work-luck		Political ideology		Party affiliation	
	orig. (1)	repl. (2)	orig. (3)	repl. (4)	orig. (5)	repl. (6)	orig. (7)	repl. (8)	orig. (9)	repl. (10)	orig. (11)	repl. (12)	orig. (13)	repl. (14)	orig. (15)	repl. (16)
Economic shock	0.083* (0.043)	0.007 (0.037)	0.072* (0.040)	-0.061 (0.043)	0.099*** (0.038)	0.024 (0.032)	0.125*** (0.038)	0.106* (0.048)	0.111*** (0.061)	0.009 (0.058)	0.120*** (0.051)	0.061 (0.049)	0.085* (0.048)	0.042 (0.047)	0.094*** (0.033)	0.058 (0.054)
Middle educ.	-0.306*** (0.029)	-0.317*** (0.096)	-0.422*** (0.030)	-0.416*** (0.111)	-0.350*** (0.028)	-0.360*** (0.075)	-0.029 (0.024)	-0.050 (0.036)	-0.031 (0.034)	-0.112 (0.080)	0.031 (0.037)	0.022 (0.072)	0.090*** (0.033)	0.185* (0.100)	-0.150*** (0.025)	-0.073 (0.107)
Upper educ.	-0.350*** (0.034)	-0.308** (0.118)	-0.634*** (0.035)	-0.557*** (0.136)	-0.573*** (0.033)	-0.495*** (0.083)	-0.127*** (0.044)	-0.048* (0.024)	0.005 (0.042)	-0.015 (0.051)	-0.059 (0.041)	-0.040 (0.095)	0.300*** (0.038)	0.388*** (0.121)	-0.080** (0.032)	-0.076 (0.142)
Married	-0.052** (0.027)	-0.063** (0.027)	-0.057** (0.028)	-0.034 (0.040)	0.050* (0.026)	-0.016 (0.029)	-0.044* (0.023)	0.004 (0.036)	-0.008 (0.063)	0.020 (0.040)	-0.131*** (0.035)	-0.148*** (0.032)	-0.184*** (0.03)	-0.126*** (0.045)	-0.204*** (0.024)	-0.189*** (0.036)
Male	-0.147*** (0.023)	-0.146*** (0.032)	-0.098*** (0.024)	-0.126*** (0.038)	-0.354*** (0.023)	-0.325*** (0.042)	-0.061 (0.044)	-0.076* (0.038)	0.043 (0.049)	0.035 (0.046)	-0.233*** (0.030)	-0.173*** (0.030)	-0.064** (0.026)	-0.069** (0.029)	-0.047** (0.021)	-0.012 (0.046)
Unemployed	0.321*** (0.046)	0.175*** (0.054)	0.132*** (0.048)	0.124*** (0.035)	0.244*** (0.047)	0.261** (0.097)	0.015 (0.042)	0.041 (0.037)	-0.022 (0.038)	-0.002 (0.046)	0.175*** (0.058)	0.264*** (0.055)	0.066 (0.058)	0.067 (0.051)	0.340*** (0.040)	0.309*** (0.042)
Observations	70,057	88,478	64,957	87,208	62,854	81,691	7,995	7,920	7,920	7,847	36,516	61,906	32,182	76,353	36,288	35,426
R2	0.10	0.09	0.09	0.10	0.09	0.10	0.09	0.09	0.12	0.13	0.15	0.10	0.14	0.07	0.14	0.23
# countries		36		34		30		7		7		29		35		20
# waves		5		5		5		1		1		3		5		4

*Note:* The table presents OLS estimates from the original paper (odd columns, see Table 1 on page 807 of GS) and OLS estimates of the narrow replication (even columns). The standard errors reported by GS are analytic standard errors, except for the standard errors in columns 7 and 9, which are computed using the wild bootstrap (Stata command `cgmwildboot`). The standard errors of the replication are all analytic standard errors, since the computation of wild bootstrap standard errors using `cgmwildboot` is no longer recommended and supported. The wild bootstrap p-values for the economic shock variable in columns 8 and 10 are 0.286 and 0.904, respectively. All standard errors are clustered by country. All regressions include dummies for country, survey year, age, income (in brackets), and religion, and country-specific age trends.

\* significant at the 10%-level, \*\* significant at the 5%-level, \*\*\* significant at the 1%-level.



Table A.7: World Values Survey: comparison of the narrow replication with the original results (GS 2014)

	Government responsibility	Income equality	Private-state ownership	Society: egalitarian- competitive	Society: welfare- low taxes	Work- luck	Political ideology	Party affiliation
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
<i>Panel A: narrow replication (baseline specification)</i>								
Economic shock	0.007 (0.037)	-0.061 (0.043)	0.024 (0.032)	0.106* (0.048)	0.009 (0.058)	0.061 (0.049)	0.042 (0.047)	0.058 (0.054)
Observations	88,478	87,208	81,691	7,920	7,847	61,906	76,353	35,426
R2	0.09	0.10	0.10	0.09	0.13	0.10	0.07	0.23
# countries	36	34	30	7	7	29	35	20
# waves	5	5	5	1	1	3	5	4
diff. (replication – original)	-0.076	-0.133	-0.075	-0.019	-0.102	-0.059	-0.043	-0.036
p-value of difference	0.047	0.004	0.024	0.700	0.126	0.234	0.376	0.515
<i>Panel B: narrow replication (specification with cohort effects)</i>								
Economic shock	-0.035 (0.037)	-0.041 (0.041)	0.019 (0.032)	0.102* (0.043)	-0.000 (0.055)	0.041 (0.054)	0.039 (0.045)	0.052 (0.053)
Observations	88,478	87,208	81,691	7,920	7,847	61,906	76,353	35,426
R2	0.09	0.10	0.11	0.10	0.14	0.10	0.07	0.24
# countries	36	34	30	7	7	29	35	20
# waves	5	5	5	1	1	3	5	4
diff. (replication – original)	-0.118	-0.113	-0.080	-0.023	-0.111	-0.079	-0.046	-0.042
p-value of difference	0.003	0.010	0.020	0.610	0.089	0.154	0.315	0.435
<i>Panel C: narrow replication (specification with cohort effects and additional controls)</i>								
Economic shock	-0.015 (0.033)	-0.027 (0.042)	0.013 (0.030)	0.102* (0.043)	-0.000 (0.055)	0.051 (0.051)	0.035 (0.044)	0.018 (0.042)
Observations	88,478	87,208	81,691	7,920	7,847	61,906	76,353	35,426
R2	0.10	0.11	0.11	0.10	0.14	0.11	0.08	0.26
# countries	36	34	30	7	7	29	35	20
# waves	5	5	5	1	1	3	5	4
diff. (replication – original)	-0.098	-0.099	-0.086	-0.023	-0.111	-0.069	-0.050	-0.076
p-value of difference	0.006	0.024	0.008	0.610	0.089	0.187	0.262	0.088

*Note:* The table displays OLS regression results of the narrow replication for three different specifications: the baseline specification (Panel A, corresponding to Table 5 in GS), the specification with cohort effects (Panel B, corresponding to Table A.18 in GS), and the specification with cohort effects and country-by-survey year dummies (Panel C, corresponding to Table A.19 in GS). Analytic standard errors, clustered by country, are in parentheses. The table also reports the difference between the replication results and the point estimates reported by GS (replication – original) and the p-value for the null hypothesis that the replication estimate is equal to the corresponding point estimate reported by GS (p-value of difference).

\* significant at the 10%-level, \*\* significant at the 5%-level, \*\*\* significant at the 1%-level.

Table A.8: World Values Survey: comparison of the long replication with the original results (GS 2014)

	Government responsibility (1)	Income equality (2)	Private-state ownership (3)	Work- luck (4)	Political ideology (5)	Party affiliation (6)
<i>Panel A: long replication (baseline specification)</i>						
Economic shock	-0.025 (0.045)	-0.052 (0.052)	0.010 (0.026)	0.022 (0.054)	0.037 (0.037)	0.086 (0.054)
Observations	146,064	143,755	137,017	117,038	127,275	54,425
R2	0.09	0.10	0.10	0.07	0.07	0.26
# countries	36	35	34	32	35	21
# waves	7	7	7	5	7	6
diff. (replication – original)	-0.108	-0.124	-0.089	-0.098	-0.048	-0.008
p-value of difference	0.021	0.024	0.002	0.076	0.201	0.878
<i>Panel B: long replication (specification with cohort effects)</i>						
Economic shock	-0.031 (0.040)	-0.022 (0.056)	0.014 (0.030)	0.023 (0.059)	0.056 (0.042)	0.102 (0.062)
Observations	146,064	143,755	137,017	117,038	127,275	54,425
R2	0.09	0.10	0.10	0.07	0.07	0.26
# countries	36	35	34	32	35	21
# waves	7	7	7	5	7	6
diff. (replication – original)	-0.114	-0.094	-0.085	-0.097	-0.029	0.008
p-value of difference	0.007	0.104	0.008	0.109	0.490	0.894
<i>Panel C: long replication (specification with cohort effects and additional controls)</i>						
Economic shock	-0.025 (0.033)	-0.015 (0.043)	0.008 (0.021)	0.011 (0.049)	0.039 (0.039)	0.064 (0.048)
Observations	146,064	143,755	137,017	117,038	127,275	54,425
R2	0.10	0.12	0.11	0.08	0.09	0.29
# countries	36	35	34	32	35	21
# waves	7	7	7	5	7	6
diff. (replication – original)	-0.108	-0.087	-0.091	-0.109	-0.046	-0.030
p-value of difference	0.002	0.054	0.000	0.034	0.247	0.539

*Note:* The table displays OLS regression results of the long replication for three different specifications: the baseline specification (Panel A, corresponding to Table 5 in GS), the specification with cohort effects (Panel B, corresponding to Table A.18 in GS), and the specification with cohort effects and country-by-survey year dummies (Panel C, corresponding to Table A.19 in GS). Analytic standard errors, clustered by country, are in parentheses. The table also reports the difference between the replication results and the point estimates reported by GS (replication – original) and the p-value for the null hypothesis that the replication estimate is equal to the corresponding point estimate reported by GS (p-value of difference). The variables “society: egalitarian-competitive” and “society: welfare-low taxes” were not collected in the two additional waves included in the long replication sample.

\* significant at the 10%-level, \*\* significant at the 5%-level, \*\*\* significant at the 1%-level.

Table A.9: Replication in data from the International Social Survey Programme

	Reduce differences high-low incomes			Reduce differences rich-poor		
	(1)	(2)	(3)	(4)	(5)	(6)
<i>Panel A: outcomes as reported in the survey (5-point scale and 4-point scale)</i>						
Economic shock	0.047*** (0.014)	0.028* (0.014)	0.029* (0.015)	0.026 (0.016)	0.028 (0.018)	0.028 (0.018)
Cohort effects		✓	✓		✓	✓
Additional controls			✓			✓
Observations	167,495	167,495	167,495	120,891	120,891	120,891
R2	0.11	0.11	0.12	0.12	0.12	0.13
Mean of outcome	3.53	3.53	3.53	3.00	3.00	3.00
# countries	29	29	29	30	30	30
# waves	10	10	10	7	7	7
<i>Panel B: outcomes re-coded as binary variables (1 = agree or strongly agree)</i>						
Economic shock	0.014*** (0.005)	0.012** (0.005)	0.012** (0.005)	0.015** (0.006)	0.014** (0.007)	0.014* (0.007)
Cohort effects		✓	✓		✓	✓
Additional controls			✓			✓
Observations	167,495	167,495	167,495	120,891	120,891	120,891
R2	0.09	0.09	0.10	0.10	0.10	0.10
Mean of outcome	0.60	0.60	0.60	0.71	0.71	0.71
# countries	29	29	29	30	30	30
# waves	10	10	10	7	7	7

*Notes:* The table presents OLS regression results. Panel A: the outcome variables were included as reported in the survey (5-point scale for the variable “reduce differences high-low incomes” and 4-point scale for the variable “reduce differences rich-poor”). Panel B: the outcomes were re-coded as binary variables (1 if agree or strongly agree, 0 otherwise). All specifications control for years of education, dummies for age, survey year, country, married, male, and unemployed, four dummies for religious affiliation, country dummies interacted with (continuous) age, and country dummies interacted with (continuous) years of education. The specifications in columns 2, 3, 5, and 6 additionally control for cohort dummies. The specifications in columns 3 and 6 additionally control for country dummies interacted with dummies for the survey year. Analytic standard errors, clustered by country, are in parentheses.

\* significant at the 10%-level, \*\* significant at the 5%-level, \*\*\* significant at the 1%-level.

## Appendix B: Data appendix

### B.1 General Social Survey

#### B.1.1 Data sources and coverage

**General Social Survey** Giuliano and Spilimbergo (2014) state that they use the General Social Survey waves collected during 1972–2010. As explained by the authors, the General Social Survey is a nationally representative survey and has been conducted each year during 1972–1993 (except for 1979, 1981, and 1992) and every other year since 1994. We use the General Social Survey 1972–2018 Release 3, May 2020, in Stata format (accessed on February 26, 2021, from <https://gss.norc.org/>).

**Data used to construct economic shocks** Giuliano and Spilimbergo (2014) construct regional recessions based on state personal income from the Bureau of Economic Analysis (BEA) and adjust the per capita personal income for inflation. They then aggregate deflated state per capita income to the level of the census division to be able to merge it to the General Social Survey data. GS define an economic shock as 1 if capita income growth in a census division was smaller than  $-3.4$  percent on average in a given year, and as 0 otherwise.

Following this description, we first download the data series “Personal annual income by state” (SAINC1) from the website of the BEA <https://apps.bea.gov/regional/docs/DataAvailability.cfm> (accessed on February 26, 2021). This data source contains aggregated personal income at the state level for the years 1929–2019.

To adjust for inflation we use annual U.S. CPI data from the the U.S. Bureau of Labor Statistics (downloaded from <https://www.minneapolisfed.org/about-us/monetary-policy/inflation-calculator/consumer-price-index-1913->, on March 2, 2021). The data is based on the series CPI-U (CPI for all urban consumers), which is the only CPI source available for the years before 1978. The data spans the years 1913–2019.

To compute state-wide growth in per capita income, we first compute the inflation adjusted personal per capita income in each state. We then compute the year-to-year growth of inflation adjusted per capita income by state. Next we aggregate the yearly growth rates within the nine U.S. census divisions (see <https://www.census.gov/programs-surveys/economic-census/guidance-geographies/levels.html> for a mapping of states to divisions), weighting each state by its population (population data is included in the SAINC1 series). Following Giuliano and Spilimbergo (2014) we construct a variable “economic shock,” which takes the value 1 if the yearly growth rate is on average smaller than  $-3.4$  percent in a census division, and the value 0 otherwise.

#### B.1.2 Construction of the variables and samples

**Economic shocks** The General Social Survey data can be combined with data on recessions using respondents’ year of birth (equivalent to the survey year minus the age of the respondent) and the census division in which an individual resided at the age 16. Let  $t$  be the year of birth. We compute exposure to a recession when young as 1 if the census division in which the individual resided at age 16 was exposed at least once to an economic shock (as defined above) during the years  $t + 18, \dots, t + 25$ , and as 0 otherwise.

**Outcomes** We construct the following outcomes from the General Social Survey:

- “Help poor.” Question: “Washington should do everything possible to improve the standard of living of all poor Americans; they are at Point 1 on this card. Other people think it is not the government’s responsibility, and that each person should take care of himself; they are at Point 5. Where would you place yourself on this scale, or haven’t you made up your mind on this?” The answer option were on a scale of 1–5 with 1 = the government should help, 3 = agree with both, 5 = people should care for themselves, with 2 and 4 being the intermediate options that individuals could also choose. The question was not asked in 1972–1974, 1976–1982, and 1985.
- “Assistance poor.” Question: “We are faced with many problems in this country, none of which can be solved easily or inexpensively. I’m going to name some of these problems, and for each one I’d like you to tell me whether you think we’re spending too much money on it, too little money, or about the right amount. Are we spending too much, too little, or about the right amount on assistance to the poor?” Answer options: 1 = too little, 2 = about right, 3 = too much. The question was not asked in 1972–1983.
- “Work-luck.” Question: “Some people say that people get ahead by their own hard work; others say that lucky breaks or help from other people are more important. Which do you think is most important?” Answer options: 1 = hard work is most important, 2 = hard work and luck are equally important, 3 = luck is most important. The question was not asked in 1972, 1975, 1978, 1983, 1986.
- “Party affiliation.” Question: “Generally speaking, do you usually think of yourself as a Republican, Democrat, Independent, or what?” Answer options: 0 = strong democrat, 1 = not very strong democrat, 2 = independent, close to democrat, 3 = independent (neither, no response), 4 = independent, close to republican, 5 = not very strong republican, 6 = strong republican, 7 = other party. We recoded “other party” as missing values. The question was asked in all years.
- “Political views (political ideology).” Question: “We hear a lot of talk these days about liberals and conservatives. I’m going to show you a seven-point scale on which the political views that people might hold are arranged from extremely liberal–point 1–to extremely conservative–point 7. Where would you place yourself on this scale?” Answer options: 1 = extremely liberal, 2 = liberal, 3 = slightly liberal, 4 = moderate, middle of the road, 5 = slightly conservative, 6 = conservative, 7 = extremely conservative. The question was not asked in 1972 and 1973.
- “Voting democrat.” The question asked, in each year, what the respondents voted in the last presidential election. Example for 1972: “In 1972, you remember that McGovern ran for President on the Democratic ticket against Nixon for the Republicans. Do you remember for sure whether or not you voted in that election?” If the respondent voted: “Did you vote for McGovern or Nixon?” Answer options: 1 = McGovern, 2 = Nixon. The question was always coded such that 1 = democratic candidate, 2 = republican candidate. We recoded the variable such that it was 1 if the respondent voted for the democratic candidate, 0 if the respondent voted for the

republican candidate, and missing otherwise. The question was asked in all survey years.

Following GS, we code all outcomes such that higher values reflect preferences more in favor of redistribution and more left-leaning political attitudes, reverting the scales if necessary. Individuals who answered “I don’t know,” “other” or “does not apply” were assigned a missing value for the respective question.

**Control variables** From the General Social Survey, we construct the variables that mirror the description in GS.

- Age in years.
- Years of education.
- Married (binary).
- Black (binary).
- Unemployed (binary).
- Income: total family income, measured in 12 income brackets.
- Father’s years of education.
- Income at 16: respondent’s family income at age 16, measured on a five-point scale (1 = far below average, 2 = below average, 3 = average, 4 = above average, 5 = far above average).
- Religion (dummies for protestant, catholic, christian, jewish, and other).
- Religion at age 16 (dummies for protestant, catholic, christian, jewish, and other).

**Sample restrictions for the narrow replication** The sample for the narrow replication includes 28 waves of the General Social Survey (1972–2010). To construct the estimation sample we use information on all individuals born in 1904 or later. Information on recessions is not available for earlier cohorts. The youngest individuals in this sample are born in 1992, that is, they are at least 18 years old at the time of the latest survey wave.

**Sample restrictions for the long replication** To extend the sample for the long replication, we include four waves that were collected after the original article was written (2012, 2014, 2016, 2018). In 2020, the survey method was changed (from in-person visits to online interviews). We therefore do not include the most recent waves into the analysis. We include all individuals born in the years 1904–2000.

## B.2 World Values Survey

### B.2.1 Data sources and coverage

**World Values Survey** [Giuliano and Spilimbergo \(2014\)](#) state that they use five waves of the WVS (1981–1984, 1990–1993, 1995–1997, 1999–2004, and 2005–2007). We downloaded version 1.6 of the WVS time-series data for Stata, which includes data for these waves as well as for two additional waves conducted in 2010–2014 and 2017–2020 ([Inglehart et al., 2020](#)). The WVS data do not include data for some European countries, which participated in the sister study of the WVS, the European Values Survey (EVS), but which are included in GS’ analysis. We therefore downloaded data for the EVS waves 1990–1993 and 1999–2001 (version 3.1.0, [EVS, 2020](#)) and merged them with the WVS data.

**Data on economic shocks** [Giuliano and Spilimbergo \(2014\)](#) base their definition of economic shocks on data on economic disasters compiled by [Barro and Ursúa \(2008\)](#). We extract the relevant information from Table C.2 in the appendix of [Barro and Ursúa \(2008\)](#), which for 39 countries denotes the trough and peak years of “GDP disasters.”

**Countries included in the analysis** The following 37 countries are included in the analysis: Argentina, Australia, Austria\*, Belgium\*, Brazil, Canada, Chile, Colombia, Denmark\*, Finland, France, Germany, Greece\*, Iceland\*, India, Indonesia, Italy, Japan, Mexico, Netherlands, New Zealand, Norway, Peru, Philippines, Portugal\*, Singapore, South Africa, South Korea, Spain, Sweden, Switzerland, Taiwan, Turkey, United Kingdom, United States, Uruguay and Venezuela (data for countries marked with \* come from the EVS, rather than the WVS; the data from [Barro and Ursúa \(2008\)](#) contain GDP disaster dates for two additional countries, which are however not covered by the WVS or EVS).

### B.2.2 Construction of the variables and samples

**Economic shocks** We combine the WVS and EVS data with the data on economic shocks using information on year of birth. In particular, we construct a dummy variable that takes value 1 if the country of the respondent experienced a GDP disaster when she was aged 18–25, and 0 otherwise.

**Outcomes** We construct the following outcomes from the WVS and EVS data:

- “Government responsibility.” Question: “Now I’d like you to tell me your views on various issues. How would you place your views on this scale? 1 means you agree completely with the statement on the left; 10 means you agree completely with the statement on the right; and if your views fall somewhere in between, you can choose any number in between.” The respondent is then asked about “Government responsibility”; answers are recorded on a scale from 1–10, with the leftmost answer labeled “1 People should take more responsibility” and the rightmost answer labeled “10 The government should take more responsibility.”

- “Income equality.” Question: “Now I’d like you to tell me your views on various issues. How would you place your views on this scale? 1 means you agree completely with the statement on the left; 10 means you agree completely with the statement on the right; and if your views fall somewhere in between, you can choose any number in between.” The respondent is then asked about “Income equality”; answers are recorded on a scale from 1–10, with the leftmost answer labeled “1 Incomes should be made more equal” and the rightmost answer labeled “10 We need larger income differences as incentives.”
- “Private-state ownership.” Question: “Now I’d like you to tell me your views on various issues. How would you place your views on this scale? 1 means you agree completely with the statement on the left; 10 means you agree completely with the statement on the right; and if your views fall somewhere in between, you can choose any number in between.” The respondent is then asked about “Private vs state ownership of business”; answers are recorded on a scale from 1–10, with the leftmost answer labeled “1 Private ownership of business should be increased” and the rightmost answer labeled “10 Government ownership of business should be increased.”
- “Society: egalitarian-competitive.” Question: “And now, could you please tell me which type of society this country you think this country SHOULD aim to be in the future. For each pair of statements, would you prefer being closer to the first or to the second alternative? First statement: An egalitarian society where the gap between rich and poor is small, regardless of achievement. Second statement: A competitive society, where wealth is distributed according to ones’ achievement.” The answer takes values from 1 to 5: first (1), somewhat closer to first (2), can’t say (3), somewhat closer to second (4), second (5).
- “Society: welfare-low taxes.” Question: “And now, could you please tell me which type of society this country you think this country SHOULD aim to be in the future. For each pair of statements, would you prefer being closer to the first or to the second alternative? First statement: A society with extensive social welfare, but high taxes. Second statement: A society where taxes are low and individuals take responsibility for themselves. The answer takes values from 1 to 5: first (1), somewhat closer to first (2), can’t say (3), somewhat closer to second (4), second (5).
- “Work-luck.” Question “Now I’d like you to tell me your views on various issues. How would you place your views on this scale? 1 means you agree completely with the statement on the left; 10 means you agree completely with the statement on the right; and if your views fall somewhere in between, you can chose any number in between.” The respondent is then asked about “Hard work brings success”; answers are recorded on a scale from 1-10, with the leftmost answer labeled “1 In the long run, hard work usually brings a better life” and the rightmost answer labeled “10 Hard work does not generally bring success—it is more a matter of luck and connections”.
- “Political ideology.” Question: “In political matters, people talk of ‘the left’ and ‘the right.’ How would you place your views on this scale, generally speaking?”



Answers are recorded on a scale from 1-10, with 1 labeled “left” and 10 labeled “right”.

- “Party affiliation.” Question: “If there were a national election tomorrow, for which party on this list would you vote? If ‘Don’t know’: Which party appeals to you most?” For each country, all major parties are presented on a list. GS use data from Huber and Inglehart (“Expert Interpretations of Party Space and Party Locations in 42 Societies”, *Party Politics*, 1, 73–111, 1995), which places major parties in several countries onto a 1-10 left-right scale based on expert opinions. We matched the parties listed in Huber and Inglehart (1995) to the names given in the WVS and EVS data.

It is important to note that not all of the above questions were asked in all countries and waves of the surveys, which leads to very different coverage of the outcomes (which in turn is reflected in the different number of observations in Table A.6). Following GS, we code all outcomes such that higher values reflect preferences more in favor of redistribution and more left-leaning political attitudes, reverting the scales if necessary. Individuals who answered “I don’t know” or similar were assigned a missing value for the respective question.

**Control variables** We follow GS and construct a number of control variables from the WVS and EVS data. In particular, we construct dummies for gender, unemployed, married, three dummies for education (low, middle, high), 10 dummies for income deciles, and dummies for belonging to various religious denominations.

**Sample restrictions for the narrow replication** We focus on the five waves of the WVS, and the complementary EVS waves, conducted up to 2010. GS mention as the only sample restriction that they exclude immigrants. However, immigration status is measured only in some countries and waves of the WVS and EVS data. We construct the best possible proxy for immigration status by using the answers to the following question, which was only asked in the 1989-1993 and 1994-1998 waves: “Were you born in this country? – 1 Yes; If no, where were you born: 2 Latin America, 3 = ...”. We construct a dummy for being an immigrant from this sample, and our estimations exclude those respondents identifying as immigrants (since the data do not allow us to identify immigrants outside the two waves mentioned above, immigrants in those waves continue to be included in the sample).

**Sample restrictions for the long replication** The only difference to the narrow replication sample is that we additionally include the two most recent WVS and EVS waves.

## B.3 International Social Survey Programme

### B.3.1 Data sources and coverage

**International Social Survey Programme** We use the following survey years, each of which asked at least one of the two questions used to construct our outcomes: 1985,

1987, 1990, 1991, 1992, 1996, 1998, 1999, 2000, 2006, 2009, 2010, 2016, 2017. We accessed the data on February 14, 2022, through <https://issp.org/data-download/archive/>.

**Data on economic shocks** We use the data on economic shocks by Barro and Ursúa (2008). For a detailed description, see the corresponding paragraph in the description of the WVS data.

**Countries included in the analysis** We have data on outcomes and on economic shocks for the following 31 countries, which are included in the sample: Argentina, Australia, Austria, Belgium, Canada, Chile, Denmark, Finland, France, Germany, Iceland, India, Italy, Japan, Mexico, Netherlands, New Zealand, Norway, Philippines, Portugal, South Africa, South Korea, Spain, Sweden, Switzerland, Taiwan, Turkey, United Kingdom, United States, Uruguay, Venezuela.

### B.3.2 Construction of the variables and samples

**Economic shocks** The construction of this variable follows the construction in the WVS data.

**Outcomes** We construct the following two outcomes:

- “Reduce differences high-low incomes.” Question: “What is your opinion of the following statement: It is the responsibility of the government to reduce the differences in income between people with high incomes and those with low incomes.” Respondents answer on a 5-point scale. We code answers as follows: 1 “strongly disagree”, 2 “disagree” 3 “neither agree nor disagree” 4 “agree” 5 “strongly agree”. We note that the question text in the first part of the question changes slightly between waves, for example to “Please show how much you agree or disagree with each statement: ...”
- “Reduce differences rich-poor.” Question: “On the whole, do you think it should or should not be the government’s responsibility to reduce income differences between the rich and poor?” Respondents answer on a 4-point scale. We code answers as follows: 1 “definitely should not be” 2 “probably should not be” 3 “probably should be” 4 “definitely should be”.

As with the WVS, both questions were not asked in each wave and all countries (see Table A.9 for the sample sizes).

**Control variables** Similar to the WVS data, we construct the following control variables: age, dummies for gender, married, religious denomination, unemployed. We also include years of education; since the measurement of this variable differs between countries and waves, we always control for country, survey year, years of education, and country dummies interacted with years of education in our regressions. ISSP also collects information on income, but the measurement differs strongly between countries and waves and we therefore do not include income as one of our control variables.

**Sample restrictions** We do not restrict our sample in any way.