



Income inequality and social preferences for redistribution and compensation differentials



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ABSTRACT

Countries with greater inequality typically exhibit less support for redistribution and greater acceptance of inequality (e.g., U.S. versus Western Europe). If individual nations evolve along this pattern, a vicious cycle could form with reduced social concern amplifying primal increases in inequality. Exploring movements around these long-term levels, however, this study finds mixed evidence regarding the vicious cycle hypothesis. Larger compensation differentials are accepted as inequality grows. Weighing against this, growth in inequality is met with greater support for government-led redistribution. Inequality shocks can be reinforced in the labor market but do not result in weaker political preferences for redistribution.

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1. Introduction

The substantial increase in wage and income inequality over the last three decades is a central focus of recent economic research and policy discussion. Much of the earlier literature focuses on accounting for why inequality is increasing. One line of work considers changes in the relative supply and demand for skilled workers due to shifts in educational attainment, the introduction of labor-saving production and computing technologies, and capital deepening. Other researchers consider structural changes of the labor market itself, like the decline of institutions and policies that have historically compressed the wage structure (e.g., unions and minimum wages) and the proliferation of “superstar” labor markets where top performers earn disproportionate sums to those just behind them. The potential erosion of social preferences regarding compensation inequality and redistribution is also widely discussed. For the United States, particular emphasis is placed on the explosion in executive pay and deepening within-establishment inequality.¹

The empirical literature mostly considers these potential determinants in isolation. Yet, an important theme of recent macroeconomic models is that the interactions among the factors bear significant responsibility. Moreover, a greater potential for the entrenchment or amplification of inequality exists in this general-equilibrium setting.² Taking skill-biased

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¹ Gordon and Dew-Becker (2008) and Heathcote et al. (2010) provide recent surveys of various inequality determinants. The appendix provides extended references on these different channels.

² Examples include Acemoglu et al. (2001), Alesina and Angeletos (2005a, 2005b), Benabou (2003), Guvenen et al. (2011), and Hassler et al. (2003).

technical change as an example, its individual effect on inequality to raise the skilled–unskilled wage differential will be checked in the long-run as firms substitute towards cheaper factors of production or as labor supplies and education investments endogenously adjust. If the bias is sufficient, however, the technical change and its concomitant increase in inequality may also prompt lasting changes in the structure of the labor market (e.g., deunionization, increased segregation of skilled workers) that entrench or magnify its solitary effect. Of course, interactions can alternatively dampen inequality shocks. Understanding these dynamics is important for identifying how economies respond to primal inequality shocks.

This potential for amplification is particularly strong for social preferences regarding income equalization and social support. First, if changes in inequality directly influence ideology, then social preferences are a propagation channel for any shock to the income distribution, regardless of the source. Second, of all the factors discussed, social attitudes are the least governed (if at all) by market-like mechanisms that can retard excessive changes. Third, social preferences can affect many forms of institutions and policies—from firm employment structures to redistribution policies—resulting in higher amplification.

Given these conditions, the formation of a “vicious cycle” is possible—where an increase in disparity weakens concern for wage equality or redistribution and thus propagates and amplifies the original shock. Under this scenario, growth in inequality creates larger differences across groups in society. These greater gaps then directly reduce support among the wealthy for redistribution, as the wealthy feel less likely to become themselves poor or feel that the poor are less like them. Increased social stratification in society may also amplify the shock if preferences for redistribution decline as groups spend less time in direct contact with each other. Indirect channels may further exist, as the rich increasingly segment themselves into workplaces and schools that entrench these differences across groups. Thus, under a vicious cycle, the initial weakened concern produces even greater future compensation differentials, a further shrinking of the welfare state, and so on, which kicks the process off again.

Support for the vicious-cycle hypothesis can be taken from the cross-sectional distributions of countries (particularly long-term OECD members) and regions of the United States. Nations with greater income inequality typically demonstrate less support for redistribution and greater acceptance of wage inequality than their more-equal counterparts. While the evolution of countries or regions along this pattern would be consistent with hypotheses of reduced social concern, this response is not guaranteed as many primal factors determining these long-term ideology positions (e.g., beliefs regarding social mobility) may be stable.³ In contrast to the vicious-cycle hypothesis, changes in social preferences may counteract inequality increases. In the face of higher inequality, individuals may believe that greater redistribution and sharing of resources are warranted for the current generation and to ensure equal opportunities for future generations.⁴

Ultimately, this question is an empirical matter as powerful factors are operating in potentially conflicting directions and have unknown relative strength. The empirical response of social preferences to changes in inequality has not been quantified. This empirical analysis is of critical importance for immediate policy discussions. It would also provide a better foundation for developing macroeconomic models of inequality in society, the discernment of optimal policies that balance trade-offs between insurance and agent incentives, and the appropriate depiction of fixed versus state-dependent preferences.

This paper investigates this question by focusing on short-term movements in inequality and social attitudes around the long-term level of each country or U.S. region. A fixed-effect estimation strategy removes permanent differences in inequality and redistribution philosophies, as well as common time trends. The contribution of this study is to characterize how the resulting longitudinal responses resemble and differ from the cross-sectional pattern. How responses differ by income class and neighborhood racial heterogeneity is also considered. A first set of international results are drawn from a panel of countries repeatedly surveyed by the International Social Survey Programme (ISSP) and the World Value Survey (WVS). Complementary results and extensions are developed through regional variation in the United States captured by the General Social Survey (GSS). To establish causality, an instrument-variable specification that exploits exogenous changes in the real federal minimum-wage rate interacted with predetermined regional characteristics is also employed. This step is a very important contribution of the study given the substantial degree to which inequality, policies, and preferences jointly influence each other. The U.S. regional analysis also allows us to consider the implementation of policy outcomes connected to social preferences (e.g., state tax code progressivity and welfare expenditures), contrast multiple forms of inequality (e.g., wage and consumption), and consider how gaps can emerge between preferences and policies through features like voter participation.

The results of this study show that the potential mechanisms of the vicious-cycle hypothesis conflict with each other, thereby weakening its overall strength. On one hand, larger compensation differentials are accepted as inequality grows. This growth in wage differentials is of a smaller magnitude than the actual increase in inequality, but it is nonetheless positive and substantial in size. On the other hand, growth in inequality is met with greater concern over inequality, greater

³ The determinants of this cross-sectional pattern have been a frequent and lively political-economy topic since at least de Tocqueville. Alesina et al. (2001) and Hornstein et al. (2005) offer broad studies of why the United States has both higher inequality and a smaller welfare state than Western Europe, including appropriate references.

⁴ Political-economy models differ in their predictions of how responses to inequality changes vary by income class. Piketty (1995) constructs a Rawlsian model where increases in the inequality of opportunity, holding fixed beliefs regarding the incentive costs of effort, promote greater support for redistribution independent of current income. On the other hand, redistribution preferences diverge with rising inequality in the median-voter model (e.g., Meltzer and Richards, 1981) as gaps to the median income widen.

support for government-led redistribution to the poor, and greater support for more-progressive taxation. This is particularly true for inequality in the bottom half of the income distribution. While greater class conflict is perceived along income dimensions, the increases in support for redistribution among wealthy individuals are as strong as those of poorer individuals.

These patterns suggest that short-run inequality shocks can be reinforced in the labor market, and that changes in compensation differentials due to changing factors of production and economic conditions are only modestly retarded by social preferences. By contrast, inequality growth does not result in weaker political preferences for redistribution, suggesting that the policy channel alone is unlikely to prompt a vicious cycle that amplifies primal inequality changes. Indeed, for the U.S. regional analysis, the translation of preference changes into local policy outcomes is also evident with respect to dimensions like state taxation progressivity and minimum wage mandates. These empirical patterns provide insights for how to most accurately model economic dynamics. Preferences in labor markets and competition for scarce skills influence inequality in a different format and degree than what occurs in policy markets and their choices regarding basic social well-being. The former appears substantially more state dependent in its nature and easily adjusts, while the latter is more fixed within societies (but can vary across societies) and retards changes.

Before proceeding to the analysis, it is important to distinguish preferences regarding inequality from other factors that influence perceptions of distributive justice. Political economists have long considered how beliefs regarding the determinants of success affect attitudes towards redistribution. Individuals and societies who believe hard work and effort are more important for outcomes than luck or ancestry often choose systems characterized by higher inequality and lower redistribution.⁵ Past mobility experiences and future expectations of social position are also significant for attitudes towards income equalization.⁶ If the forces driving higher inequality also alter these underlying beliefs, then social preferences for equality may weaken. The analysis presented below controls for changes in these social-mobility beliefs to isolate the effect of inequality, and additional research needs to evaluate whether other amplification mechanisms operate through these channels.

2. Preferences in international surveys

2.1. ISSP and WVS data structure

The International Social Survey Programme (ISSP) conducts annual surveys in member countries (38 nations in 1999) on rotating topics ranging from religion to environmental protection. This study primarily considers questions that were included in the 1987, 1992, and 1999 Social Inequality module. Responses to three complementary questions proxy social preferences for government-led income redistribution—the first considering the responsibility of the government in the transfer of income (Government Responsibility), the second focusing on the progressive nature of taxation (Progressive Taxation), and the last focusing on the acceptability of current income differences (Inequality Acceptance). Higher responses on a five-point scale indicate greater support for government intervention, greater support for more progressive taxation, and greater concern over income differences.

Respondents are also asked their opinions on the appropriate salaries for a variety of occupations. Instructions request preferences be pre-tax and regardless of perceptions of current pay scales. From these responses, a Proposed Doctor–Unskilled Worker Wage Ratio is developed as the log ratio of the wages ascribed to a “doctor in general practice” and an “unskilled worker in a factory.” A higher ratio indicates a wider wage distribution (i.e., a log ratio of zero would indicate unskilled workers and doctors should earn the same amount), while a lower ratio indicates less support for compensation differentials. Perceptions of respondents regarding the actual earnings of these occupations are also examined below.

Finally, two questions regarding conflicts between social groups are considered. The first, focusing on conflicts between the poor and the rich (Poor–Rich Conflict), is used to validate respondents' awareness of inequality, while a second question regarding conflict between young and old people is considered as a falsification exercise (Young–Old Conflict). A higher score on a four-point scale indicates a greater perception of conflict.

As a complement to the ISSP, responses to a question included in the 1990, 1995, and 2000 rounds of the World Value Survey (WVS) are studied. For this question (WVS Income Equalization) respondents are asked to rate their views regarding income equalization, with a higher score on a 10-point scale expressing greater concern. [Table 1](#) details the countries included, sample sizes, and average responses to these questions for both surveys.

These surveys are paired with national income inequality estimates using log Gini series constructed from the United Nations Development Programme's World Income Inequality Database (WIID), the Luxembourg Income Study (LIS), [Gottschalk and Smeeding \(2000\)](#), [Atkinson and Brandolini \(2001\)](#), and various national statistics agencies. With a few exceptions, these Gini estimates are estimated with national samples of disposable (after-transfers) household income and

⁵ [Alesina and Angeletos \(2005a, 2005b\)](#) demonstrate how differences in these beliefs can create multiple equilibria among otherwise similar economies, as rational agents select taxation and redistribution policies (and their associated distortions) that fulfill their original expectations. [Benabou and Tirole \(2006\)](#) develop a related general-equilibrium model where different beliefs regarding how just the world is create two distinct redistribution states. [Güvenen et al. \(2011\)](#) consider the general equilibrium of human capital investments and redistribution policies.

⁶ For example, [Alesina and La Ferrara \(2005\)](#), [Benabou \(2000\)](#), [Benabou and Ok \(2001\)](#), [Fong \(2001, 2006\)](#), and [Piketty \(1995\)](#).

Table 1
ISSP and WVS descriptive statistics.

	Total sample	Long-term OECD	Non-long-term OECD
<i>A. ISSP social inequality panel</i>			
Countries	19	11	8
Respondents	54,091	31,083	23,008
Government responsibility (1–5 scale)	3.65 (1.19)	3.41 (1.20)	3.96 (1.10)
Progressive taxation (1–5 scale)	4.02 (0.77)	3.97 (0.73)	4.10 (0.82)
Proposed doctor–unskilled wage ratio	3.80 (8.17)	4.16 (8.17)	3.35 (8.16)
Inequality acceptance (1–5 scale)	4.05 (0.99)	3.88 (0.99)	4.28 (0.95)
Poor–rich conflict (1–4 scale)	2.52 (0.84)	2.45 (0.77)	2.62 (0.90)
Young–old conflict (1–4 scale)	2.21 (0.80)	2.22 (0.75)	2.19 (0.86)
Log Gini coefficient	3.37 (0.17)	3.35 (0.13)	3.40 (0.22)
<i>B. WVS social inequality panel</i>			
Countries	37	15	22
Respondents	137,006	51,104	85,902
WVS income equalization (1–10 scale)	5.25 (3.01)	5.31 (2.73)	5.22 (3.17)
Log Gini coefficient	3.51 (0.30)	3.35 (0.16)	3.60 (0.32)

Notes: Table provides descriptive statistics on social preferences for income inequality and government redistribution taken from the ISSP and WVS surveys. Survey responses are ordered such that higher values indicate more-concerned responses, excepting the proposed doctor–unskilled wage ratio. Variable means are reported with standard deviations indicated in parentheses. Sample sizes in some regressions are smaller than total respondents as some respondents skipped questions; surveys also varied on the demographic and mobility information collected. ISSP long-term OECD members include AUS, AUT, CAN, DEU, GBR, ITA, JAP, NOR, NZL, SWE, and USA. ISSP non-long-term OECD members include BGR, CZE, HUN, PHL, POL, RUS, SVK, and SVN. WVS long-term OECD members include AUT, BEL, CAN, DEU, ESP, FIN, FRA, GBR, IRL, ITA, JAP, NLD, NOR, SWE, and USA. WVS non-long-term OECD members include ARG, BGR, BLR, BRA, CHL, CHN, CZE, EST, HUN, IND, KOR, LTU, LVA, MEX, NGA, POL, ROM, RUS, SVK, SVN, TUR, and ZAF.

lagged 1 year. The U.S.-based analysis later considers alternatives like wage and consumption inequality that are not possible with international data.⁷

2.2. Empirical estimation strategy

Fig. 1 illustrates the main findings of the study. Panel 1A plots the average response by country to the Government Responsibility question in the 1992 ISSP survey against the country's log inequality level. The trend line indicates that greater inequality is associated with weaker support for redistribution. Panel 1B plots the average proposed wage ratio for a doctor vs. unskilled worker. Respondents in countries with greater inequality propose a wider wage distribution, too. These cross-sectional patterns have been frequently documented, and both patterns could be taken as evidence that a vicious cycle could emerge with growth inequality prompting changes in preferences that further amplify the original increase.

The patterns evident in the cross-sections, however, do not necessarily dictate the movement of countries over time. Panels 1C and 1D consider changes in preferences and inequality from 1992 to the 1999 ISSP survey. In Panel 1C, increased inequality is associated with greater redistribution support, in contrast to Panel 1A. Societies experiencing increases in inequality become more concerned about income differences and assign an increasing responsibility to the government for transferring income. Thus, within-country shifts in policy preferences for redistribution do not mirror cross-country patterns, perhaps because other factors that affect redistribution preferences are not being influenced (e.g., belief about determinants of success). Yet, Panel 1D does show that respondents propose a wider wage distribution after increases in inequality. The within-country and across-country patterns are much more similar with respect to preferences regarding appropriate wage dispersion.

While important for framing the analysis, the visual correlations fail to control adequately for factors influencing both inequality and social attitudes for redistribution. First, common shifts in attitudes over time (e.g., a greater worldwide

⁷ The unpublished appendix provides additional information about the datasets employed, the sample construction steps performed, and the empirical estimations undertaken. This information is provided for both the international and U.S. preference estimations. The appendix also documents many additional references and literature notes that were removed from the final paper due to space constraints. This appendix is available at <http://www.people.hbs.edu/wkerr/>.

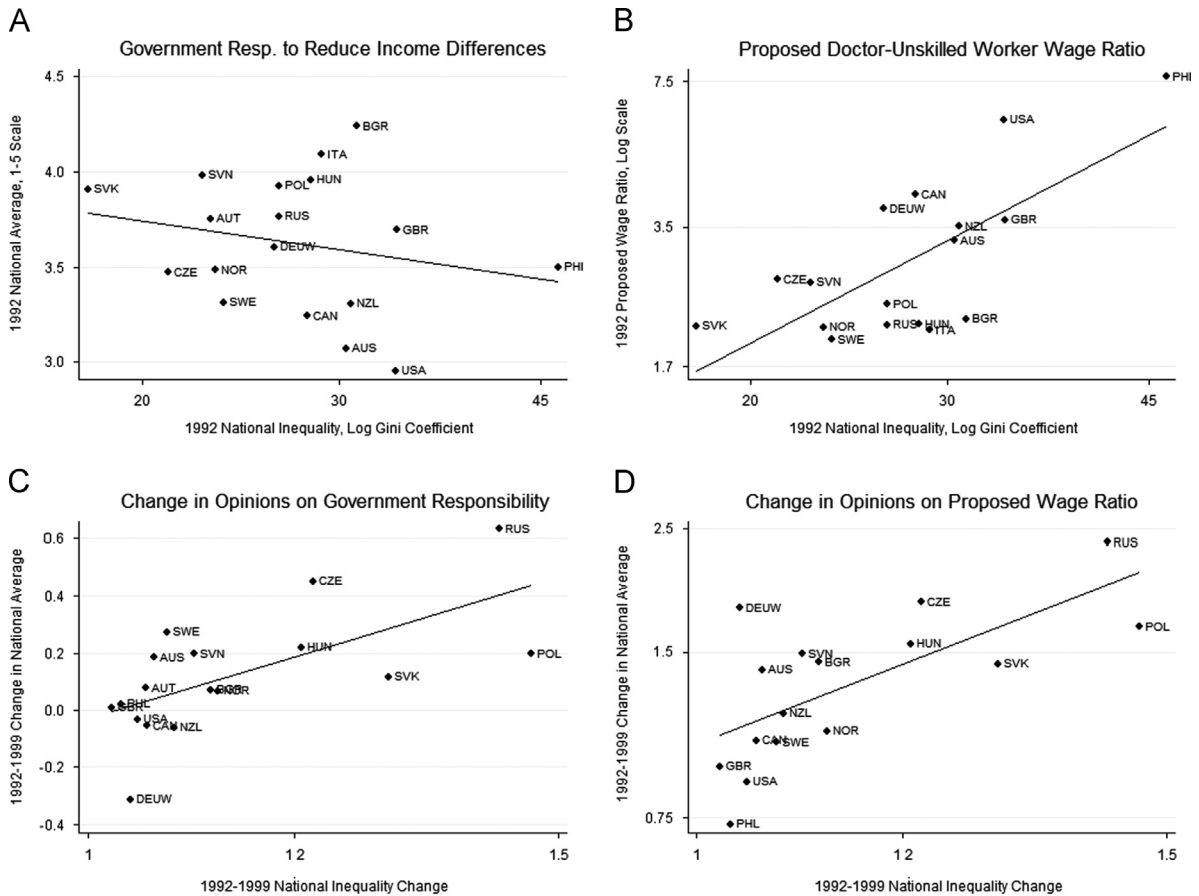


Fig. 1. Social preferences regarding inequality in ISSP surveys. (a) Government resp. to reduce income differences. (b) Proposed doctor–unskilled worker wage ratio. (c) Change in opinions on government responsibility. (d) Change in opinions on proposed wage ratio. *Notes:* Panel 1A plots 1992 ISSP responses on the government’s responsibility to reduce income differences, with higher values indicating greater responsibility. Panel 1B plots the average proposed wage ratio for a doctor vs. unskilled worker. Countries with greater inequality express lower redistribution preferences and propose a wider wage distribution. Panels 1C and 1D consider 1992–1999 changes. Increased inequality is associated with greater redistribution support and wider proposed wage ratios.

concern for inequality not necessarily linked to changes in the inequalities of individual countries) can affect the results. A robust analysis should also control for changes between surveys in national income and demography (e.g., an aging population). Finally, and most importantly, social-mobility experiences and beliefs regarding the sources of success are primary determinants of attitudes toward redistribution. It is important to account for changes in these experiences and perceptions to isolate the role of increasing inequality.

To characterize how inequality changes influence social preferences, the study estimates a series of regressions with individual responses to the surveys as dependent variables. For simplicity, only least-squares specifications are discussed; ordered-logit specifications that allow for non-linearities in responses yield similar results. The primary estimation equation takes the following form (person i , country c , year t):

$$RESP_{i,c,t} = \phi_c + \eta_t + \beta \ln(GINI_{c,t-1}) + \lambda N_{c,t-1} + \gamma X_{i,c,t} + \epsilon_{i,c,t}, \quad (1)$$

where ϕ_c and η_t are vectors of country and year fixed effects, respectively. The cross-sectional effects ϕ_c control for the long-run positions of each country in terms of preferences and inequality levels, while the year effects η_t control for systematic changes between surveys in inequality growth and survey responses. These panel variables focus identification on relative changes in inequality and survey responses across countries in the sample. Regressions are weighted to form nationally representative samples and to have each country-survey carry the same significance. The results are robust to different weighting strategies. Standard errors are clustered by country.

The β coefficient is the focus. Survey responses are ordered so that a positive β coefficient reflects a more-concerned position: greater concern for inequality, more support for government intervention, and so on. The exception is the Proposed Doctor–Unskilled Worker Wage Ratio, where a positive β coefficient reflects a wider proposed wage differential.

The $N_{c,t-1}$ vector of covariates includes controls for macroeconomic conditions in each country contemporaneous with the inequality measure. A log GDP per capita covariate controls for national wealth at the time of the survey; two other

Table 2
ISSP and WVS regressions with aggregate Gini inequality.

	Including demographic & economic mobility controls				
	Base regression (1)	Base regression (2)	Including worker controls (3)	Including OECD-Yr. effects (4)	Including trans.-Yr. effects (5)
<i>ISSP social inequality panel</i>					
A. Government responsibility responses					
Log national	0.161	0.153	0.158	0.129	0.093
Gini coefficient	(0.048)	(0.049)	(0.051)	(0.056)	(0.058)
Observations	54,054	45,918	45,918	45,918	45,918
B. Progressive taxation responses					
Log national	0.238	0.234	0.235	0.188	0.187
Gini coefficient	(0.071)	(0.077)	(0.076)	(0.072)	(0.090)
C. Inequality acceptance responses					
Log national	0.160	0.142	0.148	0.084	0.072
Gini coefficient	(0.046)	(0.045)	(0.046)	(0.049)	(0.067)
D. Poor–rich conflict responses					
Log national	0.148	0.161	0.162	0.138	0.159
Gini coefficient	(0.039)	(0.041)	(0.039)	(0.036)	(0.042)
E. Young–old conflict responses					
Log national	–0.009	–0.008	–0.009	–0.088	–0.016
Gini coefficient	(0.052)	(0.048)	(0.048)	(0.075)	(0.077)
F. Log proposed doctor–unskilled wage ratio responses					
Log national	0.256	0.238	0.239	0.302	0.241
Gini coefficient	(0.089)	(0.081)	(0.080)	(0.080)	(0.089)
<i>WVS panel</i>					
G. WVS income equalization responses					
Log national	0.358	0.374	0.371	0.341	0.266
Gini coefficient	(0.100)	(0.106)	(0.106)	(0.116)	(0.146)
Observations	137,006	118,499	118,499	118,499	118,499

Notes: Regressions consider the relationship between national inequality and preferences for redistribution and compensation differentials taken from ISSP and WVS. Survey responses are ordered such that higher values indicate more-concerned responses, excepting the proposed doctor–unskilled wage ratio. Regressions include country and year fixed effects. Regressions include country-year controls for log GDP per capita, share of workers in industry, and share of workers in services. Demographic controls include sex, marital status, age, education, and income dummies. Economic mobility controls include respondents' views on the determinants of success (e.g., knowledge and family connections) and comparisons of their jobs to their fathers' jobs (ISSP). Work controls include self-employed, unemployed, supervisor, and union-member dummies. Inequality measures are lagged one period. Variables are transformed to have zero mean and unit standard deviation. Regressions are weighted for nationally representative samples and equal cross-national weight. Standard errors clustered by country are in parentheses. Observation counts for government responsibility are representative for other ISSP variables.

covariates control for the share of economic activity in the country-year coming from industry/manufacturing and from services. These factors can influence preferences for redistribution independent of inequality, and incorporating these macroeconomic controls better isolates inequality's role. Finally, the $X_{i,c,t}$ vector of individual-level covariates includes personal demographics and responses to social-mobility questions as controls. These controls are discussed further below.

2.3. International preferences results

Table 2 presents the international results, with each row representing a separate set of regressions for the dependent variable indicated. To conserve space, only the observation counts for the Government Responsibility regressions are listed. Observation counts for the other ISSP estimations in Panels B–F are similar, with slight differences due to respondents not answering all questions. The first column reports regressions that include only country and year fixed effects and macroeconomic covariates. Variables are transformed to have a zero mean and unit standard deviation to aid in interpretation. Thus, the 0.161 coefficient on the Gini estimate in the first regression for Government Responsibility indicates that a one standard-deviation growth in inequality is partially correlated with a growth of about 16% of one standard deviation in survey responses towards greater government-led redistribution.

This positive elasticity confirms the visual patterns in Panel 1C of Fig. 1, and support for a more-progressive tax structure is also evident in Panel B. Panel G also finds a similar call for greater income equalization in the WVS sample. These partial correlations are statistically significant and of moderate economic magnitudes. Taking the United States as a specific example, the implied increase in redistribution preferences from a standard-deviation inequality growth would close the gap to the average responses of other Anglo-Saxon countries (e.g., Canada, Australia, and Great Britain), but would fall short

of the levels of continental Europe and especially transition economies. The short-run responses thus reflect modest movements around the long-term levels of the countries. Nevertheless, their positive direction suggests an inequality shock alone is insufficient to start a cycle of deteriorating support for redistribution policies.⁸

Potential omitted variable biases are a clear concern for these first two outcomes. It is possible that the inequality metric is simply correlated with unmodeled factors that are truly responsible for the higher support for government-led redistribution. The next three rows, however, provide reassurance that concern over inequality truly underlies the support for stronger government intervention. The increase in inequality is associated with greater concern for income differences in Panel C and greater awareness of social conflict between poor and rich in Panel D. As a comparison, Panel E finds that inequality changes are not correlated with changes in awareness of social conflict between young and old people. These outcomes are consistent with inequality growth raising concerns about disparities and prompting greater support for government redistribution.

Panel F demonstrates, however, that respondents are more likely to propose a wider wage distribution with higher inequality. A one standard-deviation growth in inequality is associated with a 0.25 standard deviation increase in proposed wage differentials. An unreported disaggregation of changes in the Proposed Doctor–Unskilled Worker Wage Ratio finds the expansion to be primarily occurring between doctors and skilled workers rather than skilled workers and unskilled workers. A similar elasticity is evident for the proposed wage differential between the chairman of a large, national company and an unskilled worker. This growth in proposed wage differentials—based upon what respondents think occupations should earn—indicates at least partial acceptance of inequality shifts due to changes in relative factor scarcities and associated rewards. The coefficient of 0.25 is statistically different from zero, a level where no support for a wider distribution is evident, and from a value of one, a level where a full endorsement of the inequality expansion is evident if the inequality increase is due to growing earnings differentials.

The 0.25 coefficient is measured using all changes in inequality, and this approach may understate the elasticity due to earnings inequality itself. By mixing growth in inequality due to labor market differentials with growth in inequality outside of the labor market, the 0.25 coefficient may underestimate the extent to which preferences regarding compensation differential expand to accommodate increases in earnings inequality. In addition to proposing wages for occupations, the ISSP surveys ask respondents what they think occupations actually earn. Fixed effect regressions of Proposed Doctor–Unskilled Worker Wage Ratio on the perceived wage ratio for doctors and unskilled workers yield elasticities of about 0.6. That is, growth in perceived inequality is again associated with larger proposed distributions, but not as wide as the perceived increase itself. This 0.6 elasticity finding, along with the reported results using national inequality changes, leads to the conclusion that social preferences over wage differentials expand to accommodate substantial portions, but not all, of growth in earnings inequality. These patterns suggest that short-run inequality shocks can be reinforced in the labor market, and that changes in compensation differentials due to changing factors of production are only modestly retarded by social preferences.

The second column of [Table 2](#) adds each nation's log GDP per capita to capture movements in the overall wealth of the country, as well as Demographic Controls and Economic Mobility Controls. Demographic Controls include sex, marital status, age, education, and income dummies. Economic Mobility Controls incorporate respondents' answers to other ISSP questions that reveal beliefs and experiences regarding social mobility. ISSP regressions include two questions asking respondents to rate the importance of being from a wealthy family or of knowing the right people for getting ahead. Respondents believing these important significantly favor more redistribution. Past mobility experiences use respondents' ratings of the status of their jobs compared to their fathers' jobs; respondents believing their jobs are better than their fathers' are significantly less likely to support redistribution.

The magnitudes and significance of the β coefficients on the Gini estimates are robust to including these Demographic and Economic Mobility Controls. Column 3 further shows that the results are robust to including Work Controls of dummies for self-employed, supervisor, unemployed, and a union member. Coefficient elasticities are very similar after including these covariates, which are further discussed in the appendix. The coefficients in the WVS regressions continue to suggest a higher elasticity of about 0.35. The higher share of developing countries in the WVS sample likely plays a role in these larger partial correlations. Also, the larger estimates may be the product of offering respondents ten choices rather than five, making it easier to capture shifts in attitude. The specific wording of this question may also contribute, as further discussed in the appendix.

Poorer and transitional countries tend to have higher support for redistribution than their OECD counterparts with similar levels of inequality ([Austen, 1999](#); [Suhrecke, 2001](#)). Moreover, they demonstrate significant changes in attitudes and inequality levels that dwarf the more-stable advanced nations. To ensure that the sample composition is not driving the results, Column 4 includes Year \times OECD dummies. Likewise, the fifth column incorporates Year \times Transition Economy dummies. The point estimates typically decline when forcing the variation to be within the subgroups, but the elasticities mostly remain economically and statistically important. The appendix discusses additional robustness checks.

⁸ Levels regressions without country fixed effects also confirm the cross-section correlations evident in [Fig. 1](#). Nations with greater inequality have a significantly reduced concern for income differences, weaker support for government intervention, and lower desire for a progressive tax structure. While critical, panel estimations of inequality dynamics are rarely employed (e.g., [Alesina et al., 2004](#)).

2.4. Discussion

A causal interpretation for these results is reasonable, although not assured. Two basic concerns are the endogenous relationship between inequality and preferences (i.e., that preferences also influence the inequality levels) and omitted-variable biases. The direction of the results suggests that the reverse-causality concern is weak. It is difficult to argue that changes in social preferences to favor more income equalization produced increases in inequality, while it is very reasonable that increased inequality led to greater support for redistribution. Employing disposable-income inequalities rather than gross-income inequalities may bias the coefficient magnitudes slightly, but will not change the direction of the findings. On a similar note, this study concludes that adjustments in preferences for compensation differentials allow inequality to become entrenched in the labor market. While these results have greater scope for reverse causality, the growing concern by respondents over income inequality and the greater support for government-led interventions suggest that the wider proposed wage differentials are primarily a reaction to the inequality changes, albeit one that sustains the inequality increase.

It may be possible, however, to argue an omitted factor prompted both the increases in inequality and the changes in social preferences. For example, an increased openness to trade may have raised inequality and also increased desire for government income stabilization out of fear of globalization (and unrelated to the change in inequality itself). As noted earlier, the consistent results of higher inequality being associated with greater concern over income disparities suggest, however, that the most plausible interpretation is the increased inequality acted directly on social preferences. A more-rigorous instrument strategy employed with the U.S. data will also support this interpretation. Unfortunately, the U.S. survey employed in the next section does not contain wage differential questions like the ISSP. Thus, the U.S. instruments are only able to assess causality for the general redistribution result.⁹

3. Preferences in U.S. surveys

To complement the international findings, regional variation in inequality and support for redistribution from the United States is explored next. This study is important for three reasons. First, while national inequality would be the most-perceived dimension for smaller countries such as Bulgaria or Ireland, regional differences may be more important for large nations that display significant heterogeneity in economic activity. Moreover, a substantial fraction of policy and budget decisions in the United States are made at the state or city level, with officials accountable to their local constituents. Finally, but certainly not least from a research perspective, the quality and quantity of U.S. data afford extensions and instruments that are not possible in international studies.

3.1. GSS data structure

U.S. social preferences are estimated from the General Social Survey (GSS). The GSS has been conducted on an annual or biennial basis since 1972 with sample sizes ranging from 1400 to 3000 adults. The analysis considers four questions on the survey through 2000. The first question asks on a three-point scale whether the United States should be spending more or less money on welfare (Welfare Spending); an identical question regarding spending for the space exploration program (Space Exploration Program Spending) is also considered as a falsification exercise. A third question (GSS Income Equalization) documents respondent support on a seven-point scale for the federal government's reduction of income differences between the rich and the poor. Responses are again ordered so that higher values correspond to higher support for the reduction of inequality.

The analysis also considers how changes in political-party affiliation correlate with changing inequality levels (Party Identification). Respondents are asked to state their party preference and the strength of this association on a seven-point scale, with one being strongly Republican and seven being strongly Democrat. Of course, many other factors influence party affiliation, and the platforms of parties demonstrate temporal and regional variation. Nevertheless, it is reasonable to portray the Democratic Party over the last three decades as supporting higher levels of redistribution from the U.S.' wealthy classes to its poorer classes than the Republican Party. Regressions with this question study whether higher inequality is associated with changes in political affiliation, in addition to changes in support for welfare programs. The appendix details the wording of these four questions.

The final requirements for the U.S. analyses are the important inequality metrics. The richness of U.S. data offers additional flexibility, and two metrics of overall inequality are considered. Modeling inequality with regional log Gini estimates affords comparisons to the earlier international work. The detailed data also allow consideration of inequality trends for different parts of the income distribution. Thus, overall inequality is additionally modeled as the differential between the log 80th and 20th percentiles. After considering overall inequality, the 80–20 differential is disaggregated into

⁹ Suggestive evidence from the international panel can be taken from an approach that instruments each country's inequality trends using the inequality trend of its closest neighbor. Second-stage elasticities for Government Responsibility and Proposed Doctor–Unskilled Worker Wage Ratio are 0.234 (0.100) and 0.198 (0.125), respectively, when using the framework in Column 1 of Table 2. The instrument, however, is weak with a first-stage coefficient of 0.615 (0.336) and an *F*-statistic of 3.2 (standard errors clustered by country). This weakness and concerns over the exclusion restriction suggest cautious interpretation.

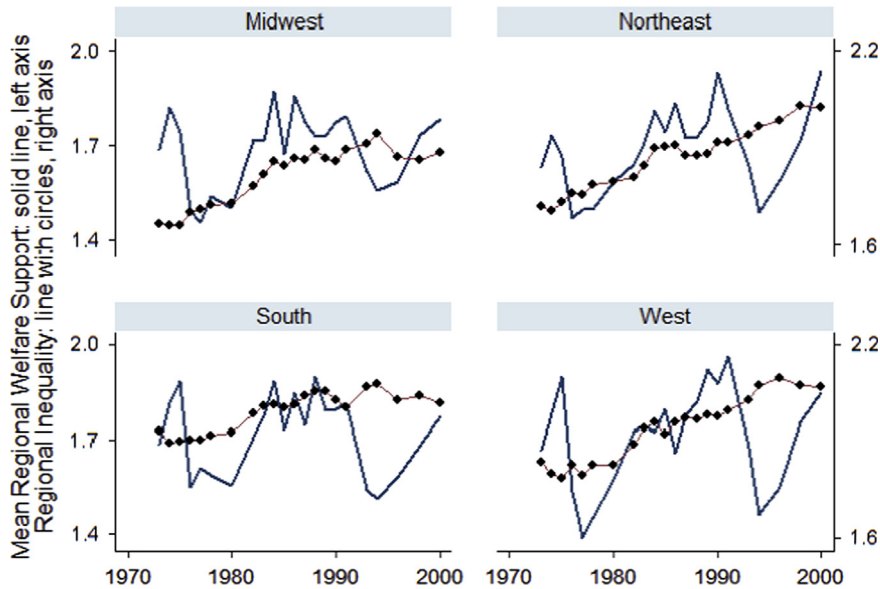


Fig. 2. U.S. welfare spending preferences and regional inequality. *Notes:* Figure plots the co-movement in U.S. regional inequality and average support for welfare spending among GSS respondents. The solid lines without circles are the average support on a three-point scale for greater welfare spending by respondents in the region, with higher values indicating greater support. The lines with circles are regional inequalities measured as the log 80–20 income differential from the March CPS.

the changes in inequality in the upper and lower halves of the distribution. Inequality estimates in this section are calculated over disposable family income for the four primary Census regions (i.e., Northeast, Midwest, South, and West) from the March Current Population Surveys (CPS).

Fig. 2 plots the mean response to the GSS Welfare Spending question and the 80–20 income differential for each region by year. Two identification issues for the U.S. findings can be discerned from this graph. First, differences in regional inequality trends exist. While the South begins with significantly higher inequality than the other regions in the early 1970s, the strong growth in inequality in the Northeast and West results in the three regions being approximately equal by the late 1990s. The Midwest, while also experiencing an increase in inequality, remains significantly lower than the South throughout the period. Unlike the international analysis, however, none of the regions experience a period of substantial decline in inequality. Thus, inference is from stable or growing inequality.

Second, the dramatic swings in the mid-1970s and 1990s highlight that regional variation in welfare support can be second-order to large national shifts, likely due to political swings. The significant decline in support in the mid-1970s is linked to the explosion in welfare caseloads in the prior decade, while the large dip in the mid-1990s surrounds the 1994 Republican Revolution during Clinton's first term. The close co-movement of regional inequality and Welfare Spending preferences between these periods is quite striking. The national trends in inequality and social preferences are absorbed by the year effects, while systematic levels differences between regions are controlled for by geographic fixed effects. Given the importance of these national elements, the regression coefficients for the regional variation may be smaller than those captured in the international estimations.

3.2. U.S. preferences results

Table 3A considers a set of specifications similar to the international regressions studied in Table 2; Table 3B replaces the log Gini inequality metrics with log 80–20 income differentials. Standard errors are bootstrapped for the U.S. analysis. Column 1 of both specifications finds changes in regional inequality partially correlate with a statistically significant increase in support for all three preferences when only year and region fixed effects are included. As expected, the coefficients are somewhat smaller than those found in the international regressions, as the regional variation is weaker than national trends. As a falsification exercise for Welfare Spending, if anything respondents urge a decline in Space Exploration Program Spending when inequality increases, but this result is not precisely measured.

As before, Columns 2 and 3 further show the magnitudes and statistical significance of the coefficients are robust to including the regional median income (akin to the national GDP per capita) and Demographic Controls, Economic Mobility Controls, and Work Controls. Unfortunately, incorporating many GSS social-mobility variables severely limits the sample size, but one can control for whether the financial position of a respondent's family has improved, worsened, or stayed the same over the last few years. The GSS does, however, collect race data. Non-white respondents are found in the fourth column to have significantly higher support for redistribution, even after including the other controls.

Table 3A
GSS regressions with aggregate Gini inequality.

	Including demographic & economic mobility controls			
	Base regression (1)	Base regression (2)	Including worker controls (3)	Including racial controls (4)
<i>A. Welfare spending responses</i>				
Log regional	0.130	0.135	0.114	0.132
Gini coefficient	(0.035)	(0.035)	(0.039)	(0.031)
Observations	24,247	21,965	14,704	21,965
<i>B. Income equalization responses</i>				
Log regional	0.086	0.040	0.059	0.023
Gini coefficient	(0.043)	(0.043)	(0.043)	(0.040)
Observations	20,414	18,344	17,293	18,344
<i>C. Political party identification responses</i>				
Log regional	0.198	0.206	0.217	0.196
Gini coefficient	(0.024)	(0.024)	(0.033)	(0.028)
Observations	37,763	33,971	23,026	33,791
<i>D. Space exploration program spending responses</i>				
Log regional	−0.044	−0.047	−0.067	−0.047
Gini coefficient	(0.031)	(0.034)	(0.032)	(0.030)
Observations	23,942	21,757	14,574	21,757

Notes: Regressions consider the relationship between regional inequality and preferences for redistribution taken from GSS. Survey responses are ordered such that higher values indicate more-concerned responses. Regressions include the log median income for each region, region fixed effects, and year fixed effects. Demographic controls include sex, marital status, age, education, and income dummies. Economic mobility controls include recent changes in family financial position. Work controls include self-employed, unemployed, and union-member dummies. Racial controls include a non-white respondent dummy. Inequality measures are lagged one period. Variables are transformed to have zero mean and unit standard deviation. Bootstrapped standard errors are in parentheses.

Table 3B
GSS regressions with 80-20 income differential inequality.

	Including demographic & economic mobility controls			
	Base regression (1)	Base regression (2)	Including worker controls (3)	Including racial controls (4)
<i>A. Welfare spending responses</i>				
Log regional	0.098	0.114	0.127	0.112
80/20 differential	(0.030)	(0.026)	(0.036)	(0.030)
Observations	24,247	21,965	14,704	21,965
<i>B. Income equalization responses</i>				
Log regional	0.099	0.040	0.051	0.026
80/20 differential	(0.024)	(0.039)	(0.035)	(0.028)
Observations	20,414	18,344	17,293	18,344
<i>C. Political party identification responses</i>				
Log regional	0.135	0.164	0.173	0.158
80/20 differential	(0.022)	(0.022)	(0.029)	(0.028)
Observations	37,763	33,971	23,026	33,791
<i>D. Space exploration program spending responses</i>				
Log regional	0.002	−0.015	−0.021	−0.016
80/20 differential	(0.026)	(0.029)	(0.038)	(0.032)
Observations	23,942	21,757	14,574	21,757

Notes: See Table 3A.

The coefficients for Welfare Spending and Party Identification remain of similar size and significance with these controls, but those for Income Equalization diminish. In general, once controlling for a basic set of covariates and perceptions of mobility levels, the U.S. analysis does not find a strong link between inequality and this support for Income Equalization. In many respects, this question amalgamates respondents' views regarding pay scales in the labor market and redistribution

policy. As the international evidence shows these dimensions can move in opposite directions, the limited overall response for Income Equalization is not too surprising. The most robust support again goes to increases in redistribution policies.¹⁰

The appendix also reports several extensions to this work. Decomposing the 80-20 inequality into the 80-50 and 50-20 differentials emphasizes that inequality growth in the lower half of the distribution (i.e., the poor being increasingly left behind) is most responsible for the aggregate results identified for the United States. A second analysis finds fairly limited differences across the income distribution—while the overall levels of support are higher in poor households, concern over rising inequality grows in all income groups. On the other hand, the increase in redistribution support associated with rising inequality is diminished in racially heterogeneous neighborhoods (e.g., Luttmer, 2001; Lind, 2007). These results suggest changes in support for government-led redistribution are fairly uniform across income groups. This finding is in agreement with Rawlsian models like Piketty (1995), where different classes have similar views on distributive equality holding fixed beliefs about incentive costs. On the other hand, the standard median-voter model suggests increases in inequality lead to a divergence in preferences for redistribution as gaps to the median income widen. Further work is needed to understand the degree to which this finding applies to the extreme tail of the income distribution (e.g., Atkinson et al., 2011).

3.3. U.S. minimum-wage instrument

U.S. regional estimations agree with the earlier international results: increases in inequality partially correlate with increases in desire for government-led redistribution. In addition to finding this effect on two levels, it was earlier noted that the direction of the results, the lagging of inequality, and the significance of survey questions focused on inequality itself suggest a causal interpretation is reasonable, although still not assured. An instrument designed for the U.S. regional variation further undergirds this claim.

In recent empirical studies, labor economists note the role of the minimum wage in rising U.S. inequality, especially during the 1979–1989 period when the real (i.e., inflation-adjusted) value of the federal rate declined by 24%. While these substantial swings in mandated federal rates can be taken as exogenous from the perspective of individual states or regions, they do not provide the necessary regional variation by themselves. An appropriate instrument can be designed, however, through the interaction of these national trends with predetermined regional characteristics that govern how important minimum-wage mandates are for the local economy. The year effects absorb the national dynamics of the changing federal rate, and the pre-existing regional traits are controlled for by the geographic fixed effects. The identifying assumption is that the residual region-year interactions can serve as an instrument for the residual region-year inequality trends.

This study employs regional coverage ratios, defined as the percent of the working population protected by the minimum-wage statutes, as the interaction terms. The inequality instrument for region r and year t takes the form:

$$INEQ - IV_{r,t} = \ln(FED_{1970}/FED_t) \cdot E_{1970}COV_{r,t},$$

where $E_{1970}COV_{r,t}$ is the expected coverage rate in region r for year t , estimated from the 1970 industrial composition of the working poor by region and changes in national coverage rates by industry. The first term, $\ln(FED_{1970}/FED_t)$, is the log ratio of the real federal minimum-wage rate in 1970 to the rate in year t . It has an initial value of zero for 1970. In years when the real federal rate is greater than the real federal rate for 1970, this component of the instrument has a negative value, and vice versa. Some states have mandated minimum wages that exceed the federal rate. These are not considered as the local legislation could clearly be endogenous to the inequality levels and will instead be analyzed below. The appendix provides an extensive discussion of the instrument design and descriptive statistics.

Fig. 3 plots a graphical version of the first stage for each region. The lines for the minimum-wage instrument (the solid line) and the inequality level (the line with circles) are residuals after year and geographic fixed effects are removed. The expected first-stage relationship is apparent within each region. Estimated at the regional level and using bootstrapped standard errors, the first-stage coefficient for regional Gini inequality is 1.50 (0.40), with an F statistic of 11.7 and a partial R^2 of 0.16.

Table 4 presents the detailed results of the instrumental-variable specifications for the log Gini metric, and the appendix tabulates very similar outcomes using the 80-20 differential. As inequality is lagged 1 year in the estimations, the instrument is lagged as well. The second-stage results confirm the least-square specifications discussed earlier; a one standard-deviation increase in inequality is now found to produce 20% of a standard-deviation shift in support for government-led redistribution and political party identification. Substantially weaker results are found on the other two variables. The instrument specifications are robust to using other forms of aggregate inequality (90-10 differentials, entropy) or focusing on the lower half of the income distribution through 50-20 differentials. The small increase in coefficient

¹⁰ These results are robust to a variety of specification checks. First, demographic surveys often find respondents over-estimate their relative financial position. In addition to actual incomes, the GSS collects respondents' perceptions of their incomes compared to the national average. The results are robust to using these perceptions rather than actual income levels. Second, the southern parts of the United States experience distinct economic and political adjustments during this period compared to the rest of the country. While this variation is useful, similar outcomes are found when excluding this region. Finally, a concern using regional variation in the United States is that spatial sorting by individuals over locations could influence the measured social preferences and inequality levels (e.g., migration of poor to an area that would raise income inequality and increase support for redistribution). The individual covariates control for this phenomenon with respect to observables (e.g., income levels and age), and the appendix provides additional tabulations from the 2000 Census of Populations that suggest sorting of this form is not biasing the results.

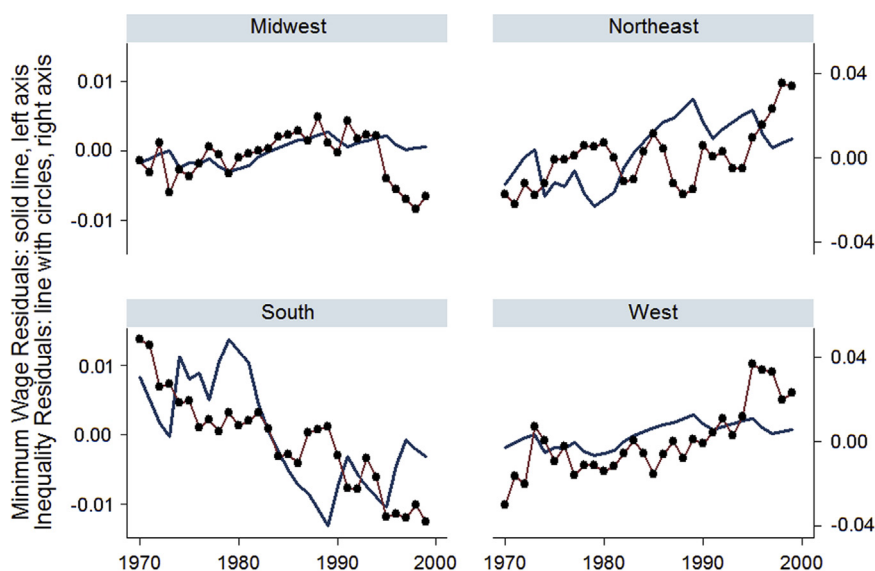


Fig. 3. First stage for U.S. minimum-wage instrument. *Notes:* Figure plots the first-stage relationship between the U.S. minimum-wage instrument and regional inequality. The solid lines without circles are the residuals from regressing the minimum-wage instrument on region fixed effects, year fixed effects, and the region's log median income level. The lines with circles are the residuals for regional inequality similarly constructed.

Table 4
GSS Gini regressions with minimum-wage instrument.

	Including demographic & economic mobility controls			
	Base regression (1)	Base regression (2)	Including worker controls (3)	Including racial controls (4)
<i>A. Welfare spending responses</i>				
Log regional	0.222	0.225	0.220	0.218
Gini coefficient	(0.064)	(0.066)	(0.080)	(0.073)
Observations	24,247	21,965	14,704	21,965
<i>B. Income equalization responses</i>				
Log regional	0.122	0.079	0.095	0.063
Gini coefficient	(0.112)	(0.089)	(0.093)	(0.124)
Observations	20,414	18,344	17,293	18,344
<i>C. Political party identification responses</i>				
Log regional	0.220	0.247	0.204	0.239
Gini coefficient	(0.049)	(0.061)	(0.058)	(0.054)
Observations	37,763	33,971	23,026	33,971
<i>D. Space exploration program spending responses</i>				
Log regional	-0.058	-0.038	-0.036	-0.041
Gini coefficient	(0.067)	(0.062)	(0.077)	(0.070)
Observations	23,942	21,757	14,574	21,757

Notes: See Table 3A. Estimated at the regional level and using bootstrapped standard errors, the first-stage coefficient for regional Gini inequality is 1.50 (0.40), with an F statistic of 11.7 and a partial R^2 of 0.16.

magnitude from the least squares results is likely due to the instrument focusing on inequality in the lower part of the income distribution.

3.4. Types of inequality

There are many forms of inequality: hourly wage, annual wage, total income, wealth, and consumption inequality, in addition to their subvariants (e.g., before and after tax and individual versus household). These forms of inequality are related to each other, but they are also distinct from conceptual and empirical perspectives. The international portion of this

Table 5
GSS regressions with extended income definitions and regions.

Source of log 80/20 inequality metric	OLS			IV		
	Four regions (1)	Nine regions (2)	State level (3)	Four regions (4)	Nine regions (5)	State level (6)
<i>A. Welfare spending responses</i>						
Post-tax family disposable income	0.114 (0.028)	0.061 (0.028)	0.081 (0.024)	0.206 (0.061)	0.194 (0.056)	0.151 (0.065)
Pre-tax family labor earnings	0.105 (0.034)	0.068 (0.023)	0.041 (0.022)	0.209 (0.057)	0.215 (0.056)	0.207 (0.089)
Total population hourly wage	0.030 (0.020)	0.056 (0.016)	0.067 (0.018)	0.593 (0.216)	0.227 (0.069)	0.157 (0.074)
<i>B. Income equalization responses</i>						
Post-tax family disposable income	0.040 (0.032)	0.027 (0.030)	0.068 (0.035)	0.070 (0.074)	0.042 (0.082)	0.125 (0.211)
Pre-tax family labor earnings	0.032 (0.034)	0.023 (0.023)	0.020 (0.024)	0.098 (0.149)	0.049 (0.098)	0.212 (0.333)
Total population hourly wage	0.054 (0.021)	0.018 (0.020)	0.053 (0.027)	0.305 (0.655)	0.047 (0.163)	0.268 (0.494)
<i>C. Political party identification responses</i>						
Post-tax family disposable income	0.164 (0.027)	0.099 (0.021)	0.050 (0.020)	0.232 (0.056)	0.202 (0.040)	0.171 (0.044)
Pre-tax family labor earnings	0.143 (0.024)	0.100 (0.018)	0.018 (0.017)	0.250 (0.051)	0.226 (0.047)	0.218 (0.061)
Total population hourly wage	0.066 (0.014)	0.038 (0.014)	0.056 (0.013)	0.636 (0.180)	0.235 (0.053)	0.202 (0.060)
<i>D. Space exploration program spending responses</i>						
Post-tax family disposable income	-0.015 (0.029)	-0.006 (0.023)	0.012 (0.022)	-0.035 (0.061)	-0.022 (0.044)	0.005 (0.067)
Pre-tax family labor earnings	-0.034 (0.024)	-0.055 (0.029)	-0.007 (0.020)	-0.033 (0.071)	-0.023 (0.047)	0.007 (0.073)
Total population hourly wage	-0.022 (0.021)	-0.006 (0.013)	-0.012 (0.017)	-0.109 (0.211)	-0.032 (0.072)	-0.005 (0.057)

Notes: See Tables 3A, 3B, and 4. Each coefficient is the result of a separate regression with the inequality measure indicated by the row title and the sample design indicated by the column header. Regressions include demographic and economic mobility controls, the log median income for each geographic region, geographic region fixed effects, and year fixed effects. Median income covariates and geographic panel effects mirror the inequality measure employed.

study is limited to income inequality due to simple data constraints, while the U.S. analysis can consider more options. The appendix provides a detailed discussion about these various types of inequality and social preferences that includes conceptual/theoretical perspectives, observations about how concerns over inequality are most often expressed in the media, the manner in which policy interventions most often occur, and simple data quality considerations. From a welfare perspective, long-term consumption inequality is the most natural link. In terms of the formation of social preferences, the discussion mostly emphasizes income inequality as being the clearest metric available, but there is ambiguity.¹¹

Table 5 replicates the Column 2 regressions of Table 3B (i.e., estimations including median income levels, Demographic Controls, and Economic Mobility Controls) and its instrumental-variable equivalent across three levels of geographic aggregation and three income definitions. The first three columns are for least-squares regressions, while the last three columns are for instrumental-variable specifications. The two regional specifications are annual and derived from the March CPS while the state specifications are at the decade level and derived from the Census. The least-squares permutations are well-behaved and generally indicate a moderate decline in coefficient size as specifications move away from disposable family income towards the hourly wage definition. The declining coefficient sizes with lower levels of geographic aggregation mirror the earlier coefficient reduction from the international regressions to the four Census regions variation. In words, the trend suggests that the preferences of individuals in Vermont regarding inequality depend as much on the level of inequality throughout the New England region as within the local state. However, these two trends are weaker in the instrumental-variable permutations. While larger standard errors are evident in some state-level or hourly wage specifications, the instrumental-variable results in general are robust across these dimensions. This may indicate that the lower coefficient estimates are due to greater measurement error in the more disaggregated series.

¹¹ Pope (2009) provides an even broader description of well-being in the United States that includes access to education, lifetime expectancy, and similar.

Table 6
Policy regressions with inequality and social preferences.

	Top marginal state tax rate for wage income (incl. federal) (1)	Difference between top and average rate, nominal (2)	Difference between top and average rate, actual (3)	State's own top marginal tax rate (4)	State minimum wage level (incl. federal) (5)	State increase over the federal min wage (6)	State total public welfare expenditure per capita (7)	State direct public welfare expenditure per capita (8)
<i>A. Least squares with regional Gini metric</i>								
Log regional	0.056	0.049	0.094	0.174	0.082	0.516	0.555	0.443
Gini coefficient	(0.017)	(0.021)	(0.028)	(0.063)	(0.031)	(0.179)	(0.065)	(0.066)
<i>B. Least squares with regional 80-20 inequality</i>								
Log regional	0.035	0.038	0.066	0.099	0.048	0.303	0.373	0.266
80/20 differential	(0.013)	(0.016)	(0.021)	(0.061)	(0.023)	(0.153)	(0.055)	(0.046)
<i>C. Instrumental variables with regional Gini metric</i>								
Log regional	0.088	0.083	0.208	0.238	0.314	1.978	0.718	0.530
Gini coefficient	(0.042)	(0.054)	(0.082)	(0.211)	(0.048)	(0.273)	(0.119)	(0.131)
<i>D. Instrumental variables with regional 80-20 inequality</i>								
Log regional	0.066	0.062	0.151	0.179	0.236	1.487	0.540	0.399
80/20 differential	(0.033)	(0.038)	(0.048)	(0.146)	(0.038)	(0.242)	(0.078)	(0.092)
<i>E. Least squares with regional welfare spending response average</i>								
Average regional preference	0.018 (0.008)	0.024 (0.010)	0.026 (0.011)	0.062 (0.030)	0.028 (0.014)	0.179 (0.081)	0.046 (0.020)	0.027 (0.022)
<i>F. Least squares with regional income equalization response average</i>								
Average regional preference	0.003 (0.006)	0.009 (0.007)	0.014 (0.009)	0.010 (0.023)	0.036 (0.011)	0.228 (0.069)	0.034 (0.016)	0.023 (0.019)

Notes: Regressions consider connections between state-level policy outcomes and regional inequality. Columns 1–4 consider tax code features taken from the NBER TAXSIM database. Columns 1–3 combine state and federal tax obligations to capture total tax liability in the state, inclusive of offsets between the state and federal obligations. Column 4 isolates the state's top marginal tax rate, and a zero value is given for states without income tax. Column 5 considers the state minimum wage, with federal minimum wage being the floor for states without higher minimum wages. Column 6 considers the gap between the state and federal levels, with an increase of zero for states that do not have higher minimum wages. Columns 7 and 8 consider total and direct public welfare expenditure per capita in the state. Regressions include the log median income for each region, state fixed effects, and year fixed effects. Inequality measures are lagged one period. Variables are transformed to have zero mean and unit standard deviation. Bootstrapped standard errors are in parentheses. Regressions in panels A–D include 1152 observations from the cross of 48 states (minus DC, AK, and HI) and 24 years. Observation counts for actual differences in tax rates are 1056 due to the outcome not being available in 1977. Regressions in Panels E and F have 864 and 720 observations, respectively, due to a reduced set of years in which the GSS surveyed the preference.

The appendix describes how income inequality shows a tighter empirical link to social preferences than consumption inequality derived from food expenditures reported in the Panel Study of Income Dynamics (e.g., [Attanasio and Pistaferri, forthcoming](#)). The limited panel correlation of the two forms of inequality at the region-year level allows direct contrast, and food consumption inequality only marginally increases the explanatory power. This study is very cautious, however, about these results due to the uncertainty about how best to measure consumption inequality and multiple data challenges discussed in the appendix.

3.5. U.S. policy outcomes

This study mostly focuses on inequality and social preferences given the many ways in which these two forces can interact and the limited understanding of preferences to date. [Table 6](#) evaluates the degree to which these social preferences are further observed in policy choices. This is best done in the regional context of the United States given the consistent U.S. data over states and the ability to construct comparable measures. To some degree, this exercise is important for simply showing that the responses have meaning and are not just “cheap talk.”¹² But more important, they also begin to trace out how preferences translate into policy responses and where differences might arise.

[Table 6](#) demonstrates a simple longitudinal link for several forms of state-level policy outcomes and regional inequality. Column headers indicate the outcome variable studied. Panels A and B provide least squares results using the regional Gini and 80–20 income differential metrics, respectively. Panels C and D provide comparable instrumental variables specifications. Variables are transformed to have zero mean and unit standard deviation to aid interpretation. Estimations include state and year fixed effects, control for the contemporaneous log median income, report bootstrap standard errors, and have 1152 observations from the cross of the 48 continental states and 24 years from 1977 to 2000.

The first four columns consider state-level tax code features taken from the NBER TAXSIM database. U.S. states differ substantially in the extent to which they tax income beyond the federal level and how progressive this taxation structure is. Columns 1–3 combine state and federal tax obligations to capture total tax liability in the state, inclusive of offsets between state and federal obligations. These metrics include the total top marginal tax rate and the difference between the top and average marginal rates. Column 4 alternatively isolates the state's top marginal tax rate, and a zero value is given for states without income tax. There is reasonably strong evidence of a shift towards a more-progressive state-level tax structure with higher inequality. Unreported estimations likewise find a very sharp link between inequality increases and an indicator variable for the state imposing at least some additional income tax above the federal level.

The next two columns consider state minimum wages, which are explicitly excluded from the instrumental-variables design that focused on the changing federal rate. Column 5 considers the state minimum wage, with the federal minimum wage being the floor for states without higher minimum wages. Column 6 considers the gap between the state and federal levels, with an increase of zero being assigned for states that do not have higher minimum wages. The connection on this policy dimension is quite strong, and there is again a very sharp link between inequality increases and an indicator variable for the state imposing at least some additional minimum wage increment above the federal level. The instrumental variable elasticities are especially strong given the local treatment on this margin.

Columns 7 and 8 consider total and direct public welfare expenditure per capita taken from state budget reports. There is evidence of growing welfare expenditure with higher inequality, although this link should be treated with caution since the link is substantially weaker with a log transformation of per capita expenditures. Supplementary regressions also find rising benefits per recipient in the Aid to Family with Dependent Children program with rising inequality using the 5-year intervals for which these data are available.

On the whole, these estimations suggest a substantial link between regional inequality and policy choices. Reflective of the lower connections of preferences to inequality at more-disaggregated spatial scales, these relationships tend to weaken with narrower measures of inequality.¹³ Panels E and F instead use the regional averages of the government-led redistribution and income equalization preferences, respectively. The averages again link to policies, with elasticities somewhat lower than those derived with inequality itself. This may indicate a connection of inequality and policy outcomes outside of preferences. It is also likely that greater measurement error in preferences averages is downward biasing the elasticity. Either way, this connection of preferences to policy outcomes is helpful to observe.

An important topic for future research is to trace out how changes in social preferences translate into policy outcomes. The findings of this paper suggest that social preferences regarding inequality adjust to desire more redistribution while allowing greater labor market inequality. Different political systems—including such diverse issues as government structure, campaign financing laws, and voter participation—will influence whether shifts in preferences produce important policy changes or not. The importance of franchising groups favoring higher redistribution and the disproportionate influence of

¹² To validate these surveys, [Luttmer \(2001\)](#) demonstrates that over 30% of the variation in state welfare-benefit levels can be explained through an interaction of attitudes towards welfare with state demographic compositions. He also considers how norms for redistribution modeled with the GSS mirror voting patterns in a California proposition.

¹³ This connects to the more mixed results in earlier studies of increases in inequality to policy changes related to redistribution, which often use more localized metrics. Recent examples include [Boustan et al. \(2010\)](#), [Cooper et al. \(2011\)](#), [Corbae et al. \(2009\)](#), [Corcoran and Evans \(2010\)](#), and [Leigh \(2008\)](#). Extended references are provided in the appendix.

elites and special interest groups are often noted in particular. How political systems are structured will govern the degree to which rising concerns for redistribution generate effective political support.

To illustrate, this study closes with one example using voter participation. The GSS reports information about the voting behavior of respondents. Respondents differ in political engagement, with lower voter participation among lower-income groups well documented. A simple comparison suggests that the average voter expresses about 3% less support for redistribution compared to the average individual overall. Moreover, declining voter participation since the 1960s may be dampening support. This can be most easily seen using the pivotal gap between the median income and the mean income in the median-voter model. In the 1970s, this gap is \$6105 using the GSS income data. The gap between the median voter's income and the mean income is smaller, however, at \$5311 (13% reduction). This differential already suppresses support for redistribution in the 1970s, and it has since widened. In the 1990s, the gap between the median and mean incomes is \$13,624, but the gap to median voter is \$9468 (31% reduction). This is one example of how future work needs to investigate the degree to which preferences across society are realized in policy choices.

4. Conclusions

This study characterizes how changes in inequality affect social attitudes towards government-led redistribution and compensation differentials. Market-based factors have substantially increased inequality in the United States over the last three decades. If the inequality caused by these mechanisms reduces social preferences regarding distributive equality, the inequality can become amplified and entrenched. While international and U.S. regional cross-sections often display a strong negative correlation between inequality and support for redistribution, this study finds countries and states do not evolve along this pattern in the short-run.

Controlling for initial positions and respondent views of social mobility, local changes in inequality are positively and significantly correlated with changes in support for government-led redistribution. While greater class conflict is perceived along income dimensions, the increases in support for redistribution among wealthy individuals are as strong as those of poorer individuals. To the extent the forces driving inequality also alter the underlying beliefs (e.g., determinants of success, mobility experiences, and incentive costs) most important for determining the long-term trade-off between inequality and redistribution preferences, then these forces may contribute to reduced concern over the disparity. But the results of this study suggest that a short-term increase in inequality is unlikely to prompt a vicious cycle where support for redistribution declines, thereby promoting further increase in inequality.

On the other hand, significant growth in proposed wage differentials is evident in the international analyses with higher inequality. While less than one-for-one, increases in inequality are associated with greater acceptance of wage disparities. This pattern suggests that labor market changes may reinforce inequality growth. Establishing these empirical regularities is important given that theory provides ambiguous predictions and understanding the relative strength of the underlying forces requires quantification.

Several important areas for future research exist beyond the policy and institutional channels described earlier. Political economists have long studied reasons for the negative cross-sectional relationship between inequality and support for redistribution; this study explored localized movements around these long-run positions. Recent theoretical research considers endogenous shifts in long-term positions; as more data become available, future research should empirically test these longer-term dynamics. Such shifts will clarify primal factors behind cross-sectional differences, highlight whether the concerned responses noted here are governed by important thresholds or critical-mass points, and identify mechanisms beyond ideology that can contribute to the formation of vicious cycles.

It is also important to characterize the channels through which inequality and preferences interact. For instance, increasing social stratification may amplify or diminish the direct effect of increasing inequality on social preferences. [Alesina and La Ferrara \(2000\)](#) report greater inequality is particularly correlated with reduced membership in church and service groups, activities often associated with assisting the less fortunate. [Watson \(2009\)](#) links inequality with greater income segregation in cities. This deterioration of civic bonds may weaken support for redistribution. On the other hand, [Luttmer \(2001\)](#) argues free-rider concerns likely reduce support for welfare policies, and perhaps these concerns are weakened in more-segmented communities. It is also unclear how the non-pecuniary status desires that can limit support for redistribution change in a more-stratified society (e.g., [Corneo and Gruner 2000, 2002](#)). A better understanding of how stratification and other channels facilitate the interaction of inequality and preferences is an important next step.

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Appendix A. Supplementary material

Supplementary data associated with this article can be found in the online version at <http://dx.doi.org/10.1016/j.jmoneco.2014.03.002>.

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