

## WORKING PAPER

### Income Inequality and Social Norms for Compensation Differentials and Government-Led Redistribution

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*Abstract:* In cross-sectional studies, countries with greater income inequality typically exhibit less support for government-led redistribution and greater acceptance of wage inequality (e.g., United States versus Western Europe). If individual nations evolve along this pattern, a vicious cycle could form with deteriorating social concern amplifying primal increases in inequality due to forces like skill-biased technical change. Exploring movements around these long-term levels, however, this study finds increases in inequality are met with greater, not less, support for redistribution. Larger compensation differentials are accepted as inequality grows, but of a smaller magnitude than the actual increase. These findings suggest short-run responses in social norms do not amplify inequality shocks.

*JEL:* D3, D6, H1, H2, H5.

*Keywords:* Inequality, Social Norms, Redistribution, Welfare, Class Warfare

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## 1. Introduction

Accounting for the substantial increase in wage and income inequality over the last three decades is a central theme of recent economic research. The bulk of the literature focuses on forces operating within the labor market on the supply and demand for skilled workers. These include the slower growth rate in the supply of educated workers, the introduction of labor-saving production and computing technologies, and capital deepening.<sup>1</sup> Others 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, minimum wages)<sup>2</sup> and the proliferation of “superstar” labor markets where top performers earn disproportionate sums to those just behind them.<sup>3</sup> The potential erosion of social norms 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.<sup>4</sup>

While the early work considers each of these determinants in isolation, it is increasingly clear 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.<sup>5</sup> Taking skill-biased technical change as an example, its individual effect on inequality will be checked in the long-run as firms substitute towards cheaper factors of production or labor supplies 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 magnify its solitary effect. Of course, interactions can alternatively dampen inequality shocks.

This potential for amplification is particularly worrisome for social norms regarding income equalization. First, if changes in inequality directly influence ideology, then social norms 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. The potential thus exists for the formation of a vicious cycle where increases in disparity weaken concern for wage equality or redistribution. This weakened concern affords greater future compensation differentials, a shrinking of the welfare state, etc. that further increase inequality and again erode norms. Alternatively, changes in social norms can counteract inequality increases.

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<sup>1</sup> Berman, Bound, and Griliches (1994); Katz and Murphy (1995); Autor, Katz, and Krueger (1998); Krusell et. al. (2000); and Card and Lemieux (2001).

<sup>2</sup> DiNardo, Fortin, and Lemieux (1996); Lee (1999); Card (2001); and Golan, Perloff, and Wu (2001).

<sup>3</sup> Rosen (1981); Frank and Cook (1995); and Economist (1999).

<sup>4</sup> Bok (1993); Economist (1999); Piketty and Saez (2001); and Krugman (2002).

<sup>5</sup> Acemoglu, Aghion, and Violante (2001); Benabou (2002); and Hasser et. al. (2003).

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 deteriorating social norms, this response is not guaranteed as many primal factors determining these long-term ideology positions (e.g., beliefs regarding social mobility) may be stable.<sup>6</sup> The empirical response of social norms to changes in inequality has yet to be explored systematically.

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 United States 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.<sup>7</sup> The primary results are drawn from a panel of countries repeatedly surveyed by the International Social Survey Programme (ISSP) and the World Value Survey (WVS). Additional support and extensions are developed through regional variation in the United States captured by the General Social Survey (GSS); an instrument-variable specification – exploiting exogenous changes in the real federal minimum-wage rate interacted with predetermined regional characteristics – is also employed to establish causality.

The results of this study suggest that increases in income inequality are met with greater, not less, concern for inequality. Moreover, the greater concern translates into increases in support for government-led redistribution and more-progressive taxation. In line with changing factors of production, norms for compensation differentials do increase with greater inequality, but the response is significantly less than one-for-one. Fears of growing class conflict also appear to be misplaced, as the responses of wealthy individuals are as strong as those of poorer individuals. Taken together, these findings suggest localized increases in inequality alone are unlikely to prompt a vicious cycle with deteriorating social norms.

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<sup>6</sup> The determinants of this cross-sectional pattern have been a frequent and lively political-economy topic since at least de Toqueville. Alesina, Glaeser, and Sacerdote (2001) offer a recent, broad study of why the United States has both higher inequality and a smaller welfare state than Western Europe, including appropriate references.

<sup>7</sup> Political-economy models differ in their predictions of how responses to inequality changes will 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, the standard median-voter model (Meltzer and Richard 1981) suggests increases in inequality will lead to a divergence in preferences for redistribution as gaps to the median income widen.

Before proceeding to the analysis, it is worthwhile to place these findings in the context of several other research strands. First, it was earlier noted the decisions of skilled workers to take higher-wage jobs may lead to structural changes in the labor market that promote a further expansion of inequality. For example, Acemoglu, Aghion, and Violante (2001) argue biased technical change, by increasing the outside options of skilled workers, prompts the decline of unions, an institution that often compresses the wage structure. The rational decisions by skilled workers to take the higher-paid, non-union jobs are not at odds with this study's findings; in fact, increases in inequality are found to be associated with modest increases in support for wage differentials. The important point this study makes, however, is that this segregation is not accompanied by a reduced concern over distributive equality.

It is also important to distinguish ideology regarding inequality from other norms 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.<sup>8</sup> Past mobility experiences and future expectations of social position are also significant for attitudes towards income equalization.<sup>9</sup> If the forces driving higher inequality also alter these underlying beliefs, then social norms for equality may weaken. The analysis presented below controls for changes in these social-mobility beliefs to isolate the effect of inequality, concluding that the increase in inequality alone is insufficient for the formation of a vicious cycle. Additional research needs to evaluate whether other norms (and non-norms) multiplier mechanisms exist.

Finally, while inequality has risen throughout the income distribution, the exceptional increase in the very upper echelons (the top 1% and higher) is its most notable trait (Piketty and Saez 2003). Many fear this concentration of wealth has led to a substantial unraveling of norms regarding executive compensation and a disproportionate political influence for elites. Unfortunately, the data employed here do not afford an analysis of these super-wealthy individuals, and examinations of social norm changes by income classes are restricted to quintile groupings. Further research is required to assess whether this study's finding – that responses to

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<sup>8</sup> Alesina and Angeletos (2002) 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 (2002) develop a related general-equilibrium model where different beliefs regarding how just the world is create two distinct redistribution states.

<sup>9</sup> Piketty (1995); Benabou and Ok (2001); and Alesina and La Ferrara (2001).

inequality changes do not vary significantly by income level – can be applied to these extremely rich families (and executive compensation committees, etc.).<sup>10</sup>

The next section visually presents the international findings before turning to a regression framework for detailed results. Section 3 then explores regional variation in the United States. The overall inequality metrics (i.e., gini, 80-20 income percentile differential) used for the United States study are also disaggregated into measures for the upper and lower halves of the income distribution (i.e., 80-50 and 50-20 differentials), tentatively finding changes in the lower half to be more significant for explaining shifts in social norms. Section 4 refines the United States findings through an instrumental-variable specification combining exogenous changes in the federal minimum wage with predetermined regional characteristics. Finally, Section 5 explores whether responses differ by income level or neighborhood racial heterogeneity. Section 6 concludes the paper with a further discussion of this developing literature strand and directions for future research.

## **2. International Evidence**

The international portion of this study focuses on how changes in national income inequality are met with changes in social attitudes towards redistribution. Evidence is drawn from the International Social Survey Programme (ISSP) and the World Value Survey (WVS) using fixed-effects estimations that combine repeated opinion surveys with aggregate inequality metrics. The questions taken from both surveys are described, followed by the important construction of the inequality series.

### *Data Structure*

The ISSP conducts annual surveys in member countries (38 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 norms for government-led income redistribution, the first focusing on the acceptability of current income differences (Inequality Acceptance), the second considering the role of the government in the transfer of income (Government Responsibility), and the last focusing on the progressive nature of taxation (Progressive Taxation). Higher responses on a five-point scale indicate more discontent with current inequality and greater support for government intervention or progressive taxation.

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<sup>10</sup> The limited philanthropy of the super-wealthy is frequently criticized (e.g, Economist 1998). Norms for redistribution through non-government channels (e.g., churches, charities) are not considered in this study.

Respondents were also asked their opinions on the appropriate salaries for a variety of occupations. Instructions requested preferences be pre-tax and regardless of perceptions of current pay scales. From these responses, a Proposed Unskilled/Doctor Wage Ratio is developed as the log ratio of the wages ascribed for an “unskilled worker in a factory” and a “doctor in general practice.” A higher ratio indicates a more-compressed wage distribution (a log ratio of zero would indicate unskilled workers and doctors should earn the same amount), while a lower ratio indicates support for greater compensation differentials.

Finally, two questions regarding the presence of 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 the inequality in their countries, 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 and 1995 rounds of the WVS are studied. For this question (WVS Income Equalization) respondents were asked to rate their views regarding income equalization, with a higher score on a ten-point scale expressing greater concern. Table 1 details for both surveys the countries included, sample sizes, and average responses to these questions. Appendix A describes in detail the wording of each question.

As a final ingredient, this study estimates changes in national income inequality 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), and various national statistics agencies. With a few exceptions, these gini estimates are estimated with national samples of disposable (after-transfers) household income and lagged one year. Appendix B details the international series constructed and the techniques employed.<sup>11</sup>

### *Graphical Analysis*

Before considering detailed empirical estimations, it is helpful to discuss visually the main findings of this study. Figure 1 plots the mean country responses for four ISSP outcomes against the inequality levels at the time of the surveys. Trend lines indicate higher inequality levels are associated with lower average responses. That is, respondents in more-unequal countries are less

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<sup>11</sup> In the visual and empirical work below, gini estimates are preferably lagged one year, although contemporaneous and two- or three-year lags are accepted when necessary. Data restrictions prevent the use of gross (pre-transfers) family-income inequality estimates, a more theoretically appropriate metric that is less influenced by current and past norms for redistribution. Lagging disposable-income inequality one year allows it to be predetermined in the year in which the survey was taken. The United States study will later find that gross- and disposable-inequality estimates yield similar results.

likely to feel income differences are too high (Inequality Acceptance) or to assign transfer responsibilities to the government (Government Responsibility); they also propose a wider wage distribution evidenced in the smaller log Proposed Unskilled/Doctor Wage Ratio.

Three notes should be made. First, the negative correlations are not due to respondents being unable to gauge the inequality in their countries. The fourth graph of Poor-Rich Conflict indicates more-unequal societies are more likely to recognize social conflicts exist along income dimensions. Second, the negative correlations are not a product of pooling surveys – the majority of the individual cross-sections also associate higher-inequality areas with reduced concern. Finally, Figure 1 highlights that the extreme responses of transition or developing economies may overly influence the findings. To address this concern, Figure 2 restricts the sample to long-term OECD members and finds similar results.

The level patterns evident in the cross-sections, however, do not necessarily dictate the movement of countries over time. Figures 3 and 4 thus take the next step of plotting how changes in inequality correlate with changes in social norms. The x92 (x99) observations are the mean changes for country x between 1987-1992 (1992-1999). For both the whole sample and the OECD sub-sample, societies experiencing increases in inequality become more concerned about income differences and assign an increasing responsibility to the government for transferring income. Note, however, that these societies do support an increase in wage dispersion; the empirical estimations below more closely examine the magnitude of this increase. Finally, changes in Poor-Rich Conflict ratings indicate that inequality changes are being perceived.

### *Empirical Estimations*

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 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 more rigorously the visual correlations, a series of regressions are estimated 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  $t$ ):

$$\text{RESP}_{i,c,t} = A_0 + B_1 \ln(\text{GINI}_{c,t-1}) + B_2 \ln(\text{GDP}/\text{CAP}_{c,t}) + B_3 X_{i,c,t} + B_4 \text{CE}_c + B_5 \text{YE}_t + e_{i,c,t}$$

The  $B_1$  coefficient is the focus of this study. Survey responses are ordered so that a positive  $B_1$  coefficient reflects a more-concerned position: greater concern for inequality, more support for government intervention, a more-compressed wage structure, etc. The log GDP per capita controls for national wealth at the time of the survey. The  $X_{i,c,t}$  vector includes personal demographics and responses to social-mobility questions as controls. The country effects ( $\text{CE}_c$ ) control for systematic level differences among countries, while the year effects ( $\text{YE}_t$ ) absorb systematic differences in responses among surveys.

Table 2 presents the international results for the  $B_1$  coefficient, with each row representing a separate set of regressions for the ISSP or WVS dependent variable indicated. To conserve space, only the observations and  $R^2$  values for the Government Responsibility regressions are listed, but these are representative for the other ISSP estimations. Variables are transformed to have a mean of zero and a standard deviation of one to aid in interpretation. Thus, the 0.179 coefficient on the gini estimate in the first regression for Government Responsibility indicates a one standard-deviation change in the inequality level is estimated to be partially correlated with a change of about 18% of one standard deviation in survey responses.

The first column of results is for regressions that include only country and year fixed effects.<sup>12</sup> It is clear that the correlations noted earlier are statistically significant, but of a modest magnitude. An increase inequality is met with greater concern for income differences, a heightened role for government intervention, and a desire for a more-progressive tax structure.<sup>13</sup> Statistically significant increases in awareness of social conflict between poor and rich again highlight that changes in inequality are being perceived. Table 2 also includes results for awareness of social conflict between young and old people as a falsification exercise – the inequality changes are not correlated with changes in conflict awareness along this dimension.

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<sup>12</sup> Statistical agencies conducting surveys within each country provide weights for forming nationally representative samples; these weights are further adjusted so that all country-year observations carry the same significance. The results are not sensitive to employing weights or different weighting strategies. Standard errors are clustered on country-year observations.

<sup>13</sup> Levels regressions without country fixed effects also confirm the pooled cross-section correlations of Figures 1 and 2 – areas with greater inequality have a statistically significant reduced concern for income differences, weaker support for government intervention, and lower desire for a progressive tax structure. While critical for the results, only one other study considering fixed-effect specifications with inequality levels has been identified. Alesina, Di Tella, and MacCulloch (2001) employ a similar strategy in their study of differences in happiness between the United States and Europe. Suhrcke (2001) combines measures of inequality and an indicator dummy for post-socialist countries in a single cross-section from the 1999 ISSP Social Inequality survey.

Respondents are more likely, however, to propose a wider wage distribution. This is not very surprising as the productive force causing the inequality (e.g., skill-biased technical change) will certainly influence compensation norms. It is important to note, however, that the magnitude of this change is not very negative – that is, norms adjust to support additional inequality, but they fall short of endorsing the full expansion of inequality that is occurring.<sup>14</sup> A disaggregation (not shown) of changes in the Proposed Unskilled/Doctor Wage Ratio shows the expansion to be primarily occurring between doctors and skilled workers rather than skilled workers and unskilled workers.

Regression (2) adds the log GDP per capita to capture movements in the overall wealth of the country, as well as Demographic Controls and Mobility Controls. Demographic Controls include sex, married, age, education, and income dummies. Mobility Controls incorporate respondents' answers to other ISSP and WVS 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 are also modeled by 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. WVS regressions incorporate a question asking respondents to rate whether hard work or luck determines success or failure.

The magnitudes and significance of the coefficients on the gini estimates are robust to including these Demographic and Mobility Controls. Regression (3) further shows the results to be robust to including Work Controls of dummies for self-employed, supervisor, unemployed, and a union member.<sup>15</sup> Including the covariates, a one standard-deviation change in inequality now accounts for 20-25% of a standard-deviation change in responses for most ISSP variables. Note, however, that the coefficients in the WVS regressions suggest a substantially higher

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<sup>14</sup> The ISSP surveys also asked respondents, in addition to proposing wages for various occupations, what they thought those occupations actually earned. Regressions of proposed wage ratios on perceived wage ratios also yield significant coefficients but with magnitude less than one-for-one. That is, respondents with a higher perception of current wage inequality do propose a wider wage structure, but not as wide as the inequality they perceive.

<sup>15</sup> The coefficients on the Demographic and Work Controls follow the patterns found in previous cross-sectional studies and are not reported here (e.g., Suhckre 2001, Alesina and La Ferrara 2001). As the quality of income data varies substantially across surveys and countries, respondents are grouped into family-income quintiles for each survey year. Not surprisingly, support for redistribution declines with income; support also tends to be lower among male, older, and more-educated respondents. Self-employed workers and supervisors tend to have less support for redistribution, while unemployed workers and union members are more supportive. The direction of these findings, while reasonable, should be treated with caution as income variation not captured by the quintile groupings may be loading onto other demographic and work characteristics. Finally, note that race/minority status is not included in the demographics; later results indicate this is an important factor for the United States.

explanatory power of 40-60%. The higher percentage 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.<sup>16</sup>

As discussed earlier, poorer and transitional countries appear at least visually to possess substantially higher support for redistribution than their OECD counterparts with similar levels of inequality.<sup>17</sup> Moreover, they demonstrate significant changes in attitudes and inequality levels that dwarf the more-stable advanced nations. To ensure the sample composition between OECD and non-OECD countries is not driving the results, Regression (4) includes Year x OECD dummies. Likewise, Regression (5) incorporates Year x Transition Economy dummies. With the exception of the ISSP Progressive Taxation variable, the significance levels of the gini estimates are robust to forcing the variation into the subgroups. Regression (6) also shows the results are robust to substituting a time trend for the year dummies.

While the results in Table 2 are for regressions employing only responses to the ISSP Social Inequality module, the Government Responsibility and Progressive Taxation questions were also included in the 1985, 1990, and 1995 Role of the Government module. A longer panel can be constructed that combines surveys from these two modules. While the panel enjoys more countries and higher-frequency variation in macroeconomic conditions, it unfortunately does not afford the inclusion of the important Mobility Controls. The findings from this longer panel (presented in an earlier version of this paper) mirror those in Table 2, with the positive coefficient for the Progressive Taxation question more robust to forcing the variation into the OECD and Transition Economy subgroups. A second version of the Government Responsibility question was also included in the Role of the Government surveys and the 1991 and 1998 ISSP Religion module. Results from this third panel are also consistent with those presented in Table 2. The stability of the findings through shifting time intervals and countries surveyed speaks to the robustness of the redistribution response.

### *Discussion of Results and Identification*

The findings of Table 2 suggest a one standard-deviation increase in inequality is partially correlated with about 20% of a standard-deviation change in social norms. In words, it suggests that increases in inequality are met with a greater concern for inequality and a stronger desire for government-led redistribution, but this increased concern is modest and reflects small movements around the long-term levels of the countries. Taking the United States as a specific example, a

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<sup>16</sup> It is also possible that the relative wording of the WVS question (see Appendix A) is responsible for these higher coefficients.

<sup>17</sup> Austen (1999) and Suhckre (2001).

20% response would be sufficient to achieve 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.

A causal interpretation for these results is reasonable, although not assured. Two basic concerns are the endogenous relationship between inequality and norms (i.e., that norms also influence the inequality levels) and omitted-variable biases. In addition to the lagging of inequality one period, the direction of the results suggests that the reverse-causality concern is weak. It could not have been the case that changes in social norms 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 affect the coefficient magnitudes slightly, but will not change the direction of the findings.

It may be possible, however, to argue an omitted factor prompted both the increases in inequality and the changes in social norms. 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). The consistent results of higher inequality being associated with higher concern over disparities and increased conflict between the poor and rich, however, suggest that the most-plausible interpretation is the increased inequality acted directly on social norms. A more-rigorous instrument strategy employed with the United States data will also support this interpretation.<sup>18</sup>

### **3. United States Evidence**

To complement and verify the international findings, regional variation in inequality and support for income equalization from the United States is explored next. In addition to being a check for the earlier results, this is of interest 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 are made in the United States at the state or city level, with officials accountable to their

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<sup>18</sup> It is, however, quite possible that weakening concern over compensation differentials contributed to rising wage inequality (reverse causality), particularly the significant increase in executive salaries. Unfortunately, the United States survey employed in the next section does not contain wage differential questions like the ISSP. Thus, while the instrumentation will be able to assign causality for the general redistribution result, this study will only be able to establish partial correlations regarding rising inequality and compensation differentials.

local constituents. Finally, but certainly not least from a research perspective, the quality and quantity of United States data afford extensions and instruments that are not possible in international studies.

### *Data Structure*

United States social norms are estimated from the General Social Survey (GSS), which 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. 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 similar to the conflict between the young and old question in the international study. 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. A fourth question surveying political-party affiliation is described below. Responses are again ordered so that higher values correspond to higher support for the reduction of inequality.

An important criticism of studies employing opinion polls is that they may be capturing only cheap talk – that is, respondents are willing to say redistribution should be higher, but they do not expect the government to take serious action and do not change their own behavior. There are a number of ways to substantiate that norms regarding redistribution do matter. Luttmer (2001), for instance, 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.

Keeping the analysis focused on the GSS survey, this project instead considers how shifts in reported political-party affiliation correlate with changing inequality levels. Respondents are asked to state their party preference and the strength of this association on a seven-point scale (Party Identification), 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 transfer from the United States' 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. Appendix C details the wording of these four questions.

The final requirements for the United States analyses are the important inequality metrics. The richness of United States 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 80<sup>th</sup> and 20<sup>th</sup> percentiles. After considering overall inequality, the 80-20 differential is disaggregated into the changes in inequality in the upper half of the distribution (80-50 differential) and the lower half (50-20 differential). Inequality estimates in this section are calculated over disposable family income for the four primary Census regions (Northeast, Midwest, South, and West) from the March Current Population Surveys (CPS); in the next section these results will be shown representative of other income definitions (pre-tax family labor earnings, hourly wage) and lower levels of regional aggregation (nine Census regions, states).<sup>19</sup>

### *Discussion of Identification*

It is important to highlight some identification issues for the United States findings before discussing the empirical results. While a motivation for this exercise was to explore whether regional inequalities matter more for social norms than national trends in large countries, the data suggest they are in fact second-order for the United States. Figure 5 plots the mean response to the GSS Welfare Spending question and the 80-20 income differential for each region by year.<sup>20</sup>

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<sup>19</sup> Three levels of geographic aggregation and three forms of inequality are considered for the United States. On the geographic dimension, inequality estimates for Census regions (four or nine) are calculated from the March CPS files. These annual measures are preferred since decade-based measurements can miss important fluctuations (most noticeably the significant expansion in family-income inequality during the recessions of the early 1980s and 1990s). The sample sizes of the March CPS are insufficient, however, for state-level analyses (and states are not identified until 1977). State-level statistics are instead calculated from the Census for each decade, with standard errors clustered at the decade level.

Three income definitions are considered: post-tax disposable family income from all sources, pre-tax family labor earnings, and hourly wages. The first two family measures are calculated over family equivalents using Danziger and Gottschalk's (1995) procedure of dividing by an inflation-adjusted poverty-line estimate for a family of similar composition (i.e., the number and ages of adults and children in the family unit). Additional procedures for preparing the sample (e.g., the exclusion of military families, adjustment of top-codes) follow the common practices outlined in Danziger and Gottschalk (1995); Autor, Katz, and Krueger (1998); and Katz and Autor (1999).

In each analysis, the regional fixed effects, median income levels, and standard-error clustering are adjusted to the appropriate geographic aggregation; median income levels are additionally adjusted to reflect the income definition used in the inequality calculation. Appendix D reports the regional disposable-income 80-20 differential estimates employed in the primary regressions.

<sup>20</sup> While representative, the mean regional responses should be treated with caution. The sampling design of the GSS results in certain states or metropolitan areas with distinct differences in social norms from their surrounding region (e.g., the more-religious Utah in the West) entering and leaving the survey. While the regression results control for these shifts, the regional mean responses do not.

Two features of this graph deserve inspection. First, some differences in regional inequality exist (the solid line). 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 the inference is from stable inequality or increases in inequality. Second, as the dramatic swings in the mid-1970s and 1990s highlight, regional variation in welfare support is second-order to large national shifts, likely due to political swings.<sup>21</sup>

The national trends in inequality and social norms 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 should be smaller than those captured in the international estimations.<sup>22</sup>

### *Empirical Estimations*

Table 3 considers a set of specifications similar to the international regressions studied in Table 2. Please note that separate regressions are run with the regional gini estimates and 80-20 differentials; the number of observations and the  $R^2$  values are only reported once for each dependent variable as they are almost identical for the two inequality measures. Regression (1) finds changes in regional inequality partially correlate with a statistically significant increase in support for all three norms when only year and region fixed effects are included. As expected, the coefficients are smaller than those found in the international regressions, as the regional variation is second-order to national trends. As a falsification exercise for Welfare Spending, no significant correlation is registered for Space Exploration Program Spending.

As before, Regressions (2) and (3) further show the significance of the coefficients are reasonably robust to including the regional median income (akin to the national GDP per capita)

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<sup>21</sup> The significant decline in support in the mid-1970s is linked to the explosion in welfare caseloads in the prior decade (e.g., Moffitt, Ribar, and Wilhelm 1998), 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 norms between these periods is quite striking.

<sup>22</sup> To conserve space, a graphical analysis similar to that presented for the international evidence is omitted. While the same patterns generally exist, they are weaker (as the upcoming regressions quantify). In the pooled cross-section, regions with higher inequality exhibit reduced support for income equalization and more right-winged politics, although a levels correlation with greater support for welfare spending is evident. While most individual ISSP cross-sections also display the negative relationships evident in the pooled graphs, the substantial national shifts in GSS responses do produce some positive trends when examining smaller time intervals. As in the international presentation, increases in inequality visually correlate with greater support for income equalization and welfare spending; the mean party affiliation also shifts towards the Democratic Party. Employing disaggregated inequality metrics does not affect the direction of these responses.

and Demographic Controls, Mobility Controls, and Work Controls. Unfortunately, incorporating many GSS social-mobility variables severely limits the sample size; the regressions only include a question that asks whether the financial position of a respondent's family has improved, worsened, or stayed the same over the last few years.<sup>23</sup> The GSS does, however, collect race data. Non-white respondents are found in Regression (4) to have significantly higher support for redistribution, even after including income levels and the other Demographic Controls. The coefficients for Welfare Spending and Party Identification remain of similar size and significance, but those for Income Equalization diminish.

The last two columns offer some robustness checks. Excluding the South in Regression (5) affects the significance of several estimates, but the shifts are sporadic. The seventeen states defined as the South comprise about a third of all GSS respondents, and it is not too surprising that the smaller sample size influences several estimations. The final regression includes a time trend. The coefficients on all the variables shift substantially, but the large increase for Welfare Spending is particularly noticeable. As Figure 5 highlighted, the norms series, and to some extent inequality, exhibit significant, non-linear national shifts. Replacing the year effects with a linear trend allows more of this variation to load onto the regional inequalities.

A significant concern about the analysis thus far is that gini estimates only measure overall inequality. A detailed exploration should further identify the subsets of the income distribution that are most important for changes in social norms. While more-disaggregated international statistics are very rare and typically of poor quality, United States data are available. Table 4 decomposes the 80-20 inequality into the 80-50 and 50-20 differentials (note these are included in the same regression). The results suggest that trends in inequality in the lower half of the distribution (i.e., the poor being increasingly left behind) are most responsible for the aggregate results previously identified for the United States.<sup>24,25</sup>

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<sup>23</sup> Demographic surveys often find respondents over-estimate their relative financial position (e.g., Brooks 2002). 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.

<sup>24</sup> Using 90-50 and 50-10 trends, which demonstrate less co-movement than the 80-50 and 50-20 series, yields significant results for the 50-10 ratio in all regressions (including Income Equalization). It should be noted, however, that a rigorous characterization of the relative contributions of inequality in the two halves of the income distribution requires separate instruments be designed for each portion. This is left for future research. It is also worth emphasizing these results should not be applied to the earlier international findings, especially the compensation differential metrics between doctors and factory workers.

<sup>25</sup> Moffitt, Ribar, and Wilhelm (1998) find evidence that declining welfare-benefit levels can be linked to declining low-skill wages, as voters seek to maintain a target benefit-wage ratio (perhaps to preserve equity between working and non-working poor or to minimize employment disincentives). The disaggregated income inequality results (in particular, the positive, significant coefficient on the 50-20 ratio) are robust to including measures of the 15<sup>th</sup> or 25<sup>th</sup> percentile wages.

#### 4. Minimum-Wage Instrument

United States 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. In this section, an instrument designed for the United States regional variation will further undergird this claim.

In recent empirical studies, labor economists have noted the role of the minimum wage in rising United States inequality, especially during the 1979-1989 period when the real (inflation-adjusted) value of the federal rate declined by 24%.<sup>26</sup> 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. A credible 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 region-year inequality trends (which are themselves also subject to the fixed effects).

This study employs regional coverage ratios, defined as the percent of the working population protected by the minimum-wage statutes, as its interaction term. Regions differ in the composition of their economic activity, and the federal minimum-wage mandates are not applied equally to industries (e.g., 1970-2000 coverage rates in agriculture averaged 41% versus manufacturing's 97%). The larger the fraction of a region's population covered by the federal statutes, the more impact federal rates can have on the local economy. The simplest interaction term would be the 1970 coverage rate; in a slight design improvement, the interaction term is built instead as the expected coverage in year  $t$  for each region. This modification allows incorporation of trends in national coverage rates due to changing federal legislation (especially in the mid 1970s), thereby raising the quality of the first-stage estimations. The inequality instrument for (region  $r$ , year  $t$ , industry  $j$ ) takes the following form:<sup>27</sup>

$$\text{INEQIV}_{r,t} = \ln(\text{FED}_{1970}/\text{FED}_t) * E_{1970} \text{COV}_{r,t}$$

$$\text{where } E_{1970} \text{COV}_{r,t} = 1 - \sum_j \text{IND}\%_{j,r,1970} * (\text{COV}_{j,1970}/\text{COV}_{j,t})$$

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<sup>26</sup> DiNardo, Fortin, and Lemieux (1996); Lee (1999); and Golan, Perloff, and Wu (2001).

<sup>27</sup> Recall that inequality is lagged one year in the estimations; the instrument will be lagged as well.

The two parts of this interaction deserve careful explanation. The construction of the second element  $E_{1970}COV_{r,t}$  is the more complicated. It is the expected coverage rate in region  $r$  for year  $t$ , estimated from the 1970 industrial composition of the working poor and changes in national coverage rates by industry.  $IND\%_{j,r,1970}$  is the percent of a region's workforce from the 1970 Census who are both earning less than the minimum wage and working in industry  $j$ . By itself,  $\sum_j IND\%_{j,r,1970}$  would produce the actual percentage of the region's working population earning less than the federal minimum wage in 1970.  $COV_{j,1970}/COV_{j,t}$  is the ratio of the national coverage rate for industry  $j$  in 1970 to that in year  $t$ . From a starting value of one, the ratio moves above (below) one for industries where the coverage rates decrease (increase) compared to 1970 levels.<sup>28</sup>

The combination of these terms is the expected percentage of a region's workforce earning below the minimum wage in year  $t$ . The starting 1970 level of  $\sum_j IND\%_{j,r,1970}*(COV_{j,1970}/COV_{j,t})$  is still the actual workforce percentage earning below the 1970 federal rate in each region (as the coverage ratio for all industries is one). For subsequent years, it is expected that the percentage of the population earning below the minimum wage will decline in region  $r$  if its poor workers were primarily employed in industries where the coverage rate later increased. On the other hand, little change is expected in states or regions where very few workers were initially below the minimum wage or where the poor worked in industries for which the coverage rate did not change significantly. Finally,  $1 - \sum_j IND\%_{j,r,1970}*(COV_{j,1970}/COV_{j,t})$  estimates the percent of the population covered by the minimum-wage mandates and thus the potential importance of changes in the federal rate for the region's inequality level.

Turning to the first term,  $\ln(FED_{1970}/FED_t)$ , the log ratio of the real federal minimum-wage rate in 1970 to the rate in year  $t$  takes an initial value at zero for 1970. In years when the real federal rate is greater (less) than the real federal rate for 1970, this component of the instrument will have a negative (positive) value. Note that 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. Appendix D provides descriptive statistics for these two components of the instrument.

The instrument is then the interaction of shifts in the real federal rate with the expected coverage level, or how much the federal legislation matters for a region. Note again that the

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<sup>28</sup> Coverage rates are at the one-digit SIC level and exclude government employees (Nordlund 1997, United States Department of Labor 1998). Coverage rates have not been identified for 1989 or after 1996. For the main estimations, a linear interpolation is employed for 1989 and observations post-1997 are assigned 1996 values; the results are robust to dropping these missing years. Unfortunately, the coverage data are not disaggregated to where each observation's own region could be excluded. As Appendix D shows, the expected coverage rate calculations produce only a slight trend vis-à-vis fixed 1970 levels.

instrument comes only from the interaction between these two elements. The individual trends of the real federal rate and industry coverage rates are absorbed by the year effects. Geographic fixed effects control for the region's predetermined industrial composition of poor workers. Note too that the instrument does not have a level per se – its value for all regions is zero when the real federal rate is equal to its 1970 level (i.e., 1970 itself, approximately so in 1975/1976 and 1981). It relies on the region fixed effects to control for the mean inequality positions of each area. Finally, the instrument is designed to have a positive first-stage coefficient. The  $E_{1970}COV_{r,t}$  term is always positive and only governs the magnitude of the response; the  $\ln(FED_{1970}/FED_t)$  component is positive when the current federal rate is below its 1970 level, which should correspond to rising inequality, and vice versa.<sup>29</sup>

Table 5 presents the detailed results of the instrumental-variable specifications for the log 80-20 differential.<sup>30</sup> The first-stage results are presented for the Welfare Spending outcome; the positive coefficients and  $R^2$  values are reflective of the other dependent variables. Figure 6 plots for each region the residual trends (i.e., after year and geographic fixed effects are removed) for the minimum-wage instrument (the solid line) and the inequality level (the line with circles). The expected first-stage relationship is apparent within each region.

The second-stage results confirm the least-square specifications discussed earlier; a one standard-deviation increase in inequality is now found to produce 10-20% of a standard-deviation shift in support for government-led redistribution. Table 6 concludes by replicating the second regressions of Tables 3 and 5 (i.e., estimations including median income levels, Demographic Controls, and Mobility Controls) across three levels of geographic aggregation and three income

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<sup>29</sup> The robustness of the instrument design has been verified on several dimensions. First, the results are mostly robust to simply fixing the coverage rate at its 1970 level for each region; the only trouble spot is in regressions that contain only year and region fixed effects, as the simpler interaction captures some of the median-income level trend when it is excluded. Second, the total industrial composition of the region can be substituted for the industrial composition of the poor workers. Finally, as noted above, the instrument incorporates two aggregate trends – changes in the federal rate and changes in industry coverage rates. Close observation shows the instrument can work against itself. Focusing on movements in the minimum-wage level, the instrument correctly predicts regions with higher coverage levels will be more affected by federal changes. Yet, over a short horizon and holding the minimum wage fixed, the instrument incorrectly predicts an increase in the coverage rate will raise inequality if the real federal rate is below its 1970 level; its predicted direction is correct if the real federal rate is above its 1970 level. An alternative specification removes the competing effects by using two instruments, one interacting the dynamics of the federal rate with fixed 1970 coverage rates and the second interacting industry coverage rate trends with the 1970 industrial composition. The results are again very close to those presented in the main text.

<sup>30</sup> The battery of regressions is similar to Table 3, although the time-trend specification is dropped since the instrument design requires year fixed effects be included. The instrument specifications are robust to using other forms of aggregate inequality (gini, 90-10, entropy). Estimations employing only the 50-20 differential also yield similar results, but excluding inequality in the upper half of the distribution may create a bias since some workers in high-income families are affected by minimum-wage legislation (Card and Krueger 1995). While first-stage coefficients for the 80-20 or 50-20 specifications are almost always positive and highly significant, potential first-stage coefficients for the 80-50 inequality are of mixed sign and significance.

definitions; the first three columns are for least-squares regressions, while the last three columns are for instrumental-variable specifications.<sup>31</sup> 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. However, these two trends are weaker in the instrumental-variable permutations. While high standard errors are evident in some state-level or hourly wage specifications, the instrumental-variable results in general are robust across these dimensions.

## **5. Income-Class and Neighborhood-Heterogeneity Extensions**

This final section extends the United States analysis to consider whether the average increase in support for redistribution with rising inequality masks differences among income classes.<sup>32</sup> While the demographic characteristics of respondents are statistically significant for explaining survey answers, Piketty (1996, 1999) notes the overall level of disagreement within a country about distributive equality is usually small vis-à-vis other social issues (e.g., death penalty). Section 2 found, however, that perception of conflict between the poor and the rich increases with rising inequality, and it is important to clarify if the average response belies increasing disagreement between classes about appropriate redistribution levels. The rich may become more protective of their wealth as the gap grows, perhaps out of concern over larger transfers or perhaps out of reduced fear that they too may one day be poor. Altruistic motives, however, may yield greater assistance from the wealthy as disparity widens.<sup>33</sup>

Exploring this issue, Table 7 presents three least-squares regressions for the United States norms studied. The first regression of each triplet simply includes Demographic Controls, Mobility Controls, and Racial Controls (i.e., a replication of Regression 4 from Table 3). The second regression interacts the 80-20 differential with whether respondents are in the top-two income quintiles or the bottom-two income quintiles. The results indicate fears of the wealthy becoming stingier with higher levels of inequality are likely misplaced. No significant differences by class are found for the Welfare Spending or Income Equalization variables.

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<sup>31</sup> Note again that the regional specifications are annual and derived from the March CPS while the state specifications are at the decade level and derived from the Census. See footnote 19 above.

<sup>32</sup> An earlier version of this paper replicated this analysis for the ISSP and WVS panels, finding similar results for the income-quintile interactions. These results are available upon request. Neighborhood racial heterogeneity was not available for study at the international level.

<sup>33</sup> The Economist (1998, 2001, 2003) provides several discussions of the class-warfare issue and its relationship to redistribution and the American political landscape.

Respondents in the bottom-two quintiles are more likely to align themselves with the Democratic Party as inequalities in their regions increase. This result is not robust, however, to interacting a time trend with being in the upper-two or lower-two income quintiles.<sup>34</sup>

The third regression of each trio interacts the 80-20 differential with whether the respondent lives near someone of the opposite race (and also adds a main effect for being in a heterogeneous neighborhood). Luttmer (2001) finds support for welfare spending increases as the share of local recipients from a respondent's racial group rises. Lind (2003) also finds aggregate evidence that inequality between racial groups versus inequality within racial groups can have opposite effects for redistribution outcomes. The interacted coefficient for the Welfare Spending regression (but not Income Equalization) agrees with these studies – the increase in redistribution support associated with rising inequality is diminished in racially heterogeneous neighborhoods.<sup>35</sup>

The results of this section suggest changes in support for government-led redistribution are fairly uniform across income groups. The data do not support hypotheses of rising class warfare as inequality increases. 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. A limitation to these findings, however, is important to note. Piketty and Saez (2003) find a tremendous increase in the concentration of wealth among the very rich in the United States (the top 1% and even smaller fractions). Unfortunately, the data cannot be used for an analysis for these super-wealthy individuals and their disproportionate influence (e.g., Krugman 2002).

## 6. Conclusions

This study sought to characterize how changes in inequality affect social attitudes for 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 weakens social norms regarding distributive equality, the inequality can become amplified and entrenched. While international and United States regional cross-sections often display a strong, negative correlation between inequality and support for

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<sup>34</sup> McCarty, Poole, and Rosenthal (2003) note increases in United States inequality have moved in tandem with stronger ideological differences over redistribution and more-polarized party politics. While income has become a stronger predictor of party affiliation over the last twenty-five years, their work also suggests inequality bears limited responsibility for the polarization.

<sup>35</sup> The significant coefficient on the Party Identification interaction (i.e., that respondents are significantly less likely to lean towards the Democratic Party as inequality increases in their region if they live in a racially heterogeneous community) should again be treated with caution. It is a product of the increasing popularity of the Republican Party in the South during this period; dropping this region from the regression yields an insignificant interaction

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. Acceptance of wage disparity does increase with higher inequality levels, but the response is less than one-for-one. Finally, no signs of deepening class divisions are evident. To the extent the forces driving inequality also alter the underlying beliefs (e.g., determinants of success, mobility experiences, incentive costs) most important for determining the long-term tradeoff between inequality and redistribution norms, then these forces may contribute to reduced concern over the disparity. The conclusion of this study, however, is that the increase in inequality itself is insufficient for weakened social norms for equality.

Several important areas for future research exist. 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<sup>36</sup>; as more data become available, future research should empirically test these longer-term dynamics. Such shifts will further clarify the 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 norms interact. For instance, increasing social stratification<sup>37</sup> may amplify or diminish the direct effect of increasing inequality on social norms. 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. 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.<sup>38</sup> A better understanding of how stratification and other channels facilitate the interaction of inequality and norms will afford more-causal assessments and aid in policy recommendations.

Finally, and most importantly, future research should trace how different political systems (including such diverse issues as government structure, campaign financing laws, voter

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<sup>36</sup> Benabou (2002) and Hassler et. al. (2003).

<sup>37</sup> Putman (2000); Benabou (1993, 1996); and Bertrand, Luttmer, and Mullainathan (2000).

<sup>38</sup> Corneo and Gruner (2000, 2002).

participation, etc.) govern the translation of changes in social norms into policy outcomes. Recent research notes in particular the importance of franchising groups favoring higher redistribution and the disproportionate influence of elites.<sup>39</sup> The adoption of more-conservative redistribution policies in several Anglo-Saxon countries during periods of rising inequality suggests this issue is a primary concern.<sup>40</sup> How political systems are structured will govern whether rising latent concerns for redistribution produce higher effective support to which politicians are held accountable.

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<sup>39</sup> Husted and Kenny (1997) and Lott and Kenny (1999).

<sup>40</sup> Caminada and Goudswaard (2001) and Hassler et. al. (2003). Interestingly, little correlation exists at the state level between inequality and Democrat vote percentages in United States Presidential elections (Rodriguez 1999). Whether uneven declines in voter participation can reconcile the findings of this study with the aggregate outcomes is being explored in current research.

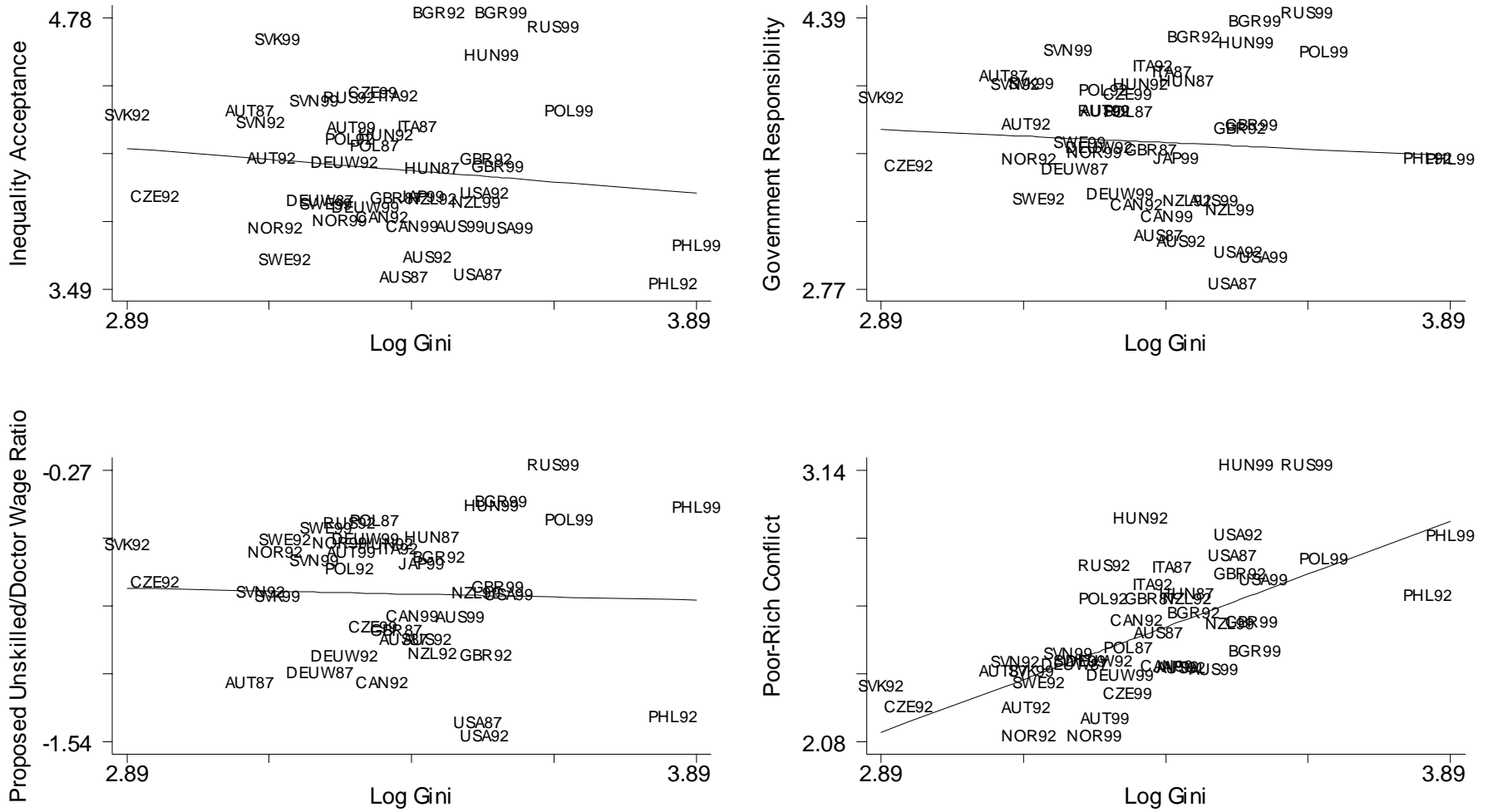


Figure 1: ISSP Inequality Norm Levels

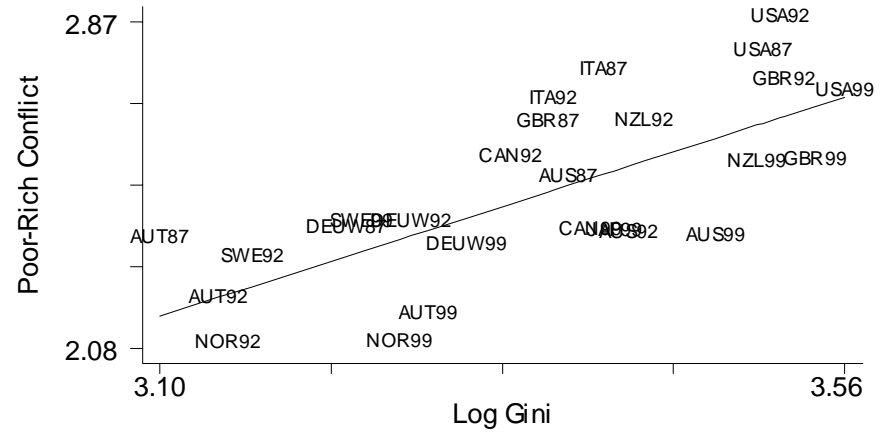
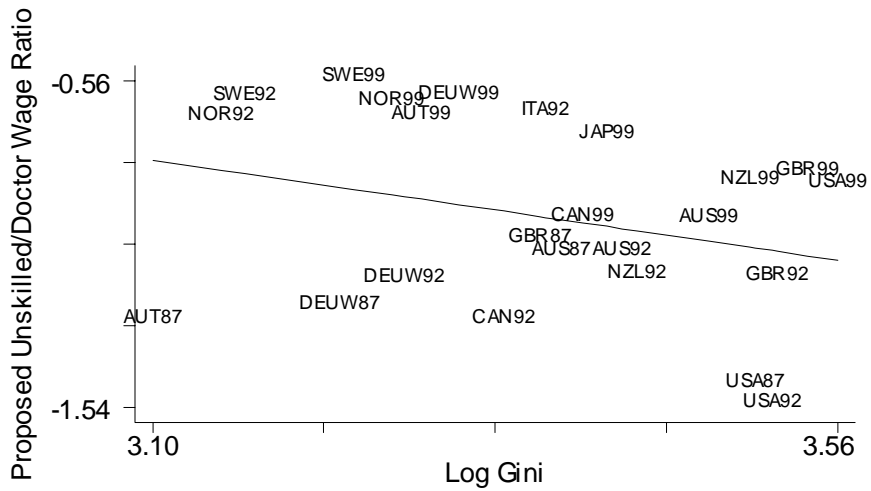
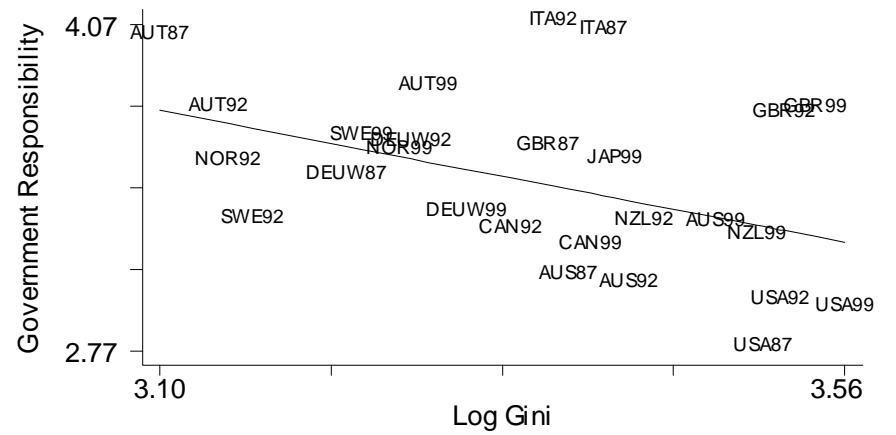
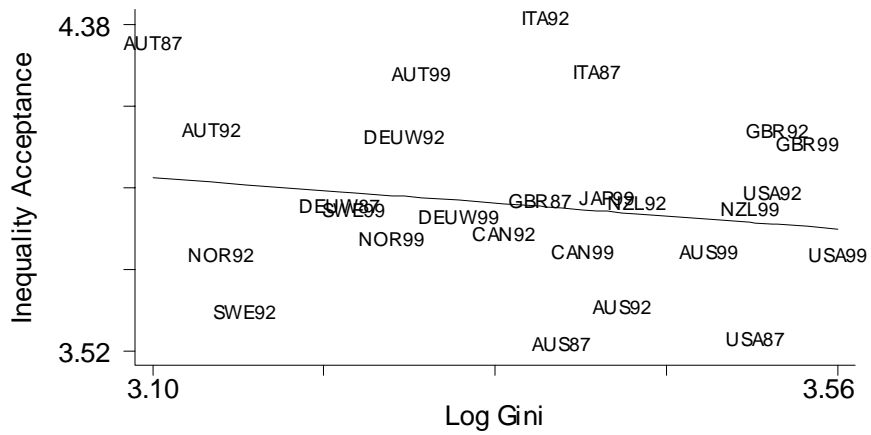


Figure 2: ISSP Inequality Norms Levels - OECD

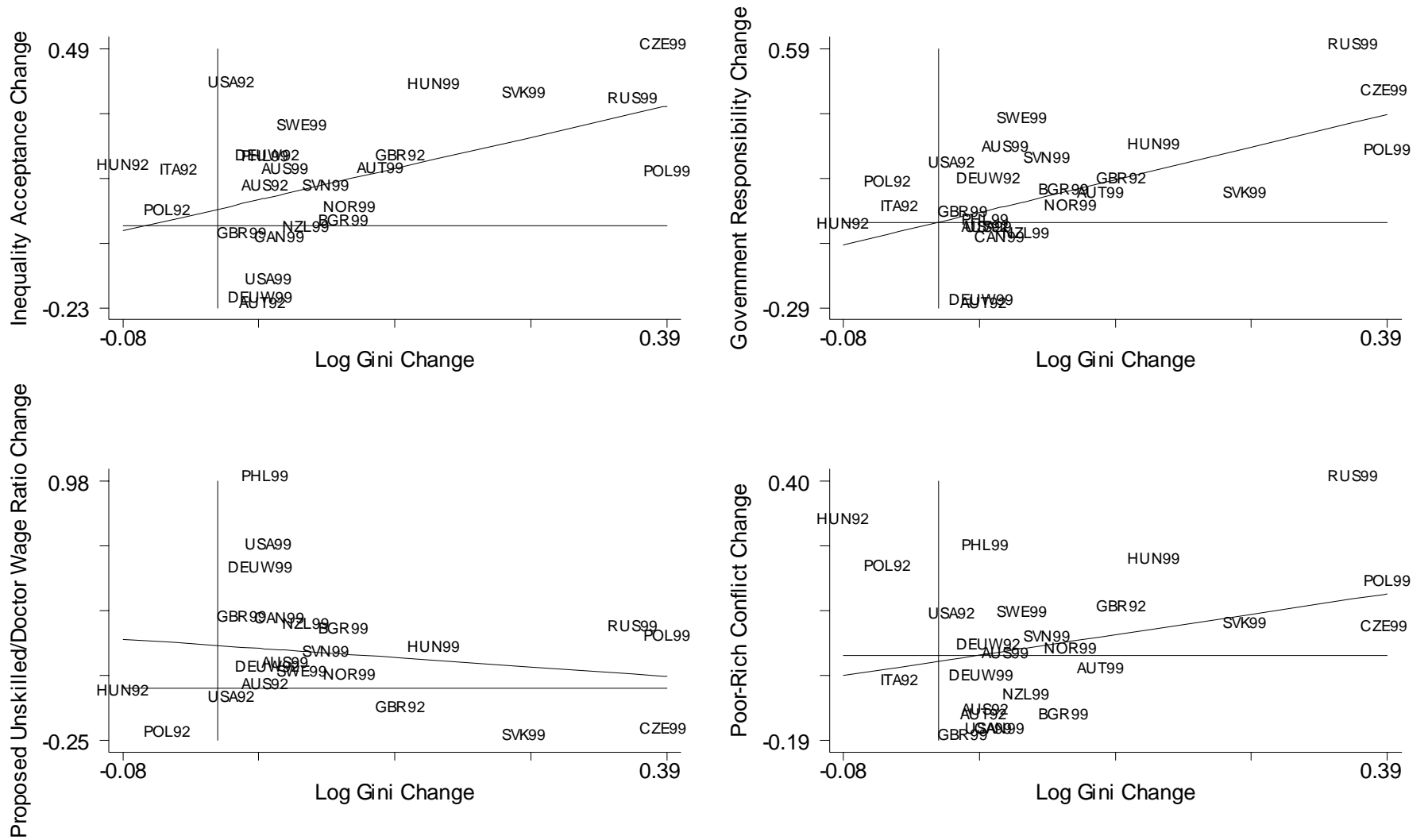


Figure 3: ISSP Inequality Norms Changes

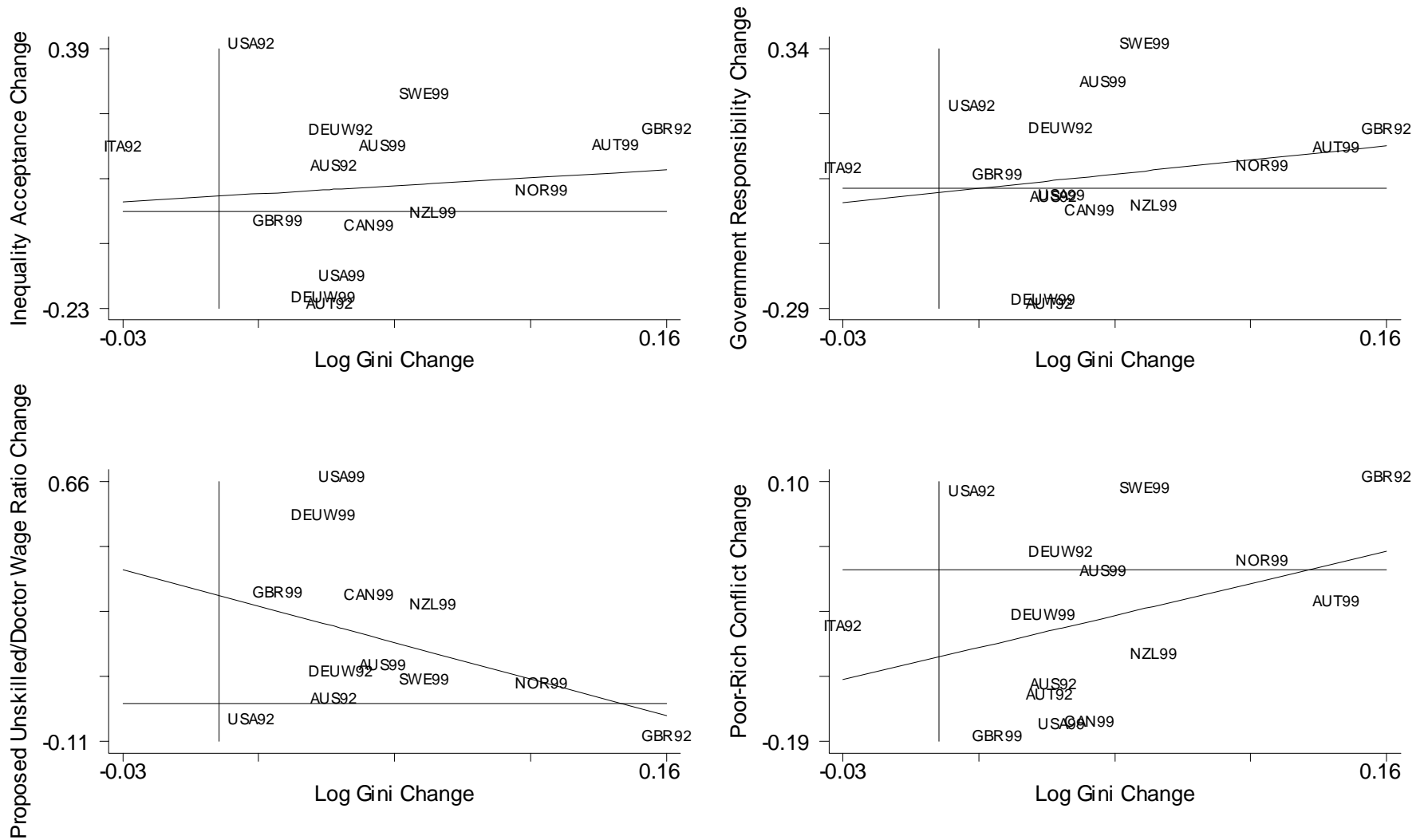


Figure 4: ISSP Inequality Norms Changes - OECD

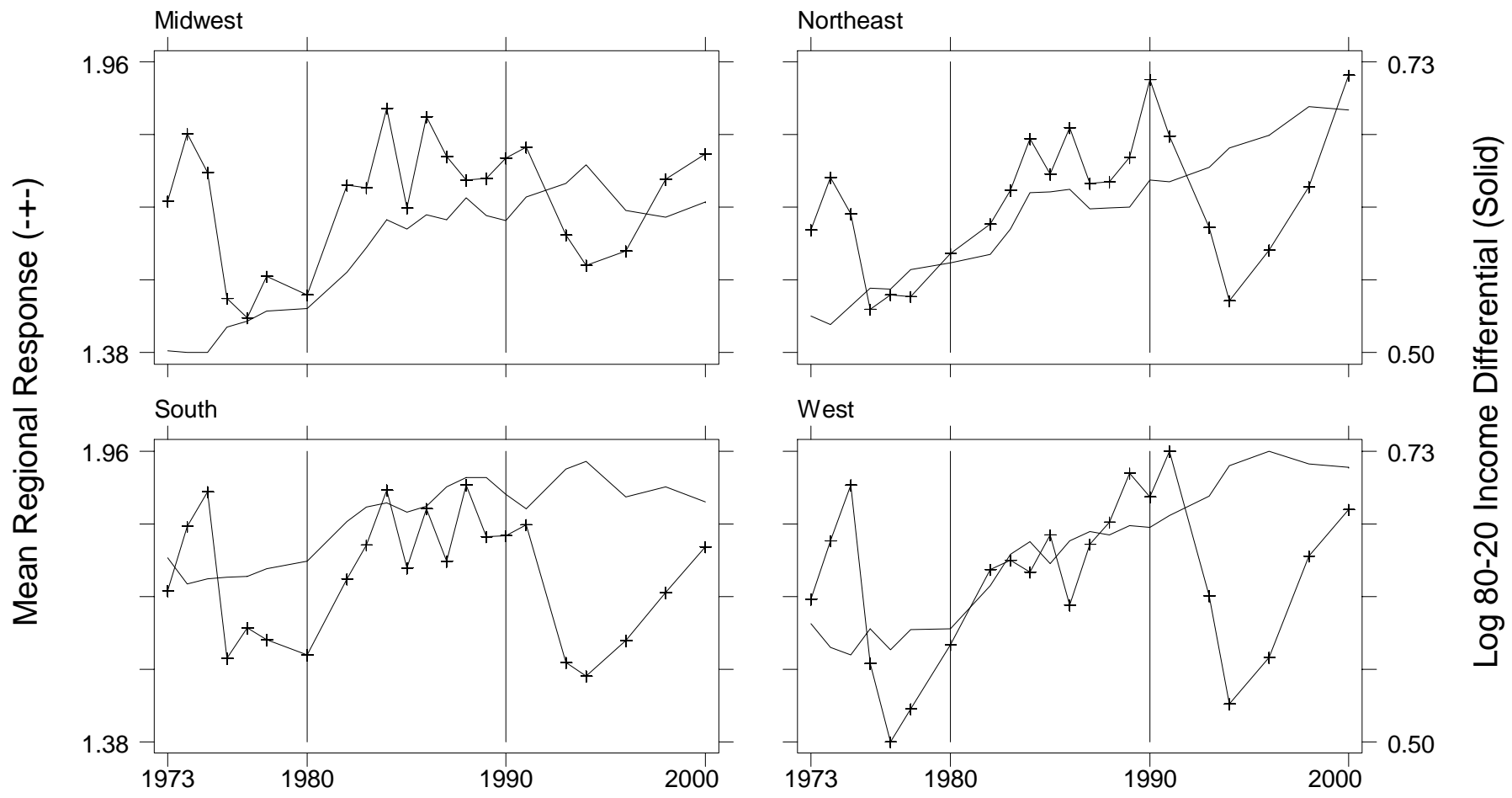


Figure 5: United States Welfare Spending Norms Trends

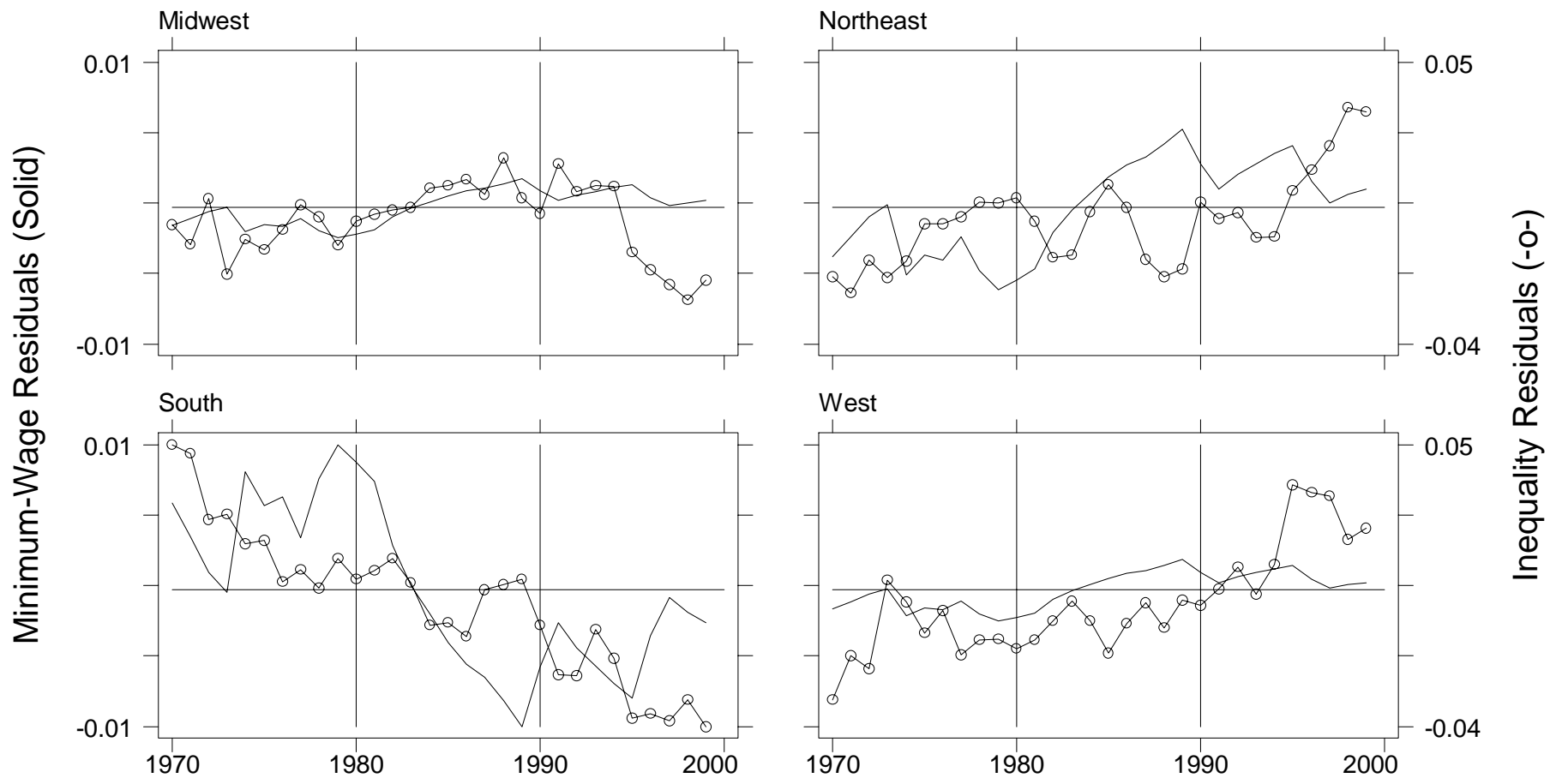


Figure 6: First-Stage Residuals

**Table 1: ISSP and WVS Descriptive Statistics**

	Total Sample	Long-Term OECD	Non-Long-Term OECD
<b>ISSP Social Inequality Panel</b>			
Countries	18	10	8
Respondents	64,424	34,375	30,049
Inequality Acceptance (5)	4.06 (0.99)	3.87 (0.99)	4.30 (0.93)
Government Responsibility (5)	3.66 (1.18)	3.42 (1.19)	3.97 (1.08)
Progressive Taxation (5)	4.02 (0.77)	3.97 (0.73)	4.10 (0.83)
Unskilled/Doctor Wage Ratio	0.50 (0.45)	0.44 (0.40)	0.58 (0.50)
Poor-Rich Conflict (4)	2.55 (0.85)	2.48 (0.78)	2.64 (0.92)
Young-Old Conflict (4)	2.22 (0.81)	2.23 (0.75)	2.20 (0.87)
Log Gini Estimate	3.39 (0.20)	3.35 (0.13)	3.44 (0.25)
<b>WVS Panel</b>			
Countries	22	7	15
Respondents	79,127	32,989	46,138
WVS Income Equalization (10)	5.04 (2.95)	5.18 (2.69)	4.95 (3.11)
Log Gini Estimate	3.48 (0.29)	3.33 (0.15)	3.63 (0.32)

Notes: Standard deviations are indicated in parentheses. To be included, a country must have participated in at least two surveys and have appropriate inequality data for those survey periods. Sample sizes in 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, 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 ESP, FIN, GBR, JAP, NOR, SWE, and USA. WVS Non-Long-Term OECD Members include ARG, BGR, BLR, BRA, CHL, CHN, IND, KOR, LTU, LVA, MEX, POL, RUS, SVN, and ZAF.

**Table 2: ISSP and WVS Regressions with Aggregate Inequality**

	(1)	(2)	(3)	(4)	(5)	(6)
ISSP Regressions with Government Responsibility Variable (Social Inequality Panel)						
Log National Gini Estimate	0.179 (0.038)**	0.186 (0.035)**	0.261 (0.037)**	0.158 (0.038)**	0.149 (0.046)**	0.185 (0.031)**
Observations	54,054	38,066	19,970	38,066	38,066	38,066
R <sup>2</sup>	0.11	0.19	0.18	0.19	0.19	0.19
ISSP Regressions with Progressive Taxation (Social Inequality Panel)						
Log National Gini Estimate	0.187 (0.102)+	0.197 (0.097)*	0.200 (0.100)+	0.129 (0.113)	0.187 (0.121)	0.135 (0.087)
ISSP Regressions with Inequality Acceptance Variable (Social Inequality Panel)						
Log National Gini Estimate	0.165 (0.045)**	0.171 (0.048)**	0.243 (0.056)**	0.124 (0.056)*	0.141 (0.064)*	0.130 (0.048)**
ISSP Regressions with Unskilled/Doctor Wage Ratio Variable (Social Inequality Panel)						
Log National Gini Estimate	-0.452 (0.121)**	-0.396 (0.120)**	-0.365 (0.112)**	-0.535 (0.186)**	-0.331 (0.150)*	-0.282 (0.120)*
ISSP Regressions with Poor-Rich Conflict Variable (Social Inequality Panel)						
Log National Gini Estimate	0.129 (0.047)**	0.132 (0.035)**	0.138 (0.039)**	0.103 (0.053)+	0.157 (0.051)**	0.107 (0.036)**
ISSP Regressions with Young-Old Conflict Variable (Social Inequality Panel)						
Log National Gini Estimate	-0.014 (0.026)	-0.006 (0.023)	-0.029 (0.020)	-0.048 (0.050)	0.023 (0.024)	0.016 (0.017)
WVS Regressions with Income Equalization Variable						
Log National Gini Estimate	0.224 (0.098)*	0.443 (0.199)*	0.578 (0.224)**	0.473 (0.216)*	0.542 (0.340)	0.443 (0.199)*
Observations	79,127	62,378	49,574	62,378	62,378	62,378
R <sup>2</sup>	0.07	0.10	0.10	0.10	0.10	0.10
<b>Controls:</b>						
Log GDP/Capita		X	X	X	X	X
Demographic		X	X	X	X	X
Mobility		X	X	X	X	X
Work			X			
<b>Fixed Effects:</b>						
Country	X	X	X	X	X	X
Year	X	X	X			
Year*OECD				X		
Year*Transition					X	
Time Trend						X

Notes: Clustered standard errors are in parentheses. + significant at 10%; \* significant at 5%; and \*\* significant at 1%. Observations and R<sup>2</sup> values for Government Responsibility are representative for other ISSP variables. Variables are transformed to have a mean of zero and a standard deviation of one for presentation. Demographic Controls include sex, married, age, education, and income dummies. Mobility Controls include respondents' views on the determinants of success and comparisons of their jobs to their fathers' jobs (ISSP). Work Controls include self-employed, unemployed, supervisor, and union-member dummies. Regressions are weighted for nationally representative samples and equal cross-national weight.

**Table 3: GSS Regressions with Aggregate Inequality**

	(1)	(2)	(3)	(4)	(5)	(6)
<b>GSS Regressions with Welfare Spending Variable</b>						
Log Regional Gini Estimate	0.130 (0.030)**	0.135 (0.032)*	0.114 (0.033)**	0.132 (0.031)**	0.076 (0.053)	0.239 (0.051)**
Log Regional 80/20 Differential	0.098 (0.027)**	0.114 (0.032)**	0.127 (0.034)**	0.112 (0.032)**	0.081 (0.052)	0.217 (0.049)**
Observations	24,247	21,965	14,704	21,965	14,658	21,965
R <sup>2</sup>	0.03	0.08	0.08	0.11	0.09	0.06
<b>GSS Regressions with Income Equalization Variable</b>						
Log Regional Gini Estimate	0.086 (0.033)**	0.040 (0.032)	0.059 (0.033)+	0.023 (0.032)	0.072 (0.049)	0.016 (0.044)
Log Regional 80/20 Differential	0.099 (0.025)**	0.040 (0.032)	0.051 (0.033)	0.026 (0.032)	0.103 (0.051)*	0.132 (0.033)**
Observations	20,414	18,344	17,293	18,344	12,129	18,344
R <sup>2</sup>	0.01	0.09	0.09	0.10	0.08	0.08
<b>GSS Regressions with Party Identification Variable</b>						
Log Regional Gini Estimate	0.198 (0.030)**	0.206 (0.032)**	0.217 (0.037)**	0.196 (0.029)**	0.183 (0.048)**	0.129 (0.030)**
Log Regional 80/20 Differential	0.135 (0.024)**	0.164 (0.027)**	0.173 (0.035)**	0.158 (0.026)**	0.108 (0.045)**	0.036 (0.032)
Observations	37,763	33,971	23,026	33,971	22,469	33,971
R <sup>2</sup>	0.01	0.04	0.06	0.09	0.04	0.04
<b>GSS Regressions with Space Exploration Program Spending Variable</b>						
Log Regional Gini Estimate	-0.044 (0.032)	-0.047 (0.033)	-0.067 (0.045)	-0.047 (0.033)	-0.117 (0.049)*	-0.149 (0.040)**
Log Regional 80/20 Differential	0.002 (0.025)	-0.015 (0.029)	-0.021 (0.046)	-0.016 (0.029)	-0.049 (0.051)	0.081 (0.046)+
Observations	23,942	21,757	14,574	21,757	14,592	21,757
R <sup>2</sup>	0.03	0.14	0.14	0.16	0.14	0.12
<b>Controls:</b>						
Log Med. Income		X	X	X	X	X
Demographic		X	X	X	X	X
Mobility		X	X	X	X	X
Work			X			
Racial				X		
<b>Fixed Effects:</b>						
Region	X	X	X	X	X	X
Year	X	X	X	X	X	
Exclude South					X	
Time Trend						X

Notes: Clustered standard errors are in parentheses. + significant at 10%; \* significant at 5%; and \*\* significant at 1%. Variables are transformed to have a mean of zero and a standard deviation of one for presentation. Demographic Controls include sex, married, age, education, and income dummies. Mobility Controls include recent changes in family financial position. Work Controls include self-employed, unemployed, and union-member dummies. Racial Controls include non-white respondent dummy. Regressions are weighted for nationally representative samples.

**Table 4: GSS Regressions with Disaggregated Inequality**

	(1)	(2)	(3)	(4)	(5)	(6)
<b>GSS Regressions with Welfare Spending Variable</b>						
Log Regional 80/50 Differential	0.013 (0.035)	0.013 (0.036)	0.002 (0.033)	0.001 (0.034)	-0.019 (0.032)	0.163 (0.073)*
Log Regional 50/20 Differential	0.072 (0.018)**	0.084 (0.021)**	0.098 (0.023)**	0.086 (0.021)**	0.096 (0.045)*	0.104 (0.036)**
Observations	24,247	21,965	14,704	21,965	14,658	21,965
R <sup>2</sup>	0.03	0.09	0.08	0.11	0.09	0.06
<b>GSS Regressions with Income Equalization Variable</b>						
Log Regional 80/50 Differential	0.067 (0.030)*	0.042 (0.033)	0.042 (0.035)	0.028 (0.032)	0.047 (0.036)	0.061 (0.046)
Log Regional 50/20 Differential	0.046 (0.020)*	0.011 (0.019)	0.020 (0.020)	0.007 (0.019)	0.058 (0.046)	0.077 (0.030)*
Observations	20,414	18,344	17,293	18,344	12,129	18,344
R <sup>2</sup>	0.01	0.08	0.09	0.10	0.08	0.08
<b>GSS Regressions with Party Identification Variable</b>						
Log Regional 80/50 Differential	0.036 (0.034)	0.035 (0.038)	0.002 (0.042)	0.015 (0.036)	-0.036 (0.038)	0.047 (0.042)
Log Regional 50/20 Differential	0.093 (0.020)**	0.114 (0.020)**	0.137 (0.025)**	0.118 (0.018)**	0.135 (0.038)**	0.009 (0.020)
Observations	37,763	33,971	23,026	33,971	22,469	33,971
R <sup>2</sup>	0.01	0.04	0.06	0.09	0.04	0.04
<b>GSS Regressions with Space Exploration Program Spending Variable</b>						
Log Regional 80/50 Differential	0.017 (0.032)	0.002 (0.035)	-0.008 (0.046)	0.010 (0.034)	0.023 (0.039)	-0.093 (0.055)+
Log Regional 50/20 Differential	-0.006 (0.019)	-0.012 (0.018)	-0.013 (0.026)	-0.016 (0.019)	-0.067 (0.039)+	0.100 (0.030)**
Observations	23,942	21,757	14,574	21,757	14,592	21,757
R <sup>2</sup>	0.03	0.14	0.14	0.16	0.14	0.13
<b>Controls:</b>						
Log Med. Income		X	X	X	X	X
Demographic		X	X	X	X	X
Mobility		X	X	X	X	X
Work			X			
Racial				X		
<b>Fixed Effects:</b>						
Region	X	X	X	X	X	X
Year	X	X	X	X	X	
Exclude South					X	
Time Trend						X

Notes: See Table 3.

**Table 5: GSS Regressions with Minimum-Wage Instrument**

	(1)	(2)	(3)	(4)	(5)
<b>GSS Regressions with Welfare Spending Variable</b>					
Log Regional 80/20 Differential	0.204 (0.075)**	0.206 (0.081)*	0.207 (0.067)**	0.200 (0.083)*	0.111 (0.182)
Observations	24,247	21,965	14,704	21,965	14,658
<i>First Stage:</i>					
Minimum Wage IV First Stage Coeff.	2.216 (0.090)	1.958 (0.068)	1.958 (0.068)	1.958 (0.068)	6.004 (0.360)
R <sup>2</sup> First Stage	0.18	0.23	0.23	0.23	0.12
<b>GSS Regressions with Income Equalization Variable</b>					
Log Regional 80/20 Differential	0.128 (0.077)+	0.070 (0.064)	0.083 (0.063)	0.055 (0.063)	0.369 (0.181)*
Observations	20,414	18,344	17,293	18,344	12,129
<b>GSS Regressions with Party Identification Variable</b>					
Log Regional 80/20 Differential	0.209 (0.057)**	0.232 (0.052)**	0.196 (0.057)**	0.224 (0.050)**	0.330 (0.159)*
Observations	37,763	33,971	23,026	33,971	22,469
<b>GSS Regressions with Space Exploration Program Spending Variable</b>					
Log Regional 80/20 Differential	-0.054 (0.058)	-0.035 (0.056)	-0.034 (0.063)	-0.038 (0.056)	-0.353 (0.211)+
Observations	23,942	21,757	14,574	21,757	14,592
<u>Controls:</u>					
Log Med. Income		X	X	X	X
Demographic		X	X	X	X
Mobility		X	X	X	X
Work			X		
Racial				X	
<u>Fixed Effects:</u>					
Region	X	X	X	X	X
Year	X	X	X	X	X
Exclude South					X

Notes: See Table 3.

**Table 6: GSS Regressions with Extended Income Definitions and Regions**

Source of Log 80-20 Inequality Level Lagged One Year:	(1) Four Regions OLS	(2) Nine Regions OLS	(3) State OLS	(4) Four Regions IV	(5) Nine Regions IV	(6) State IV
GSS Regressions with Welfare Spending Variable						
Post-Tax Family Disposable Income	0.114 (0.032)**	0.061 (0.028)*	0.081 (0.023)**	0.206 (0.081)**	0.194 (0.062)**	0.177 (0.066)**
Pre-Tax Family Labor Earnings	0.105 (0.035)**	0.068 (0.030)*	0.041 (0.021)+	0.209 (0.075)**	0.215 (0.069)**	0.295 (0.169)+
Total Population Hourly Wage	0.030 (0.027)	0.056 (0.019)**	0.067 (0.018)**	0.593 (0.474)	0.227 (0.090)*	0.217 (0.095)*
GSS Regressions with Income Equalization Variable						
Post-Tax Family Disposable Income	0.040 (0.032)	0.027 (0.026)	0.068 (0.029)*	0.070 (0.064)	0.042 (0.075)	-0.077 (0.105)
Pre-Tax Family Labor Earnings	0.032 (0.030)	0.023 (0.025)	0.020 (0.022)	0.098 (0.097)	0.049 (0.092)	-0.204 (0.350)
Total Population Hourly Wage	0.054 (0.014)**	0.018 (0.018)	0.053 (0.016)**	0.305 (0.879)	0.047 (0.173)	0.321 (0.568)
GSS Regressions with Party Identification Variable						
Post-Tax Family Disposable Income	0.164 (0.027)**	0.099 (0.023)**	0.050 (0.027)+	0.232 (0.052)**	0.202 (0.060)**	0.224 (0.080)**
Pre-Tax Family Labor Earnings	0.143 (0.029)**	0.100 (0.024)**	0.018 (0.025)	0.250 (0.060)**	0.226 (0.063)**	0.383 (0.225)+
Total Population Hourly Wage	0.066 (0.019)**	0.038 (0.016)*	0.056 (0.020)**	0.636 (0.441)	0.235 (0.090)**	0.317 (0.148)*
GSS Regressions with Space Exploration Program Spending Variable						
Post-Tax Family Disposable Income	-0.015 (0.029)	-0.006 (0.024)	0.012 (0.021)	-0.035 (0.056)	-0.022 (0.050)	0.059 (0.054)
Pre-Tax Family Labor Earnings	-0.034 (0.028)	-0.055 (0.023)*	-0.007 (0.018)	-0.033 (0.055)	-0.023 (0.054)	0.095 (0.095)
Total Population Hourly Wage	-0.022 (0.022)	-0.006 (0.013)	-0.012 (0.015)	-0.109 (0.183)	-0.032 (0.066)	0.076 (0.070)

Notes: Clustered standard errors are in parentheses. + significant at 10%; \* significant at 5%; and \*\* significant at 1%. Variables are transformed to have a mean of zero and a standard deviation of one for presentation. All regressions include region and year fixed effects, region median income levels, and Demographic and Mobility Controls. Regressions are weighted for nationally representative samples.

**Table 7: GSS Regressions with Income-Level and Neighborhood-Heterogeneity Interactions**

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
	Welfare Spending			Income Equalization			Party Identification		
Log Regional 80/20 Differential	0.114 (0.032)**	0.105 (0.038)**	0.141 (0.032)**	0.040 (0.032)	0.033 (0.036)	0.035 (0.033)	0.164 (0.027)**	0.135 (0.029)**	0.192 (0.026)**
Log 80-20 x Bottom Two Quintiles		-0.001 (0.024)			-0.011 (0.024)			0.036 (0.015)*	
Log 80-20 x Top Two Quintiles		0.023 (0.024)			-0.005 (0.022)			0.012 (0.014)	
Log 80-20 x Racial Heterogeneity			-0.024 (0.013)+			-0.006 (0.015)			-0.039 (0.010)**
Observations	21,965	21,965	20,359	18,344	18,344	17,493	33,971	33,971	31,730
R <sup>2</sup>	0.08	0.08	0.08	0.08	0.08	0.08	0.04	0.04	0.04
<u>Controls:</u>									
Log Med. Income	X	X	X	X	X	X	X	X	X
Demographic	X	X	X	X	X	X	X	X	X
Mobility	X	X	X	X	X	X	X	X	X
Racial	X	X	X	X	X	X	X	X	X
Heterogeneous Neighborhood			X			X			X
<u>Fixed Effects:</u>									
Region	X	X	X	X	X	X	X	X	X
Year	X	X	X	X	X	X	X	X	X

Notes: See Table 3.

## Appendix A. International Opinion Polls (ISSP and WVS)

The international findings focus on evidence drawn from the International Social Survey Programme (ISSP) and the World Value Survey (WVS). To maintain a consistent presentation across international and United States surveys, responses are ordered such that more-concerned views are associated with higher numbers.

The ISSP analysis focuses on the 1987, 1992, and 1999 Social Inequality module; the Government Responsibility and Progressive Taxation questions are also included in the 1985, 1990, and 1996 Role of the Government module. Responses to three complementary questions proxy social norms for government-led income redistribution: the first focusing on the acceptability of current income differences, the second considering the role of the government in the transfer of income, and the last focusing on progressive taxation:

Q. (Inequality Acceptance) “Are differences in income in <Respondent’s country> too large?”

1. Disagree strongly
2. Disagree
3. Neither agree nor disagree
4. Agree
5. Agree strongly

Q. (Government Redistribution) “It is the responsibility of the government to reduce the differences in income between people with high incomes and those with low incomes.”

1. Disagree strongly
2. Disagree
3. Neither agree nor disagree
4. Agree
5. Agree strongly

Q. (Progressive Taxation) “Do you think that people with high incomes should pay a larger share of their income in taxes than those with low incomes, the same share, or a smaller share?”

1. Much smaller share
2. Smaller
3. The same share
4. Larger
5. Much larger share

Three important characteristics of these questions should be noted. They shy away from sensitive wording (e.g., researchers have long noted the negative connotation words like “welfare” carry) and they offer respondents a range of options that include a neutral stance. The Government Redistribution and Progressive Taxation questions also do not reference a country’s current policy position (e.g., “do you think the government should be doing *more* to reduce the differences...”); such relative questions are difficult to evaluate in a cross-section or a time-series, much less a panel exercise.

Respondents were also asked their opinions on the appropriate salaries for a variety of occupations. Instructions requested preferences be pre-tax and regardless of perceptions of current pay scales. From these responses, a Proposed Unskilled/Doctor Wage Ratio is developed as the log ratio of the wages ascribed for an “unskilled worker in a factory” and a “doctor in general practice.” A higher ratio indicates a more-compressed wage distribution (i.e., a ratio of one would indicate unskilled workers and doctors should earn the same amount), while a lower ratio indicates support for greater compensation differentials.<sup>41</sup>

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<sup>41</sup> Other occupations present in all three Social Inequality surveys include a skilled factory worker, a government minister, and a chairman of a large national company. When discussing compensation differentials, the text also describes the evolution of the wage premiums between skilled workers and unskilled workers or doctors. An unfortunate top-coding change in the 1999 survey restricts analysis of the proposed chairman salary, although rough estimations not correcting for this top-coding yield results

Finally, two questions regarding the presence of conflicts between social groups are employed. The first, focusing on conflicts between the poor and the rich, is used to validate respondents' awareness of the inequality in their countries, while a second question regarding conflict between young and old people is considered as a falsification exercise.

Q. (Poor-Rich Conflict) "In all countries there are differences or even conflicts between different social groups. In your opinion, in <R's country> how much conflict is there between poor people and rich people?"

1. No conflicts
2. Not very strong conflicts
3. Strong conflicts
4. Very strong conflicts

Q. (Young-Old Conflict) "... between young people and older people?"

1. No conflicts
2. Not very strong conflicts
3. Strong conflicts
4. Very strong conflicts

As a complement to the ISSP, this study also considers responses to a question included in the 1990 and 1995 rounds of the WVS. This question (WVS Income Equalization) asks respondents to rate their views regarding income equalization on a ten-point scale. Ten was labeled "Incomes should be made more equal." One was labeled "We need larger income differences as incentives for individual effort." While the WVS panel enjoys a more-diverse group of developing economies, interpretation of this question is limited by its reference to the country's current position (i.e., *more* equal, *larger* differences) and asymmetric labeling of the two extreme values. Only being able to consider one period of change is also a severe handicap. Nevertheless, finding quantitatively and qualitatively similar results in a different sample is an important robustness check.

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comparable to those presented. This top-coding also has the potential to affect the doctor wage rate; regressions excluding the 1999 survey demonstrated similar outcomes to primary panel.

## Appendix B: International Inequality Series

This appendix details the construction of the international gini estimates employed in the main text. Nations participating in multiple International Social Survey Programme (ISSP) or World Values Survey (WVS) rounds are included, although the former is this study's primary interest. Table B1 outlines the sources and their characteristics (e.g., income definition); data collection relied heavily on the United Nations Development Programme's World Income Inequality Database (WIID), the Luxembourg Income Study (LIS), Gottschalk and Smeeding (1997, 2000), and the individual publications of national statistics agencies. The WIID includes the earlier work of Deininger and Squire (1996). Table B2 gives the constructed series, with shaded boxes highlighting the years in which countries participated in the ISSP Role of the Government or Social Inequality modules employed in the primary regressions.<sup>42</sup>

The target gini concept is disposable household income based upon a nationally representative sample. Although many sources, including LIS, divide by the square root of the household size, equivalency scales are not consistent across countries. Data limitations prevent consideration of gross household-income inequality, a more theoretically sound measure (although one can argue disposable-income differences are what respondents are recalling when questioned). In the United States portion of this study, the form of inequality (gross versus disposable household income, household labor earnings, hourly wage, etc.) is not critical for the results. A one-year lag in inequality is targeted for each survey round, but contemporaneous and two- or three-year lagged measures are also accepted when necessary.

Selected series include multiple observations derived with a consistent technique and dataset. Other sources not listed in Table B1 are also used to substantiate both levels and trends of the chosen series, as well as to provide comparisons for how other income concepts are behaving during the same period. In a number of cases, two or three series are pieced together to span the time frame of this study (or as much of it as possible). In such cases, observations must share a common or adjoining year as a levels check; moreover, overlapping intervals are examined when available to ensure the series are following similar trends. Auxiliary series are also employed in these exercises for verification purposes. Finally, the gini estimates are rescaled to match the levels of LIS estimates around 1990 if the LIS is not employed directly in the construction of the series (participating countries only).<sup>43</sup>

Atkinson and Brandolini (2001) outline a number of pitfalls that can occur when piecing together series from secondary datasets. The dataset developed for this study attempts to address these concerns while still assembling a meaningful panel of countries. However, it certainly falls short of achieving "double harmonization" across countries and time, and Table B1 identifies questionable series, due potentially to poor quality data, alternative income concepts, splicing concerns, etc. The consistency of the results across the ISSP and WVS samples, dropping low-quality series, and looking at harmonized United States inequalities should nevertheless instill confidence that the findings of this study are not the product of irregularities in the constructed series. With the goal of maximizing the combined coverage and quality of this dataset, comments regarding sources and techniques are appreciated.

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<sup>42</sup> The task here is to develop gini series covering the years included in the two survey programs. In doing so, a longer horizon is often considered than what the surveys require for a particular country to establish more confidence in the trends developed. These series, however, do not exhaust the inequality data available; gaps in the sequences do not necessarily mean appropriate gini estimates are not available.

<sup>43</sup> These adjustments produce minor differences between the reported series and source data. The notes column of Table B1 highlights how the LIS is employed with each country if it does not serve directly as a source for the series.

**Table B1: Gini Estimate Sources**

Country	Years	Unit	Income Definition	Source	Notes
ARG (Argentina)	80, 89	Individual	Income	WIID (5 NOOK)	First series urban population. Questionable quality.
	90-97	Household	Income	WIID (5 NOOK)	
AUS (Australia)	81, 85, 89, 94	Household	Disposable Income	LIS, Gottschalk and Smeeding	
	95-98	Household	Disposable Income	Statistics Australia (2002)	
AUT (Austria)	87, 94, 95, 97	Household	Disposable Income	LIS	Interpolated series. Questionable quality.
	80-91	Individual	Gross Earnings	WIID (4 OKWN)	
BEL (Belgium)	85, 88, 92, 97	Household	Disposable Income	LIS	
BLR (Belarus)	88, 94	Unknown	Gross Income	WIID (5 NOOK)	Series consistent with available net household income statistics. Questionable quality.
BGR (Bulgaria)	89, 91	Household	Disposable Income	World Bank	
	92-97	Household	Disposable Income	WIID (1 OKIN)	
BRA (Brazil)	81, 83-89	Household	Gross Income	WIID (1 OKIN)	Interpolated series. Questionable quality.
	87, 96	Family	Gross Income	WIID (1 OKIN)	
CAN1 (Canada)	80-95	Household	Disposable Income	Gottschalk and Smeeding	Adjusted to 1991 LIS level; second series urban population; constructed series consistent with LIS data.
	90-98	Family	Income	Rupnik, Thompson-James, and Bollman (2001)	
CAN2 (Canada)	81, 87, 91, 94, 97, 98	Household	Disposable Income	LIS	
CHE (Switzerland)	82, 92	Household	Disposable Income	LIS	
CHL (Chile)	90, 92, 94, 96	Household	Gross Income	WIID (1 OKIN)	
CHN (China)	88-95	Household	Disposable Income	WIID (1 OKIN, 1 OKIR)	Interpolated series.
CZE1 (Czech Rep.)	91-97	Household	Disposable Income	WIID (1 OKIN)	Series has a sharper trend than in LIS data.
CZE2 (Czech Rep.)	92, 96	Household	Disposable Income	LIS	
DEU1 (W. Germany)	83, 85, 87, 90-93	Household	Disposable Income	WIID (1 OKIN)	Interpolated series. Constructed series has a sharper trend than in LIS data.
	80, 83, 93, 95	Household	Disposable Income	Gottschalk and Smeeding	
	93, 98	Household	Disposable Income	Frick and Grabka (2002)	
DEU2 (W. Germany)	81, 83, 84, 89, 94	Household	Disposable Income	LIS	
DNK1 (Denmark)	81-90	Household	Disposable Income	Gottschalk and Smeeding	Adjusted to 1987 LIS level.
DNK2 (Denmark)	87, 92, 95, 97	Household	Disposable Income	LIS	

Country	Years	Unit	Income Definition	Source	Notes
ESP (Spain)	80, 90	Household	Disposable Income	LIS	LIS currently negotiating for a 1995 dataset. Questionable series.
	90, 95	Unknown	Income	Fanjul and Renes (2002)	
EST (Estonia)	92-97	Household	Disposable Income	WIID (1 OKIN)	Consistent with 2000 LIS level.
FIN (Finland)	86-97	Household	Disposable Income	Gottschalk and Smeeding , WIID (1 OKIN)	Adjusted to 1991 LIS level; series consistent with LIS data.
FRA (France)	81, 84, 89, 94	Household	Disposable Income	LIS, Gottschalk and Smeeding	
GBR (Great Britain)	80-99	Household	Disposable Income	Goodman (2001), Gottschalk and Smeeding	Consistent with LIS data.
HUN1 (Hungary)	82, 87, 89	Individual	Disposable Income	WIID (1 OKIN)	Adjusted to 1991 LIS level; constructed series consistent with LIS data except 1999 level.
	89, 91, 93-97	Individual	Disposable Income	WIID (1 OKIN)	
HUN2 (Hungary)	91, 94, 99	Household	Disposable Income	LIS	
IND (India)	83, 87-88, 90-92, 94-98	Household	Net Expenditure	WIID (3 OKIU)	Series urban population. Questionable quality.
IRL (Ireland)	80, 87	Household	Disposable Income	WIID (1 OKIN)	
	87, 94-96	Household	Disposable Income	LIS, Gottschalk and Smeeding	
ISR (Israel)	82, 86, 92	Household	Disposable Income	Gottschalk and Smeeding	
	86, 92, 97	Household	Disposable Income	LIS	
ITA (Italy)	80-87, 89, 91, 93, 95	Household	Disposable Income	Gottschalk and Smeeding, Brandolini (1999)	Adjusted to 1991 LIS level; constructed series consistent with LIS data.
JAP (Japan)	84, 89, 94, 99	Household	Income	Statistics Japan (2002), Gottschalk and Smeeding	
KOR (South Korea)	80, 85, 88	Household	Gross Income	WIID (1 OKIN)	Second series urban population.
	89-01	Household	Gross Income	Statistics Korea (2002)	
LVA (Latvia)	91-96	Individual	Gross Earnings	WIID (4 OKWN)	Levels consistent with available net household income statistics. Questionable quality.
LTU (Lithuania)	89, 92, 94-96	Individual	Gross Earnings	WIID (4 OKWN)	Levels consistent with available net household income statistics. Questionable quality.
MEX (Mexico)	84, 89, 92, 94, 96, 98	Household	Disposable Income	LIS	
NGA (Nigeria)	91, 93, 97	Household	Expenditure	WIID (1 OKIN)	Questionable quality.
NLD1 (Netherlands)	81, 83, 85, 88-95	Household	Disposable Income	Gottschalk and Smeeding	Adjusted to 1991 LIS level; series has a sharper trend than in LIS data.

Country	Years	Unit	Income Definition	Source	Notes
NLD2 (Netherlands)	83, 87, 91, 94	Household	Disposable Income	LIS	
NOR (Norway)	79, 91	Household	Disposable Income	Gottschalk and Smeeding , WIID (1 OKIN)	Constructed series consistent with LIS data. 1979 value listed as 1980.
	86-97	Household	Disposable Income	Statistics Norway (2002), Brandolini	
NZL (New Zealand)	82, 84, 86, 88-97	Household	Disposable Income	Statistics New Zealand (1999)	
PHL (Philippines)	85, 88, 91, 94, 97, 00	Family	Income	Statistics Philippines (2002)	2000 value listed as 1999.
POL1 (Poland)	86-92	Individual	Gross Income	WIID (1 OKIN)	Adjusted to 1992 LIS level; constructed series has a sharper trend than in LIS data.
	89-97	Household	Disposable Income	WIID (1 OKIN)	
POL2 (Poland)	86, 92, 95, 99	Household	Disposable Income	LIS	
RUS1 (Russia)	89-99	Household	Income	Ovtcharova (2001)	Series trend set off one year from LIS data. Questionable series.
RUS2 (Russia)	92, 95	Household	Disposable Income	LIS	
SVK (Slovakia)	89-97	Household	Disposable Income	WIID (1 OKIN)	Consistent with LIS data.
SVN (Slovenia)	91-96	Household	Disposable Income	WIID (1 OKIN)	Interpolated series.
	89-97	Individual	Gross Earnings	WIID (4 OKWN)	
	97, 99	Household	Disposable Income	LIS	
SWE (Sweden)	81, 87, 92, 95	Household	Disposable Income	LIS	Interpolated series.
	89-99	Family	Disposable Income	Gottschalk and Smeeding , WIID (1 OKIN)	
USA (United States)	80-98	Household	Disposable Income	United States Census Bureau (2000), Gottschalk and Smeeding	Adjusted to 1991 LIS level. Break in series between 1992 and 1993.
ZAF (South Africa)	90,95	Household	Gross Income	WIID (1 OKIN)	

Notes: The first inequality series is employed where two are indicated (e.g., RUS1 and RUS2), but the results are robust to substituting the second. Appropriate gini estimates have not been identified for CYP, ICL, PRT, and TUR.

**Table B2: Gini Estimates**

Country	1980	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999
ARG	37.0										43.1	44.1	43.6	43.8	46.3	45.8	44.8	46.7		
AUS		28.1				29.2				30.4					31.1	32.0	31.5	30.9	32.2	
AUT	21.8	21.8	21.8	22.3	22.3	22.3	22.3	22.7	22.7	22.7	22.7	23.1			28.0	27.7	26.6			
BEL						22.7			23.2				22.4					25.0		
BLR									23.0						28.0					
BGR										24.3			31.1	31.9	35.6	37.2	34.8	34.6		
BRA		55.3		56.2	55.5	56.7	55.9	57.0	58.6	59.5	58.3						58.1			
CAN1	28.2	27.6	27.8	28.6	28.3	28.2	28.3	28.1	27.9	27.7	27.7	28.1	27.8	28.1	27.7	28.0	29.0	29.5	29.6	
CAN2		28.4						28.3				28.1			28.4			29.1	30.5	
CHE			30.9										30.7							
CHL											54.7		52.2		55.6		56.4			
CHN									38.2	38.0	39.3	38.9	39.7	40.6	41.8	43.1				
CZE1												18.9	20.3	21.6	22.1	21.5	28.1	27.6		
CZE2													20.7				25.9			
DEU1	25.4			25.0		26.0		25.2			26.0	26.3	26.4	27.4		27.5			27.3	
DEU2		24.4		26.0	24.9					24.7		26.1								
DNK1		24.9	24.6	24.4	24.8	25.1	25.1	25.4	26.3	26.5	27.8									
DNK2								25.4					23.6			26.3		25.7		
ESP	31.8										30.3					31.2				
EST													41.2	38.8	39.6	39.0	37.4	34.1		
FIN							21.3	20.7	21.2	21.3	21.2	21.0	20.7	21.8	21.6	21.8	22.6	23.6		
FRA		28.8			29.2					28.7					28.8					
GBR	25.3	25.9	25.8	26.4	26.6	27.9	28.8	30.2	32.0	32.4	33.7	33.7	34.0	33.7	33.0	33.0	33.3	33.8	34.4	34.2
HUN1		26.7	26.7					30.7		29.7		28.3		31.4	32.1	33.7	33.9	34.1		
HUN2												28.3			32.3					29.5
IND				33.4				35.6	35.6		35.6	34.0	35.5		34.5	33.4	35.4	36.1		
IRL	33.5							32.8							33.3	33.6	32.5			
ISR			30.0				30.8						30.5					33.6		
ITA	30.9	30.3	28.4	28.9	29.8	29.9	29.9	31.6		29.3		28.9		32.2		32.0				
JAP					28.0					29.3					29.7					30.1
KOR	34.9					31.2				30.4	29.5	28.7	28.4	28.1	28.5	28.4	29.1	28.3	31.6	32.0
LVA											22.5	22.5	29.6	24.5	30.7	31.7	32.2			
LTU										26.0			37.2		34.9	34.1	35.0			

Country	1980	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999
MEX					44.8					46.7			48.5		49.6		47.7		49.4	
NGA												45.0		45.0				50.6		
NLD1		23.9		23.5		24.7			25.6	25.5	25.8	26.6	27.8	27.7	27.8	28.3				
NLD2				26.0				25.6				26.6			25.3					
NOR	22.5						22.2	22.3	21.9	23.4	22.8	23.3	23.7	24.3	25.4	24.8	25.7	26.1		
NZL			25.9		26.0		25.3		25.8	28.0	29.9	30.7	29.9	31.8	31.0	31.8	32.2	33.1		
PHL						44.6			44.5			46.8			45.1			48.7		48.2
POL1							27.7	28.1	27.6	28.6		26.5	27.4	36.2	37.3	36.9	37.8	39.0		
POL2							27.1						27.4			31.8				29.3
RUS1										26.5	28.5	26.5	28.9	39.8	40.9	38.1	37.5	37.5	37.9	39.4
RUS2													39.3			44.7				
SVK										18.1	17.8	18.0	18.6	19.7	20.8	20.0	24.8	23.4		
SVN										19.0	20.1	22.7	22.6	25.0	22.0	23.4	24.0	25.0		24.9
SWE		19.7						21.8		22.1	22.3	23.7	22.9	23.4	26.2	23.3	24.3	26.2	25.4	26.7
USA	31.2	31.5	32.3	32.5	32.5	33.0	33.2	33.3	33.4	33.9	33.6	33.6	34.1	35.6	35.8	35.3	34.5	35.0	35.1	
ZAF											63.0					59.0				

Notes: The light shading highlights the years in which countries participated in the ISSP Role of the Government or Social Inequality modules; again, the country must have participated in at least two surveys to be included. Other country-year gini observations are used for considering alternative ISSP modules as well as WVS materials (these surveys are not highlighted). The target gini estimates are one-year lags (i.e., the square to the left of the shaded survey year), although contemporaneous or two- or three-year lags are accepted where necessary. Survey responses are dropped if they do not meet these conditions. The first inequality series is employed where two are indicated (e.g., RUS1 and RUS2), but the results are robust to substituting the second. Appropriate gini estimates have not been identified for CYP, ICL, PRT, and TUR.

## Appendix C. United States Opinion Poll (GSS)

Social norms for the United States are estimated from the General Social Survey (GSS), which has been conducted on an annual or biennial basis since 1972 with sample sizes ranging from 1400 to 3000 adults. This study focuses on two complementary questions that have been included for the full term of the survey. The first gauges respondent attitudes towards spending more or less money on welfare, while the second asks a similar question regarding the space exploration program (another falsification exercise):

Q. (Welfare Spending) “Are we spending too much money, too little money, or about the right amount on welfare?”

1. Too much
2. About right
3. Too little

A second question, included in most surveys since 1978, asks respondents to rate on a seven-point scale how much the federal government should concern itself with the income differences between the rich and poor (GSS Income Equalization). Seven is labeled “The government ought to reduce income differences between the rich and poor.” One is labeled “The government should not concern itself with reducing income differences.”

For both the Welfare Spending and GSS Income Equalization questions, alternative versions are included in some years (e.g., substituting “assistance to the poor” for “welfare”). As the mean responses shift significantly with these alternative word choices, these questions are not incorporated; a visual check indicates trends for these alternative questions mirror those of the main questions. It should also be noted that the Welfare Spending question references current policies. Luttmmer (2001) considers several corrections for this relative inquiry, and finds his results using the base question alone are robust. This study does not attempt any such corrections.

Finally, respondents since 1972 have been asked to report their political-party preference and the strength of this association on a seven-point scale.

Q. (Party Identification) “Generally speaking, do you usually think of yourself as a Republican, Democrat, Independent, or what?”

1. Strong Republican
2. Not very strong Republican
3. Independent, close to Republican
4. Independent (Neither, No Response)
5. Independent, close to Democrat
6. Not very strong Democrat
7. Strong Democrat

### Appendix D. Minimum-Wage Instrument Descriptive Statistics

Year	Nominal Rate	Real Rate	Log Ratio	Expected Coverage Ratios				Log 80-20 Family Disposable Income			
				Northeast	Midwest	South	West	Northeast	Midwest	South	West
1970	1.60	5.03	0.00	89.9	87.1	78.4	87.2	0.500	0.487	0.638	0.527
1971	1.60	4.81	0.04	89.9	87.1	78.3	87.2	0.509	0.495	0.649	0.555
1972	1.60	4.59	0.09	89.9	87.1	78.3	87.2	0.525	0.515	0.635	0.557
1973	1.60	4.46	0.12	90.2	87.5	78.9	87.6	0.532	0.504	0.649	0.597
1974	2.00	5.25	-0.04	90.3	87.7	79.2	87.8	0.525	0.503	0.628	0.578
1975	2.10	5.01	0.00	90.4	87.8	79.3	87.9	0.540	0.503	0.632	0.572
1976	2.30	5.07	-0.01	90.5	87.9	79.6	88.0	0.554	0.523	0.633	0.592
1977	2.30	4.80	0.05	90.6	88.0	79.6	88.1	0.553	0.528	0.634	0.576
1978	2.65	5.20	-0.03	90.7	88.2	79.8	88.2	0.569	0.536	0.640	0.592
1979	2.90	5.45	-0.08	90.7	88.2	79.8	88.2	0.565	0.523	0.646	0.589
1980	3.10	5.33	-0.06	90.8	88.4	80.1	88.4	0.574	0.538	0.646	0.593
1981	3.35	5.18	-0.03	90.8	88.4	80.1	88.4	0.577	0.550	0.659	0.605
1982	3.35	4.74	0.06	90.8	88.4	80.1	88.4	0.581	0.567	0.678	0.627
1983	3.35	4.48	0.12	90.8	88.4	80.1	88.4	0.601	0.587	0.690	0.652
1984	3.35	4.30	0.16	90.8	88.4	80.1	88.4	0.630	0.608	0.692	0.662
1985	3.35	4.13	0.20	90.9	88.4	80.1	88.4	0.631	0.601	0.685	0.644
1986	3.35	4.00	0.23	90.9	88.4	80.2	88.5	0.633	0.612	0.690	0.662
1987	3.35	3.93	0.25	90.9	88.5	80.2	88.5	0.617	0.609	0.706	0.670
1988	3.35	3.80	0.28	90.9	88.5	80.3	88.5	0.618	0.626	0.713	0.667
1989	3.35	3.66	0.32	90.9	88.5	80.3	88.6	0.619	0.612	0.713	0.674
1990	3.80	3.99	0.23	90.9	88.5	80.3	88.6	0.640	0.607	0.699	0.673
1991	4.25	4.25	0.17	90.9	88.4	80.2	88.5	0.638	0.627	0.687	0.682
1992	4.25	4.10	0.20	90.9	88.4	80.1	88.5	0.650	0.628	0.697	0.698
1993	4.25	4.00	0.23	90.9	88.4	80.2	88.5	0.650	0.637	0.719	0.698
1994	4.25	3.90	0.25	90.9	88.4	80.1	88.5	0.666	0.652	0.726	0.722
1995	4.25	3.82	0.27	90.9	88.4	80.2	88.5	0.678	0.630	0.705	0.745
1996	4.75	4.17	0.19	90.9	88.4	80.2	88.5	0.675	0.616	0.698	0.733
1997	5.15	4.40	0.13	90.9	88.4	80.2	88.5	0.689	0.617	0.702	0.739
1998	5.15	4.31	0.15	90.9	88.4	80.2	88.5	0.698	0.610	0.706	0.723
1999	5.15	4.25	0.17	90.9	88.4	80.2	88.5	0.702	0.621	0.702	0.731
2000	5.15	4.16	0.19	90.9	88.4	80.2	88.5	0.696	0.623	0.693	0.721

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