

# Economic Inequality and Belief in Meritocracy in the United States\*

Frederick Solt                      Yue Hu                      Kevan Hudson  
[frederick-solt@uiowa.edu](mailto:frederick-solt@uiowa.edu)    [yue-hu-1@uiowa.edu](mailto:yue-hu-1@uiowa.edu)    [kevan-hudson@uiowa.edu](mailto:kevan-hudson@uiowa.edu)

Jungmin Song                      Dong ‘Erico’ Yu  
[jungmin-song@uiowa.edu](mailto:jungmin-song@uiowa.edu)    [dong-yu@uiowa.edu](mailto:dong-yu@uiowa.edu)

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## Abstract

How does the context of income inequality in which people live affect their belief in meritocracy, the ability to get ahead through hard work? One prominent recent study, Newman, Johnston, and Lown (2015*a*), argues that exposure to higher levels of local income inequality lead people to become more likely to reject the dominant U.S. ideology of meritocracy. Here, we show that this sanguine conclusion is not supported by the study’s own empirical results and further that analysis of more and better data yields precisely the opposite conclusion. Consistent with relative power theory, among those with lower incomes, local contexts of greater inequality are associated with more widespread belief that people can get ahead if they are willing to work hard.

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Meritocracy—that idea that if one works hard, one can get ahead—is a core tenet of the American Dream (see, e.g. Hochschild 1995, 21-23). How belief in meritocracy, and in turn the country’s dominant ideology, fares in the face of the stark economic inequality that has come to characterize life in the United States over the past four decades is therefore crucial to understanding not only support for redistributive policies to address this inequality but also the continuing legitimacy of the U.S. economic system as a whole. Not surprisingly, this question and related ones regarding the relationship between economic inequality and political attitudes and beliefs have attracted considerable scholarly attention of late.

In contrast to a range of earlier studies that found that greater inequality tends to be associated with attitudes that reinforce rather than challenge the status quo, Newman, Johnston, and Lown (2015*a*) advanced the argument that inequality in the United States activates class conflict, leading poorer individuals in local contexts of higher inequality to reject meritocracy and become more class conscious. We demonstrate here, however, that that article crucially misinterprets the interaction term in its model (see, e.g., Brambor, Clark, and Golder 2006). Correcting this error reveals that there is no support for the paper’s sanguine conclusion that mere exposure to high levels of inequality stimulates a rejection of meritocracy.

Further, in reproducing the above result from the materials the authors provide (Newman, Johnston, and Lown 2015*b*), we uncovered other problems. We therefore present here a full replication, bringing more and better data as well as an improved specification to examine how, if at all, local contexts across the United States shape beliefs about whether people can get ahead if they are willing to work hard. This analysis finds no evidence for the Panglossian argument of Newman, Johnston, and Lown (2015*a*, 329) that high levels of

economic inequality work to activate an “oppositional consciousness” among lower-income individuals and so are ultimately self-correcting. To the contrary, but consistent with relative power theory, the results indicate that lower-income individuals are *more* likely to accept the meritocratic ideal where economic inequality is greater.

## Reviewing the Theories at Stake

The crucial relationship between economic inequality and system-supporting beliefs like meritocracy is the subject of two diametrically opposed theories: the conflict theory and the relative power theory. We briefly review these two theories in this section.

As noted above, Newman, Johnston, and Lown (2015*a*) advocate the conflict theory. Based on the rational-actor perspective, this theory maintains that, for lower-income individuals, being confronted with high levels of inequality locally “increases the salience of their disadvantaged position within a conspicuous local economic hierarchy” (Newman, Johnston, and Lown 2015*a*, 327). Greater class consciousness (and, in turn, increased demand for redistribution) then follows. Higher-income individuals in high inequality contexts, on the other hand, are expected to avoid the guilt and shame that their more obviously privileged position could prompt while simultaneously and self-interestedly protecting this position by becoming even more likely to believe in the importance of individual effort to the distribution of economic rewards. The conflict theory has received sustained attention, particularly in studies of political participation, but empirical support has been at best mixed (on the U.S. case, see Oliver 2001; Brady 2004; Solt 2010).

The relative power theory, on the other hand, starts with the proposition that money is

a political resource: that is, that it can be used to influence others. Therefore, the theory contends, where the rich are richer relative to the poor, they will also be more powerful relative to the poor (Goodin and Dryzek 1980). With regard to attitudes and beliefs like meritocracy, this theory suggests that the greater power imbalance that results from higher levels of economic inequality provides high-income people with more resources to spread their views in the public sphere while depriving poorer people to a greater degree of the resources to resist these efforts. This gives poorer people “a greater susceptibility to the internalization of the values, beliefs, or rules of the game of the powerful as a further adaptive response—i.e., as a means of escaping the subjective sense of powerlessness, if not its objective condition” (Gaventa 1980, 17). Patterns of religiosity (see Solt, Habel, and Grant 2011; Solt 2014) and respect for authority (Solt 2012) have been found to provide support for this theory, and Kelly and Enns’ (2010) finding that U.S. public opinion has shifted against redistributive policies when inequality has increased is also consistent with the theory’s predictions.

As Huber and Stephens (2012, 37) summarize, relative power theory can be seen as a straightforward implication of “the usual assumption of sociology, political science, and anthropology . . . that social structures reproduce themselves,” while conflict theory is grounded in the seemingly implausible premise that social structures are self-negating.

# Reproducing the Results and Correcting Their Interpretation

Using the data files and R commands provided (Newman, Johnston, and Lown 2015*b*), we were able to reproduce a close approximation of the article’s main results.<sup>1</sup> As these files note that the authors are themselves unable to reproduce the published estimates exactly, and the differences are indeed quite small, we proceed to interpretation.

Newman, Johnston, and Lown (2015*a*, 334) claims that its analysis “reveals that among low-income citizens, those residing in highly unequal contexts are significantly more likely to reject meritocratic ideals than those in relatively equal contexts [and] indicates that as we move from those with the lowest to highest incomes, the effect of increasing county inequality reverses and is associated with a decrease in the probability of rejecting meritocracy.” This claim is incorrect.

The error lies in the interpretation of the multiplicative interaction term. Though it has been well known for over a decade that models containing multiplicative interaction terms require particular care in interpretation (see, e.g., Golder 2003; Braumoeller 2004; Brambor, Clark, and Golder 2006), many political scientists continue to struggle with them: improperly specified or interpreted interaction terms appear at the top of Nyhan’s (2015) list of “recurring statistical errors” for which reviewers should be sure to check. In the multilevel logistic regression model employed in Newman, Johnston, and Lown (2015*a*), the logged odds

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<sup>1</sup>We were not able to reproduce the auxiliary analysis on class consciousness presented in Table 3 at all, however, as the number of random effects to be estimated in the model, 1322, exceeds the number of observations in the data, 1067 (see Newman, Johnston, and Lown 2015*a*, 336). We restrict our focus here, though, to the article’s main analysis on the rejection of meritocracy as presented in Table 1, Model 1 (“White Rs”).

of rejecting meritocracy for individual  $i$  in local context  $j$  are estimated as follows:

$$\begin{aligned} \text{Reject Meritocracy}_{ij} = & X\gamma + \gamma_{10}\text{Income}_{ij} + \gamma_{01}\text{Inequality}_j \\ & + \gamma_{11}\text{Inequality}_j \times \text{Income}_{ij} \\ & + r_{1j}\text{Income}_{ij} + u_{ij} \end{aligned} \quad (1)$$

Newman, Johnston, and Lown (2015a, 334) offer two pieces of evidence as support for its claim: first, that the coefficient for local income inequality (that is,  $\gamma_{01}$ ) is estimated to be positive and statistically significant, and second, that the coefficient for the interaction between inequality and respondents' incomes ( $\gamma_{11}$ ) is negative and statistically significant (Newman, Johnston, and Lown 2015a, 334).

Neither of the two actually support the claim. With regard to the first, the coefficient  $\gamma_{01}$  indicates only the effect of inequality when the other variable in the interaction, income, takes on the value of zero (see, e.g. Brambor, Clark, and Golder 2006, 72). But, oddly, the nine categories of income in the Pew surveys are recoded in the replication data to take on nine evenly-spaced values ranging from .21 to 1 (see Newman, Johnston, and Lown 2015b). Because the income variable never actually equals zero,  $\gamma_{01}$  is not directly interpretable. With regard to the second, Brambor, Clark, and Golder (2006, 74) specifically advise that one “cannot even infer whether  $X$  has a meaningful conditional effect on  $Y$  from the magnitude and significance of the coefficient on the interaction term.” Instead, the conditional effect of inequality is found by taking the partial derivative of Equation 1 with respect to inequality:

$$\frac{\partial \text{Reject Meritocracy}}{\partial \text{Inequality}} = \gamma_{01} + \gamma_{11} \times \text{Income}_{ij} \quad (2)$$

In short,  $\gamma_{11}$  is only part of the conditional effect; the magnitude and statistical significance depend also on  $\gamma_{01}$  and the value of *Income*.

We plot the conditional effect of *Inequality* at each value of *Income* in Figure 1. Contrary to the interpretation offered in Newman, Johnston, and Lown (2015a, 334), the coeffi-

cient for county income inequality fails to reach statistical significance at any observed level of respondent family income. The article’s own results provide no evidence for its conclusion that poorer people are more likely to reject, and richer people more likely to embrace, the meritocratic ideal where local income inequality is greater.

[Figure 1 about here.]

In reproducing the above analysis, our attention was drawn to two further serious issues: the measurement of the dependent variable and the contextual unit of analysis.

It is perhaps also worth noting that, contrary to the suggestion found in Newman, Johnston, and Lown (2015*a*, 331), the use of both Versions 2 and 3 was not necessitated by item availability: respondents were asked to agree or disagree with both statements in the both the 2007 and 2009 Values Surveys.

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[Figure 2 about here.]

Second, Newman, Johnston, and Lown (2015*a*, 331-332) employs the county as the unit of analysis for the context of local economic conditions. Counties, however, have been

## Replication

To test the hypotheses provided by these two contending theories requires data both on individuals’ belief in meritocracy and on the economic conditions of the contexts in which they live. The contextual unit of analysis used here is the commuting zone (CZ). CZs are

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<sup>2</sup>For another example of uncritically mixing these three incomparable measures, see Newman (forthcoming). Of the five Pew surveys listed in Table 1 and pooled in the article’s analysis, Measure 1 is used in the 2011 Political Typology Surveys, Measure 2 is used in the 2009 and 2012 Values Surveys, and Measure 3 is used in the 2008 and 2012 Middle Class Surveys.

aggregations of counties meant to represent the scope of local economic relationships both in metropolitan areas and across the rural United States. They are therefore preferable to the arbitrary borders imposed by counties; they were, in fact, explicitly designed to represent where people actually live and work and overcome the unrealistic assumption that counties are economically meaningful units (Tolbert and Sizer 1996).

Income inequality is measured using the Gini coefficient of the distribution of total family income within commuting zones for the years 1996 to 2000 as calculated by Chetty et al. (2014) from the IRS Databank, which provides de-identified income and location information for all individuals living in the United States whose names appear on any tax form.<sup>3</sup> Within the sample examined here, this variable ranges from a low of .21 to a high of .85; the median value across individual respondents in the sample is .46.

Individual-level data are drawn from the U.S. Religious Landscape Survey (RLS) conducted by the Pew Forum on Religion and Public Life in 2007. The RLS surveyed over 35,000 individuals and was designed to provide a particularly fine-grained picture of geographic variation in attitudes and beliefs across the continental United States; it is therefore superior to the much smaller Pew surveys previously used to address the question examined here. Respondents were asked which of the following two statements came closest to their own view: “Most people who want to get ahead can make it if they’re willing to work hard”

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<sup>3</sup>This measure is not perfect. Its welfare definition is income after government transfers but before taxes. Because much redistribution occurs through the tax code, an after-tax measure would be preferable; unfortunately, virtually no data on the distribution of income at any geographic scale below the national level is available for the United States (see, e.g., Kelly and Witko 2012, 420). Further, it examines differences in incomes across families, which means those without children are excluded. It is based on tax records, so it suffers from potential underreporting, particularly among those with very high incomes, though because the topcode for incomes is \$10 million dollars, the downward bias is likely smaller than that found in similar Census data which is topcoded at considerably lower amounts. Finally, it measures inequality about a decade before the Pew survey; though income distributions change only quite slowly over time, one might wish it were more temporally proximate. Despite these shortcomings, it remains the best data available on income inequality within commuting zones.



and “Hard work and determination are no guarantee of success for most people.” Those who chose the first statement were coded 0 and others coded 1, yielding a dichotomous variable of belief in meritocracy.<sup>4</sup> In these data, 33% of respondents rejected meritocracy. The entire sample is analyzed, rather than only the subset of white non-Latino respondents, so as to make use of all of the available data, although as Newman, Johnston, and Lown (2015*a*, 330) note this should be expected to bias the results toward the expectations of the conflict theory.

The other individual-level variable implicated in these theories is income. Like the other Pew surveys discussed, the RLS asked respondents to identify their total family income in the previous year on a nine-point scale ranging from less than \$10,000 to over \$150,000. The median respondent reporting an income of \$50,000 to \$75,000.

A number of other factors might help explain people’s beliefs in meritocracy. At the contextual level, we follow Newman, Johnston, and Lown (2015*a*) in controlling for average income, the black share of the population, the percentage of votes won by George W. Bush in 2004, and the total population size. At the individual level, the analyses include demographic controls for age, education, sex, race, and citizenship.

What is *not* included in these models is perhaps equally worthy of comment. Although measures of party identification, ideology, and church attendance are often reflexively added to analyses, they are inappropriate in a study of the relationship between income inequality and meritocratic beliefs. In both the conflict and relative power theories, the relationship between inequality and belief in meritocracy is mediated by just these sorts of variables. Of course, it is well understood that controlling for variables that are causally downstream from

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<sup>4</sup>This corresponds to Version 1 of the three measures employed by Newman, Johnston, and Lown (2015*a*).

an independent variable “messes up” the estimates of that independent variable’s effect on the dependent variable Gelman and Hill (2007, 188).<sup>5</sup> For the insistent, models including these variables can be found in the appendix. They do not evince substantially different patterns, although as expected the estimated coefficients for income inequality are somewhat attenuated.

The models are estimated using multilevel logistic regression of individuals nested in CZs, with both the intercept and the coefficient for income allowed to vary across the CZs. Because both the conflict and relative power theories suggest that the effect of the context income inequality on meritocratic beliefs depends on an individual’s income, a cross-level interaction between these two variables is included, as in Equation E:mixed.

The conflict theory argues that lower-income individuals will become more likely to be disillusioned with the dominant ideology of meritocracy where inequality is greater but that higher-income individuals will become more likely to uphold it. This yields the predictions that  $\gamma_{01}$ , the coefficient of income inequality, will be negative and  $\gamma_{11}$ , the coefficient of the interaction term, will be positive. Relative power theory maintains that lower-income individuals will be more powerfully instilled with the belief in meritocracy in contexts of higher inequality and so be less likely to reject it, but that higher-income individuals’ beliefs will be less sensitive to this aspect of context. Its predictions, then, are just the opposite of those of the conflict theory: that  $\gamma_{01}$  will be positive and  $\gamma_{11}$  will be negative.

[Figure 3 about here.]

[Figure 4 about here.]

[Figure 5 about here.]

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<sup>5</sup>On the powerful relationship between rising income inequality and greater religiosity, see, for example, Solt, Habel, and Grant (2011); Solt (2014).

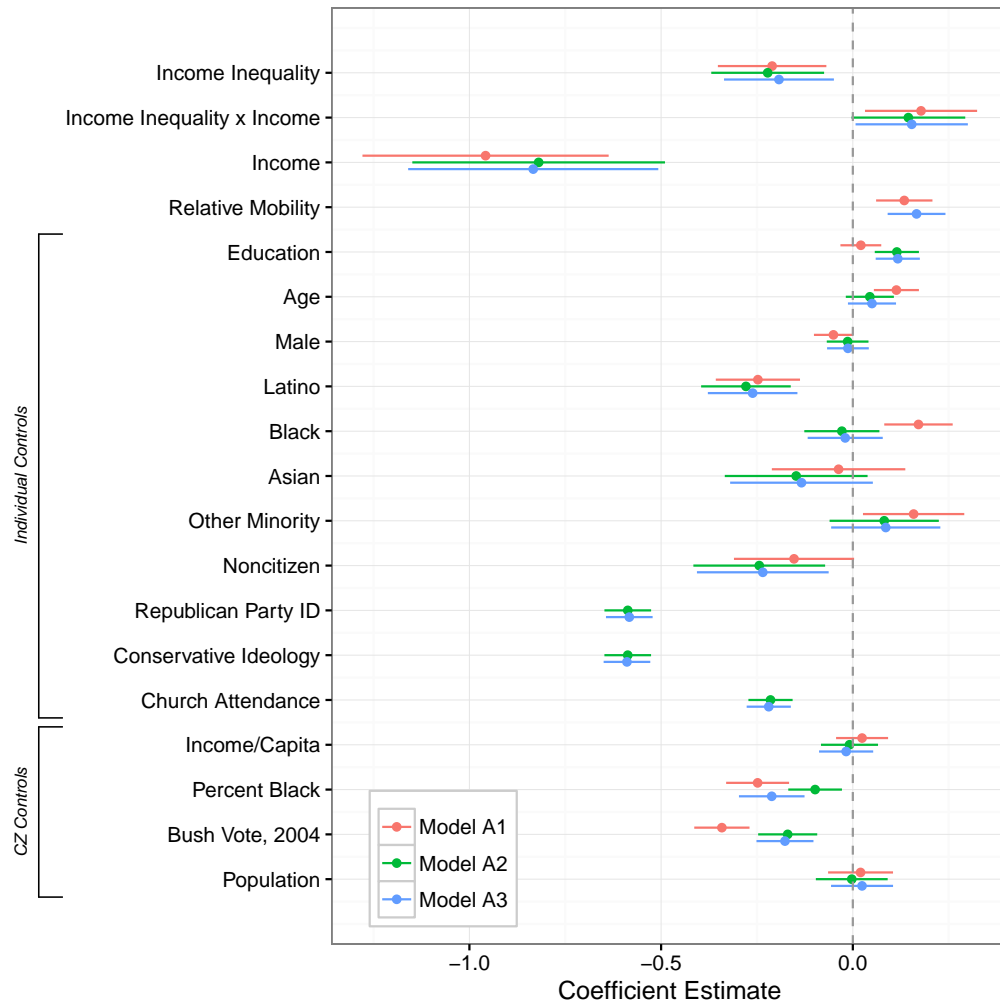
## Conclusions

## Appendix A: Additional Controls

Objective levels of economic mobility have thus far been left out of the discussion of the causes of the belief that people can get ahead through their own hard work, but it is, of course, directly implicated. Less obvious, perhaps, is that because economic mobility tends to decline with rising inequality (see, e.g., Andrews and Leigh 2009), it provides a cognitive explanation for any relationship between inequality and beliefs in meritocracy that may challenge both of the theories described above. Rather than evincing a greater psychological need to protect self-esteem in the face of personal deficiencies as the conflict theory asserts (see, e.g., Newman, Johnston, and Lown 2015*a*, 329) or the more complete cultural domination of the well-off as the relative power theory maintains (see, e.g., Solt 2012, 704), beliefs in meritocracy may instead simply reflect a correct recognition of the greater difficulty of advancing in a more sharply stratified society.

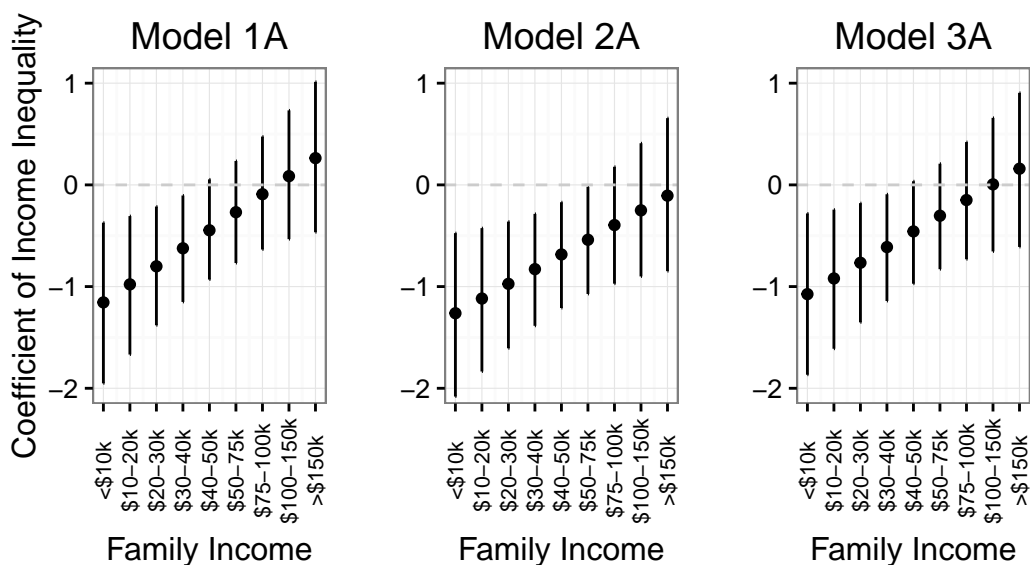
For economic mobility, we use Chetty et al.’s (2014, 1554) data on relative intergenerational mobility, which provides the best available information of the extent to which “a person’s chances of success depend little on his or her family background.” It is measured as the relationship, in each CZ, between parents’ rank in the national income distribution when their children were in their late teens and the rank of those children when they are approximately age 30. The median respondent lives in a CZ with a score of .34 on this variable, that is, a 10 percentile increase in parents’ incomes is associated with only a 3.4 percentile increase in childrens’ incomes. Economic mobility ranges from .07 to .51 in this dataset.

Figure A.1: Predicting Rejection of Meritocracy With Additional Controls



*Note:* The dots represent estimated change in the logged odds of rejecting meritocracy for a change of two standard deviations in the independent variable; the whiskers represent the 95% confidence intervals of these estimates. Multilevel logistic regression analyses of 28,633 individual respondents living in 691 commuting zones.

Figure A.2: Estimated Coefficients of Income Inequality by Income on Rejection of Meritocracy



*Source:* Analyses presented in Figure A.1. The dots represent estimated coefficient of income inequality within respondents' commuting zones on their belief in meritocracy for all values of respondent family income; the whiskers represent the 95% confidence intervals of these estimates. In all three models, these estimates are negative—indicating a lower probability of rejecting meritocracy—and statistically significant for those with lower incomes, while the coefficients for those with higher incomes are not distinguishable from zero.

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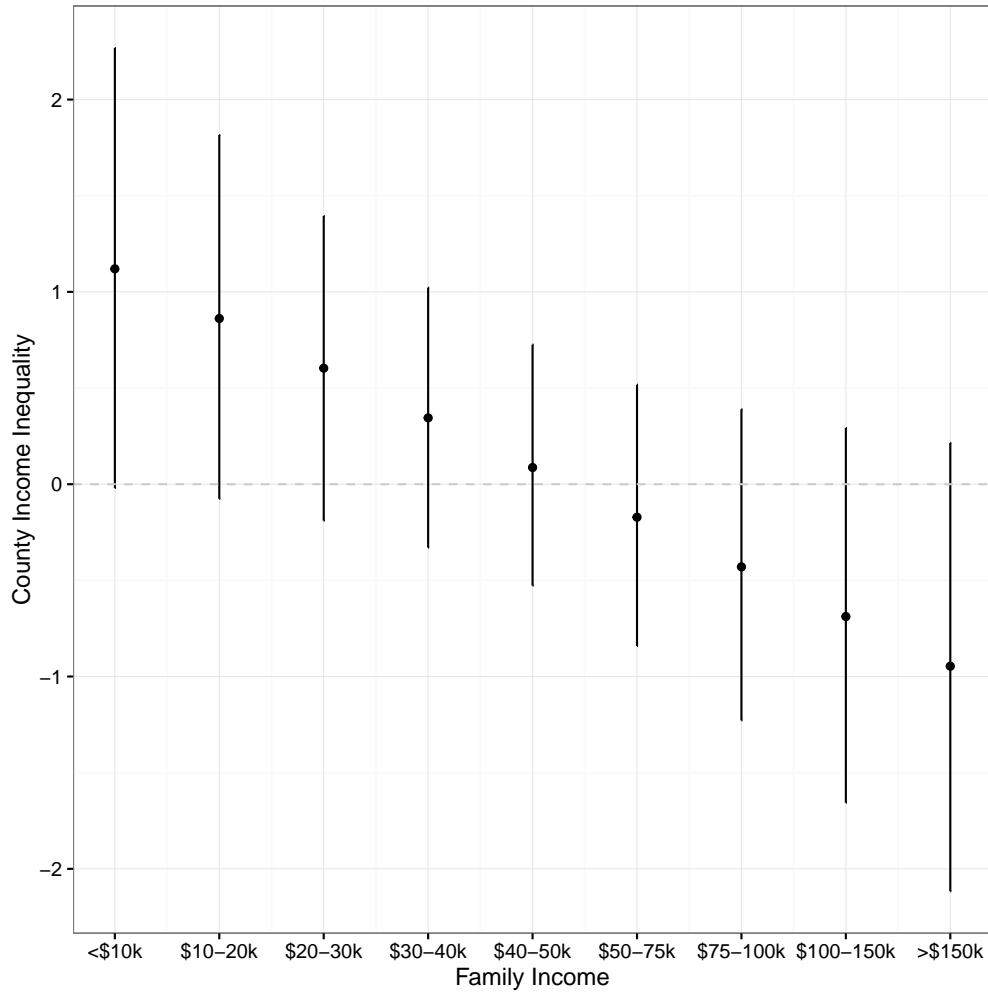
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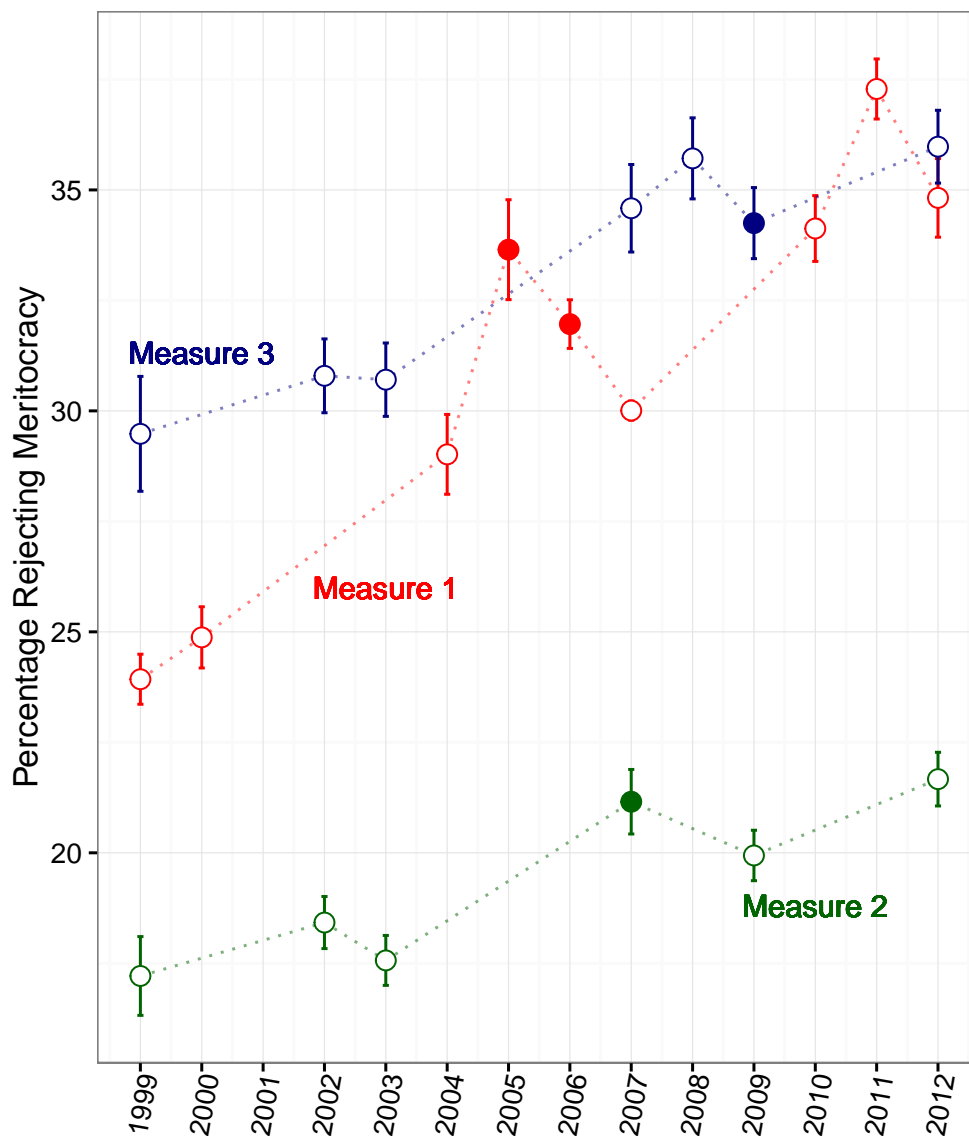
## Figures

Figure 1: Logit Coefficients of Local Income Inequality on Rejection of Meritocracy by Income, Newman, Johnston, and Lown (2015*a*), Table 1, Model 1, From Replication Data



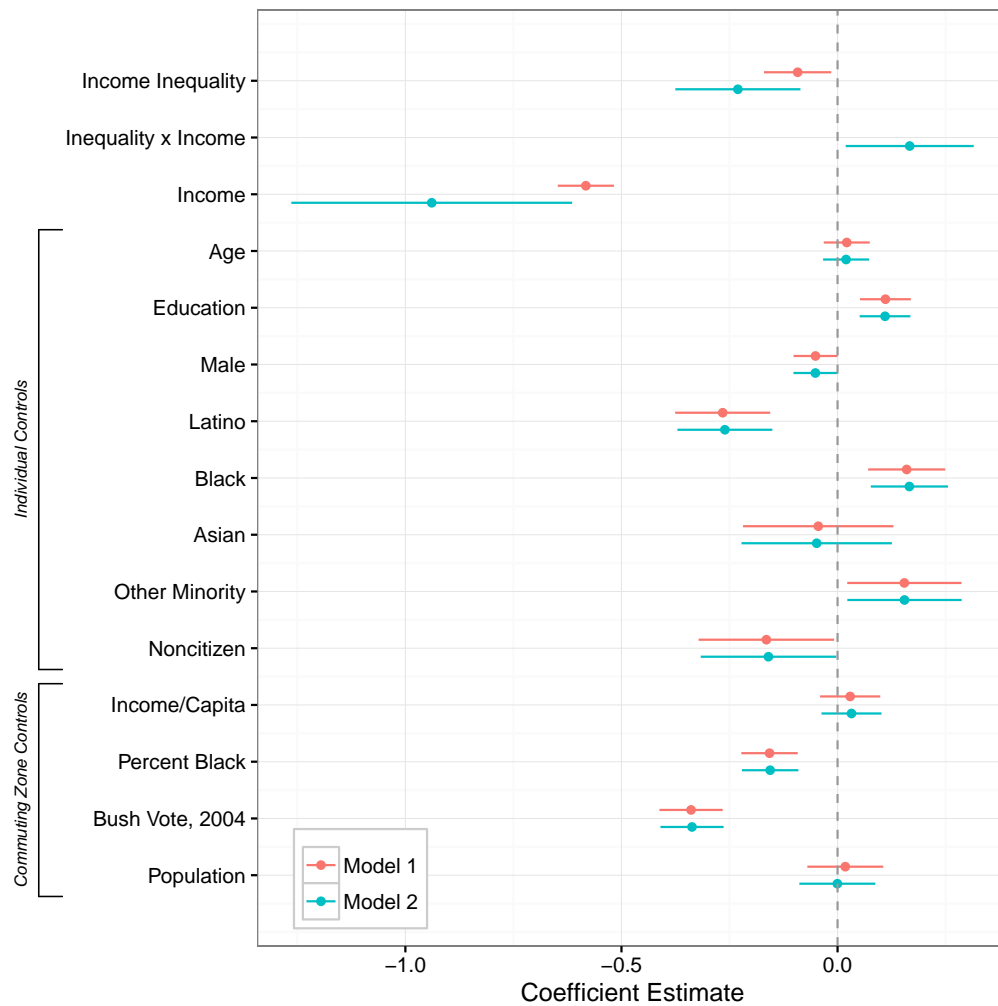
*Notes:* The dots represent coefficients of income inequality within respondents' county on their belief in meritocracy for all values of respondent income, estimated from the data and model provided in Newman, Johnston, and Lown (2015*b*); the whiskers represent the 95% confidence intervals of these estimates. Contrary to the interpretation offered in Newman, Johnston, and Lown (2015*a*, 334), the coefficient for county income inequality fails to reach statistical significance at any observed level of respondent family income.

Figure 2: Comparing Three Measures of Rejection of Meritocracy Pooled by Newman, Johnston, and Lown (2015a)



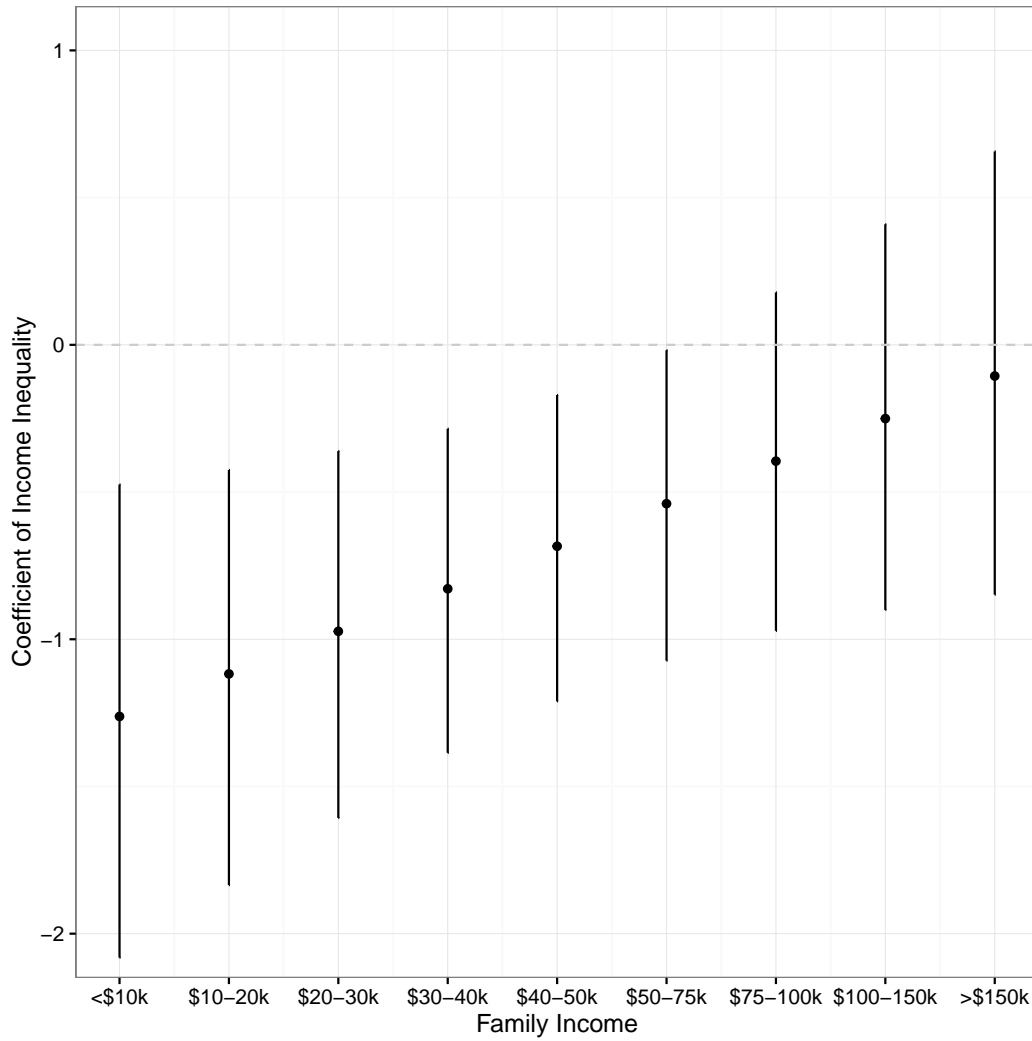
*Notes:* The analyses presented in Table 1 of Newman, Johnston, and Lown (2015a, 333) were conducted on pooled observations with the dependent variable, rejection of meritocracy, measured in one of three different ways (see Newman, Johnston, and Lown 2015a, 331). Here, solid circles represent the data used by Newman, Johnston, and Lown (2015a); hollow circles represent data in other available Pew surveys. The whiskers are 95% confidence intervals for each estimates. Plotting the weighted percentage of respondents to reject meritocracy by each of these measures reveals that the second measure results in much lower levels of rejection of meritocracy than either of the others and the third often yields considerably higher levels than the first. In light of the evident lack of comparability of these three measures, pooling them into a single analysis cannot be justified.

Figure 3: Predicting Rejection of Meritocracy



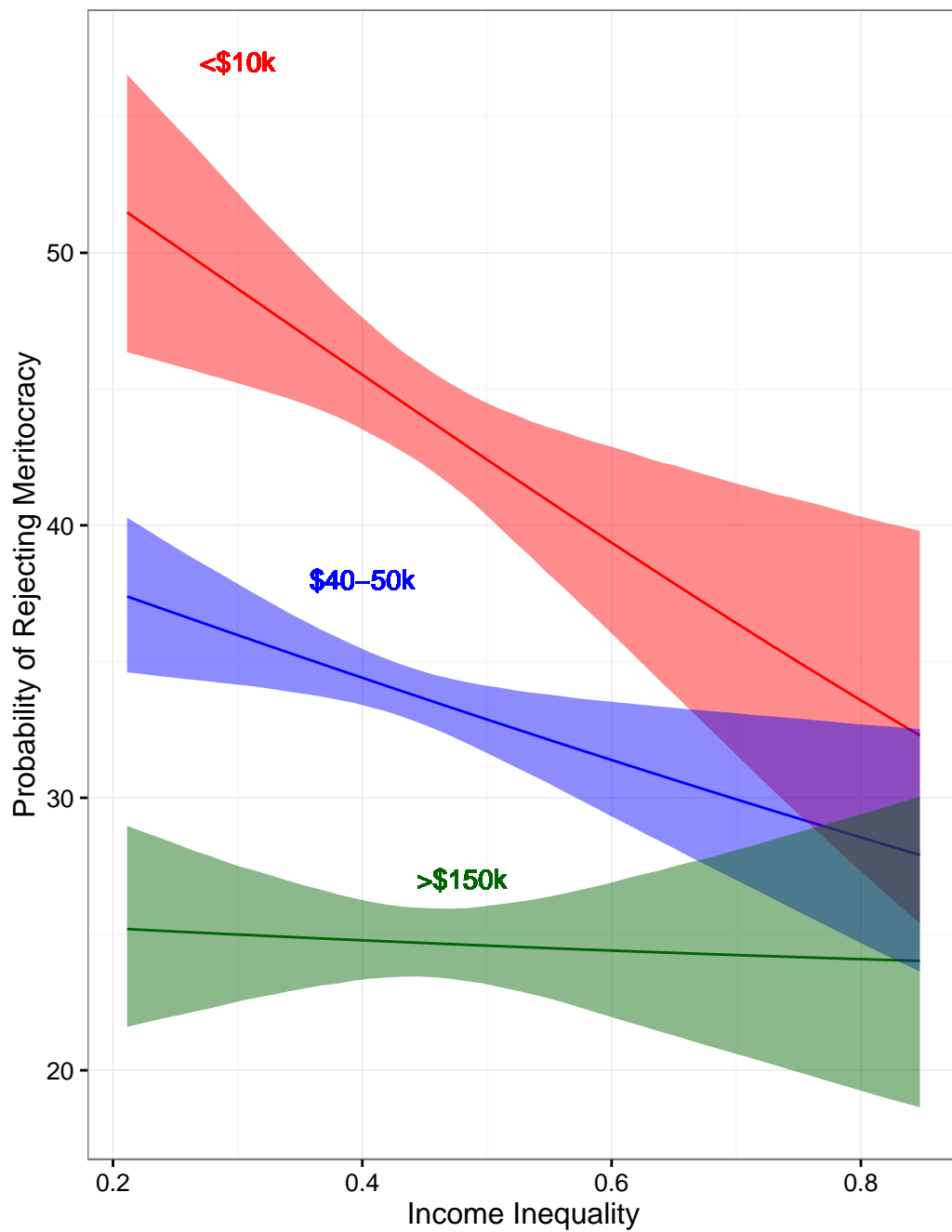
*Note:* The dots represent estimated change in the logged odds of rejected in meritocracy for a change of two standard deviations in the independent variable; the whiskers represent the 95% confidence intervals of these estimates. Multilevel logistic regression analyses of 28,633 individual respondents living in 691 commuting zones.

Figure 4: Estimated Coefficients of Income Inequality by Income



*Source:* Model 2, as presented in Figure 3. The dots represent estimated coefficients of income inequality within respondents' commuting zones on their belief in meritocracy for all values of respondent family income; the whiskers represent the 95% confidence intervals of these estimates. The estimates are positive and statistically significant for those with lower incomes, while the coefficients for those with higher incomes are not distinguishable from zero.

Figure 5: Predicted Probability of Belief in Meritocracy by Income and Level of Inequality



*Source:* Analyses presented in Figure 3. Solid lines represent predicted probabilities and shaded regions represent the 95% confidence intervals of these predictions. The predicted probabilities were generated by fixing all other variables at their median values.