Does More Inequality Lead to More Redistribution? Evidence from Developed and Developing Democracies

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Abstract

Seminal political economy models from Meltzer and Richard, among others, theorize that, in a democracy, more inequality leads to more redistribution. Unfortunately, most country-level empirical studies find weak support for this prediction. The analysis improves upon previous tests by combining four elements: (1) it employs redistribution – measured as the difference between pre- and post-redistribution inequality as its dependent variable; (2) it uses an indicator of inequality before tax and transfers as its independent variable; (3) it accounts for country-specific unobserved factors; and (4) contrary to most tests that are restricted to advanced industrial democracies, it covers 91 developed and developing democracies worldwide. The study finds that, as expected by political economy models, inequality is associated with more redistribution.

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Introduction

Recent theories of regime change by Acemoğlu and Robinson, and Boix, among others, build on the seminal political economy models of Romer, Roberts, and Meltzer and Richard, which predict that, under a democratic regime, more inequality should lead to more redistribution.[1] The Romer-Roberts-Meltzer-Richard (RRMR) model theorizes that as inequality increases, the median voter, which is pivotal in democratic elections, votes for more redistribution.[2] Building on this prediction, Boix posits that inequality reduces the likelihood of democratization because it increases redistribution in democracies.[3] Using a similar logic, Acemoğlu and Robinson instead argue that the relationship is inverted U-shaped.[4] Not only has the RRMR model influenced the literature on regime change, redistribution, the welfare state and voting behavior, but it also serves as a key building block for many theories on the effect of inequality on economic growth, corruption, and violent conflicts and political instability, among other subjects.[5] Adam Przeworski in his 2010 book *Democracy and the Limits of Self-Government* even refers to the RRMR model as "the favorite toy of political economists."[6]

Unfortunately, despite playing such a prominent role, the cross-national em-

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[1] Acemoğlu and Robinson 2006; Boix 2003; Meltzer and Richard 1981; Romer 1975; Roberts 1977. See also Acemoğlu and Robinson 2001; Dunning 2008; Houle 2009; Leventoğlu 2005; Rosendorff 2001; Ziblatt 2008 for other arguments on the effect of inequality on regime change that draw on these models.

[2] More precisely, the RRMR model predicts that redistribution is positively related to the mean-to-median income ratio.

[3] Boix 2003.

[4] Acemoğlu and Robinson 2006.

[5] See, for example, Alesina and Rodrik 1994; Boix 2008; Houle *forthcoming*; You and Khagram 2005.

[6] Przeworski 2010, p. 85.

pirical evidence in favor of the RRMR model is weak. Most studies using country-level data find either that there is no relationship between inequality and redistribution, or even that inequality is actually associated with *less* redistribution.[7] The weakness of these findings has prompted some scholars to assert the existence of a "paradox of redistribution" or a "Robin Hood paradox."[8] These results cast serious doubts on the validity of theories derived from the RRMR model. Many scholars, for instance, have contested the arguments of Acemoğlu and Robinson, Boix and others because of their reliance on the RRMR framework.[9]

This paper suggests that there may not be a paradox after all. It first identifies some of the key shortcomings of previous empirical tests, which may, at least partially, account for the weakness of the results. I then provide a new empirical analysis of the effect of inequality on redistribution that corrects for these limitations. My sample covers nearly 2,000 country-year observations on 91 democracies between 1960 and 2007. I find that, consistent with the RRMR model, inequality is associated with more redistribution.

My empirical analysis improves upon previous ones by combining four elements. First, unlike many previous tests, I use redistribution rather than social and welfare spending as my dependent variable. This is an important improvement because social and welfare spending does not necessarily redistribute from the rich to the poor, which is what the RRMR model is meant to capture.[10] Instead, I employ the indicators of redistribution of Solt, which capture the change between

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[7]For example, Moene and Wallerstein 2001, 2003; Perotti 1996.

[8]For example, Georgiadis and Manning 2012; Iversen and Soskice 2009; Lindert 2004. It must be noted that these paradoxes do not only pertain to redistribution but to pro-poor policies more generally.

[9]Acemoğlu and Robinson 2006; Boix 2003. See, for example, Ansell and Samuels 2010, 2014; Kaufman 2009; Knutsen *forthcoming*; Slater, Smith and Nair 2014.

[10]Le Grand 1982; Milanovic 2000; Segura-Ubiergo 2007.

the market (pre-tax and transfers) and net (post-tax and transfers) inequality levels of a country during a given year.[11] In other words, they indicate the extent to which tax and transfers have reduced (or increased) inequality during that year.

Second, I use an indicator of inequality *before* tax and transfers (market inequality) as my independent variable. Many previous studies have instead employed measures that capture inequality *after* redistribution has already taken place (net inequality). Third, contrary to most other authors, I account for country-specific unobserved factors by including country fixed effects. Country-specific factors could, for example explain both why some countries had low levels of redistribution in the past – and thus high levels of inequality today – and low levels of redistribution today; potentially creating a spurious negative relationship between inequality and redistribution. Although I find that inequality increases redistribution even when country fixed effects are omitted, I do find that the magnitude of the relationship increases when they are included.

Fourth, while most previous tests are restricted to a small number of rich democracies, this paper covers 91 developed and developing democracies worldwide. To my knowledge, this is the first study to test the effect of market inequality on redistribution (rather than social and welfare spending) outside a small number of (mostly) advanced industrial democracies.[12] It is also the first paper to find support for the RRMR model among a wide sample of developing countries. This point is particularly important given that many of the applications of the RRMR model – for example, regarding the effect of inequality on regime transitions – are most relevant to developing countries.

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[11]Solt 2009, 2014.

[12]Some studies do cover a few middle income democracies, such as Brazil, however (e.g., Scervini 2012).

Inequality and Redistribution

Theoretical Literature

Canonical political economy models from Romer, Roberts, and Meltzer and Richard apply the logic of the median voter theorem to the question of redistribution in democracies.[13] The basic model assumes that a proportional income tax is levied on all citizens. The total amount of taxes paid by an individual is given by the tax rate – which is the same for all individuals – multiplied by his/her market income; meaning that those with higher market incomes pay more taxes. The funds emanating from this tax (minus the losses due to the deadweight cost of taxation) are then redistributed equally to all individuals. The tax rate is selected through majority voting. Notice that, under the assumption that the average income of all voters is fixed, the preferred tax rate of any given voter increases as his/her market income decreases because the amount of taxes that he/she pays diminishes (since the tax rate is proportional to income) while the amount he/she receives from redistribution remains the same (given that the mean income is unchanged).

According to the median voter theorem, the tax rate selected will be that preferred by the voter with the median income.[14] Under the assumption that the distribution of income is right-skewed, the income of the median voter will be lower than the mean income of the country. Therefore, as market inequality increases, the gap between the mean and median incomes should widen, which increases the preferred redistribution level of the median voter. The central theoretical prediction of the RRMR model is thus that democracies that are unequal – or more precisely, democracies that have a high mean-to-median income ratio – should re-

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[13]Romer 1975; Roberts 1977; Meltzer and Richard 1981.

[14]This prediction assumes that voters have single-peaked preferences over redistribution that depend exclusively on their income.

distribute more from the rich toward the poor than those that are more equal.

This prediction has played a key role in recent influential theories on democratization and democratic consolidation.[15] According to these arguments, inequality, by increasing redistribution in a democracy, increases both the cost of democracy for the economic elites and the potential gains of democracy for the masses. Building on this insight, Boix, for example, argues that inequality reduces the willingness of the ruling elites to concede democracy to the masses.[16] He thus predicts that inequality should lower the probability of democratization.

Acemoğlu and Robinson, for their part, argue that the relationship between inequality and democratization is inverted U-shaped.[17] On the one hand, when inequality is low the population does not demand democracy because, according to the RRMR model, it would gain little in terms of redistribution. On the other hand, when inequality is high, the elites repress demands for democracy because, again following the logic of the RRMR model, unequal democracies redistribute more than those that are more equal. According to these authors, democracy should thus be most likely to emerge in countries with intermediate levels of inequality. Notice that even though the predictions of Acemoğlu and Robinson on the effect of inequality on democratization differ from those of Boix, both rest on the logic of the RRMR model.[18]

Moreover, both Boix, and Acemoğlu and Robinson further theorize that inequality harms democratic consolidation by increasing the incentives of the economic elites to stage a coup against a democracy in order to limit redistribution.[19]

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[15]For example, Acemoğlu and Robinson 2001, 2006; Boix 2003; Dunning 2008; Houle 2009; Leventoğlu 2005; Rosendorff 2001; Ziblatt 2008.

[16]Boix 2003.

[17]Acemoğlu and Robinson 2006.

[18]Acemoğlu and Robinson 2006; Boix 2003.

[19]Acemoğlu and Robinson 2006; Boix 2003.

Houle provides empirical evidence showing that unequal democracies are indeed more likely to revert to autocracy than those that are more equal.[20] The RRMR model has also greatly influenced the literature on redistribution, the welfare state, voting behavior, economic growth, corruption, and political instability, among other subjects.[21]

Despite its theoretical elegance, however, the RRMR model relies on several potentially disputable assumptions.[22] Among other things, it assumes (1) that the selection of redistributive policies is the only electoral issue, and thus that a voter's preference is completely determined by his/her income; (2) that the logic of the median voter theorem, which assumes a majoritarian electoral system, also applies to democracies with other electoral systems; (3) that politicians are motivated only by the desire to win elections (rather than, for example, implementing a particular ideology); and (4) that all voters have an equal capacity to influence policies. Building on this last point, for example, some authors have argued that inequality can only increase redistribution when the poor actually vote; implying that the relationship is conditional on turnout.[23]

Although this paper focuses on the RRMR model, it must be noted that, largely in response to the weakness of the empirical findings (see below), researchers have proposed alternative approaches to understand the relationship between inequality and redistribution. For example, a number of authors argue that individuals also view redistribution as a form of insurance against future lost of income.[24] If demand for insurance increases with income, this could explain why a poorer me-

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[20]Houle 2009.

[21]See, for example, Alesina and Rodrik 1994; Boix 2008; Houle *forthcoming*; You and Khagram 2005.

[22]See Kenworthy and Pontusson 2005.

[23]See Kenworthy and Pontusson 2005.

[24]Iversen and Soskice 2001; Moene and Wallerstein 2001, 2003.

dian voter may not vote for more redistribution (if redistribution is targeted at the unemployed); meaning that the relationship between inequality and redistribution benefiting the unemployed may actually be negative, and that between inequality and overall redistribution ambiguous.

Moreover, there are other reasons, apart from insurance against lost of income, why the median voter may become more supportive of redistributive policies as his/her income increases. This could be the case, for example, if voters are altruistic or simply eager to avoid some of the externalities of poverty, such as crime.[25]

Other scholars have theorized that countries in which the working class can be easily mobilized, for example through unions, tend both to have low levels of pre-redistribution inequality (e.g., because unions can narrow wage disparities and increase the share of income accruing to laborers) and to redistribute more heavily from the rich to the poor (e.g., because workers can be mobilized to vote for the left); suggesting that there is a negative (albeit spurious) relationship between market inequality and redistribution.[26] This approach is often referred to as the power resource theory.

In addition, Shayo theorizes that individuals are more likely to identify with groups that have high status than with those with lower status.[27] Therefore, members of the working class should become less likely to identify with their social class when inequality increases because its status diminishes. Rather, they identify more strongly with their nations. According to this view, inequality should be associated with low levels of redistribution and high levels of nationalism.[28]

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[25]See Alesina and Giuliano 2009.

[26]Bradley et al. 2003; Korpi and Palme 2003.

[27]Shayo 2009.

[28]Furthermore, Lupu and Pontusson (2011) argue that what is important is not the level of inequality but its structure. Their explanation focuses on advanced industrial democracies and assumes that the median voter is a member of the middle class. According to these authors, the

Other authors have posited that the effect of inequality on redistribution is conditional on other factors. For example, as discussed above, some scholars have argued that, since the poor are typically less likely to vote, inequality should only lead to more redistribution when turnout is high.[29] Another possibility is that diversity (e.g., ethnic diversity) within the lower class reduces support for redistribution.[30] Alesina, Glaeser and Sacerdote, for example, argue that higher ethnic diversity within the working class explains why the United States, contrary to most West European countries, did not create a large welfare state despite being more unequal.[31]

Another argument builds on the 'prospect of upward mobility' (POUM) hypothesis.[32] According to this view, the effect of inequality on preferences over redistribution depends on social mobility. When social mobility is high, members of the lower class may refrain from soaking the rich, even if inequality is also high, because they would themselves have to pay high taxes if they were to experience upward mobility in the future. Finally, De Freitas demonstrates that inequality may not lead to more redistribution if a significant proportion of the population works in the informal sector.[33] Under such conditions, governments have to rely on consumption taxes, which tend to be regressive, rather than income taxes.[34]

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median voter becomes more likely to support redistribution when the gap between the income of the middle class and the lower class is small relative to the distance between the income of the middle class and the upper class. Although appealing, this explanation may be difficult to apply to developing countries since the middle class is typically small and the median voter is more likely to be a member of the lower class.

[29]See Kenworthy and Pontusson 2005.

[30]Alesina and Glaeser 2005; Lindqvist and Östling 2013; Shayo 2009.

[31]Alesina, Glaeser and Sacerdote 2001.

[32]See Bénabou and Ok 2001.

[33]De Freitas 2012.

[34]The empirical analysis below tests the hypotheses that the effect of inequality on redistribu-

Empirical Literature

As pointed out above, the country-level empirical evidence in favor of the prediction that more inequality leads to more redistribution in democracies is discouraging. Table 1 lists some of the main cross-national empirical tests of the effect of inequality on redistribution.[35] Five of the seventeen studies listed in Table 1 find evidence consistent with the RRMR model. These findings have been largely interpreted as implying that the evidence in favor of the RRMR model is weak. In the words of Lupu and Pontusson, "the current consensus seems to be that inequality does not matter for the politics of redistribution."[36] Some scholars have even declared the existence of a "paradox of redistribution" or a "Robin Hood paradox."[37]

Many of the critics of theories that build on the RRMR framework are based on the lack of evidence for the RRMR model. This is particularly true for authors that criticise the models of democratization and democratic consolidation of Acemoğlu and Robinson, and Boix, among others.[38] For example, noting that "the empirical

tion depends on ethnic diversity or turnout (see Tables A11 and A12 of the online appendix respectively). Unfortunately, the lack of data on social mobility and the size of the informal sector for a wide range of countries prevents me from testing the latter arguments. My results, which suggest that inequality is associated with more redistribution, directly contradict the other (non-conditional) alternative explanations. Therefore, I do not test these theories in further detail.

[35]Given the large number of studies on the subject, Table 1 only covers studies that have been published. Moreover, although Table 1 is restricted to cross-national studies using country-year observations, there are a number of studies looking at the effect of inequality on redistribution across American states (e.g., Gelman 2008; Ramcharan 2010; Rodríguez 1999).

[36]Lupu and Pontusson 2011, p. 316.

[37]For example, Georgiadis and Manning 2012; Iversen and Soskice 2009; Lindert 2004.

[38]Acemoğlu and Robinson 2006; Boix 2003. See, for example, Ansell and Samuels 2010, 2014; Kaufman 2009; Knutsen *forthcoming*; Slater, Smith and Nair 2014 for studies that criticize these models.

Table 1: Cross-National Empirical Studies on the Effect of Inequality on Redistribution

Studies	Dependent Variable	Independent Variable	Country Fixed Effects?	Sample[a]	Effect of Inequality on Redistribution
Perotti (1996)	Social and welfare spending	Net inequality	No	67 obs. on 50 countries (includes autocracies)	Negative
Lindert (1996)	Social and welfare spending	Market inequality	No	95 obs. on 19 developed democracies	Mixed
Bassett et al. (1999)	Social and welfare spending	Net inequality	No	54 obs. on 54 countries (includes autocracies)	Negative
Milanovic (2000)	Difference between market and net inequality	Market inequality	Yes	79 obs. on 22 developed democracies	Positive
Moene and Wallerstein (2001)	Social and welfare spending	Market inequality	Yes	50 obs. on 18 developed democracies	Negative
Persson and Tabellini (2003)	Social and welfare spending	Net and market inequality	No	63 obs. on 63 countries (includes autocracies)	Negative
Moene and Wallerstein (2003)	Social and welfare spending	Market inequality	No	50 obs. on 18 developed democracies	Negative
Kenworthy and Pontusson (2005)	Difference between market and net inequality	Market inequality	No, but provides figures showing the relationship within countries over time	60 obs. on 11 developed democracies	Positive
Iversen and Soskice (2006)	Difference between market and net inequality	Market inequality	No	47 obs. on 14 developed democracies	Null
Scheve and Stasavage (2006)	Social and welfare spending	Net and market inequality	No[b]	22 obs. on 22 developed democracies[c]	Null
de Mello and Tiongson (2006)	Social and welfare spending	Net and market inequality	No	56 obs. on 56 countries (includes autocracies)	Negative
Larcinese (2007)	Social and welfare spending	Net and market inequality	Yes	603 obs. on 41 democracies	Null
Shelton (2007)	Social and welfare spending	Net and market inequality	No	168 obs. on 44 countries (includes autocracies)	Negative
Mahler (2008)	Difference between market and net inequality	Market inequality	No	59 obs. on 13 developed democracies	Positive
Lupu and Pontusson (2011)	Difference between market and net inequality	Market inequality	Yes	77 obs. on 15 developed democracies	Null
Scervini (2012)	Difference between market and net inequality	Market inequality	No	104 obs. on 24 developed democracies	Positive
Mahler et al. (2014)	Difference between market and net inequality	Market inequality	No	14 obs. on 14 developed democracies	Positive

Note: Includes only published studies. The term *Social and welfare spending* means that the author(s) uses an indicator capturing social and welfare expenditure (e.g., welfare spending or education spending as a proportion of GDP). The exact indicator used may differ across studies. Similarly, the exact measure of inequality used (e.g., Gini indexes or income ratio) may differ across studies. It must be noted that some studies do not use country-year observations. For example, some use five-year averages.

[a] It must be noted that some studies do not use country-year observations. For example, some use five-year averages. In such instances, the number of observations should be interpreted with caution.

[b] The country-level analysis does not include country fixed effects, although the individual-level analysis does.

[c] The country-level analysis covers 22 country-year observations, but the individual-level analysis covers more than 11,500 individual-year observations.

support for [Meltzer and Richard's] argument remains notably weak"[39] Ansell and Samuels write: "We call attention to the Meltzer-Richard model's inability to explain redistribution in existing democracies because if it cannot accomplish what it was designed to do, we have little reason to expect it to explain regime change."[40] The weakness of the evidence in favor of the RRMR model thus has profound implications for the study of comparative politics.

Most previous empirical tests of the RRMR model, however, share several limitations, which may, at least partially, account for the weakness of the findings. First, as shown in Table 1, many studies do not test the effect of inequality on redistribution but rather on social and welfare spending (e.g., welfare transfers, unemployment benefits, or expenditure on education or health care). In fact, the vast majority of the studies that Ansell and Samuels cite to support their claim that "the empirical support for [Meltzer and Richard's] argument remains notably weak" test the effect of inequality on social and welfare spending, not redistribution.[41]

However, as pointed out by Kenworthy and Pontusson, "Meltzer and Richard present their model as an explanation of the size of government, but their model is really meant to explain redistribution."[42] The problem is that social and welfare spending does not necessarily redistribute from the rich to the poor. This is particularly true in poor countries. In many instances, social transfers, such as expenditure on higher education, actually benefit mostly the middle or even the upper class.[43] Moreover, social and welfare spending may actually be inefficient

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[39]Ansell and Samuels 2014, p. 5.

[40]Ansell and Samuels 2014, p. 6.

[41]Ansell and Samuels 2014, p. 5. See footnote 3, p. 5, in particular.

[42]Kenworthy and Pontusson 2005, p.456.

[43]Le Grand 1982; Milanovic 2000; Ross 2006; Segura-Ubiergo 2007.

at reaching its intended recipients.[44] Finally, measures based on spending do not allow for the possibility that, on balance, redistribution is regressive. The dataset used in this paper suggests that in some democracies, inequality is indeed *higher* after tax and transfers (e.g., see Bulgaria and India in Figure 1).

Therefore, in order to test the RRMR model, one has to use measures of redistribution rather than spending. A number of studies, pioneered by Milanovic, have used data on market and net inequality from the Luxembourg Income Study (LIS) to construct measures of redistribution.[45] Such measures capture the difference between market and net inequality.[46] They thus reveal the extent to which tax and transfers have reduced (or, in some instances, increased) inequality. Notice that this type of indicators allows for the possibility of regressive redistribution. This is the approach that will be followed in the empirical analysis below. However, unlike previous authors, I rely on the data of Solt rather than the LIS, because the latter only covers a small group of mostly advanced industrial democracies (see below).[47]

To be clear, the relationship between inequality, on the one hand, and social and welfare spending, on the other hand, is an important field of inquiry. However, it is not an appropriate test of the RRMR model, since, as suggested by the quote of Kenworthy and Pontusson, this model is primarily about redistribution from the rich to the poor not social and welfare spending.[48] In fact, as shown in Table 1, authors that focus on social and welfare spending overwhelmingly find that the relationship is negative, while those that look at redistribution tend to find that

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[44]See Ross 2006.

[45]Milanovic 2000. See also Lupu and Pontusson 2011.

[46]As discussed below, some authors look at the absolute difference and others at the relative difference.

[47]Solt 2009, 2014.

[48]Kenworthy and Pontusson 2005.

the relationship is either positive or null. This suggests that inequality may have different effects on social and welfare expenditure than on more direct forms of redistribution.

Second, several studies use net inequality as their independent variable.[49] The problem is that net inequality measures inequality *after* redistribution has already taken place, while the RRMR model is about how inequality in market income affects redistribution. Not only is such an indicator of little theoretical relevance, but countries that redistribute heavily will tend to have low net inequality levels, potentially biasing the results against the RRMR model. The relevant indicator is the market inequality: inequality *before* tax and transfers. As shown in Table 1, some studies use inequality datasets that blend together observations on net inequality with others on market inequality. In addition to the problem raised above, such studies combine observations that are simply not comparable, further biasing their results.

Seven of the seventeen studies listed in Table 1 use what I have identified as the preferred dependent and independent variables.[50] Five of these studies find that inequality increases redistribution, while the two others find that the relationship is null. Therefore, the paper not only contributes to the literature by providing new empirical evidence consistent with the RRMR model, but also by showing through the literature review that studies that use the most suitable research design tend to find support for the RRMR model.

Third, most previous studies do not account for country-specific unobserved factors. Only three of the seven studies that employ what I argue are the preferred dependent and independent variables include country fixed effects in their esti-

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[49]For example, Bassett et al. 1999.

[50]In Table 1, my preferred dependent and independent variables are 'Difference between market and net inequality' and 'Market inequality' respectively.

mations. Accounting for country-specific factors, however, is crucial when testing the effect of inequality on redistribution. One could argue, for example, that the populations of different countries may have different views over the desirability of equality.[51] We would then expect countries in which equality is not perceived as particularly important to have higher market inequality levels – for example, because they are less likely to adopt pro-labor policies – and lower redistribution levels; potentially creating a spurious negative relationship between market inequality and redistribution.

Similarly, given that redistributive policies are relatively sticky, countries that have redistributed heavily in the past – and thus have low levels of inequality today – should be more likely to redistribute heavily today. As noted by Acemoğlu and Robinson, for example, "Although Sweden is an equal country today, what we are observing is the result of seventy years of aggressive income redistribution and egalitarian policies (e.g., in the labor market)."[52] In fact, previous authors have found that the evidence in favor of the RRMR model strengthens substantially once one adds country fixed effects.[53] Therefore, it does seem that a country becomes more likely to redistribute toward the poor as it becomes more unequal, although some unequal countries (e.g., the United States) redistribute less than other countries that are more equal (e.g., Sweden).

Fourth, the overwhelming majority of studies use a small sample of mostly advanced industrial democracies. However, many of the applications of the RRMR model – such as the literature on the effect of inequality on democracy – are more directly relevant to developing nations. The few studies that examine the relationship beyond advanced industrial democracies do not cover more than 63 countries,

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[51]See Kenworthy and Pontusson 2005; Schwabish, Smeeding and Osberg 2003.

[52]Acemoğlu and Robinson 2006, p. 113.

[53]For example, see Kenworthy and Pontusson 2005; Milanovic 2000.

many of which are autocracies (for which the median voter theorem is not directly applicable).[54] Crucially, none of the seven studies listed in Table 1 that use what I have identified as the preferred dependent and independent variables – including the five studies that find support for the RRMR model – employs a sample of more than 104 country-year observations on 24 democracies, most of which are from the developed world. This is because these studies rely on the LIS dataset that covers very few observations on developing countries. By contrast, this paper covers nearly 2,000 country-year observations on 91 developing and developed democracies. Therefore, my findings are directly relevant to the literature on inequality and democracy.

There is also a vast and related literature on the effect of inequality and income on preferences for redistribution. Again, results are inconclusive. A number of studies find that individuals become more likely to support redistribution and vote for left-leaning parties when their income decreases or when inequality increases, while other scholars find no support for such relationships.[55] Explanations for these mixed findings build on the alternative approaches discussed above. While such individual-level analyses are central to the evaluation of the RRMR model, the empirical analysis below focuses on the country-level relationship between inequality and redistribution. These different approaches should be viewed as complementary.

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[54]It must be noted, however, that most of these studies replicate their findings using only democracies.

[55]See Aalberg 2003; Bartels 2008; Brooks and Brady 1999; Dion and Birchfield 2010; Finseraas 2009; Franko et al. 2013; Gelman 2008; Georgiadis and Manning 2012; Kaufman 2009; Kenworthy and McCall 2008.

Data

The unit of analysis is the country-year. The main sample is an unbalanced panel covering 91 democracies between 1960 and 2007. The results are also reproduced with a restricted sample of more reliable observations, which covers 1,230 country-year observations on 57 democracies.[56] As shown in Table 1, the most comprehensive previous test that uses what I have identified as the preferred dependent and independent variables covers only 104 observations and 24 democracies.[57] Therefore, even though the restricted sample is much smaller than the extended sample, it remains substantially larger than that of previous studies. See Section 1 of the online appendix for further detail on the differences between the two samples (and why some observations are coded as more reliable than others).

To identify democracies, I rely on the dataset of Boix et al.[58] The online appendix reproduces the main findings with the measures of democracy of Cheibub et al. (see Table A5) and the Polity score (see Table A6).[59] Summary statistics for all variables included in the analysis are provided in Table A1 of the online appendix. The online appendix also lists the data sources for all included variables (see Table A2).

Redistribution: Redistribution, my dependent variable, is measured as the reduction (or increase) in the Gini coefficient due to tax and transfers within a country

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[56]The restricted sample covers only countries for which Solt has more than three observations on both net and market inequality. In these cases, the measure of redistribution – which captures the difference between market and net inequality – is more reliable. See Section 1 of the online appendix for further detail.

[57]Scervini 2012.

[58]Boix et al. 2013.

[59]Cheibub et al. 2010.

in a given year. My indicators of redistribution and inequality are taken from the Gini coefficients dataset of Solt.[60] Most Gini coefficient datasets, such as the UNU-WIDER World Income Inequality Database (WIID), are plagued with problems of comparability.[61] Gini coefficient observations contained in the same datasets are calculated from national surveys. Different countries use different methods, units of reference and definitions of income, rendering observations non-comparable across countries.[62]

The LIS dataset is one of the few Gini coefficient datasets in which observations are fully comparable across countries and within countries over time. But, unfortunately its coverage is highly limited. It covers only around 250 country-year observations, most of which are from advanced industrial countries. Therefore, this dataset is not suitable to test the basic assumption of the models of democratization inspired by the RRMR model.

Solt uses the LIS dataset as his gold standard and develops an algorithm to standardize Gini indexes from other sources.[63] The resulting dataset contains market and net Gini indexes on 174 countries (including autocracies). Section 1 of the online appendix provides more detail on the procedure used by Solt to standardize the data.[64]

It is important to note that the dataset of Solt does not reach the same level of comparability as the one of the LIS, although it is much higher than other datasets with similar coverage.[65] This is notably because the standardization process intro-

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[60]Solt 2009, 2014.

[61]See Galbraith 2012; Houle 2009; Solt 2009.

[62]See Galbraith 2012; Solt 2009.

[63]Solt 2009, 2014. Solt (2009, 2014) does not impute missing observations (i.e. those on which no data source is available).

[64]Solt 2009, 2014. See also http://myweb.uiowa.edu/fsolt/papers/Solt2014.pdf.

[65]Solt 2009, 2014.

duces uncertainty. In order to account for the uncertainty associated with the standardization process, Solt thus imputes 100 values for each observation.[66] As recommended by Solt, the empirical analysis reported below uses estimations techniques that combine the 100 imputed values and adjust the standard errors to account for the uncertainty associated with each estimated observation.[67]

Similarly to the scholars discussed above that employ the LIS, Solt uses the indicators of market and net inequality to construct two measures of redistribution.[68] The first is a measure of *Absolute Redistribution*. It is simply the difference between the market and net Gini indices:

$$Absolute\ Redistribution_{i,t} = Gini_{market_{i,t}} - Gini_{net_{i,t}} \tag{1}$$

where $Gini_{market_{i,t}}$ is the market Gini coefficient and $Gini_{net_{i,t}}$ the net Gini coefficient of country i in year t. Higher values are associated with higher levels of redistribution because tax and transfers have resulted in a larger reduction in the Gini coefficient.

The second measure of redistribution is termed *Relative Redistribution*. It is the percentage change between the pre- and post-tax/transfers Gini coefficients of a country during a given year:

$$Relative\ Redistribution_{i,t} = \frac{Gini_{market_{i,t}} - Gini_{net_{i,t}}}{Gini_{market_{i,t}}} \tag{2}$$

where $Gini_{market_{i,t}}$ is the market Gini coefficient and $Gini_{net_{i,t}}$ the net Gini coefficient of country i in year t. *Relative Redistribution* is thus a percentage, whereas *Absolute Redistribution* must be interpreted in Gini coefficient units. Notice that these

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[66]Solt 2009, 2014.

[67]Solt 2009, 2014. I employ the 'mi estimate:' command in Stata.

[68]Solt 2009, 2014.

measures may be negative; which would indicate that redistribution is regressive (i.e inequality is larger after than before tax and transfers).

Kenworthy and Pontusson make the argument that *Absolute Redistribution* is a better indicator of redistribution than *Relative Redistribution*.[69] This is because the latter is not only affected by redistribution but also by the initial level of inequality (through its denominator). An unequal country will thus have a lower level of *Relative Redistribution* than an equal country even if the two countries adopt redistribution policies that result in the same reduction in inequality. Therefore, *Relative Redistribution* will tend to give results that are biased against the RRMR model. All regressions presented in the paper and online appendix are performed with both measures of redistribution.

There are two limitations with these measures of redistribution that need to be discussed. First, they do not capture all the policies that governments can use to redistribute. For example, governments can also redistribute through publicly provided goods, such as health care and education, and labor regulations.[70] However, as argued above, it is often difficult in practice to determine whether such policies are unequivocally pro-poor.[71] Therefore, this paper examines only one form of redistribution.

Second, an increase in redistribution, as captured by these measures, does not necessarily mean that redistribution to the median voter has increased. For example, if income is redistributed from the 9th to the 7th income decile, the two measures of redistribution would increase but the income of the median voter would remain unchanged. Milanovic addresses this issue by calculating how much each

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[69]Kenworthy and Pontusson 2005.

[70]Morgan and Kelly 2013.

[71]Le Grand 1982; Milanovic 2000; Ross 2006; Segura-Ubiergo 2007.

income group gains from redistribution.[72] Unfortunately, the data required to calculate such measures for countries outside a small group of advanced industrialized countries is simply unavailable. The UNU-WIDER World Income Inequality Database (WIID), for example, does include income shares data. However, as most inequality datasets, the observations it contains use different methods, units of reference and definitions of income, and therefore lack comparability. Moreover, it does not provide data on *both* market and net income shares for the same countries during a given year, which would be necessary to calculate how much each income group gains from redistribution.

Market Inequality: My independent variable is the market Gini indices of Solt.[73] Importantly, this provides a measure of inequality before redistribution has taken place. One limitation with using this variable, however, is that it may not directly capture the mean-to-median income ratio. To address this issue, Milanovic uses the income shares of the bottom 50 percent and 20 percent of the population as his independent variables.[74] Unfortunately, equivalent measures for a wide range of developing countries are not available. As noted above, there is no comparable data on income shares covering a large group of developing countries over a long period of time.

Control Variables Used in the Main Models: The first series of models control only for the log of income per capita.[75] Rich countries have strong states that have the capacity to redistribute income/wealth efficiently. I expect redistribution to

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[72]Milanovic 2000.

[73]Solt 2009, 2014.

[74]Milanovic 2000.

[75]Taken from Treisman *forthcoming*.

increase with income per capita. The main reason why I start with these simple models is that there are missing values on the other control variables, which reduces the sample size.

The subsequent models include a number of additional control variables. I control for growth rates[76] since one may argue that demand for redistribution increases during economic crises, although the point could also be made that economic downturns diminish the capacity (and willingness) to redistribute. Moreover, I control for the proportion of the GDP emanating from natural resources.[77] Governments are less dependent on the population for revenues in countries with significant natural resource wealth. Therefore, I expect them to redistribute less.

As mentioned above, several authors, such as Alesina and Glaeser, theorize that ethnic diversity reduces redistribution.[78] In particular, if a large proportion of the poor are from an ethnic minority, the rest of the population may be less willing to redistribute toward them. Therefore, I control for ethnic fractionization.[79] I also control for electoral turnout in the last executive election.[80] It is measured as the proportion of the voting age population that has voted. Electoral turnout has been found to increase redistribution since the poor are typically less likely to vote.[81] Openness may decrease the capacity of the state to adopt heavy taxes because of competition among countries. So, I add trade openness.[82] Previous authors have shown that countries with large elderly populations redistribute more.[83] There-

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[76]Taken from Treisman *forthcoming*.

[77]Taken from Haber and Menaldo 2011.

[78]Alesina and Glaeser 2005.

[79]Taken from Przeworski et al. 2000.

[80]Taken from the International Institute for Democracy and Electoral Assistance.

[81]For example, Kenworthy and Pontusson 2005; Larcinese 2007; Mahler 2008; Mahler et al. 2014.

[82]Taken from the Penn World Tables.

[83]For example, Bassett et al. 1999.

fore, I control for the share of the population that is older than 64 years old.[84]

Previous authors have argued that democracies with proportional representation (PR) electoral systems redistribute more.[85] A similar argument has been made about democracies with parliamentary systems.[86] One may also argue that presidential systems are more likely to lead to divided governments when combined with PR.[87] Given their inherently contentious nature, it seems plausible that divided governments may have more difficulty adopting highly redistributive policies (e.g., in the form of land redistribution). Therefore, systems that combine presidentialism with PR may be particularly unlikely to redistribute heavily. I include dummy variables for PR systems and presidential systems along with their interaction.[88] None of the results included in this study depends on the inclusion of the interaction terms between presidentialism and PR (see Table A10 of the online appendix).

All models include lagged dependent variables. Results are unchanged if the lagged dependent variables are omitted (Table A3 of the online appendix). Finally, all models include year dummy variables.

Control Variables Used in Robustness Tests: Table A8 of the online appendix redoes the main analysis with additional control variables. First of all, older democracies may have had more time to develop tools to redistribute efficiently. I thus add the age of the democracy. Moreover, Scheve and Stasavage argue that religion affects preferences for redistribution.[89] Therefore, I include three variables

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[84]Taken from the World Bank.

[85]For example, Iversen and Soskice 2006.

[86]For example, Feld and Schnellenbach 2014.

[87]See Cheibub 2002.

[88]Taken from Bormann and Golder 2013; Cheibub et al. 2010 respectively.

[89]Scheve and Stasavage 2006.

capturing the proportion of the population that is Muslim, Roman Catholic and Protestant.[90] Since it may be more difficult to reduce inequality in countries with large populations, I control for the log of the total population.[91] Finally, although in the main analysis I control for trade openness, capital openness may also affect the capacity to tax. In Table A9, I thus control for capital openness.[92]

Empirical Results

Figure 1 plots the relationship between market inequality and absolute redistribution among democracies in 2007. As shown in the figure, the relationship is positive although not overwhelmingly strong. Of course, Figure 1 has several limitations. First, in order to appropriately assess the relationship, one needs to control for a number of factors. For example, rich developed democracies – that often have low or intermediate levels of inequality – have stronger states that can more efficiently redistribute. Therefore, as shown in the figure, Western developed democracies tend to adopt much higher levels of redistribution than poorer developing countries. It is thus particularly important to assess the relationship while controlling for income per capita. Moreover, Figure 1 only looks at the relationship within a single year.

However, Figure 1 suggests that, at the very least, there is little evidence of a negative relationship between inequality and redistribution, as reported by many studies listed in Table 1. Furthermore, Figure 1 illustrates the importance of using measures of market inequality rather than net inequality. Using net inequality, for example, would lead us to overstate the true difference in pre-redistribution

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[90]Taken from Przeworski et al. 2000.

[91]Taken from the World Bank.

[92]Taken from Freeman and Quinn 2012.

Figure 1: Market Inequality and Redistribution Across Democracies in 2007
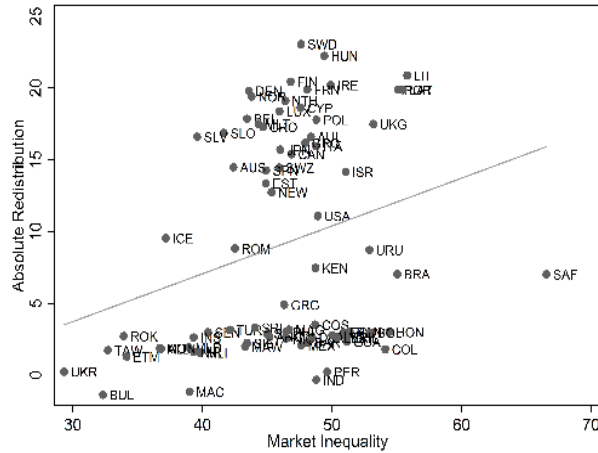
Note: Absolute redistribution is measured as the difference between market and net inequality (see equation 1).

inequality between countries such as Sweden and the United States. As shown in Figure 1, a large portion of the gap in net inequality between these two countries is actually due to differences in redistribution levels rather than in market inequality.

As discussed above, country-specific factors are likely to influence both market inequality and redistribution, potentially creating omitted variable bias. Therefore, Figure 2 looks at the relationship between market inequality and absolute redistribution over time among a selected number of democracies. I chose democracies for which a significant number of observations are available and covered all major geographic regions. In most instances, pre-tax/transfers inequality is associated with higher levels of redistribution, even though in some cases the relationship is weak (e.g., India) or negative (e.g., Mexico). This preliminary analysis thus provides some support for the RRMR model.

Main Analysis

Table 2 gives the estimates of the effect of market inequality on redistribution among democracies using ordinary least squares estimations with robust standard errors clustered by country. Table 2 uses the extended sample. As explained above,

Figure 2: Effect of Market Inequality on Redistribution among Selected Democracies
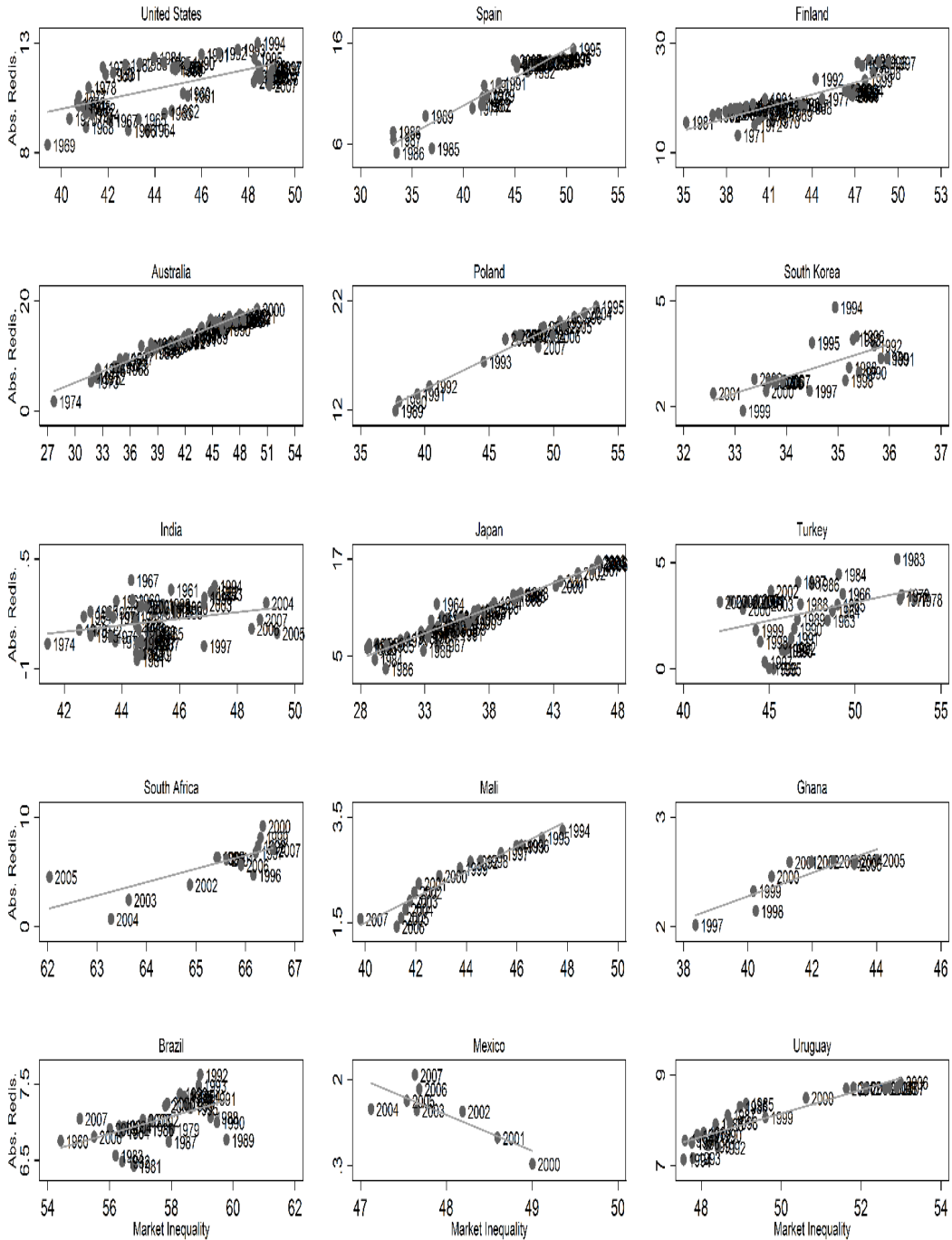
Note: Absolute redistribution is measured as the difference between market and net inequality (see equation 1).

Solt provides 100 imputed values for each observation.[93] Thus, I employ the command 'mi estimate:' in Stata, which combines the imputed values and accounts for the uncertainty inherent to the imputation process while computing the standard errors. All models include year dummy variables.

Column 1 shows the results when we only control for the lagged dependent variable and GDP per capita. As predicted by the RRMR model, more market inequality is associated with more redistribution among democracies. Column 2 adds the other control variables. The relationship is substantively important and statistically significant at the one percent level. Increasing the market Gini coefficient by one unit increases redistribution by 0.096 units.

Column 3 and 4 add country fixed effects.[94] Figure 2 has already shown that there is at least some support for the RRMR model when looking at the relationship between inequality and redistribution within countries over time. As expected, when country fixed effects are included, the effect of market inequality on redistribution remains positive and its magnitude (and level of significance) increases. In column 4, increasing the market Gini index by one unit now increases redistribution by 0.389 units as compared to 0.096 units when country fixed effects are omitted. These findings suggest that the previous studies that have not accounted for country-specific unobserved factors substantially underestimate the effect of inequality on redistribution.

As shown in Figure 1, Western countries redistribute much more than other democracies. Models 1-4 already control for income per capita, but that may be insufficient. Therefore, columns 5-8 reproduce columns 1-4 with only non-Western

[93]Solt 2009, 2014.

[94]Presidential and PR dummy variables along with ethnic diversity are omitted from these regressions because of limited variation within countries over time.

Table 2: Effect of Inequality on Redistribution in Democracies (Extended Sample)

| | Absolute Redistribution | | | | | | | | Relative Redistribution | | | |
| | All Countries | | | | Non-Western | | | | All Countries | | Non-Western | |
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)
Lagged DV	.916 (.018)***	.825 (.027)***	.403 (.062)***	.402 (.061)***	.893 (.032)***	.792 (.042)***	.291 (.068)***	.282 (.068)***	.844 (.059)***	.423 (.091)***	.787 (.079)***	.282 (.091)***
Market Inequality	.046 (.013)***	.096 (.019)***	.379 (.045)***	.389 (.047)***	.038 (.014)***	.099 (.024)***	.361 (.062)***	.358 (.066)***	.136 (.051)***	.562 (.133)***	.175 (.072)**	.654 (.191)***
GDP pc	.481 (.11)***	.284 (.138)**	.511 (.712)	-.062 (.808)	.328 (.11)***	.024 (.143)	.511 (.723)	-.523 (.827)	.599 (.371)	-.135 (1.645)	.177 (.371)	-1.205 (1.944)
Growth		-.0002 (.017)		-.0001 (.016)		.010 (.020)		.010 (.019)	.003 (.041)	.006 (.039)	.020 (.046)	.014 (.047)
Natural Resources		-.050 (.935)		.334 (1.276)		-.311 (1.591)		.442 (2.843)	-.102 (2.121)	-.745 (2.819)	-1.652 (3.779)	.187 (6.485)
Ethnic Diversity		-.003 (.005)				-.013 (.007)*			-.006 (.010)		-.030 (.018)*	
Trade Openness		.0005 (.003)		.011 (.007)*		-.001 (.003)		.007 (.008)	.001 (.005)	.026 (.014)*	-.003 (.007)	.017 (.017)
Electoral Turnout		.002 (.005)		.016 (.009)*		-.002 (.006)		.012 (.010)	.004 (.011)	.033 (.018)*	-.005 (.013)	.024 (.022)
% Elderly		.137 (.036)***		.028 (.107)		.164 (.055)***		.211 (.107)**	.249 (.109)**	.053 (.229)	.317 (.153)**	.187 (.259)
PR		.342 (.215)				.309 (.424)			.731 (.518)		.693 (1.016)	
Presidential		-.300 (.249)				-.166 (.331)			-.477 (.537)		-.346 (.772)	
Presidential*PR		-.879 (.326)***				-.885 (.519)*			-1.711 (.867)**		-1.996 (1.321)	
Country FEs	N	N	Y	Y	N	N	Y	Y	N	Y	N	Y
Year FEs	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
# Democracies	91	86	91	86	71	66	71	66	86	86	66	66
N	1924	1834	1924	1834	1129	1047	1129	1047	1834	1834	1047	1047
R2	.922	.931	.955	.957	.837	.856	.913	.917	.932	.954	.837	.902

Note: The extended sample includes all observations for which Solt (2009, 2014) provides net and market Gini indices. Each estimation uses one hundred imputed values on market inequality and redistribution. Models are estimated using 'mi estimate:' in Stata. Absolute redistribution is measured as the difference between market and net inequality (see equation 1). Relative redistribution is measured as the difference between market and net inequality relative to market inequality (see equation 2). Robust standard errors clustered by country in parentheses. ***$p < .01$, **$p < .05$ and *$p < .1$.

Table 3: Effect of Inequality on Redistribution in Democracies (Restricted Sample)

	Absolute Redistribution								Relative Redistribution			
	All Countries				Non-Western				All Countries		Non-Western	
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)
Lagged DV	.905 (.025)***	.790 (.043)***	.334 (.077)***	.314 (.074)***	.914 (.036)***	.737 (.073)***	.167 (.072)**	.110 (.072)	.819 (.086)***	.365 (.117)***	.716 (.130)***	.136 (.101)
Market Inequality	.063 (.02)***	.139 (.031)***	.491 (.047)***	.521 (.051)***	.046 (.021)**	.181 (.051)***	.52 (.061)***	.545 (.057)***	.186 (.085)**	.714 (.175)***	.338 (.156)**	.932 (.240)***
GDP pc	.721 (.207)***	.775 (.275)***	.675 (1.204)	.337 (1.277)	.493 (.225)**	.547 (.395)	.607 (1.139)	-.219 (1.230)	1.598 (.889)*	.710 (2.814)	1.684 (1.148)	-1.501 (3.030)
Growth		-.007 (.021)		.013 (.022)		.005 (.024)		.024 (.025)	-.011 (.052)	.025 (.053)	.0007 (.059)	.037 (.065)
Natural Resources		-.271 (1.078)		3.539 (2.434)		-7.928 (5.480)		7.823 (7.430)	.108 (2.473)	5.894 (4.747)	-20.728 (14.234)	11.815 (13.794)
Ethnic Diversity		-.006 (.006)				-.025 (.012)**			-.010 (.012)		-.061 (.035)*	
Trade Openness		.005 (.004)		.012 (.007)*		-.002 (.005)		.008 (.008)	.009 (.008)	.028 (.017)*	-.004 (.012)	.016 (.018)
Electoral Turnout		-.005 (.007)		.033 (.010)***		-.006 (.007)		.035 (.012)***	-.007 (.013)	.060 (.024)**	-.012 (.017)	.067 (.029)**
% Elderly		.111 (.037)***		.017 (.140)		.130 (.076)*		.422 (.162)***	.173 (.102)*	.085 (.307)	.178 (.191)	.522 (.357)
PR		.277 (.250)				.869 (.605)			.651 (.650)		2.199 (1.683)	
Presidential		-.751 (.396)*				-.737 (.811)			-1.378 (.971)		-2.141 (2.181)	
Presidential*PR		-.755 (.477)				-1.856 (.853)**			-1.267 (1.119)		-4.137 (2.502)*	
Country FEs	N	N	Y	Y	N	N	Y	Y	N	Y	N	Y
Year FEs	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
# Democracies	57	54	57	54	37	34	37	34	54	54	34	34
N	1230	1188	1230	1188	607	569	607	569	1188	1188	569	569
R2	.927	.936	.965	.966	.878	.9	.954	.959	.937	.962	.882	.943

Note: The restricted sample includes only the observations that are coded as the most reliable. These are countries for which Solt has more than three observations on both net and market inequality (see Section 1 of the online appendix for more detail). Each estimation uses one hundred imputed values on market inequality and redistribution. Models are estimated using 'mi estimate:' in Stata. Absolute redistribution is measured as the difference between market and net inequality (see equation 1). Relative redistribution is measured as the difference between market and net inequality relative to market inequality (see equation 2). Robust standard errors clustered by country in parentheses. ***$p < .01$, **$p < .05$ and *$p < .1$.

countries.[95] Again, market inequality is found to increase redistribution. Results are also unchanged if I exclude OECD countries rather than Western countries (available upon request).

Models 1-8 of Table 2 use the measure of absolute redistribution (equation 1). Columns 9-12 redo models 2, 3, 5 and 6 using the relative redistribution measure (equation 2). As discussed above, the latter indicator makes it more difficult to find support for a positive relationship between market inequality and redistribution. However, results are unchanged. In model 9, an increase in the market Gini coefficient by one unit increases redistribution by 0.136 percent. Again, the magnitude of the effect increases substantially once country fixed effects are added.

Table 3 retests the relationship using the restricted sample, which contains only the most reliable observations. Although the size of the sample decreases substantially, the findings are unchanged and the substantive effect of market inequality on redistribution often increases. Again, even though the restricted sample is smaller than the extended sample, it is still much larger than the most comprehensive previous studies. I also reproduce Tables A3-A13 of the online appendix with only this subset of observations. Again, the effect of market inequality remains positive and statistically significant at least at the five percent level in all specifications (available upon request).

Robustness Tests

Additional robustness tests are presented in the online appendix. A number of authors have raised concerns regarding the inclusion of lagged dependent variables.[96] Therefore, Table A3 of the online appendix redoes the main models of

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[95]Western countries are defined as Western Europeans countries, the United States, Canada, Australia and New Zealand.

[96]See Achen 2000; Plümper, Troeger, and Manow 2005.

Table 2 without lagged dependent variables. In all models the relationship is positive and statistically significant at the one percent level.[97]

As shown in Figure 1, most of the democracies that redistribute heavily are either from the Western world or Eastern Europe. Columns 5-8 and 11-12 of Tables 2 and 3 have already shown that the results are not exclusively driven by Western advanced democracies. Table A4 of the online appendix demonstrates that the results are robust when both advanced Western democracies and democracies from Eastern Europe are omitted. In Tables 2 and 3, I use the measure of democracy of Boix et al.[98] In the online appendix, I redo the main models of Table 2 with the measures of Cheibub et al. (Table A5) and the Polity score (Table A6).[99] As suggested by the Polity IV Project, countries with Polity scores of at least six are classified as democracies. In Table A7 of the online appendix, I further show that the results are not driven by outliers on redistribution or market inequality.

Table A8 of the online appendix demonstrates that the results are robust to the inclusion of additional controls: total population logged, the age of the democracy, and the proportion of the population that is Muslim, Roman Catholic, and Protestant. Table A9 shows that the results are also robust to the inclusion of a measure of capital openness.[100] Table A10 shows that the results are unchanged when the interaction term between PR and presidentialism is omitted.

Finally, to make sure that my results are not affected by multicollinearity, I com-

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[97]I have also redone all the other robustness tests reported in the online appendix (Tables A4-A12) without lagged dependent variables and the effect of market inequality is positive and statistically significant at the one percent level in all specifications (available upon request).

[98]Boix et al. 2013.

[99]Cheibub et al. 2010.

[100]I do not include capital openness in Table A8 because of the large number of missing values on that variable. Nonetheless, the results are unchanged when capital openness is included along with all variables included in Table A8 (available upon request).

puted the variance inflation factor (VIF) for all variables included in model 2 of Table 2. None attains a VIF of ten, which is usually the threshold set to detect whether there is multicollinearity. The variable with the highest VIF is *% Elderly* with a VIF of 5.25. The VIF of *Market Inequality* is only 1.63.

Discussion of the Control Variables

Most control variables are found to have little effect on redistribution. However, once we omit the lagged dependent variables and the year dummy variables (see Table A13 of the online appendix), we find that the effect of the control variables is usually consistent with the findings of previous authors, most of which do not use lagged dependent variables and year dummy variables. As expected, rich democracies redistribute more. However, once country fixed effects are included, the relationship vanishes. Moreover, consistent with the previous literature, countries in with large elderly populations redistribute more.[101]

As shown in Table A13, ethnically divided democracies redistribute less than those that are more homogeneous, although the effect is only significant when the sample is restricted to non-Western countries. This is consistent with the expectations of scholars such as Alesina and Glaeser.[102] However, as discussed above, many authors have argued that the effect of inequality on redistribution weakens as ethnic diversity increases (i.e. that the relationship is conditional). Therefore, in Table A11 of the online appendix, I redo the main models of Table 2 with an interaction term between market inequality and ethnic diversity.[103] Results show

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[101]For example, Bassett et al. 1999.

[102]Alesina and Glaeser 2005.

[103]This test is admittedly imperfect. The arguments of previous authors suggest that ethnic diversity within the lower class, not ethnic diversity within the whole population, should be associated with less redistribution. Ethnic diversity may reduce the effect of inequality on redistribution if

little evidence that the effect of inequality on redistribution diminishes as ethnic diversity increases.

Electoral turnout is usually associated with more redistribution. This is consistent with the findings of previous authors.[104] However, the effect of turnout is usually weak. It must be noted, though, that the relationship strengthens substantially and becomes statistically significant once the dummy variable for PR – which itself affects turnout – is dropped and country fixed effects are omitted (available upon request). Moreover, as for ethnic diversity, many authors actually argue that the effect of market inequality on redistribution is conditional on electoral turnout. Again, I test this hypothesis by adding an interaction term between inequality and turnout (see Table A12 of the online appendix). I find little evidence that the (positive) effect of inequality on redistribution increases as turnout increases.[105]

Finally, as shown in Table A13, executive-legislative institutions, captured by the dummy variable for presidential regimes, and electoral institutions matter for redistribution. As shown by Feld and Schnellenbach, presidential democracies redistribute less, on average, than parliamentary democracies.[106] Moreover, the effect of the electoral system is conditional on the executive-legislative institutions. Parliamentary democracies that have proportional representation (PR) redistribute the most, while presidential systems with PR usually have the lowest level of redistribution. Presumably, this is because the latter combination is particularly prone to deadlocks, which prevents the adoption of potentially controversial policies.

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members of the ethnic minorities are poor relative to the rest of the population.

[104]For example, Larcinese 2007; Mahler 2008; Mahler et al. 2014.

[105]Notice that my results are not consistent with the expectations of the other (non-conditional) alternative approaches discussed above (e.g., power resource and insurance approaches) since I find that more inequality is associated with more redistribution. Therefore, I do not test these alternative approaches more specifically.

[106]Feld and Schnellenbach 2014.

Conclusion

Important political science research builds on the prediction of the Romer-Roberts-Meltzer-Richard (RRMR) model that more inequality leads to more redistribution in democracies. Unfortunately, cross-national empirical studies using country-level data have typically failed to find support for this prediction. In this paper, I retest this relationship using a sample of 91 developed and developing democracies between 1960 and 2007. I show that, consistent with the RRMR model and in spite of the consensus that prevails among most scholars, more inequality is associated with more redistribution.

In addition to the limitations on the dependent and independent variables discussed above, a few caveats are in order before concluding. Although my results are consistent with the expectations of the RRMR model, additional analyses will need to be conducted before we can definitively conclude that this model is valid. First, causal mechanisms other than those proposed by the RRMR model could explain why inequality is correlated with higher redistribution levels at the country-level. Further investigation on the mechanisms driving the relationship ought to be conducted. Second, this paper has tested the RRMR model using country-level data. This is only one of multiple possible angles that can be used to assess its validity (albeit a crucial one). Country-level tests need to be combined with those of authors using individual-level data, for instance. As discussed above, while some individual-level studies obtain results that are consistent with the RRMR model[107], others do not.[108] Third, analyses of the effect of inequality on redistribution through tax and transfers, such as the one presented in this paper, ought to be complemented by other analyses that look at the effect of inequality on other

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[107]For example, Bartels 2008; Brooks and Brady 1999; Gelman 2008.

[108]For example, Kenworthy and McCall 2008.

forms of pro-poor policies (e.g., labor regulations).[109]

This paper has nonetheless made a valuable contribution by showing that country-level evidence is at the very least consistent with the expectations of the RRMR model. Given the centrality that main theoretical result of the RRMR model plays in political science and other social sciences, it would be difficult to overstate the importance of this finding.

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[109]However, as argued above, it is often difficult in practice to identify the policies that are un-equivocally pro-poor.

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