Equal Treatment and the Inelasticity of Tax Policy to Rising Inequality

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Abstract

We argue that tax policy typically does not respond to inequality because many voters hold equal treatment fairness beliefs for which the expectation is that, just as all have one vote, the state should treat citizens equally on other dimensions of policy. In the tax domain, this means all should pay the same rate. We propose a new survey instrument to measure equal treatment beliefs and implement it in surveys in Germany, the United Kingdom, and the United States. We document in all three countries a robust negative partial correlation between the strength of individual equal treatment beliefs and preferences for higher taxes on the rich. We also present results from a survey experiment in the United States that exposes respondents to a violation of equal treatment beliefs—voting weighted by educational attainment. Exposure to this treatment both increases the strength of equal treatment beliefs and decreases support for progressive taxation.

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1 Introduction

The capacity of democratic governance to manage market capitalism has been a fundamental concern of political economists from the beginning of the industrial revolution. Could democracies regulate market competition in product, labor, and capital markets to produce good economic outcomes for society as a whole? Would democratic policymaking be able to develop policy answers to the inevitable problems that capitalism would create?

Increasing economic inequality across people and communities within countries is thought by many to be responsible for increasing support for political candidates and parties of the left and the right that question the foundations of liberal democratic capitalist societies. The consequences of increasing economic inequality are not limited to its effects on the political and social life of individual countries but also are argued to have weakened the liberal international order that has provided a framework for promoting cooperation and resolving conflict among countries since the end of World War II.

If economic inequality poses a problem for domestic and international political stability, it is of paramount importance to understand when and why democratic societies do and do not respond to it. We investigate this question by considering one of the most powerful policy tools that states have to influence inequality: progressive taxation of income and wealth. Taxes on the rich and the redistribution that they fund can equalize post tax-and-transfer incomes and, through their effect on economic incentives, may also have a direct equalizing effect on market incomes and wealth.

It is well known that inequality has increased in the United States over the last four decades while tax rates on the wealthy have fallen. So democratic policymaking has not been "self-equilibrating". In this article, we take a broad look at the history of progressive taxation in seventeen countries to ask whether increasing income and wealth inequality predicts future taxation on the rich. In the context of the well known US result, we investigate whether the failure of US tax policy to respond to rising inequality is somehow abnormal or atypical. We find no evidence that on average, changes in inequality predict future changes in tax policy.

One can, of course, point to specific countries and historical episodes when rising inequality drove increases in taxes on the rich but it is typically not what happens.

This finding raises the question of why democracies don't tax the rich in the face of increasing inequality. Answers to this question can be divided into two, possibly complementary, sets of explanations. One possibility is that citizens want a more progressive tax system to respond to economic inequality, but democratic political systems fail to deliver policies consistent with these preferences because they are captured by the rich. The alternative view is that the public, or at least not enough of the public to overcome whatever advantages the rich have in the political process, does not prefer higher tax rates on higher incomes and wealth despite rising inequality.

We develop a new explanation for why the public does not have more progressive tax preferences and why democracies often do not respond to inequality with higher taxes on the rich. We identify *equal treatment* fairness considerations as a key driver of preference heterogeneity about taxation. We argue that many voters adhere to an *equal treatment* criterion for government policy - just as all should have the same vote in a democracy or the same equal protection before the law, all should also pay the same tax rate. Individuals that hold this equal treatment belief prefer less progressive tax systems than those who hold other fairness beliefs, such as an *ability to pay* criterion in which taxing high incomes at higher rates is justified because the rich are better able to afford to do so. Strictly speaking, individuals who hold the *equal treatment* beliefs should prefer flat taxes and many do. That said, as Hochschild (1981), Weinzierl (2017), and others have pointed out, it is likely that many individuals hold opposing norms simultaneously, and we would expect their tax policy preferences to reflect both influences.[1] For our purposes, the key point is that the *equal treatment* criterion leads some individuals to prefer less progressive tax rates and to respond in their policy opinions less to increases in inequality than they would otherwise. These

[1]This is a specific example of the more general phenomenon of individuals having "competing considerations" (Zaller, 1992).

beliefs and the resulting disagreement among voters over the appropriate criterion for tax fairness makes it less likely that tax policy responds to rising inequality.

This connection between *equal treatment* beliefs and the puzzle of the inelasticity of tax policy to increases in inequality is central. It is arguably not surprising that citizens in democracies have *equal treatment* beliefs and that violations of these norms are viewed negatively in any policy domain. Democracy is after all about political equality. But we argue that these beliefs are mapped to tax policy in different ways by different voters and that this heterogeneity generally and the equal treatment mapping specifically helps explain the puzzle of why tax policy does not generally respond to changes in inequality.

Our argument about equal treatment is different from and adds to existing arguments about fairness and its influence on taxes and redistribution. Fairness arguments can usefully be organized into three categories: *outcome fairness*, *market procedural fairness*, and *state procedural fairness*.

Outcome fairness arguments focus on variation in the extent to which a distribution of economic outcomes is viewed as fair regardless of the process that led to that outcome. The most influential versions of these arguments focus on variation in inequality aversion and altruism across individuals and countries accounting for variation in support for progressive taxation and redistribution (see e.g. McCall and Kenworthy (2009), Page and Jacobs (2009), Alesina and Giuliano (2011), Dimick, Rueda, and Stegmueller (2016), Cavaille and Trump (2015), Gilens and Thal (2018), Bechtel, Liesch, and Scheve (2018), and Stantcheva (2020)). Another important line of research related to this type of fairness consideration are studies that focus on the role of information about inequality in determining policy preferences (Bartels (2005, 2008), Kuziemko et al. (2013), Boudreau and MacKenzie (2018), and Gimpelson and Triesman (2018)).

Market procedural fairness arguments focus attention on the deservingness of the rich and the poor. The greater the extent to which one believes that the rich deserve their income and wealth because of their hard work or innovative ideas, the less fair it is to tax them heavily

and similarly, the more one thinks the poor deserve their outcome because of their failure to work hard, the more acceptable a given level of inequality may be.[2] This category includes the body of research on the role of effort and luck in determining economic success (Piketty (1995), Roemer (1998), Fong (2001), Alesina and Angeletos (2005), McCall (2013), Durante, Putterman, and van der Weele (2014), and Ballard-Rosa, Martin, and Scheve (2017)). It also includes a great deal of research on the role of race, ethnicity, class, and social identities more generally in determining how deserving the poor are thought to be (Gilens (1999), Luttmer (2001), Alesina and Glaeser (2004)).[3]

Finally, *state procedural fairness* arguments focus on the extent to which state policies treat citizens equally. Our argument about the importance of equal treatment beliefs and the diversity of what kind of tax system is consistent with treating citizens equally extends previous research on the role of such considerations in the context of the mass mobilization wars of the first half of the 20th century to a peacetime context (Scheve and Stasavage 2012, 2016). It also builds on Hochschild's (1981) arguments about the role of equality and differentiation norms in the political and economic domains of a citizen's life. Hochschild argued that opinions about redistribution tended to be viewed as primarily in the economic domain and therefore were more influenced by differentiation norms that dominated that domain. Our argument suggests that even when political equality informs beliefs about redistribution, for some, the implications will be to oppose rather than support progressive policies. The closest previous work to our argument come from accounts that emphasize the relevance of pre-tax income for how people think about tax policy and redistribution (see Weinzierl (2017) and Fisman, Jakiela, and Kariv (2014)) and from recent work that argues that financial crises change the perceived fairness of progressive taxation as a policy

[2]See Starmans, Sheskin, and Bloom (2017) for further discussion.

[3]Note though, some arguments about social identities focus on *outcome fairness* as citizens may have, for example, differential altruism for groups in society depending on how closely they identify with them (see e.g. Shayo (2009) and Lupu and Pontusson (2011)).

instrument (Limberg (2019)). In our argument, individuals could, for example, be inequality averse but not want to adopt higher taxes on the rich because it violates an equal treatment norm.

Our argument like other fairness accounts complements economic efficiency explanations for why rising inequality does not seem to induce more progessive tax opinions. If individuals internalize high incentive or administrative costs to more progressive taxes and greater government spending, inequality may have little impact on their preferred polices. While this consideration is certainly omnipresent in political debates about taxation, the evidence that it has a major impact on individual policy opinions is mixed (see e.g. Durante, Putterman, and van der Weele, 2014; Stantcheva, 2020).

To empirically evaluate our argument, we propose a new survey instrument for measuring commitment to an equal treatment criterion of fairness and field original surveys in Germany (2019) and the United Kingdom (2017) to test the instrument. We show that the measure is strongly negatively correlated with preferences for higher taxes on the rich and is distinct from other beliefs that are thought to explain tax policy preferences. Perhaps most interestingly, responses to this equal treatment question are not highly correlated with responses to two different questions measuring degree of concern about inequality. It seems to be the case that many individuals are concerned about inequality but do not believe that progressive taxation is the appropriate way to alleviate it.

It is, of course, possible that individuals adopt fairness beliefs that justify the policy opinions that they have for other reasons. For example, internalizing efficiency considerations is an alternative explanation for why voters do not support greater redistribution in the context of rising inequality. Fairness arguments of all kinds including equal treatment may be used to justify opinions determined by economic efficiency beliefs or even simple self-interest. To provide evidence that belief in the equal treatment norm has a causal impact on tax policy preferences, we conducted a survey experiment in the United States in 2018 in which we randomly assigned respondents to a treatment group that manipulated the

salience of the equal treatment norm. We present evidence that individuals for whom the equal treatment norm was made more salient had higher equal treatment beliefs and less progressive tax policy preferences than the control group. This finding is consistent with the argument that belief in the equal treatment norm has a negative causal effect on preferences for taxing the rich. We also replicate the regressions we estimated for Germany and the United Kingdom for the data in the United States and show that equal treatment beliefs are negative correlated with support for progressive taxation. We then use the experimental manipulation as an instrumental variable for equal treatment beliefs and present IV estimates for the effect of equal treatment beliefs on support for progressive taxation.

In the remainder of this article, Section II presents our investigation of the historical relationship between economic inequality and taxes levied on the wealthy in seventeen countries over the last century. In Section III, we present our theoretical argument about the role of competing fairness criteria generally and *equal treatment* beliefs specifically in explaining why democracies often do not respond to rising inequality with greater taxation of the rich. Section IV proposes a strategy for measuring equal treatment beliefs and reports descriptive patterns of these beliefs in Germany and the United Kingdom. This section also includes analyses that show that equal treatment beliefs are distinct from concern about inequality and strongly negative correlated with preferences on taxing top earners. Section V replicates these results for the United States and presents experimental evidence that bolsters a causal interpretation of the negative relationship between equal treatment beliefs and progressive tax opinions. The final section concludes.

2 Does Inequality Drive Tax Progressivity?

Across a wide class of theoretical models, both normative and positive, the degree of tax progressivity should be a positive function of the degree of pre-tax inequality. This also makes sense if policy follows an ability to pay criterion of fairness. The rich should pay a

higher rate because they can better afford to do so, and as inequality increases, the differences in tax rates paid by the wealthy and non-wealthy that are considered fair under this criterion also increase.

In recent decades inequality has increased dramatically in the United States while taxes on high incomes and wealth have largely moved in the opposite direction. In this section we will show that there is nothing anomalous about recent US experience. Across seventeen countries and over a century of data, we fail to see that governments respond to rising inequality by making their tax systems more progressive.

Our data are drawn from top income and wealth shares and top statutory marginal tax rates on income and inheritance (Atkinson and Piketty 2007, 2010; Roine and Waldenstrom 2015; Scheve and Stasavage 2016). Although we have tax rate data for all of the 19th century, we focus on the period 1900-2010 for which we have sufficient top income and wealth share data to conduct our analysis.[4]

We will test for "causality" in the sense defined by Granger (1969) extended to a panel setting. The Granger approach involves asking whether past realizations of inequality can be used to predict future movement in tax rates taking into account past realizations of tax rates. This is obviously a substantially weaker definition of causality than in the standard potential outcomes model of causal inference since omitted factors might be the underlying

[4]For the main income analysis employing the top 1% measure of income inequality, the seventeen countries are Australia (1925-2010), Canada (1920-2000), Denmark (1900-2010), Finland (1920-2005), France (1905-2005), Germany (1900-1995), Ireland (1940-2005), Italy (1975-2005), Japan (1900-2010), the Netherlands (1915-2010), New Zealand (1925-2010), Norway (1910-2010), Spain (1985-2010), Sweden (1905-2010), Switzerland (1935-2005), the United Kingdom (1920-2010), and the United States (1915-2010). The analyses employing an alternative measure of income inequality and our measure of wealth inequality vary somewhat in country and year coverage. Missing values between observed annual values are interpolated for the income inequality measures.

force driving both tax policy and pre-tax inequality. However, recall that our main objective here is to determine whether the U.S. pattern in which inequality is not predictive of future policy changes is unique or general. The Granger approach and corresponding assumptions match this objective well.

The basic equation we estimate is presented below. A current measure of the tax rate T is regressed on a lagged value of the tax rate and I, which is a lagged measure of inequality. This specification makes a great deal of intuitive sense. In most instances, top tax rates change infrequently and incrementally, so past rates should predict current rates. Likewise, measures of inequality appear only with a certain lag reflecting time delays in collecting data on income and wealth. This time lag will allow us to attempt to disentangle the causal relationship, if one exists, between tax rates and inequality. The regression also includes time and country fixed effects. We will consider a setting where each observation for each country covers a five year time period.[5]

$$T_{it} = \alpha + \beta T_{it-1} + \gamma I_{it-1} + \eta_i + \theta_t + \varepsilon_{it} \tag{1}$$

We will estimate equation (1) using data on both income and wealth inequality. Tables 1 and 2 report results for the top marginal rate of income taxation where the inequality measure is the share of total incomes accruing to either the top one percent of individuals or the top 0.01 percent of individuals, with the inequality data drawn from Atkinson and Piketty (2007, 2010) and subsequent papers in the top incomes project. The estimates in Tables 1 and 2 use the top marginal rate of income taxation, combining both national and subnational income taxes.[6]

We will also use the statutory top marginal rate of inheritance taxation as a measure

[5]For our preferred specifications with both country and period fixed effects, our estimates are similar using annual data.

[6]See Scheve and Stasavage (2016). Our results are very similar if we use a measure of the top marginal rate based on national-level income taxes only.

of tax policy and the share of total wealth held by the top one percent of individuals as a measure of inequality.[7] Results for these estimates are reported in Table 3. We have data on these top one percent wealth shares for twelve countries in our sample.[8]

In order to consider whether any null results where inequality fails to predict changes in top tax rates are due to measurement error, in Tables 1, 2, and 3 we also report estimates of the following equation where we examine whether lagged tax rates predict inequality.

$$I_{it} = \alpha + \beta I_{it-1} + \gamma T_{it-1} + \eta_i + \theta_t + \varepsilon_{it} \tag{2}$$

There are a number of mechanisms that might prompt higher rates to lower inequality (noting that our top incomes and top wealth shares measures are pre-tax). Higher top tax rates may affect the incentives that the wealthy have to save, invest, and work. Higher rates may affect bargaining over profits between firms and workers. Our goal here is not to adjudicate between these alternative possibilities. Our objective in estimating equation (2) is simply to provide a check to see whether it is possible to get any sort of result using these Granger tests on our data.

The conclusions from the estimates of equations 1 and 2 are unambiguous. When assessing whether lagged inequality influences the choice of tax rates we see that the coefficients on our different lagged inequality measures are never statistically significant. When assessing whether lagged tax rates influence future inequality, we see that the coefficients on the lagged tax rate variables are statistically significant, and they suggest the expected effect - higher top tax rates lead to lower inequality.

We should note that what we have found here is evidence for the absence of an inequality effect on average. There may be cases of individual countries where policy responded to

[7]The statutory top marginal rate is for national level inheritance taxes only.

[8]The source for all countries is Roine and Waldenstrom (2015). Switzerland has never had a national-level inheritance tax and so its rate is zero. We leave it in our data but it can be dropped and has no effect on our estimates.

	Ordinary Least Squares, Five-Year Data			
	Top Income Tax Rate		**Income Share of Top 1%**	
	(1)	(2)	(3)	(4)
Top Income Tax Rate$_{t-1}$	0.804	0.608	-0.052	-0.021
	(0.061)	(0.076)	(0.008)	(0.009)
	0.000	0.000	0.000	0.020
Income Share of Top 1%$_{t-1}$	0.036	-0.428	0.541	0.577
	(0.311)	(0.390)	(0.081)	(0.079)
	0.908	0.273	0.000	0.000
Common Time Trends	Yes	No	Yes	No
Period Fixed Effects	No	Yes	No	Yes
Country Fixed Effects	Yes	Yes	Yes	Yes
R-squared	0.737	0.835	0.821	0.877
Number of Observations	290	290	284	284

Table 1: *Granger Causality Analysis of Income Inequality and Income Taxation, 1900-2010: Income Share of Top 1% Measure of Inequality.* The table reports the results of pooled-cross-sectional OLS regressions. Specifications in columns 1-2 regress the variable *Top Income Tax Rate* on the variable *Top Income Tax Rate* lagged one period the variable *Income Share of Top 1%* lagged one period. Specifications in columns 3-4 regress the variable *Income Share of Top 1%* on the variable *Top Income Tax Rate* lagged one period and the variable *Income Share of Top 1%* lagged one period. Table reports robust standard errors in parentheses and p-values. All specifications include country fixed effects. Specifications in columns 1 and 3 include common time trends and specifications in columns 2 and 4 include period fixed effects.

	Ordinary Least Squares, Five-Year Data			
	Top Income Tax Rate		**Income Share of Top 0.01%**	
	(1)	(2)	(3)	(4)
Top Income Tax Rate$_{t-1}$	0.786	0.630	-0.014	-0.007
	(0.077)	(0.077)	(0.003)	(0.003)
	0.000	0.000	0.000	0.011
Income Share of Top 0.01%$_{t-1}$	1.151	-0.670	0.490	0.581
	(2.045)	(2.359)	(0.119)	(0.113)
	0.574	0.777	0.000	0.000
Common Time Trends	Yes	No	Yes	No
Period Fixed Effects	No	Yes	No	Yes
Country Fixed Effects	Yes	Yes	Yes	Yes
R-squared	0.722	0.856	0.809	0.886
Number of Observations	200	200	194	194

Table 2: *Granger Causality Analysis of Income Inequality and Income Taxation, 1900-2010: Income Share of Top 0.01% Measure of Inequality.* The table reports the results of pooled-cross-sectional OLS regressions. Specifications in columns 1-2 regress the variable *Top Income Tax Rate* on the variable *Top Income Tax Rate* lagged one period the variable *Income Share of Top 0.01%* lagged one period. Specifications in columns 3-4 regress the variable *Income Share of Top 0.01%* on the variable *Top Income Tax Rate* lagged one period and the variable *Income Share of Top 0.01%* lagged one period. Table reports robust standard errors in parentheses and p-values. All specifications include country fixed effects. Specifications in columns 1 and 3 include common time trends and specifications in columns 2 and 4 include period fixed effects.

	Ordinary Least Squares, Five-Year Data			
	Top Inheritance Tax Rate		**Wealth Share of Top 1%**	
	(1)	(2)	(3)	(4)
Top Inheritance Tax Rate$_{t-1}$	0.897	0.780	-0.041	-0.006
	(0.046)	(0.058)	(0.013)	(0.014)
	0.000	0.000	0.001	0.667
Wealth Share of Top 1%$_{t-1}$	-0.042	0.005	0.902	0.904
	(0.131)	(0.108)	(0.026)	(0.030)
	0.747	0.960	0.000	0.000
Common Time Trends	Yes	No	Yes	No
Period Fixed Effects	No	Yes	No	Yes
Country Fixed Effects	Yes	Yes	Yes	Yes
R-squared	0.866	0.891	0.967	0.975
Number of Observations	212	212	206	206

Table 3: *Granger Causality Analysis of Wealth Inequality and Inheritance Taxation, 1900-2010.* The table reports the results of pooled-cross-sectional OLS regressions. Specifications in columns 1-2 regress the variable *Top Inheritance Tax Rate* on the variable *Top Inheritance Tax Rate* lagged one period the variable *Wealth Share of Top 1%* lagged one period. Specifications in columns 3-4 regress the variable *Wealth Share of Top 1%* on the variable *Top Inheritance Tax Rate* lagged one period and the variable *Wealth Share of Top 1%* lagged one period. Table reports robust standard errors in parentheses and p-values. All specifications include country fixed effects. Specifications in columns 1 and 3 include common time trends and specifications in columns 2 and 4 include period fixed effects.

inequality, but when we conducted simple Newey West regressions of the top tax rates on each of the three measures of inequality for each country separately, the coefficient on the inequality measure was rarely positive and statistically significant at the 5% level.[9] Moreover, our analysis includes assumptions about the timing, persistence, and functional form of the relationship between inequality and tax policy in addition to assumptions about unobservables that we have already highlighted. That said, our evidence does speak to whether the well known US experience of tax policy failing to respond to rising inequality is exceptional. We show that it is not; it is a pattern that we see across a broad set of countries. The big question then is why policy doesn't respond to rising inequality, which we turn to next.

3 Equal Treatment Fairness Beliefs

If rising inequality doesn't lead to higher tax rates on the rich, this raises two possibilities. The first is that voters do in fact want more progressive taxation but policy is not responding. A prime reason for this might be that the policy process is captured by the rich through campaign contributions, lobbying expenditures, or other activities.[10] However, the results from the previous section suggest that if capture is occurring, then it cannot be explained by particularities of the US political system, because the US is hardly exceptional among our seventeen countries in seeing tax policy not respond to rising inequality.

Here we examine the second possibility, that the average tax preferences of voters do not actually change in response to inequality. When this explanation is considered, arguably the

[9]The coefficient on inequality was positive and significant in 3 of the 17 regressions for *Income Share of Top 1%*, 0 of the 12 regressions for *Income Share of Top 0.01%*, and 2 of the 11 regressions for *Wealth Share of Top 1%*.

[10]See Hacker and Pierson (2011) and Winters and Page (2009) for two variants of this argument applied to the United States. See Bonica, McCarty, Poole, and Rosenthal (2013) for a review of the US case. Gilens (2012) and Bartels (2008) show that US legislators tend to tilt in the direction of their high income constituents.

most common reason given is that voters simply don't know how much income inequality there is. Existing research on this question provides relatively weak support for this claim. Kuziemko, Norton, Saez, and Stantcheva (2013) provide experimental evidence in the US showing that providing better information about the income distribution results in an increase in the preferred top marginal tax rate of only one percentage point. Bechtel, Liesch, and Scheve (2018) experimentally manipulate the level and direction of inequality in Germany and the US and show heterogeneity in redistributive behavior with some respondents reacting to inequality while many others do not in a setting in which there is no uncertainty about the extent of inequality and redistribution has no efficiency costs. In contrast, Bartels (2008, 2005), Boudreau and MacKenzie (2018), and Gimpelson and Triesman (2018) argue that a lack of information about inequality and how taxes influence it do play a role in moderating the relationship between inequality and redistributive/progressive tax preferences.[11]

An alternative explanation for why the average preferences of voters do not change in response to inequality is that progressive taxation violates some voters' ideas about equal treatment in a democracy.[12] We will show that since the sixteenth century, supporters of proportionate, as opposed to progressive, taxation have drawn the following analogy - if equal treatment dictates that everyone in a republic should have one vote, then all should also pay the same tax rate. More generally they have argued that proportionate taxation is equivalent to equal treatment under the law. We make no claim that this argument is derived axiomatically. After all, the same logic of equal treatment before the law could be used to defend a highly regressive system where all pay the same lump sum in taxes.[13] Moreover, it is possible that as Hochschild (1981) argued that individuals hold different fairness beliefs over economic and political questions. What we do claim is that the one vote one tax rate

[11]See also McCall 2013.

[12]Our argument here and the informational account discussed above do not exhaust the reasons public preferences may not respond to rising inequality. The introduction reviews prior work on economic efficiency and other fairness considerations.

[13]This is a point made with further elaboration in Fried (2002).

argument, based on the principle of equal treatment, seems to resonate with many people. It's hard to imagine why the argument would have been used consistently for five hundred years if this were not the case.

Our article builds on Hochschild's (1981) arguments and advances them in a new direction. Central to her framework is that equalizing norms dominate in the political and social realms and differentiating norms dominate in the economic. Further, she argues that redistribution is either economic or a mix of economic and political leaving support for redistribution limited. Our framework, as already noted, relies on Hochschild's observation that individuals may be influenced by multiple norms and that there may be variation in the importance of norms across domains. Our argument is distinct because we advance the idea that equality in politics can imply support for redistribution—ability to pay beliefs—but it can also imply support for opposition to redistribution or in Hochschild's language differentiation—through equal treatment beliefs. In our account, individuals are divided in what the implications of political equality are for how the state taxes the wealthy.

The first appearance to our knowledge of the equal treatment argument for proportionate taxation came in Florence at the beginning of the sixteenth century. In the year 1500, Florence's citizens were debating whether to establish a tax policy named the *decima scalata* or "scaled tenth" in which tax rates increased in income from land. This debate gave rise to two fairness arguments that are still with us today - ability to pay as an argument for the *decima scalata* and equal treatment as an argument against. Proponents of ability to pay suggested that rich people who consumed luxury goods could afford to pay a higher rate of tax. Francesco Guicciardini, an opponent of the *decima scalata*, suggested that any such policy would violate the notion of equal treatment in a republic.

> I admit that equality is a good thing in a republic, indeed a necessary one, because it is the foundation of liberty. But the equality that we are seeking is as follows: that no citizen may oppress another, that each is equal before the law and its magistrates, and that the vote of each man who is eligible to participate in this

Council has the same weight as that of any other.[14]

Three centuries later, a different republic was again confronted with the question of which was the fairer option between a proportional and a progressive tax. In the United States the North had financed the Civil War in part by establishing an income tax with a progressive rate system with a top marginal rate of ten percent. As argued in Scheve and Stasavage (2016) and elsewhere, the primary fairness-based justification offered for progressive taxation was that since the rich were able to avoid being drafted into the union army by paying for a replacement, then they should bear a greater financial burden so as to restore some degree of equal treatment. After 1865 the question then became one of whether and why a progressive tax system should be retained. Justin Smith Morrill argued that proportionate taxation should be the rule for reasons that directly echoed Francesco Guicciardini's argument from three centuries prior.

> In a republican form of government the true theory is to make no distinctions as to persons in the rates of taxation. Recognizing no class for special favors, we ought not to create a class for special burdens. Pursuing this principle a majority of the Committee of Ways and Means have agreed to that portion of the bill which makes the income tax after this year a uniform one of five per cent upon the annual gains.[15]

As part of his speech Morrill argued in favor of maintaining an income tax with a flat rate of five percent for all income above an exemption limit. This policy was eventually adopted in March of 1867.

Following sixteenth and nineteenth century experience, now consider the context for equal treatment arguments in contemporary debates. Since the 1980s a number of people, usually in Republican circles, have called for establishing a flat tax system in which all income above an exemption level would be taxed at the same rate. Another variant of this tax specifies that all income above the exemption level used for consumption would be taxed with investment income excluded.

[14]Francesco Guicciardini 1520 [1867]

[15]Representative Justin Smith Morrill, May 7, 1866. *Congressional Globe* p.2437

In making arguments in favor of a flat tax, people have made use of the same equal treatment arguments used previously by Francesco Guicciardini and Justin Smith Morrill. Hall and Rabushka (1981 p.185) suggest "Remember until recently, fairness meant equal treatment under the law." Likewise, Grover Norquist, the head of Americans for Tax Reform has suggested that "A single tax rate puts all citizens in the same relationship with their government." These statements would most likely be read by an elite audience, but the same equal treatment arguments have also recently been made by people who have a much broader audience. Consider the following comment by Sean Hannity of Fox News.

> A flat tax would be fair. Everyone would be treated equally under the law. (Sean Hannity *Let Freedom Ring* 2003 p.226)

We could continue by listing similar quotes from other observers, as well as from the numerous presidential candidates who have supported a flat tax, from Steve Forbes, Herman Cain, Rick Perry, and Ted Cruz on the Republican side to Jerry Brown in 1992 on the Democratic side.

We are not claiming that this norm is either held by individuals or not in binary fashion and exclusive of other fairness considerations. Individuals can be influenced by both the equal treatment and ability to pay fairness criteria. The effect of equal treatment fairness beliefs is to make tax preferences less progressive than they otherwise would be and less sensitive to changes in inequality.

4 Equal Treatment Tax Policy Opinions

We have argued that one reason that tax policy has not responded to higher economic inequality is that beliefs about equal treatment inform opinions over taxing high incomes and wealth. For those who believe in this criterion for fairness, equal treatment prompts citizens to be less supportive of highly progressive tax systems. They believe that progressivity by definition requires governments to treat the rich differently than everyone else. Moreover,

commitment to equal treatment explains why public support for progressive tax policies may not increase in spite of increasing inequality. As we have discussed, equal treatment competes with alternative tax fairness criteria, such as ability to pay, in determining what sort of tax system people think is fair. We expect there to be variation across individuals, time, and countries in the extent to which beliefs about equal treatment and ability to pay are salient. In this section, we propose a survey instrument for measuring commitment to the equal treatment criterion of fairness. We report its distribution in surveys in Germany and the United Kingdom. We then show that it is distinct from other beliefs that might explain tax policy preferences and that the measure is correlated with tax policy preferences. In the following section, we will present results from a survey experiment in the United States in which we manipulate the saliency of the equal treatment norm and show this treatment decreases support for progressive taxation. We also replicate our analyses for Germany and the United Kingdom but use the experimental treatment to give the relationship between progressive tax preferences and equal treatment beliefs a causal interpretation.

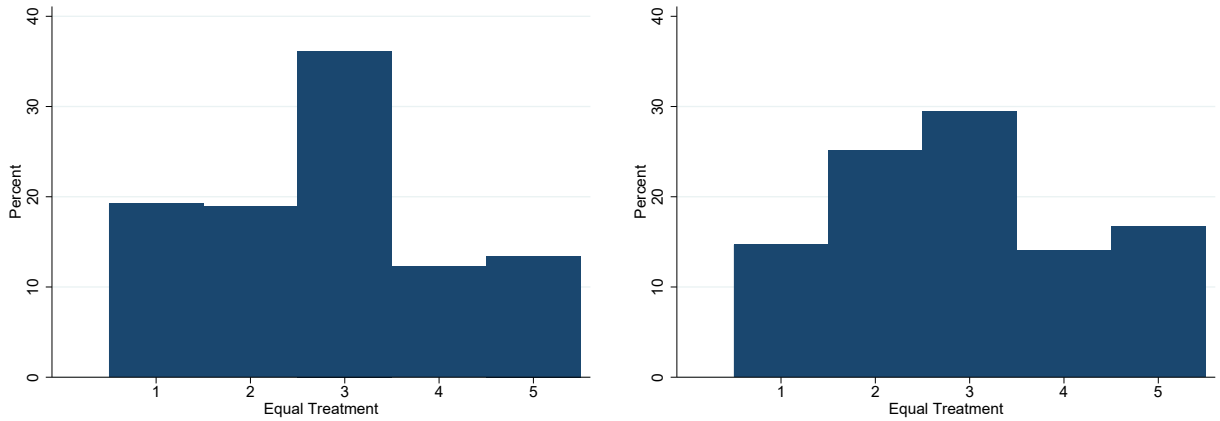
4.1 Measuring Equal Treatment Beliefs

To measure commitment to equal treatment, we developed the following survey question:

> Some people say that the government should treat all citizens equally regardless of any economic or other advantages or disadvantages that they may have; others say that the government should take into account these circumstances in setting policy. On a scale for which one indicates treating citizens equally regardless of any economic or other advantages or disadvantages that they may have and five indicates taking into account these circumstances, which idea do you think should guide government policy?

Respondents are then presented a five-point scale for which the end points are "1=Treat citizens equally regardless of circumstances" and "5=Take into account economic or other advantages or disadvantages."

We fielded surveys in Germany (2019) and the United Kingdom (2017) to study the distribution of equal treatment beliefs and the extent to which holding these beliefs was



(a) Germany (b) United Kingdom

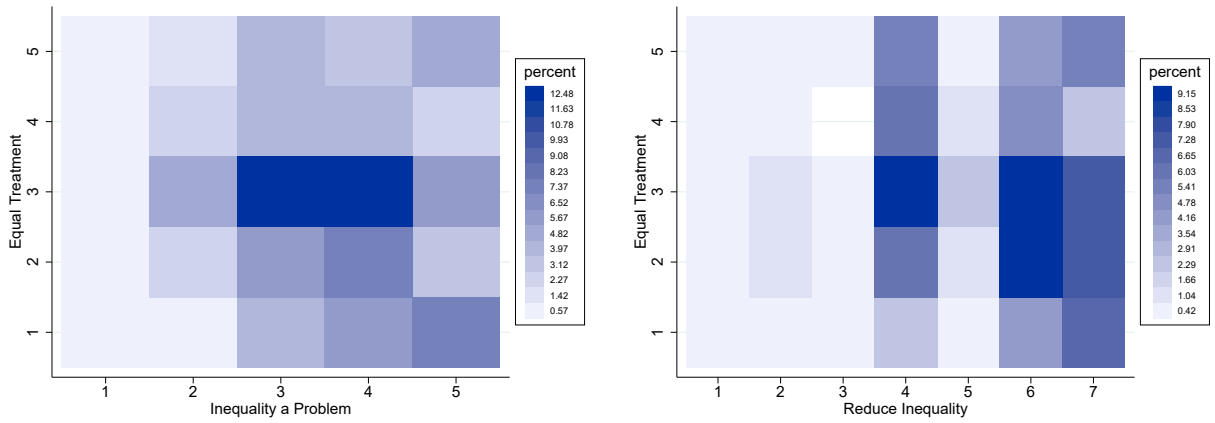
Figure 1: *Equal Treatment Beliefs in Germany and the UK.* Figure reports the marginal responses to the equal treatment survey question. The response categories are reversed so the measure is increasing in commitment to the equal treatment fairness criterion.

predictive of progressive tax preferences.[16] Both studies were conducted by YouGov and are representative of the adult population with samples of 2,100 in Germany and 1,913 in the UK.[17]

Figure 1 reports the distribution of responses to this question for Germany and the UK. We constructed the variable *Equal Treatment* by reverse coding responses to the question so that increasing values indicate greater commitment to the government treating citizens equally regardless of their circumstances. In the German sample, 13% of respondents chose the extreme "treat citizens equally" response while 19% of respondents chose the extreme "take into account economic or other advantages or disadvantages" response. The variable *Equal Treatment* has an overall mean of 2.82. In the UK sample, 17% of respondents chose "treat citizens equally" while 15% of respondents chose "take into account economic or other advantages or disadvantages." The modal response was a 3 with almost 30% of respondents

[16]The original surveys in this article were reviewed by the Institutional Review Boards at the authors institutions.

[17]See Appendix A for further details about each survey. Appendix B also reports the results of a 2016 pilot study in the UK with 1,000 respondents.



(a) Germany (b) United Kingdom

Figure 2: *Equal Treatment Beliefs and Inequality Concern in Germany and the UK.* Figure reports a heat map indicating the joint distribution of equal treatment beliefs and concern about inequality in Germany and the UK.

giving this answer and the mean response was 2.93. The question elicited varied responses across individuals that allow us to differentiate degrees of commitment to how much an equal treatment principle should guide government policy. Although the measure itself is designed to simply indicate greater commitment to the equal treatment norm, one straightforward interpretation of intermediate values is holding both equal treatment and ability to pay fairness beliefs at the same time in a way broadly anticipated by both Hochschild (1981) and Zaller (1992).[18]

Our theoretical argument emphasized that the equal treatment fairness criterion is about how the state treats citizens in a democracy rather than a view about the fairness of inequality as a political economic outcome. Consequently, it is important to evaluate whether there is variation in equal treatment beliefs among individuals with the same degree of concern about inequality.

In Figure 2, we plot the distribution of equal treatment beliefs by measures of concern about inequality in both Germany and the UK. The measure of concern about inequality in

[18]See Appendix Table A.4 for the distribution of responses in a UK pilot survey in December 2016.

Germany is based on responses to the following question:

> Do you think economic inequality is a serious problem in Germany?

We code the variable *Inequality a Problem* as an ordered variable from 1 to 5 increasing in the extent that the respondent indicated that inequality was a problem.[19]

The measure of concern about inequality in the UK is based on response to the following question:

> British individuals with incomes in the top 10% earn an average of £80,000 per year, and individuals with incomes in the bottom 50% earn an average of £15,000 per year. Should this difference be smaller, bigger, or about what it is now? Should this difference be a great deal smaller (bigger), moderately smaller (bigger), or a little smaller(bigger)?

We code the variable *Reduce Inequality* as an ordered variable from 1 to 7 increasing in the extent that the respondent indicated a preference for smaller differences in incomes.

The evidence in Figure 2 suggests that most respondents in Germany think inequality is at least a problem and many think it is serious or very serious. Similarly, in the UK, most respondents either think inequality should be about what it is now or smaller with "moderately smaller" and "a great deal smaller" being the most popular of the latter preference. In both countries all five responses to the equal treatment beliefs question are commonly observed for individuals who vary in the extent to which they are concerned about inequality.[20] This is consistent with our claim that equal treatment beliefs are separately held from overall concern about inequality. One might very much think that inequality is a serious problem and/or want differences in incomes to be reduced but not favor policy options—like progressive taxation—that treat citizens differently.

[19]Response categories were: (1) Not a problem at all (2) A small problem (3) A problem (4) A serious problem (5) A very serious problem.

[20]Consistent with this visual evidence, the correlation between *Equal Treatment* and *Inequality a Problem/Reduce Inequality* is moderately negative with a correlation coefficient of -0.108 in Germany and -0.107 in the UK.

4.2 Equal Treatment and Tax Policy Opinions: Correlational Evidence

Our argument claims that equal treatment fairness considerations influence the tax policies that individuals support, and a commitment to equal treatment is associated with support for less tax progressivity. To test this idea, our surveys in Germany and the UK asked individuals about their preferred income tax rate for top earners.

In Germany, we asked respondents "Please choose your preferred tax rates (marginal rates, in %) on the following income brackets:" and presented to them the five current income brackets for the German income tax. The sliders for each bracket were initially set at the status quo policies. When respondents moved the brackets, a note below the question informed them "The total amount of revenue raised through your selected tax rates relative to current rates (% of current revenue): XX." To keep our analysis simple, we define the variable *Top Rate Opinion* equal to the respondent's preferred rate for individuals earning more than 250,731 euros which was the top income tax bracket in Germany.

In the UK, respondents were asked:

> Consider the taxes paid in the United Kingdom by those individuals making over £150,000 each year. Please select from the list below which marginal tax rate you would most like to see individuals making over £150,000 each year pay: 0, 5, 10, 15, 20, 25, 30, 35, 40, 50, 60, 70, 80.

The variable *Top Rate Opinion* is respondent's preferred marginal rate on individuals making greater than £150,000. For both countries, the income thresholds used for the top rate opinion variable coincide with the lowest income at which the top rate of income tax is applied under law at the time of surveys. One potential issue with this outcome variable is that if the rate on top earners is also applied to individuals with lower earnings, the income tax would not be progressive and would not violate equal treatment beliefs even if the rate on top earners was high. We are not too concerned with this possibility because modern tax systems do not tax income below a certain exempted level. This makes the top rate a linear

measure of the degree of progressivity. In our analysis of the United States in the following section, we will employ a qualitative variable that directly measures a preference for charging higher rates on those with higher incomes and address this issue more directly.

Our objective here is simply to see if our *Equal Treatment* measure is negatively correlated with *Top Rate Opinion* and whether this correlation is robust to including other common correlates of tax policy opinion. We make no claim of a causal link at this point, as that will depend on the results of our survey experiment reported in the next section.

Tables 4 and 5 report estimates from ordinary least square regressions of *Top Rate Opinion* on *Equal Treatment* and various control variables. The Model 1 specification reports the results of the bivariate regression of *Top Rate Opinion* on *Equal Treatment*. For Germany, the estimated coefficient for *Equal Treatment* is -1.978 and is precisely estimated with a standard error of 0.458. The interpretation of the coefficient suggests a substantively significant relationship: moving from a response of "Take into account economic or other advantages or disadvantages" to a response of "Treat citizens equally" (a 4-unit increase) is associated with a 7.9 percentage point reduction in the preferred top rate of income taxation (55.8% versus 47.9%).

For the United Kingdom, the estimates are similar. In the Model 1 specification, the estimated coefficient for *Equal Treatment* is -1.243 with a standard error of 0.302. The same counterfactual as that considered for Germany is associated with a 5.0 percentage point reduction in the preferred top rate of income taxation (47.8% versus 42.8%).

Models 2 through 6 add various control variables to the regression to evaluate the robustness of the results. Model 2 adds a full set of demographic controls for sex, age, education, and income.[21] The inclusion of these demographic variables slightly increases the absolute

[21] *Female* equals 1 if respondent is female and 0 if male. Dichotomous indicator variables for age categories 31 to 50, 51 to 65, and greater than 65 were used with 18 to 30 being the omitted category. One indicator variable for educational attainment was used indicating whether the respondent had university degree or not. *Individual Income* (Ger-

	(1)	(2)	(3)	(4)	(5)	(6)
Equal Treatment	-1.978	-2.013	-1.897	-2.002	-2.013	-1.793
	(0.458)	(0.453)	(0.455)	(0.451)	(0.451)	(0.445)
	0.000	0.000	0.000	0.000	0.000	0.000
Conservative Economic Ideology			-2.829			
			(0.686)			
			0.000			
CDU/CSU Party Supporter				-2.502		
				(1.478)		
				0.091		
Hard Work					-0.013	
					(2.049)	
					0.995	
Inequality a Problem						2.279
						(0.568)
						0.000
Constant	55.761	53.703	61.437	53.768	53.704	44.864
	(1.428)	(2.454)	(2.812)	(2.439)	(2.461)	(3.061)
	0.000	0.000	0.000	0.000	0.000	0.000
Demographic Controls	No	Yes	Yes	Yes	Yes	Yes
Observations	2,100	2,100	2,100	2,100	2,100	2,100
S.E.R.	20.42	20.31	20.21	20.29	20.31	20.19

Table 4: *Equal Treatment and Top Rate Opinion, Germany.* The table reports the results of OLS regressions of the variable *Top Rate Opinion* on *Equal Treatment* and various control variables. The table reports OLS coefficient estimates, robust standard errors in parentheses, and p-values.

	(1)	(2)	(3)	(4)	(5)	(6)
Equal Treatment	-1.243	-1.261	-1.169	-1.195	-1.162	-1.000
	(0.302)	(0.364)	(0.368)	(0.366)	(0.362)	(0.337)
	0.000	0.000	0.002	0.001	0.001	0.003
Right Ideology			-1.072			
			(0.222)			
			0.000			
Conservative Party ID				-2.542		
				(0.898)		
				0.005		
Hard Work					-3.494	
					(0.993)	
					0.000	
Reduce Inequality						2.347
						(0.305)
						0.000
Constant	47.761	44.772	50.420	44.728	45.713	30.780
	(0.943)	(2.194)	(2.360)	(2.178)	(2.083)	(2.645)
	0.000	0.000	0.000	0.000	0.000	0.000
Demographic Controls	No	Yes	Yes	Yes	Yes	Yes
Observations	1,913	1,246	1,246	1,246	1,246	1,246
S.E.R.	13.42	12.84	12.66	12.81	12.75	12.41

Table 5: *Equal Treatment and Top Rate Opinion, United Kingdom.* The table reports the results of OLS regressions of the variable *Top Rate Opinion* on *Equal Treatment* and various control variables. The table reports OLS coefficient estimates, robust standard errors in parentheses, and p-values.

value of the coefficient on *Equal Treatment* for both countries.

We next added variables measuring respondent ideology and partisanship.[22] Adding these variables and the other potential confounders discussed below risks introducing new biases to our analysis. If ideology or partisanship summarizes an individual's policy positions, they may be better thought of as consequences of policy preferences like the top tax rate. If an equal treatment belief induces individuals to choose a particular ideology or partisan identification, then each could introduce post-treatment bias for our equal treatment coefficient. That said, one might think that pre-determined ideology and partisanship account for the differences in commitment to an equal treatment principle and its correlation with policy preferences. The estimates for Models 3 and 4 are inconsistent with this intuition. Adding these variables has almost no impact on the magnitude of the *Equal Treatment* coefficients in both countries.[23]

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many)/*Household Income* (UK) indicates the self-reported individual (household) income category of the respondent. The income variable in the UK creates substantial missing data but our results are qualitatively the same if this measure is omitted while the other control variables are included.

[22]The German measure of ideology is based on responses to the question: "On economic policy matters, where do you see yourself on the progressive/conservative spectrum?" with the answer coded on a five-point scale from "Very progressive" to "Very conservative." The German partisanship measure is set equal to 1 for respondents who indicated that they both voted for the CDU/CSU in the 2017 federal election and intended to vote for the CDU/CSU in the next election and 0 otherwise. The UK measure of ideology is an eleven-point left-right self-placement variable. The UK partisanship measure is set equal to 1 for respondents who indicated that they generally felt closer to the Conservative party and 0 otherwise.

[23]A related concern is that the correlation between *Equal Treatment* and tax preferences is because people prefer less progressive taxation because they are unfavorable on equal treatment grounds to government services that non-rich people might receive. For the UK data, we have a standard 7-point measure about whether the government should provide

Beliefs about the relative role of luck and effort may also be important for tax policy and redistributive policy preferences, with individuals being less willing to tax income and wealth if they believe that effort rather than luck and connections was important To measure this belief, we asked respondents the following question:

> Some people say that people get ahead by their own hard work; others say that lucky breaks or help from other people are more important. Which do you think is most important?

Respondents were given three response options "Hard work is most important," "Hard work and luck are equally important," and "Luck is the most important." The variable *Hard Work* is equal to one if the respondent gave the "Hard work is most important" response and zero otherwise. In both countries, the correlation between *Hard Work* and *Equal Treatment* is low (0.06 in Germany and 0.10 in the UK). Not surprisingly, adding this variable to the regression model (Model 5) has little impact on the estimated coefficient for *Equal Treatment*.

Another potential confounder with our equal treatment measure is concern about inequality. We defined the variables *Inequality a Problem* and *Reduce Inequality* and their relationship to *Equal Treatment* above. Model 6 reports the results of the regression of *Top Rate Opinion* on *Equal Treatment*, *Inequality a Problem/Reduce Inequality* and the full set of demographic control variables in each country's respective table. In both countries, the estimated coefficient for *Equal Treatment* is negative, statistically significant, and of approximately the same magnitude as in the other specifications. The coefficient for *Inequality a Problem/Reduce Inequality* is positive, large in magnitude, and statistically significant. This pattern of results highlights the idea that concern about inequality and equal treatment beliefs can each shape tax preferences on top earners.

We have shown a robust negative correlation between equal treatment values and preferred

fewer or more services. The coefficient on *Equal Treatment* in the tax preference regressions is not significantly different in specifications that control for preferred levels of government services.

top tax rates. The key theoretical claim is that equal treatment beliefs about how the state should treat citizens in a democracy pushes income tax policy preferences away from progressivity. The critical distinction in our argument is that the fairness consideration is about how the state treats its citizens rather than the distributional outcome. It is, of course, possible for individuals to care about both these things. We are arguing that equal treatment beliefs push in a less progressive policy direction. The correlations documented here are consistent with this claim. The next section will provide experimental evidence to assess whether it is plausible to interpret this relationship as causal.

5 Equal Treatment and Policy Opinions: Experimental Evidence

We demonstrated in the previous section that the correlation between equal treatment beliefs and tax policy opinions holds even after controlling for socio-demographic characteristics and a number of other value and fairness considerations measured in our surveys. It is, however, possible that individuals adopt equal treatment beliefs to justify the tax policy opinions that they have for other reasons. To provide evidence that belief in the equal treatment norm has a causal impact on tax policy preferences, we conducted a survey experiment in the United States in which we randomly assigned respondents to treatment groups that manipulated the salience of the equal treatment norm.

Our US study was conducted as part of a module of the 2018 Cooperative Congressional Election Study. It included 1,000 adult respondents and is representative of the US adult population.[24] The experiment manipulated the salience of equal treatment norms by proposing to a randomly assigned treatment group a voting reform that would weight votes based on educational attainment. This proposal clearly violates the democratic equality principle of one person, one vote. By exposing the treatment group to this idea and asking them

[24]See Appendix for further information about the sample.

what they thought about it and why, we sought to increase the salience and importance of equal treatment beliefs. The design of the experiment assumes that equal treatment beliefs are a core value but that individuals hold competing values. The experiment manipulates the availability of equal treatment beliefs and identifies the causal effect of this increased availability on policy opinions (Zaller, 1992).

Figure 3 presents the sequence of questions that the treatment group was exposed to. The intervention involved a graphical explanation of the idea of weighted voting by educational attainment, a simple agree/disagree question for them to answer, and an open response opportunity which encouraged them to think about why they agreed or disagreed with the idea of weighted voting. All three of these activities are designed to raise the salience of the equal treatment norm. Respondents not assigned to this treatment group were all assigned to the control group and went directly to the next questions in the survey.

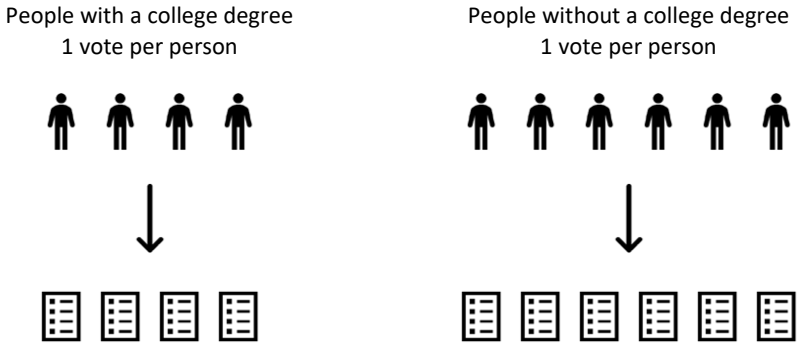
The main outcome variable for the experiment is a question about whether respondents prefer a progressive or proportional tax system. The exact wording of the question was:

> Please indicate which of the following statements comes closest to your view:
>
> - All people should pay the same percentage of their income in taxes.
> - People who make higher incomes should pay a somewhat higher percentage of their income in taxes.
> - People who make higher incomes should pay a much higher percentage of their income in taxes.

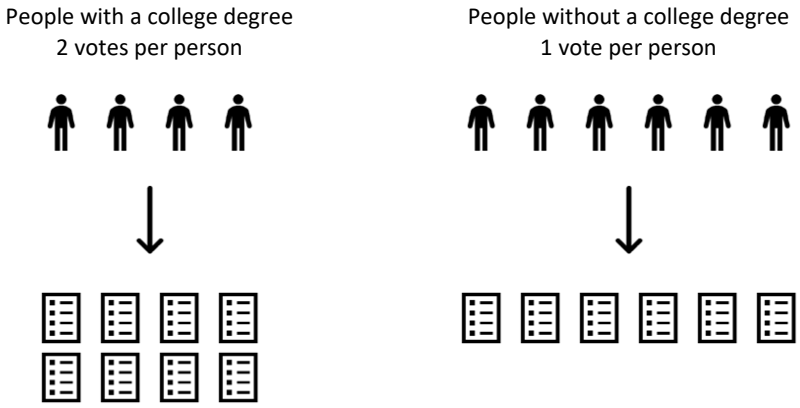
28% of our respondents expressed a preference for a proportional income tax, 47% indicated that they thought people who make higher incomes should pay a somewhat higher percentage of their income in taxes, and 25% favored people who make higher incomes paying a much higher percentage. We coded the variable *Progressive Tax Opinion* from to 1 to 3 with more progressive responses given higher values.

We also want to investigate whether the treatment had the intended effect on equal treatment beliefs. We asked all respondents the equal treatment question described above. For individuals in the treatment group, they answer this question after the treatment. It is worth

Most democracies follow the rule of one person one vote. This can be illustrated with a simple example. Suppose there were 10 people in society and four of them had a four-year college degree and six of them did not. Votes in this society would be allocated in the following way:



Some people have recently suggested that the votes of more highly educated people should count more than the votes of less educated people. One way to apply this to our example society would be to allocate votes in the following way:



To what extent do you agree or disagree with the idea that the number of votes a person has should depend on their level of education?

Please state three reasons why you agree or disagree with this idea.

Figure 3: *Voting Weighted by Educational Attainment Treatment.*

	Progressive Tax Opinion	*Equal Treatment*
Equal Treatment Exposure	-0.171	0.277
	(0.059)	(0.117)
	0.004	0.018
Controls	Yes	Yes
Observations	864	844
S.E.R.	0.680	1.387

Table 6: *Effect of Equal Treatment Exposure on Progressive Tax Opinion and Equal Treatment Beliefs, United States.* The table reports the results of weighted OLS regressions of the variables *Progressive Tax Opinion* and *Equal Treatment* on the experimental treatment *Equal Treatment Exposure* and various control variables. The table reports OLS coefficient estimates, robust standard errors in parentheses, and p-values.

noting that we can compare responses to the equal treatment beliefs question for the control group to the responses for Germany and the UK. In the US control group sample, 27% of respondents chose the extreme "treat citizens equally" response while 13% of respondents chose the extreme "take into account economic or other advantages or disadvantages" response. The variable *Equal Treatment* has an overall mean of 3.14 in the control group. This distribution of responses suggests a somewhat higher prevalence of equal treatment beliefs in the United States.

Table 6 reports the results of weighted OLS regressions of the variables *Progressive Tax Opinion* and *Equal Treatment* on the experimental treatment *Equal Treatment Exposure* and various control variables.[25] Consider first the column for *Equal Treatment* as the dependent variable. These estimates evaluate whether our experimental intervention made equal treatment beliefs more salient. The estimate for the treatment effect is 0.277 with a standard error of 0.117 and p-value of 0.018. This suggests that respondents exposed to the experimental treatment had significantly greater equal treatment beliefs than individuals in the control group. Qualitatively, it is further worth noting that 86% of the treated respondents

[25]Controls included are for sex, education, income, race/ethnicity, and partisanship. The results are qualitatively similar without weighting.

disagreed with the idea of weighting votes by education and they often provided reasons for their disagreement which emphasized that it failed to treat citizens equally. Examples of responses included: "Fairness requires one person one vote"; "Equality"; "In this country, we are all equal"; and many more versions with the same theme.

We next evaluate whether the treatment affected the extent to which individuals think higher earners should pay a higher percentage of their income in taxes. The column for *Progressive Tax Opinion* reports these estimates. The coefficient for the experimental treatment is -0.177 with a standard error of 0.059 and p-value of 0.004. This suggests that exposure to the treatment significantly lowered support for progressive income tax policies. This result is consistent with the main claim of this article that equal treatment fairness beliefs decrease support for progressive taxes and may help explain why tax policies have historically often not responded to increases in economic inequality.

The OLS estimates reported in Table 6 are the key empirical findings from our experiment. As a final exercise, we use the experiment to estimate the causal effect of the *Equal Treatment* measure on *Progressive Tax Opinion*. We start by estimating the regression of *Progressive Tax Opinion* on *Equal Treatment* and control variables for demographics and partisanship. This replicates the specification in Model 4 of Tables 4 and 5. Table 7 reports the results. As in the German and UK data, there is evidence of a large and statistically significant partial correlation between *Equal Treatment* and *Progressive Tax Opinion*.

The experimental condition *Equal Treatment Exposure*, because it successfully manipulated belief in equal treatment, provides us with a plausible instrumental variable to estimate the causal effect of *Equal Treatment* on *Progressive Tax Opinion*. The key assumption is that the experimental treatment only had an effect on *Progressive Tax Opinion* through its effect on *Equal Treatment*.[26] While random assignment allows a straightforward causal interpreta-

[26]Note also that if the experimental treatment were to make some respondents have lower rather than higher equal treatment beliefs, this would violate the monotonicity assumption in the IV estimation.

	OLS	IV
Equal Treatment	-0.110	-0.329
	(0.017)	(0.138)
	0.000	0.017
Controls	Yes	Yes
SER	0.644	0.708
Cragg-Donald Wald F statistic		13.65
Observations	843	843

Table 7: *Equal Treatment and Progressive Tax Opinion: IV Estimates.* The table reportS OLS and IV estimates for the regression of *Progressive Tax Opinion* on *Equal Treatment* employing random assignment of *Equal Treatment Exposure* as an instrument for *Equal Treatment*.

tion of the effect of the treatment, it does not guarantee that the exclusion restriction holds which is necessary to use the experiment to derive a causal estimate of *Equal Treatment*.

Table 7 reports our IV estimate for the coefficient *Equal Treatment*. It is equal to -0.329 with a standard error of 0.138. This suggests a large substantive effect in that moving from a response of "Take into account economic or other advantages or disadvantages" to a response of "Treat citizens equally" (a 4-unit increase) is associated with a 1.316 decline in the *Progressive Tax Opinion* measure. This decline is well over the one point change that signifies going from someone who thinks "People who make higher incomes should pay a much higher percentage of their income in taxes." to someone who thinks "People who make higher incomes should pay a somewhat higher percentage of their income in taxes." or equivalently going from "People who make higher incomes should pay a somewhat higher percentage of their income in taxes." to "All people should pay the same percentage of their income in taxes." We emphasize that this estimate, while helpful substantively in thinking about the potential importance of equal treatment in shaping policy opinions, relies on the exclusion restriction assumption that the only effect of the treatment on tax policy opinions was through the salience of equal treatment beliefs. Readers skeptical of this assumption will want to focus their attention on the OLS results in Table 6.

Our analysis here manipulates the salience of the equal treatment norm. One line of productive future research would use either real or experimentally controlled changes in inequality to determine if individuals who hold equal treatment beliefs to a greater or lesser extent are more or less responsive in their policy opinions to changes in inequality.

6 Conclusion

It has been widely noted that economic inequality in the United States has increased substantially over the last four decades but that there is has been little in the way of a progressive policy response. In the tax policy domain, statutory tax rates have, if anything, moved in a less progressive direction. We have argued in this article that the US is hardly alone in experiencing this phenomenon. There are undoubtedly many factors that contribute to this outcome. We develop a new argument that part of the explanation may lie in contested voter notions of fairness connected to heterogenous mappings of the implications of political equality for tax policy. Many voters subscribe to an ability to pay criterion for tax fairness. Ability to pay implies that if pre-tax inequality increases, then tax rates on the wealthy should also rise. But it's also clear that many other voters, especially in the United States, adhere to a very different, equal treatment, vision of tax fairness where all should pay the same tax rate irrespective of how unequal things are. The simple fact that this argument has been used repeatedly for five hundred years suggests it may have some impact on tax policy. We have provided individual-level evidence that suggests that a commitment to equal treatment is observed in Germany, the United Kingdom, and the United States, that this commitment is negatively correlated with tax policy preferences, and that there is experimental evidence that is consistent with a causal interpretation of this relationship.

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Online Appendix for "Equal Treatment and the Inelasticity of Tax Policy to Rising Inequality"

Contents

A Description of Surveys **A.1**

B UK Pilot Results **A.3**

A Description of Surveys

The main survey evidence presented in this paper comes from three YouGov surveys in Germany, the United Kingdom, and the United States. The German and UK surveys were fielded directly for the authors. The US survey was conducted as part of a module of the 2018 Cooperative Congressional Election Study.

The German survey was conducted from March 27, 2019 to April 3, 2019 by YouGov. Respondents from their internet panel were subsequently matched down to a sample of 2,100 based on gender, age, and education and a sampling frame from the 2018 Eurobarometer. Weights were then created for the matched set of respondents post-stratified on 2017 vote choice and a three-way stratification of gender, age (4-categories), and education (3-categories). Table A.1 shows the distributions of the sociodemographic characteristics in the weighted sample and the raw sample.

- Interview period: March and April 2019
- Sample size: 2,100
- Source of data on population socio-demographics: 2018 Eurobarometer.

Group	Weighted Sample	Raw Sample
Age: 18-30	19.0	19.2
Age: 31-50	25.6	28.0
Age: 51-65	31.0	28.1
Age: 65+	24.5	24.7
Gender: Female	50.9	51.1
Education: College Graduate	35.6	24.7

Table A.1: *Distribution of Socio-demographics in the 2019 German Survey.* The table shows the distributions of socio-demographics in the weighted sample and the raw sample.

The UK survey was conducted from July 12, 2017 to July 24, 2017 by YouGov. Respondents from their internet panel were subsequently matched down to a sample of 1,913 based on gender and age and a sampling frame from the 2015 Eurobarometer. Weights were then created for the matched set of respondents post-stratified on age and gender, 2015 vote choice and region, vote choice in 2017, estimates of social grade, and attention to politics. The weights were trimmed to a maximum value of 7. Table A.2 shows the distributions of the sociodemographic characteristics in the weighted sample and the raw sample.

- Interview period: July 2017
- Sample size: 1,913
- Source of data on population socio-demographics: 2015 Eurobarometer

Group	Weighted Sample	Raw Sample
Age: 18-30	17.7	19.0
Age: 31-50	37.4	34.3
Age: 51-65	22.6	25.1
Age: 65+	22.2	21.5
Gender: Female	49.3	54.3
Education: College Graduate	39.9	45.3

Table A.2: *Distribution of Socio-demographics in the 2017 UK Survey.* The table shows the distributions of socio-demographics in the weighted sample and the raw sample.

The US survey was conducted from September 27, 2018 to November 5, 2018 by YouGov as part of a module of the Cooperative Congressional Election Study (CCES). Respondents from their internet panel were subsequently matched down to a sample of 1,000 for purposes of a module. Table A.3 shows the distributions of the sociodemographic characteristics in the weighted sample and the raw sample.

- Interview period: September, October, and November 2018
- Sample size: 1,000

Group	Weighted Sample	Raw Sample
Age: 18-30	22.7	22.3
Age: 31-50	32.1	30.8
Age: 51-65	27.6	27.3
Age: 65+	17.7	19.6
Gender: Female	50.2	57.4
Race: Black	13.3	9.4
Ethnicity: Hispanic	9.3	8.4
Education: College Graduate	31.1	37.9

Table A.3: *Distribution of Socio-demographics in the 2018 US Survey.* The table shows the distributions of socio-demographics in the weighted sample and the raw sample.

		Percent of Respondents
Take into account differences	(1)	14.60
	(2)	29.90
	(3)	26.20
	(4)	12.90
Treat citizens equally	(5)	16.40
Observations		1,000

Table A.4: *Equal Treatment Survey Responses in the UK Pilot.* Table reports the marginal responses to the question "Some people say that the government should treat all citizens equally regardless of any economic or other advantages or disadvantages that they may have; others say that the government should take into account these circumstances in setting policy. On a scale for which one indicates treating citizens equally regardless of any economic or other advantages or disadvantages that they may have and five indicates taking into account these circumstances, which idea do you think should guide government policy?" The response categories are reversed so the measure is increasing in commitment to the equal treatment fairness criterion. The survey was fielded in December 2016.

B UK Pilot Results

For the UK study, we fielded a relatively large pilot in December of 2016. The survey was conducted by YouGov and the sample of 1,000 adults was a representative sample of the adult population using matched sampling as in the main study described above. Table A.4 reports the distribution of responses to our equal treatment belief question (with codings reversed so that our measure is increasing in equal treatment).

In the UK pilot, 16% chose the extreme "treat citizens equally" response while 15% of respondents chose the extreme "take into account differences" response. We constructed the variable *Equal Treatment* with values from one to five with increasing values indicating greater commitment to the government treating citizens equally regardless of their circumstances.

To measure individuals' preferred income tax rate for top earners, respondents were asked

> Consider the taxes paid in the UK by those families making over £150,000 each year. [Under current law, these families pay a 45% marginal tax rate.] Please select from the list below which marginal tax rate you would most like to see families making over £150,000 each year pay: 0, 5, 10, 15, 20, 25, 30, 35, 40, 50, 60, 70, 80.

The phrase "Under current law, these families pay a 45% marginal tax rate." in brackets was randomly assigned to half the respondents to provide them information about the status quo rate. The variable *Top Rate Opinion* equals the respondent's preferred marginal rate on families making greater £150,000.

As in our analysis for the UK in the main body of the paper, our objective is simply to see if our *Equal Treatment* measure is negatively correlated with *Top Rate Opinion* and whether this correlation is robust to including other common correlates of tax policy opinion. Table A.5 reports a set of estimates for the United Kingdom that replicate the main analysis.

The Model 1 specification reports the results of the regression of *Top Rate Opinion* on *Equal Treatment* controlling for whether or not the respondent was assigned the version of the question that included information about the status quo rate. The estimated coefficient for *Equal Treatment* is -0.905 with a standard error of 0.499 and a corresponding p-value of 0.07. Moving from a response of "Take into account differences" to a response of "Treat citizens equally" (a 4-unit increase) is associated with a 3.6 percentage point reduction in the preferred top rate of income taxation. It should also be noted that including the status quo top rate in the question systematically increases responses by almost 5 percentage points on average.

Models 2 through 6 add various control variables to the regression to evaluate the robustness of the results. Generally, we find that adding control variables increases the magnitude of the coefficient estimate for the equal treatment variable and, once the control variables are included, the estimates are statistically significant at conventional levels. This is consistent with the results in the body of the paper and our main argument.

	(1)	(2)	(3)	(4)	(5)	(6)
Equal Treatment	-0.904	-1.253	-1.206	-1.240	-1.202	-0.929
	(0.499)	(0.473)	(0.453)	(0.472)	(0.476)	(0.444)
	0.070	0.008	0.008	0.009	0.012	0.037
Right Ideology			-1.412			
			(0.288)			
			0.000			
Conservative Party ID				-1.963		
				(1.485)		
				0.187		
Work vs. Luck					-2.102	
					(1.420)	
					0.139	
Inequality Aversion						2.835
						(0.460)
						0.000
Status Quo Prompt	4.803	4.813	4.851	4.924	4.718	4.641
	(1.193)	(1.196)	(1.166)	(1.205)	(1.193)	(1.136)
	0.000	0.000	0.000	0.000	0.000	0.000
Constant	45.053	39.067	45.939	39.015	39.735	22.531
	(1.623)	(2.662)	(2.709)	(2.661)	(2.589)	(3.929)
	0.000	0.000	0.000	0.000	0.000	0.000
Demographic Controls	No	Yes	Yes	Yes	Yes	Yes
Observations	1,000	731	731	731	731	731
R-squared	0.030	0.107	0.142	0.110	0.111	0.184
S.E.R.	15.28	14.08	13.81	14.06	14.05	13.47

Table A.5: *Equal Treatment and Top Rate Opinion, United Kingdom Pilot.* The table reports the results of OLS regressions of the variable *Top Rate Opinion* on *Equal Treatment* and various control variables. The table reports OLS coefficient estimates, robust standard errors in parentheses, and p-values.