

CESifo AREA CONFERENCES 2020

Public Economics

Online, 8–9 December 2020

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December 2019

Abstract

More than a third of Americans and Germans give different answers about the role of effort and circumstances beyond one's control in explaining low incomes and high incomes. These target-specific beliefs coexist with big differences in attitudes towards supporting those with low incomes and taxing those with high incomes. We show that there is a strong and robust relationship between target-specific beliefs and redistributive preferences in both countries. We then incorporate target-specific beliefs into a model explaining support for taxing the rich and helping the poor. In addition to explaining the empirical patterns with an eye on the middle class, our theory suggests the existence of a *moral release equilibrium* in which the rich choose high taxes on lower income classes to discourage effort and create an unworthy poor class, thereby escaping moral pressure to support the poor. The moral release equilibrium also helps to explain why early interventions targeting children that everyone should agree on from efficiency and equality of opportunity perspective may politically fail.

JEL Classification: D63; D72; H21; H24

Keywords: redistribution, fairness, taxation, political economy, moral release equilibrium, target-specific beliefs

*We are grateful for useful comments from Toke Aidt, Alberto Alesina, Tim Besley, Sam Bowles, Andrew Clark, Momi Dahan, Rafael di Tella, Kai Konrad, Sera Linardi, Torsten Persson, and participants in numerous workshops, seminars and conferences.

1. Introduction

There is perennial tension between generosity of means-tested transfers and work efforts of recipients (Piven and Cloward 1971; Akerlof 1978; Nichols and Zeckhauser 1982, 1995; Besley and Coate 1992; Lindbeck and Nyberg 2006; Lindbeck and Persson 2017). When it comes to voter-taxpayer support for these policies, beliefs about whether the poor are hard working have a well-documented association with generosity (Williamson 1974; Gilens 1999). A different question concerns support for general redistribution from the rich to the poor. Here, general beliefs that luck rather than effort determines income (or mobility) are thought to be positively associated – through various causal mechanisms – with support for redistribution (Piketty 1995; Fong 2001; Alesina, Glaeser and Sacerdote 2001; Corneo and Gruner 2002; Alesina and Angeletos 2005; Benabou and Tirole 2006). Literatures on the roles of target-specific beliefs in determining support for helping the poor and general beliefs in determining preferences for general redistribution have evolved separately, and it is not obvious how the two types of beliefs, and their roles in supporting redistribution, relate to each other. This paper takes a first step toward unifying these literatures by incorporating target-specific beliefs about the rich and the poor into a model of income redistribution, and analyzing prevailing empirical patterns in the United States and Germany.

We start by showing how support for taxing those with high incomes and helping those with low incomes differ, examine then to what extent beliefs about causes of low and high incomes are related, and finally analyze the link between beliefs and redistributive preferences. For the United States, we use Gallup Social Audit (Gallup 1998) with more than 4,000 respondents. For Germany we wrote a module of questions of target-specific redistributive preferences and beliefs for the German Socioeconomic Panel (SOEP). Our module was fielded in the 2014 SOEP Innovation Sample with more than 5,000 respondents. In both countries, respondents were asked about their support for taxing those with high incomes and helping those with low incomes, as well as whether the reason for why someone has high (low) income is most often effort, circumstances beyond one's control, or both. Tables 1 and 2 show that 19% of German respondents either support increasing transfers to those with low incomes but oppose increasing taxes on those with high incomes, or oppose increasing transfers to those with low incomes but support increasing taxes on those with high incomes, and 42% of U.S. respondents either think that the government should levy heavy taxes on the rich but do not support the government transferring money to the poor, or support the government helping the poor but oppose heavy taxes on the rich. These differences in support for what is traditionally seen as two sides of the same coin – taxing those with high incomes to finance transfers to those with low incomes – coexist with different beliefs about the relative importance of effort and external circumstances as determinants of high and low incomes. As seen in

tables 3 and 4, 36% of German respondents and 42% of U.S. respondents give different answers about the role of effort and circumstances beyond one's control when being asked about reasons for high and low incomes.

To what extent do differences in target-specific beliefs predict differences in target-specific redistributive preferences? Gallup Social Audit (Gallup 1998) and our 2014 innovation sample of the German Socioeconomic Panel (SOEP) datasets have important advantages in answering this question over any other social surveys we have been able to find on beliefs about causes of poverty, income, success, getting ahead, or opportunity. First, both the Gallup and SOEP data have questions on why the poor are poor that are worded as closely as possible to questions on why the rich are rich. Second, we are aware of no other datasets that have all four of the questions needed to test for target-specific beliefs – namely, beliefs about causes of high income, beliefs about causes of low income, preferences for taxing the rich, and preferences for transfers to the poor. More specifically, we regress support for taxation of the rich on both beliefs about the rich and beliefs about the poor, and regress support for transfers to the poor on the same two beliefs (see Table A1 for question wording). We then test for the prediction that target-specific beliefs matter more both within and across these equations.

Figure 1 shows how beliefs about causes of low incomes and beliefs about causes of high incomes predict support for transfers to those with low incomes and taxes on those with high incomes. The bars show coefficients in two regression equations predicting support for government transfers to those with low incomes and support for taxes on those with high incomes. We have scaled both beliefs about causes of high and low incomes and support for transfers to those with low incomes and taxes on those with high incomes from 0 to 1. The coefficients in each equation are the estimated effects of beliefs that: (i) having low income is caused by circumstances beyond one's control, and (ii) having high income is caused by circumstances beyond one's control. In the equation predicting support for taxes on those with high incomes, the target-specific belief is the one about those with high incomes. In the equation predicting support for transfers to those with low incomes, the target-specific belief is the one concerning those with low incomes. Figure 1 shows that the target-specific beliefs have a larger effect than the non-target-specific beliefs both within equations and across equations. Therefore, patterns in tables 1 and 2 are connected in a systematic way, both in Germany and in the United States.

In the econometric analysis, we test for four predictions: (i) across equations, beliefs about those with low incomes matter more when predicting preferences for transfers to those with low incomes than when predicting preferences for taxes on those with high incomes, (ii) within equations, beliefs about those with low incomes matter more than beliefs about those with high incomes when predicting preferences for transfers to those with low incomes, (iii) across equations, beliefs about those with high incomes matter more when predicting preferences for taxes on those with high incomes than when

predicting preferences for transfers to those with low incomes, and (iv) within equations, beliefs about those with high incomes matter more than beliefs about those with low incomes when predicting preferences for taxes on those with high incomes. Evidence for the whole pattern of four predictions helps address a host of econometric biases which might generate the results in the direction of one or two of the predictions, but not all four. For example, if beliefs about why the rich are rich are more strongly correlated with some other concept, such as expectations of upward mobility at the individual or intergenerational level (see Benabou and Ok 2001) or with income, this might generate spurious support for predictions (i) and (ii) but not predictions (iii) and (iv). We also difference the preferences for helping the poor and taxing the rich, and regress this difference on demographic variables, and on the difference between beliefs about the most common causes of low incomes and about the most common causes of high incomes. Accounting for target-specific beliefs and preferences in this way allows us to investigate beliefs and preferences that are consistent with preferences that might either benefit or hurt the middle class (or else might imply a government deficit or surplus).

After establishing empirical patterns concerning target-specific beliefs and redistributive preferences, we develop a model to explain these. Our empirical analysis and model together suggest a framework that might be used to illuminate preferences regarding the middle class, and may relate to class tensions between the middle class and the poor and the middle class and the rich, rather than just the traditional rich-versus-poor view of class tensions.

We begin with a simple baseline model with two income groups and balanced budget requirement (as is common in the optimal tax approach). In our baseline, there are two income levels, and high incomes may result from high effort or good luck and low incomes may result from low effort or bad luck. Our model allows for a separate tax (or transfer) policy for each income level. We then depart from the prior literature by allowing beliefs about the causes of each income level to differ and move independently. Together with self-interest, these target-specific beliefs may play a key role in explaining redistributive preferences through fairness concerns, following Walster et al. (1978), Deutsch (1985), and Alesina and Angeletos (2005). Nonetheless, in our baseline model, if there is a balanced-budget constraint on government spending, then one redistributive policy determines the other through the government budget constraint. Thus, there is just a single redistributive policy, and the preferred level of redistribution increases in the share of entitled rich who are rich through good luck and decreases in the share of low-effort poor who remain poor because they chose low effort. Therefore, the basic model cannot explain why target-specific beliefs concerning the rich (the poor) affect more strongly preferences for taxing the rich (supporting the poor).

To illuminate how target-specific belief effects might be developed and incorporated into prior theory, we extend the baseline model in two ways that allow studying the effects of beliefs about causes

of low and high incomes on preferences towards taxing the rich and helping the poor separately. The first approach introduces a middle-income class and an intermediate level of effort investment. We keep the balanced budget requirement and assume that high effort investment always results in high income, but that intermediate effort investment has a stochastic outcome, resulting in intermediate income in a good realization but in low income in a bad realization. We show that increases in the perceived mass of entitled rich increase preferred taxes on the rich and transfers to the poor, and decrease the preferred tax on the middle class. Increases in the perceived mass of low-effort poor reduce preferred transfers to the poor, and reduce preferred taxes on the middle class and on the rich.

The second approach has only two income classes (as in the baseline model), but replaces the balanced budget requirement with a shadow price of public funds, which allows taxes on the rich and transfers to the poor to move independently. We show that under the flexible budget constraint, preferred taxes on the rich depend on the beliefs about the rich, but not beliefs about the poor. Correspondingly, preferred transfers to the poor depends only on beliefs about the poor, not about the rich.

Finally, we extend our model to account for endogenous effort. Here we show that if effort choices are endogenous, there can be multiple equilibria. If we take the level of taxes on the rich and transfers to the poor as given and adjust taxes on the middle class, then if there are multiple equilibria then those with more redistribution (welfare state equilibria) are associated with lower effort investment. If, instead, those with high-incomes wield the political power they may strategically discourage intermediate effort investment and prefer an equilibrium with large number of low-effort poor to an equilibrium with a smaller number of intermediate-effort poor. This would imply a strategically high tax on the middle class, coupled with low taxes on the rich and little or no support for the poor. We term this the *moral release equilibrium*. The intuition behind the moral release equilibrium is that the low-effort poor are not morally entitled to transfers, so those with high incomes feel that low-redistribution society is just. The plausibility of our moral release equilibrium is further supported by prior experimental evidence showing that when given the choice, many people choose to avoid situations in which they would feel moral pressure to give (Dana, Weber and Kuang 2006; Della Vigna, List and Malmendier 2012). Finally, moral release equilibrium is one possible explanation for why a society might not invest in highly cost-effective early intervention programs that would help children from disadvantaged background to pursue their full potential. Dynasties that can ensure their children's success may prefer an equilibrium in which there are more poor people, but they can be viewed as undeserving, to an equilibrium in which the society would encourage poor families to invest in their children, and those who fail to rise to the middle class despite investing in intermediate effort would be viewed deserving support. Interestingly, Heckman (2006) has argued that in the United States, "[m]any major economic and social problems can be traced to low levels of skill and ability in the population."

Our result on multiple equilibria has interesting parallels but also crucial differences compared with Hassler et al. (2003) on Markov perfect equilibria on voting on distorting redistribution. They conclude that in some equilibria, a majority of beneficiaries from redistribution may vote strategically to induce an end to the welfare state in the next period as this would then encourage effort investment and increase the size of the cake (on which they are then satisfied with a lower share by reducing redistribution). In our model, if the taxes on the rich and transfers to the poor are fixed, equilibria with low taxes on the intermediate incomes are associated with higher effort, in line with Hassler et al. (2003). However, the moral release equilibrium in which those with high incomes prefer a larger number of poor who did not even try to make it to the middle class is novel to the literature and dramatically different from Hassler et al. (2003). We show that having a small middle class may be a price that the rich are willing to pay to keep taxes on themselves and transfers to the poor low. Even more, we show that if the rich have the political power but have also fairness concerns they may prefer an equilibrium in which they feel that the poor do not deserve more than they have to an equilibrium in which those who choose between low and intermediate effort investment would choose the intermediate effort investment, some of them failing and having then a moral claim to income support as intermediate-effort poor.

Finally, we present previously unreported results from a prior laboratory experiment on transfers of real money to real-world welfare recipients (Fong 2007) as a robustness check. We find that target-specific beliefs about the poor are associated with giving real money to real-world welfare recipients while beliefs about the rich and general beliefs about the causes of income have no significant effect.

The rest of this paper is organized as follows. Section 2 presents the analysis of the Gallup data and the German Socio-economic Panel data. Section 3 presents the model. Section 4 presents new analysis of the behavioral data from Fong (2007). Section 5 concludes.

2. Survey Data and Analysis

2.1. Data

To the best of our knowledge, there are only two datasets in the world that contain all four of the measures needed for our main analysis. The first is a 1998 Gallup Organization Social Audit (Gallup 1998), a national telephone survey in the United States of 5001 individuals who were 18 years of age or older. It contains two measures of beliefs about the roles of effort and circumstances beyond control in explaining why people are poor (*WHYPOOR*) and rich (*WHYRICH*), a question about support for taxes on the rich (*TAXRICH*),

and a question about support for government help to the poor (*HELPPOOR*).¹ Table A1, Panel A in the appendix presents the question wording. Summary statistics were presented in Tables 3 and 4 in the introduction. The Gallup beliefs questions, *WHYPOOR* and *WHYRICH*, have nearly identical wording and response scales, which helps to hold relatively constant the subjects' interpretations of the questions and the extent of measurement error across the two measures. The Gallup measures of *HELPPOOR* and *TAXRICH* are not as cleanly written, but nonetheless clearly ask about support for a government help to the poor and support for a tax on the rich.

Following preliminary analysis of the Gallup data, we wrote cleaner versions of the questions which we proposed for fielding in the German Socio-Economic Panel Innovation Sample (SOEP-IS). These questions were fielded in the 2014 German SOEP-IS. See Table A1, Panel B for exact wording. Summary statistics were presented in Tables 1 and 2 in the introduction.

2.2. Empirical Approach

We test the null hypothesis that the effect of a target-specific belief on support for redistribution equals the effect of non-target-specific beliefs. To this end, we estimate the following two equations:

$$HELPPOOR = \beta_0 + \beta_1 WHYRICH + \beta_2 WHYPOOR + \mathbf{X}\mathbf{B} + u_1$$

$$TAXRICH = \gamma_0 + \gamma_1 WHYRICH + \gamma_2 WHYPOOR + \mathbf{X}\mathbf{B} + u_2$$

Where *HELPPOOR* and *TAXRICH* equal one if the respondent supports redistribution and zero if the respondent opposes redistribution, *WHYRICH* and *WHYPOOR* increase in beliefs that luck matters (see Table A1 for exact wording), and \mathbf{X} is a matrix of socioeconomic variables.

We test for a pattern showing larger effects of target-specific beliefs both within equations and across equations. That is, we test the following hypotheses:

Within-Equation Tests		Cross-Equation Tests	
Test 1	Test 2	Test 3	Test 4
$H_0: \beta_2 = \beta_1$	$H_0: \gamma_1 = \gamma_2$	$H_0: \beta_2 = \gamma_2$	$H_0: \gamma_1 = \beta_1$
$H_A: \beta_2 > \beta_1$	$H_A: \gamma_1 > \gamma_2$	$H_A: \beta_2 > \gamma_2$	$H_A: \gamma_1 > \beta_1$

¹ We coded "don't know" responses as missing. Thus, this sample should be interpreted as being drawn from the population of people who know their preferences and are not indifferent. The coding makes little difference for the results.

This series of tests rules out a host of alternative explanations, because many econometric problems may bias the results in the direction of one of the predictions, but not all of them. For example, imagine that $\gamma_1 = 0$, but our estimate is biased upward because of measurement error bias or omitted variables bias, leading to a spuriously significant estimated effect of WHYRICH on TAXRICH. Such a measurement bias might occur, for instance, if income is poorly measured, and both WHYRICH and TAXRICH are correlated with income. In this example, measurement error in income might explain why $\gamma_1 > \gamma_2$, and possibly even why $\gamma_1 > \beta_1$, if HELPPOOR is not strongly correlated with income compared to TAXRICH. However, this measurement error problem by itself would not explain why $\beta_2 > \beta_1$ or why $\beta_2 > \gamma_2$. As the following analysis will show, we find robust support all four of these tests.

2.3 Results

Table 5, columns 1 and 2, present OLS regressions, using the SOEP data, of HELPPOOR and TAXRICH on dummy variables for the response categories to WHYPOOR and WHYRICH and control variables. These columns replicate the pattern presented in Figure 1. Hypotheses 1 and 2 were tested with Wald tests of linear combinations. Hypotheses 3 and 4 were tested with a version of the cross-model, same-sample Wald test provided in STATA's sureg command. All of the statistical tests are significant at the one-percent level.

Column 3 and 4 of Table 5 uses the difference in the two redistribution variables, HELPPOOR minus TAXRICH as the dependent variable. When the value of this measure is zero, responses to the two questions are the same, and target specific beliefs cannot have target-specific effects. When the value of this measure is one, the respondent supports redistribution to the poor but does not support redistribution from the rich. As our model below will point out, this could be interpreted as a preference for redistribution away from the middle class. Another interpretation, also accommodated by the model, is that this could be a preference to run a deficit. Finally, if the value is -1, the respondent does not government to help the poor but does want to tax the rich. Such a respondent may prefer to redistribute toward the middle class or to run a surplus.

Column 3 includes the same control variables as columns 1 and 2, except that no beliefs variables are included. Those who are older, male, less educated, and pensioners have significant negative coefficients, consistent with preferences to redistribute toward the middle class or preferences to run a deficit. Those with higher labor incomes and unemployed people have significant positive coefficients, consistent with preferring redistribution to the middle class or preferences for a government surplus. A dummy for labor income not being applicable also has a significant positive effect on surplus generating or pro-middle class preferences. (At the time of this writing, we are working with SOEP to find out who is in this sub-sample. Dummies for a large variety of employment categories and types of government transfers do not

reduce the effect. We would like to control for those who earn primarily business income and capital income but do not have appropriate data in the 2014 SOEP-IS.)

Column 4 is the same as column 3 except that it also includes the difference between WHYPOOR and WHYRICH. A positive value on this difference represents someone who has positive beliefs about both the poor and the rich. A negative value indicates negative beliefs about both. This column shows a significant effect of more positive beliefs on preferences that are more positive to both the poor and the rich – i.e., wanting to help the poor but not wanting to tax the rich. Including this variable in the regression increases the R^2 slightly and reduced the effect size of some of the demographic variables.

Table 6 presents a similar analysis of the Gallup data. First, columns 1 and 2 present estimates where, despite adding controls, the two within-equation tests and the two cross-equation tests for target-specific beliefs are significant at the one-percent level. Second, columns 3 and 4 show that there are demographic groups that have target-specific preferences to redistribute resources away from the middle class, or to generate a deficit. These are male, more educated, higher earners – we might think of these people as “elites”. And, there is a group that has preferences consistent with redistributing toward the middle class (or generating a deficit), namely: union members. The effect of WHYPOOR minus WHYRICH in Column 4 shows that having sympathetic beliefs to both the rich and the poor is associated with preference to redistribute toward the poor and the rich (either away from the middle class or via a deficit), and having negative beliefs about the poor and the rich is associated with a preference to redistribute toward the middle class (or run a surplus)

The point we wish to make with these results from the 2014 SOEP-IS and the 1998 Gallup Social Audit is not about attempting to pin down which specific demographic groups in different countries and time periods have what preferences. Rather, our point is to illustrate more generally the way in which allowing for target-specific beliefs can illuminate redistributive preferences that can be missed with the traditional framework of general redistribution. This is particularly important in an era when middle class preferences are poorly understood, yet have powerful political implications.²

² See Piketty (2018) on shifting political cleavages.

3. The Model

3.1. Baseline: Two Income Classes with Balanced Budget Constraint

There are two different income classes, rich and poor, and four different groups of people in terms of the realizations of their income-generating process. The entitled rich receive high income y_h with no effort. The low-effort poor exert low effort and always receive low income y_l . The remainder of the population exerts high effort, but the outcome of high effort is stochastic. If this group obtains high income (y_h), they can be interpreted as the high-effort rich, and if they are unlucky and obtain low income (y_l), they can be interpreted as high-effort poor who failed despite their best efforts. The mass of agents belonging to income group $k, k \in \{l, h\}$ is m_k , with $m_l + m_h = 1$. The size of income groups is common knowledge.

Beliefs about the income-generating process can be summarized by beliefs about the share of the poor who have exerted low effort and the share of the rich who are entitled. We denote individual j 's belief about the share of the poor who have exerted low effort by θ_l^j , and the belief about the share of the rich who are entitled by θ_e^j . The government levies a tax t on those with high incomes, and pays a transfer b to those with low incomes (if $b < 0$, then the government engages in regressive redistribution from those with low incomes to those with high incomes). The government observes realized income, but not effort choice or status as belonging to the entitled rich. The government budget is balanced. In this case, via the budget constraint, there is a one-to-one correspondence between the tax on the rich and the transfer to the poor - choosing one determines the other.

Individuals care about their own income and fairness, fairness being defined in terms of the principle of justice known as equity, according to which the rewards or incomes that people receive should be in proportion to the contributions they make (Walster et al., 1978; Deutsch, 1985). Individual j has utility

$$(1) \quad U^j = u^j - \gamma^j \Omega^j.$$

Utility from private consumption is linear as in Piketty (1995) and Alesina and Angeletos (2005) and is given by $u^j = y_h - t$ if j has high income and $u^j = y_l + b$ if j has low income. Term $\gamma^j \Omega^j$ represents disutility generated by unfair social outcomes, and is otherwise as in Alesina and Angeletos (2005), with the exception that we include a more general individual-specific weight $\gamma^j, \gamma^j > 0$, while Alesina and

Angeletos model it as an identical term for everyone in society.³ We follow Walster et al. (1978), Deutsch (1985), and Alesina and Angeletos (2005) in defining fairness as a common conviction that one should get what one deserves, and deserve what one gets. We define a belief in what one deserves based on one's chosen action. Those choosing high effort are perceived to deserve high income and those choosing low effort low income. The entitled rich deserve low income as they do not invest in effort. Denoting individual j 's perception of agent k 's realized utility by u_k^j and of agent k 's "fair" level of utility by \hat{u}_k^j , the measure of social injustice is given by

$$\Omega^j = \int_{k=0}^1 (u_k^j - \hat{u}_k^j)^2 dk.$$

Using the individual beliefs, the perceived social injustice reads as

$$(2) \quad \Omega^j = \theta_l^j m_l b^2 + (1 - \theta_l^j) m_l (y_h - y_l - b)^2 + (1 - \theta_e^j) m_h t^2 + \theta_e^j m_h (y_h - t - y_l)^2.$$

The first term captures the difference between what those who exert low effort deserve and what they get, the difference being entirely driven by the transfers. The second term captures the difference between what is deserved and what is received by those who invested in high effort but failed nonetheless. The third term refers to the injustice from taxing those who chose high effort and succeeded, and the last term the undeservedly high income of the entitled rich.

Without loss of generality, we assume in this baseline model that decisions on the government budget take place on the tax on the rich. The government budget constraint $m_l b = (1 - m_l)t$ then implies that the poor receive a transfer $b = \frac{(1-m_l)t}{m_l}$. A poor individual has utility $U^j = y_l + \frac{(1-m_l)t}{m_l} - \gamma^j \Omega^j$. The first-order condition allows solving the preferred tax burden on the rich by poor individual j :

$$(3) \quad (1 - m_l)t^j = \frac{1-m_l}{2\gamma^j} + [(1 - \theta_l^j) + \theta_e^j] m_l (1 - m_l) (y_h - y_l).$$

This is unambiguously positive.

A rich individual has utility $U^j = y_h - t - \gamma^j \Omega^j$. The first-order condition allows solving the preferred tax burden on the rich by rich individual j :

$$(4) \quad (1 - m_l)t^j = -\frac{m_l}{2\gamma^j} + [(1 - \theta_l^j) + \theta_e^j] m_l (1 - m_l) (y_h - y_l).$$

The first term on the right-hand-side is negative and the second one is positive, so the sign is ambiguous. Interestingly, the second terms of (3) and (4) are identical, and we have

³ Some particularly relevant notions of fairness include equity theory (Walster, Walster and Berscheid, 1978, Deutsch, 1985) and strong reciprocity (Fong, Bowles and Gintis, 2006). Models of inequality and inequity aversion are also relevant. See, for instance, Fehr and Schmidt (1999).

Proposition 1. $\forall j$: (i) $\frac{\partial((1-m_l)t^j)}{\partial \theta_l^j} = -m_l(1 - m_l)(y_h - y_l)$ and (ii) $\frac{\partial((1-m_l)t^j)}{\partial \theta_e^j} = m_l(1 - m_l)(y_h - y_l)$.

Proof. Follows by differentiating equations (3) and (4).

Whatever the self-interest component, the preferred tax burden on the rich is decreasing in the perceived share of the low-effort poor and increasing in the perceived share of the entitled rich. The effects of θ_l^j and θ_e^j are equally strong, but of opposite signs. The same holds by the government budget constraint for transfers to the poor. Even though the model allows for target-specific beliefs, there is no scope for analyzing separately target-specific redistributive preferences with just two groups and balanced budget constraint.

3.2. Three Income Classes with Balanced Budget Constraint

Assume next that there are three income classes, corresponding to low income (y_l), intermediate income (y_i) and high income (y_h), and five different groups in terms of the realizations of their income-generating process. The entitled rich and the low-effort poor groups are as in the previous subsection and so are the beliefs about the share of the poor who have exerted low effort and the share of the rich who are entitled. Unlike in the previous subsection, we assume that those who exert high effort obtain high income with certainty. The stochastic income process now pertains to a group that exerts intermediate effort investment. If successful, intermediate effort investment results in intermediate income, and if unsuccessful in low income. Total population mass is still normalized to one. The mass of low-income citizens is denoted by m_l and the mass of high-income citizens by m_h , giving as the mass of intermediate income citizens $1 - m_l - m_h$.

We denote the tax on the intermediate incomes by t_i and the tax on high incomes by t_h . The transfer to those with low incomes is denoted by b . The perceived social injustice is

$$(5) \quad \Omega^j = \theta_l^j m_l b^2 + (1 - \theta_l^j) m_l (y_m - y_l - b)^2 + (1 - m_l - m_h) t_i^2 + (1 - \theta_e^j) m_h t_h^2 + \theta_e^j m_h (y_h - t_h - y_l)^2.$$

The government budget constraint $m_l b = (1 - m_l - m_h) t_i + m_h t_h$ allows us to solve

$$(6) \quad t_i = \frac{m_l b - m_h t_h}{1 - m_l - m_h}.$$

Inserting (5) and (6) into $U^j = y_h - t_h - \gamma^j \Omega^j$, differentiating with respect to b and t_h , and solving gives as the preferred total transfers to the poor $m_l b^j$ and tax burden on the rich $m_h t_h^j$ by a high-income citizen

$$(7) m_l b^j = -\frac{m_l}{2\gamma^j} + (1 - \theta_l^j) m_l (1 - m_l) (y_m - y_l) + \theta_e^j m_l m_h (y_h - y_l)$$

$$(8) m_h t_h^j = -\frac{1-m_h}{2\gamma^j} + (1 - \theta_l^j) m_l m_h (y_m - y_l) + \theta_e^j m_h (1 - m_h) (y_h - y_l).$$

Correspondingly, inserting (5) and (6) into $U^j = y_i - t_i - \gamma^j \Omega^j$ and differentiating this with respect to b and t_h allows solving the preferred $m_l b^j$ and $m_h t_h^j$ of a middle-class person:

$$(9) m_l b^j = -\frac{m_l}{2\gamma^j} + (1 - \theta_l^j) m_l (1 - m_l) (y_m - y_l) + \theta_e^j m_l m_h (y_h - y_l)$$

$$(10) m_h t_h^j = \frac{m_h}{2\gamma^j} + (1 - \theta_l^j) m_l m_h (y_m - y_l) + \theta_e^j m_h (1 - m_h) (y_h - y_l).$$

Finally, the preferred $m_l b^j$ and $m_h t_h^j$ of a poor person are:

$$(11) m_l b^j = \frac{1-m_l}{2\gamma} + (1 - \theta_l^j) m_l (1 - m_l) (y_m - y_l) + \theta_e^j m_l m_h (y_h - y_l)$$

$$(12) m_h t_h^j = \frac{m_h}{2\gamma^j} + (1 - \theta_l^j) m_l m_h (y_m - y_l) + \theta_e^j m_h (1 - m_h) (y_h - y_l).$$

The effects of beliefs on redistributive preferences can be summarized as

Proposition 2. $\forall j$: (i) $\frac{\partial(m_l b^j)}{\partial \theta_l^j} = -m_l(1 - m_l)(y_m - y_l)$; (ii) $\frac{\partial(m_l b^j)}{\partial \theta_e^j} = m_l m_h (y_h - y_l)$; (iii) $\frac{\partial(m_h t_h^j)}{\partial \theta_l^j} = -m_l m_h (y_m - y_l)$; (iv) $\frac{\partial(m_h t_h^j)}{\partial \theta_e^j} = m_h (1 - m_h) (y_h - y_l)$.

Proof. Follows by differentiating equations (7) to (12).

Proposition 2 shows that even though the rich, the middle class and the poor differ in their preferred taxes and transfer as shown by equations (7) to (12), the preferred taxes and transfers of members of these groups react identically to changes in beliefs about the parameters governing the income-generating process. The preferred transfer to the poor and the preferred tax on the rich are increasing in the share of entitled rich and decreasing in the share of low-effort poor. Proposition 2 also implies that the effect of the belief concerning the share of the low-effort poor is stronger on preferred transfers to the poor than on the preferred tax burden on the rich, and effect of the belief about the share of the entitled rich is stronger on the preferred tax burden on the rich than on the preferred total transfers to the poor:

Corollary 1. $\left| \frac{\partial(m_l b^j)}{\partial \theta_l^j} \right| > \left| \frac{\partial(m_h t_h^j)}{\partial \theta_l^j} \right|$ and $\left| \frac{\partial(m_h t_h^j)}{\partial \theta_e^j} \right| > \left| \frac{\partial(m_l b^j)}{\partial \theta_e^j} \right|$.

Corollary 1 follows from Proposition 2 as $1 - m_l - m_h > 0$. By equation (5), we can also calculate the effect on preferred tax burden on the middle class:

$$\frac{\partial((1 - m_l - m_h)t_i^j)}{\partial \theta_l^j} = -m_l(1 - m_l - m_h)(y_m - y_l) < 0$$

$$\frac{\partial((1 - m_l - m_h)t_i^j)}{\partial \theta_e^j} = -m_h(1 - m_l - m_h)(y_h - y_l) < 0.$$

Increases in the share of entitled rich and of the low-effort poor both decrease preferred tax burden on the middle class. The changes in the tax burden on the middle class close the gap between changes in the preferred total transfers to the poor and preferred total tax burden on the rich, identified in Corollary 1. The intuition for this is as follows. Given that perceived social injustice is convex in the difference between actual and deserved income, changed beliefs concerning one group call for an adjustment in the incomes accruing to all other groups.

Different preferences for income redistribution can arise between individuals with identical incomes in two ways: through different beliefs about the share of the entitled rich and of the low-effort poor, and through different weights given to the disutility generated by unfair social outcomes. Importantly, either of these channels suffices. For example, assuming identical weight parameters in the utility function would imply that different preferences within an income group would be driven solely by different beliefs about the economy.

3.3. Two Income Classes without Balanced Budget Constraint

So far, we have assumed that the government budget is always balanced. In this subsection, we note that target-specific-belief effects can also occur when individuals are allowed to have preferences that result in government surpluses or deficits, rather than being constrained to balance the government budget. We show the effects of allowing the government to run budget surplus or deficit by replacing the balanced-budget constraint with a more general term that still accounts for the government budget but allows it to be unbalanced. Otherwise, the income-generating process and beliefs are as in subsection 2.1. Individuals care about their own income, public finances and fairness. Individual j has utility

$$(13) \quad U^j = u^j + \lambda^j T^j - \gamma^j \Omega^j.$$

The government budget surplus or deficit is given by $T^j = (1 - m_l)t - m_l b$. Term $\lambda^j T^j$ captures how much individual j values the government budget surplus or deficit, with $\lambda^j \geq 0$. As the individual shadow price λ^j can be adjusted, our model can always also be solved with λ^j set at a level that results in the government budget being balanced. However, allowing the shadow price of public funds to differ from this helps capture the stylized fact that many voters may support policies that do not balance the budget. Inserting $u^j = y_l + b$ and (2) into (13), differentiating with respect to b , setting the first-order condition equal to zero and then solving with respect to b yields the total transfers that a low-income person prefers:

$$(14) \quad m_l b^j = \frac{1}{2\gamma^j} - \frac{\lambda^j m_l}{2\gamma^j} + (1 - \theta_l^j) m_l (y_h - y_l).$$

This is unambiguously positive as long as one's own consumption is valued at least as much as government surplus. Low-income voters' preferred tax burden on the high-income group is:

$$(15) \quad (1 - m_l) t^j = \frac{\lambda^j (1 - m_l)}{2\gamma^j} + \theta_e^j (1 - m_l) (y_h - y_l).$$

This is also unambiguously positive. Low-income voters support taxing the rich even when there is no direct link between transfers to the poor and taxes on the rich. The preferred tax is increasing in the valuation of government net revenue and in the perceived share of the entitled rich.

By inserting $u^j = y_h - t$ and (2) into (13), differentiating with respect to b , setting the first-order condition equal to zero and then solving with respect to b allows us to solve the total transfers that a high-income person prefers for the low-income group:

$$(16) \quad m_l b^j = -\frac{\lambda^j m_l}{2\gamma^j} + (1 - \theta_l^j) m_l (y_h - y_l).$$

The sign is open: valuation for government revenue pushes for a negative transfer, corresponding to a positive tax, fairness concerns for a positive transfer. The higher the perceived share of the low-effort poor, the lower is the preferred transfer (implying a higher tax, if negative). The preferred tax burden for the high-income group is:

$$(17) \quad (1 - m_l) t^j = -\frac{1}{2\gamma^j} + \frac{\lambda^j (1 - m_l)}{2\gamma^j} + \theta_e^j (1 - m_l) (y_h - y_l).$$

The sign is ambiguous. The first term of the right-hand side, capturing self-interest, pushes for a negative tax, while the second term (valuation of government tax revenue) and the third term (capturing fairness considerations) push for a positive tax.

Taken together, our model implies the following testable predictions:

Proposition 3. $\forall y_j, \lambda^j, \gamma^j$: (i) $\frac{\partial(m_l b^j)}{\partial \theta_l^j} = -m_l(y_h - y_l)$; (ii) $\frac{\partial(m_l b^j)}{\partial \theta_e^j} = 0$; (iii) $\frac{\partial((1-m_l)t^j)}{\partial \theta_l^j} = 0$; (iv)

$$\frac{\partial((1-m_l)t^j)}{\partial \theta_e^j} = (1 - m_l)(y_h - y_l).$$

Proof. Follows by differentiating equations (14) to (17).

Proposition 3 implies that with given weights in the utility function, preferred transfers to the poor are decreasing in the share of the low-effort poor and independent of the share of entitled rich, both among those who have low incomes and those who have high incomes. Correspondingly, preferred taxes on the rich are independent of the perceived share of low-effort poor, and increasing in the perceived share of the entitled rich. This allows us later to test whether the assumption of no government budget constraint and constant shadow price of public funds is empirically supported: if it is then preferred taxes or transfers to a certain group should depend only on beliefs concerning that group, not on beliefs concerning other groups.

3.4. Endogenous Effort and Moral Release Equilibrium

Assume next that we are in the three-class balanced-budget setting of subsection 2.2 but the choice between low and intermediate effort is endogenous. In this case, there can be multiple equilibria. To see this first point, assume that the cost of intermediate effort investment is c and that this is common knowledge, and that, for the time being, there are no strategic responses to manipulate effort choices via taxes. The political process simply sets a tax on the rich t_h and transfer to the poor b , and the tax on those with intermediate incomes adjusts to balance the budget. Denote the expected tax on those with intermediate incomes by t_i^e . The perceived probability that intermediate effort by individual j results in intermediate income, p^j , is private knowledge. Individual j invests in intermediate effort if and only if $p^j(y_i - t_i^e) + (1 - p^j)(y_l + b) - c > y_l + b$. This gives

$$p^j > \frac{c}{y_i - y_l - b - t_i^e}.$$

For any given t_h and b , $b > 0$, t_i^e is decreasing in the mass of those choosing intermediate effort investment (as long as $b + t_i^e > 0$, implying that those with intermediate income are either net payers to redistribution or at least receive lower transfers than the poor). Note as well that if p^j is low, intermediate

effort is less likely, which pushes t_i^e up for a given t_h and $b, b > 0$.⁴ For any two equilibria with a given b , the one with a higher t_i^e is associated with lower effort, thereby leading into a lower tax base and more low-income agents needing support. Therefore, the low-redistribution equilibrium is associated with higher effort than high-redistribution equilibrium if we take the prevailing tax policies as given. However, this need not be the case once we account for strategic political responses. If the political power belongs to the high-income group, they may strategically discourage intermediate effort investment and prefer an equilibrium with large number of low-effort poor to an equilibrium with a smaller number of intermediate-effort poor. The intuition is that in such an equilibrium, the low-effort poor are not morally entitled to transfers, so those with high incomes feel that low-redistribution society is just. If, instead, a large share of the poor would have exerted intermediate effort then the rich would feel morally obliged to support them.

We refer to an equilibrium in which the rich prefer to pursue policies that discourage effort investment at the lower part of the skill distribution, resulting in a large number of poor who are perceived as having chosen low effort, and therefore undeserving of support, a *moral release equilibrium*. Whether a moral release equilibrium exists depends on beliefs about the underlying distribution of types in the economy. We provide in Appendix B an example of a moral release equilibrium in a stark case in which investment in intermediate effort is not costly; a moral release equilibrium is even easier to construct if investment in intermediate effort is costly.

We conjecture that if the rich are politically decisive, a parameter of importance in explaining whether they prefer a *moral release equilibrium* with low effort choices by the poor and no redistribution towards them, or an active social safety net with relatively low taxes on the intermediate incomes, will be how likely those threatened by poverty are to be able to escape it. The key parameters are beliefs about the probability of success with intermediate effort investment, and beliefs about the distribution of investment costs among those who choose between low and intermediate effort investment. It is to be expected that high-income people would either want a low tax and hard work equilibrium where those threatened by poverty succeed in escaping poverty and may even be subsidized, for example by an earned income tax credit, or the moral release equilibrium in which effort investment is discouraged and the social safety net for the poor is lacking. Those who expect to have high incomes do not want to have an equilibrium with a

⁴ See Alesina, Stantcheva and Teso (2017) for compelling experimental evidence that Americans have higher (and overly optimistic) expectations of upward mobility than Europeans. This relates to our result here, where a lower perceived probability of moving up through effort in our model can decrease effort, and this in turn increases t_i^e , leading to a European equilibrium.

large number of deserving poor who have invested in intermediate effort but failed and have to be supported.

In summary, accounting for endogenous effort choices can result in multiple equilibria. If we do not account for political responses but take the transfer to the poor and the tax on the rich as given, then if there are multiple equilibria then the low-redistribution (“American”) equilibria are associated with lower tax on the middle class and higher effort investment than high-tax (“European”) equilibria in which a high tax burden on the middle-class results in a low effort equilibrium, in line with Piketty (1995), Alesina et al. (2001), Hassler et al. (2003) and Benabou and Tirole (2006). Accounting for the political responses can reverse the conclusions: those with high incomes may strategically discourage effort investment by those who choose between low and intermediate effort investment to keep the poor undeserving of their support. This could help to explain policies that reduce the equality of opportunity even when they would be fiscally cost-effective, like the persistence of poverty traps in which effort does not pay off. It may also help to explain why some countries, like Scandinavian welfare states, have been able to maintain high levels of redistribution with high educational investment, especially after marginal tax rates on high incomes were reduced especially in 1990s. If the political process tends to be driven by those with intermediate incomes, rather than those with very high incomes, then the outcome can be a pro-intermediate-effort equilibrium in which the middle class supports a generous safety net, but also aims to ensure that intermediate effort pays off. One way to achieve this are universal services and benefits, like tax-financed education and public healthcare and child benefits that are independent of family income. In the United States, means-testing the benefits increases the effective marginal tax rates well above statutory rates at the income range in which the benefits are phased out. Furthermore, campaign contributions that tend to favor the wealthy play a much bigger role and the turnout rates are much lower, especially among those with low incomes, further strengthening the political power of those with high incomes.

3.5. Intergenerational Perspective

Our model framework can be extended to cover an intergenerational perspective. Assume that parents decide on investments in their children, accounting for how redistribution is going to affect their children in the future. In that case, we can re-interpret the entitled rich as those dynasties with enough inherited wealth or connections to ensure that their children end up with high incomes. High effort choices would be taken by dynasties with well-to-do parents and children who can obtain high incomes if they invest in effort, thanks to good initial circumstances and opportunity to get a place in a good university. Families

that are initially poor, or struggling at the risk of poverty, would be the ones choosing between low and intermediate investment. Therefore, their children would face a risk of poverty even if doing their best. Parental choices would include time spent with their children, like reading to children and talking with them, but also residential choices, given the importance of neighborhood in which a child grows up (Chetty et al. 2016; Chetty and Hendren 2018a,b).

Heckman (2006) summarizes extensive evidence that in the United States, “[m]any major economic and social problems can be traced to low levels of skill and ability in the population.” Our framework with its moral release equilibrium helps to understand why early interventions that everyone should agree on from efficiency and equality of opportunity perspective may politically fail. The entitled rich and dynasties who can ensure their success by investing in their children’s education may prefer a low-effort-equilibrium in which there are more poor people, but they can be viewed as undeserving, to an equilibrium in which the society would support early interventions even when there is no guarantee on their success, and those who have failed despite their best efforts would be viewed as deserving intermediate effort poor, calling for more redistribution. The lack of support for early interventions would be then explained by political economy considerations, and could explain why even interventions that have so high social returns that they would pay for themselves might not get support by rich dynasties.

4. Behavioral Results: Transfers of Real Money to Real Welfare Recipients

This section presents new results from a prior randomized experiment on giving of real money to real-life welfare recipients (Fong 2007), analyzing the effects of target-specific and non-target-specific beliefs. Full details on the experimental design and procedures are presented in Fong (2007), but we summarize them briefly here. The experiment was an n-donor dictator game in which subjects (dictators) were randomly matched with one of three types of real-life welfare recipients. The welfare recipients differed according to their self-reported work preferences and work histories, but were otherwise identical in terms of the characteristics presented to dictators. About one week prior to the experiment, dictators completed an online survey with attitudinal measures of beliefs. At the experiment, dictators were paid a show-up fee and endowed with an additional ten dollars to play with during the experiment (the “pie”). In a private room, each dictator read a survey completed by his or her welfare recipient. The survey communicated the welfare recipient’s demographic characteristics and work preferences and work histories. The dictator then decided how much, if any, of the ten dollars to give to the recipient. Finally, dictators completed an exit survey with additional belief and attitudinal measures and left the experiment. The dependent variable is the offer

made to the welfare recipient. The independent variables are various measures about the causes of income, success and failure and information about the recipient's attachment to the labor force.

The recipients were all single black mothers on "welfare" but differed according to their answers to the questions about work preferences and work histories. Three treatment conditions differed according to information about the recipient that was visible on a survey the recipient had completed. On one condition, subjects were paired with a recipient who reported not wanting to work full-time, not looking for work, and never having held a job for more than one year. In a second condition, each subject was paired with a recipient who reported wanting to work full-time, looking for work, and having held a job for more than one year at some point in the past. In a third condition, the questions on work preferences and work history were omitted from the recipient's survey, so dictators were paired with a recipient for whom this information was unavailable.

We analyze the effects of three independent variables: (i) prior target-specific beliefs about the causes of poverty and failure, which mirror the Gallup *WHYPOOR* measure analyzed above, (ii) prior beliefs about the causes of wealth and success, which mirror the Gallup *WHYRICH* measure analyzed above, and (iii) an exit survey measure of target-specific beliefs about why the dictator's recipient is poor, which we use directly in some specifications and in other specifications we instrument it with the randomly assigned treatment conditions.

4.1. Effects of Prior Beliefs on Giving

During the week prior to the experiments, subjects visited a web site where they registered for the experiment and completed an attitudinal survey. The survey included eight measures of prior beliefs about causes of good or bad outcomes (failure, success, being poor, being rich). Three were target-specific beliefs (in the context of giving to welfare recipients) about the causes of economic outcomes for poor people or people who do not succeed. The other five questions were non-target-specific, including four on general beliefs about chances or opportunities for success for "anyone" or "people" and one on the causes of income for rich people. The exact wording of the questions and their Spearman rank correlation coefficients with offers are presented in Table 7. The table also indicates the source of the question wording. Five of the questions came from a well-established measure from psychology of the Protestant work ethic (Katz and Hass 1989). The other three are revised versions of questions from the Gallup survey used above.

Panel A presents the target-specific beliefs. Two of them have significant Spearman rank correlation coefficients with offers at the five-percent level. The p-value for the third is 0.057. Panel B presents the non-target-specific and general beliefs. None of these have significant correlations with offers. Combining questions into a single measure may increase measurement reliability. Thus, for each panel, we also present

correlations between offers and the first principle component of the questions in that panel. In Panel A, the Spearman rank correlation coefficient between the first principal component of the target-specific beliefs questions and offers is significant ($p=0.010$), while in Panel B, the Spearman rank correlation coefficient between the aggregate measure of non-target-specific beliefs and offers is insignificant ($p = 0.500$)

Table 8 summarizes these results with Tobit regressions. Column 1 regresses offers on the first principal component of the target-specific beliefs from Panel A of Table 7. This independent measure is standardized. Thus, the coefficient means that a one standard deviation increase in the target-specific beliefs measure is associated with a \$0.97 increase in offers (significant at the one-percent level). Column 2 regresses offers on the first principal component of the non-target specific beliefs from Panel B of Table 7. This effect is statistically insignificant. Column 3 includes both beliefs measures. In column 3, a standard deviation increase in target-specific beliefs is associated with a \$1.07 increase in offers (significant at the one-percent level). The effect of non-target-specific beliefs is statistically insignificant.

4.2. Effects of Exit Survey Beliefs about the Dictator's Own Recipient

The exit survey contained the following question: “Which if the following explains why your recipient is poor? a) lack of effort on his or her part, b) circumstances beyond his or her control or c) both.” These beliefs have highly significant effects (at the one-percent level) on offers in the expected direction.

However, responses to this question may be endogenous to offers because subjects who gave less money for some reason other than their beliefs about the recipient – say, in error or for idiosyncratic reasons – may rationalize their offers with their beliefs. As a robustness check, we estimate a two-stage least squares regression in which the exit survey question is instrumented with the randomly assigned treatment conditions and the target-specific beliefs measured approximately one week prior to the experiment. The effect of the predicted target-specific belief is in the expected direction and significant at the one-percent level.

5. Conclusion

It is widely accepted that beliefs about the poor matter in support for transfers to the poor, and that general beliefs about causes of income (and mobility) matter is support for general income redistribution from the rich to the poor. However, literatures on these two different questions have evolved separately, and it is not obvious how they connect. We take a first step toward linking these two literatures with a model of target-specific beliefs and redistribution that follows models of general beliefs and redistribution. Using three different data sources, including (i) a 1998 Gallup Social Audit, (ii) social

survey questions written by us and collected in a special module of the 2014 German Socioeconomic panel, and (iii) new analysis of experimental data on transfers of real money to real welfare recipients collected and previously reported by one of us (Fong 2007). We find that a large fraction of respondents have beliefs about why someone is rich which differ from their beliefs about why someone is poor, showing the importance of understanding the role of target-specific beliefs in redistribution. We also find strong support for a pattern of four predictions from our model, showing a robust role for target-specific beliefs in redistribution. Our analysis suggests a way to find new insights into preferences for redistribution to and from the middle class. Novel ways to understand redistributive preferences seems particularly relevant as traditional voting cleavages give way to new dimensions along which voters may be aligned (Piketty 2018), potentially increasing confusion about what pivotal voters prefer.

We also show that low tax equilibria may, but need not, be associated with higher efficiency. If we take prevailing taxes on those with high and low incomes as given, then there is traditional efficiency-equity trade-off in which if there are multiple equilibria then the equilibrium with lower taxes on the middle class is associated with higher effort. However, this need not be the case once we account for strategic political responses. If the political power belongs to the high-income group, they may strategically discourage intermediate effort investment by those choosing between low and intermediate investment and prefer an equilibrium with large number of poor who did not even try to make it to the middle class to an equilibrium with a smaller number of intermediate-effort poor. Extending to the intergenerational context, our model can explain why early education interventions that would improve educational attainment of those choosing between low and intermediate investment may fail to gain universal support. High-income dynasties may prefer that the children of low-income households do not pursue risky educational investments that could allow them to escape poverty, as in that case those whose investment fail would be viewed as intermediate-effort poor deserving income support, resulting in higher taxes on the current rich and their rich children.

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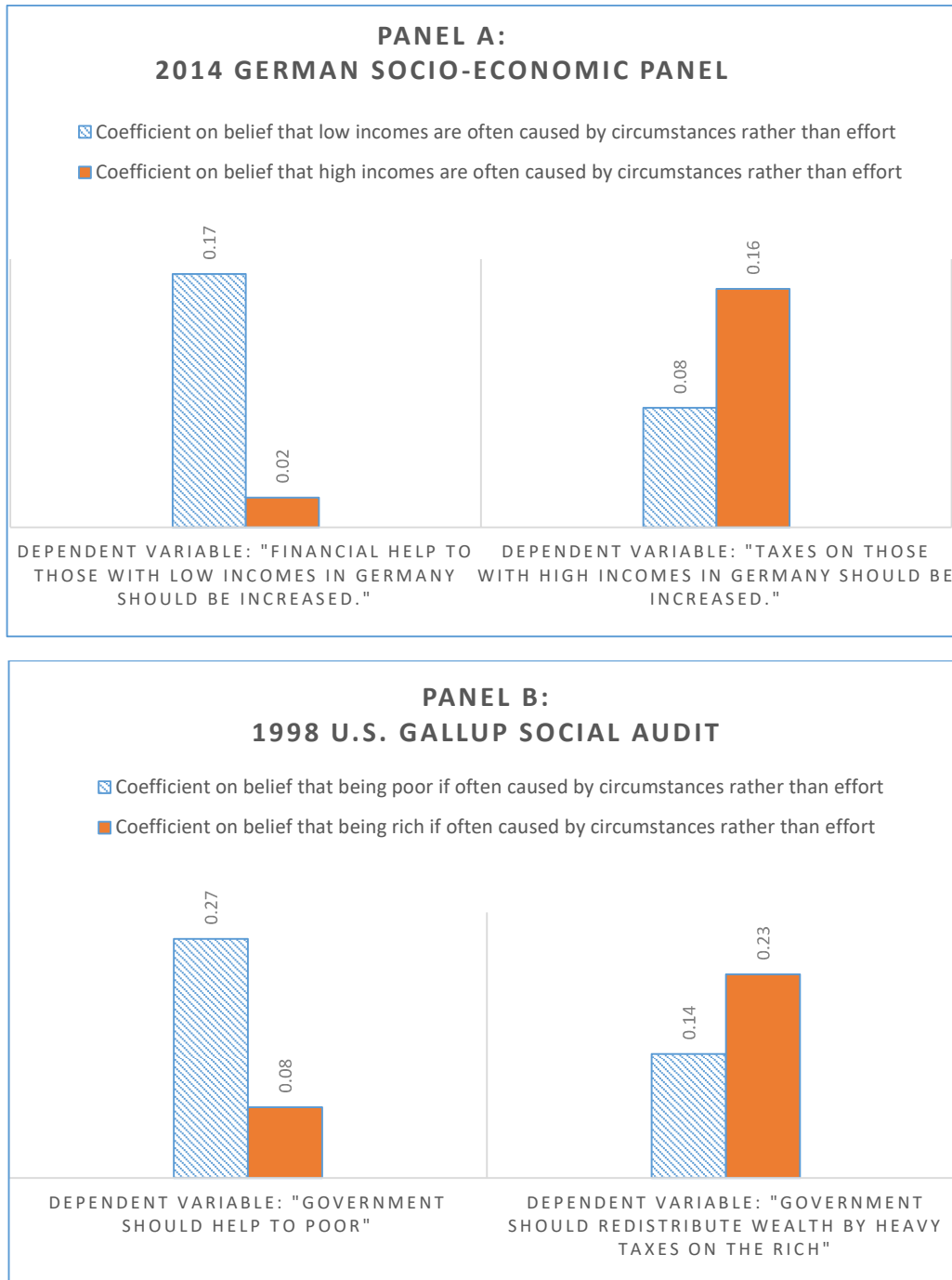


Figure 1. OLS estimated effects of target-specific beliefs on support for redistribution to the poor and from the rich separately. The dependent measures in Panel A, originally reported on a scale of 1 to 5, are rescaled from 0 to 1. The dependent measures in Panel B are binary (0/1). No controls are included. The coefficients within equations are statistically different at the one-percent level. Across equations, coefficients on the same belief are significantly different at the one-percent level. This pattern is robust to country, time period, and measurement differences, as well as a wide range of specification changes (see, e.g., Tables 5 and 6).

Table 1. Cross-tabulations of attitudes about financial help to those with low incomes and taxation of those with high incomes. 2014 German Socio-Economic Panel.

Financial help to those with low incomes in Germany should be increased.	Taxes on those with high incomes in Germany should be increased.					Total
	Strongly against	Somewhat against	Neither in favor nor	Somewhat in favor	Strongly in favor	
Strongly against	114 32.66 34.34	34 9.74 5.1	34 9.74 3.86	65 18.62 3.39	102 29.23 6.12	349 100 6.39
Somewhat against	44 5.05 13.25	227 26.03 34.03	102 11.7 11.59	334 38.3 17.41	165 18.92 9.9	872 100 15.96
Neither in favor nor	54 3.9 16.27	142 10.26 21.29	446 32.23 50.68	484 34.97 25.23	258 18.64 15.49	1,384 100 25.33
Somewhat in favor	74 3.87 22.29	212 11.09 31.78	244 12.77 27.73	913 47.78 47.6	468 24.49 28.09	1,911 100 34.98
Strongly in favor	46 4.86 13.86	52 5.49 7.8	54 5.7 6.14	122 12.88 6.36	673 71.07 40.4	947 100 17.33
Total	332 6.08 100	667 12.21 100	880 16 100	1,918 35 100	1,666 30.5 100	5,463 100 100

Note: Within each cell, the first row states the number of observations, the second line states row percentages and the third line states column percentages. 57% of subjects (N=3090) gave different answers to the two questions.

Table 2. Cross-tabulation of binary support versus opposition to government support to help the poor and taxation of the rich. 1998 Gallup Social Audit.

	Should Not Taxrich	Should Taxrich	Total
Gov't Should Not Help Poor	995	413	1,408
	70.67	29.33	100
	40.12	19.78	30.82
Gov't Should Help Poor	1,485	1,675	3,160
	46.99	53.01	100
	59.88	80.22	69.18
	2,480	2,088	4,568
	54.29	45.71	100
	100	100	100

Note: Within each cell, the first row states the number of observations, the second line states row percentages and the third line states column percentages. 42% of subjects (N= 1898) gave different answers to the two questions.

Table 3. Cross-tabulation of beliefs about most common reasons for high and low incomes. 2014 German Socio-Economic Panel.

Reasons for Low Income	Reasons for High Income			Total
	Strong Effort	Both Effort and Circumstances	Circumstances Beyond Control	
Lack of Effort	223	145	45	413
	54	35.11	10.9	100
	22.23	4.28	4.5	7.66
Both Effort and Circumstances	512	2,509	256	3,277
	15.62	76.56	7.81	100
	51.05	74.12	25.57	60.81
Circumstances Beyond Control	268	731	700	1,699
	15.77	43.03	41.2	100
	26.72	21.6	69.93	31.53
Total	1,003	3,385	1,001	5,389
	18.61	62.81	18.57	100
	100	100	100	100

Note: Within each cell, the first row states the number of observations, the second line states row percentages and the third line states column percentages. 36% of subjects (N=1957) gave different answers to the two questions.

Table 4. Cross-tabulation of beliefs about most common reasons for high and low incomes. 1998 U.S. Gallup Social Audit.

	<i>WHYRICH:</i> Strong effort	<i>WHYRICH:</i> Both	<i>WHYRICH:</i> Luck or circumstances beyond his/her control	Total
<i>WHYPOOR:</i> Lack of effort	1,476 70.72 55.53	110 5.27 19.64	501 24.01 32.6	2,087 100 43.89
<i>WHYPOOR:</i> Both	262 38.14 9.86	339 49.34 60.54	86 12.52 5.6	687 100 14.45
<i>WHYPOOR:</i> Circumstances beyond his/her control	920 46.44 34.61	111 5.6 19.82	950 47.96 61.81	1,981 100 41.66
Total	2,658 55.9 100	560 11.78 100	1,537 32.32 100	4,755 100 100

Note: Within each cell, the first row states the number of observations, the second line states row percentages and the third line states column percentages. 42% of subjects (N=1990) gave different answers to the two questions.

Table 5. OLS Regressions of HELPPOOR and TAXRICH on Beliefs and Demographic Variables. 2014 German Socio-Economic Panel.

	(1) HELPPOOR	(2) TAXRICH	(3) HELPPOOR minus TAXRICH	(4) HELPPOOR minus TAXRICH
WHYPOOR: Both	0.080*** (0.017)	0.053*** (0.018)		
WHYPOOR: Circumstances	0.151*** (0.018)	0.077*** (0.018)		
WHYRICH: Both	0.030*** (0.011)	0.065*** (0.012)		
WHYRICH: Circumstances	0.009 (0.013)	0.138*** (0.014)		
WHYPOOR minus WHYRICH				0.104*** (0.014)
Age	0.000 (0.000)	0.002*** (0.000)	-0.001*** (0.000)	-0.001*** (0.000)
Male	-0.012 (0.011)	0.037*** (0.012)	-0.056*** (0.014)	-0.051*** (0.014)
Education in years	-0.008*** (0.002)	-0.001 (0.002)	-0.007*** (0.002)	-0.006*** (0.002)
Unemployed	0.113*** (0.020)	0.042* (0.022)	0.078*** (0.025)	0.071*** (0.025)
MonthlyY/1000	-0.012*** (0.003)	-0.025*** (0.005)	0.014*** (0.005)	0.014*** (0.005)
IncomeMissing	-0.029 (0.023)	-0.095*** (0.026)	0.060** (0.029)	0.061** (0.029)
Pensioner	-0.007 (0.016)	0.033* (0.017)	-0.040** (0.020)	-0.039** (0.020)
GDR	0.042*** (0.010)	0.042*** (0.010)	-0.010 (0.012)	-0.007 (0.012)

Happy	-0.012** (0.005)	-0.014*** (0.005)	0.003 (0.006)	0.002 (0.006)
Constant	0.853*** (0.111)	0.841*** (0.114)	-0.029 (0.130)	-0.118 (0.133)
Observations	5132	5140	5238	5113
R^2	0.072	0.086	0.028	0.039

* $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$. Numbers reported are OLS coefficients (robust standard errors in parentheses). Dependent variables, originally reported on a scale from 1 to 5, are rescaled here and throughout our analysis from 0 to 1. The omitted category for WHYPOOR and WHYRICH is effort. All hypotheses tests of Predictions 1-4 for coefficients on WHYPOOR: Circumstances and WHYRICH: Circumstances are statistically significant at the one-percent level. Predictions 3 and 4 were tested with a cross-model, same-sample Wald test using the STATA sureg command. Education indicates the number of years of education or training completed at the time of the survey. MonthlyY/1000 is gross labor income last month in euros divided by 1000. Gross labor income is generated for all SOEP respondents who are employed in a main job and imputed for individuals in this sub-sample who do not report income. IncomeMissing is a dummy for respondents who are not in the labor income sub-sample. Happy is the frequency of being happy in the last four weeks, on a scale of 1-5. Additional unreported controls include respondent height, respondent weight, dummies for no illness, married, having children, self-employed, and eight employment status categories.

Table 6. OLS Regressions of HELPPOOR and TAXRICH on Beliefs and Demographic Variables. 1998 U.S. Gallup Social Audit.

	(1) HELPPOOR	(2) TAXRICH	(3) HELPPOOR minus TAXRICH
WHYPOOR: Both	0.154*** (0.025)	-0.001 (0.025)	
WHYPOOR: Circumstances	0.253*** (0.015)	0.112*** (0.017)	
WHYRICH: Both	0.049* (0.026)	0.093*** (0.027)	
WHYRICH: Circumstances	0.068*** (0.015)	0.199*** (0.017)	
WHYPOOR minus WHYRICH			0.128*** (0.017)
Male	-0.046*** (0.014)	-0.100*** (0.015)	0.054*** (0.020)
Some college or more	0.030** (0.015)	-0.087*** (0.016)	0.126*** (0.021)
Union	0.047** (0.022)	0.117*** (0.024)	-0.066** (0.031)
\$10,000 - \$14,999	-0.018 (0.037)	-0.075 (0.046)	0.060 (0.056)
\$15,000 - \$19,999	-0.003 (0.035)	-0.060 (0.042)	0.051 (0.051)
\$20,000 - \$29,999	-0.029 (0.031)	-0.058 (0.037)	0.029 (0.045)
\$30,000 - \$49,999	-0.042 (0.030)	-0.081** (0.036)	0.033 (0.044)
\$50,000 - \$74,999	-0.053 (0.033)	-0.115*** (0.038)	0.056 (0.046)
\$75,000 - \$99,999	-0.084** (0.038)	-0.133*** (0.043)	0.030 (0.052)
\$100,000 - \$149,999	-0.047	-0.170***	0.116**

	(0.043)	(0.046)	(0.058)
\$150,000 or more	-0.065 (0.047)	-0.261*** (0.046)	0.189*** (0.061)
Age	-0.002*** (0.000)	-0.002*** (0.001)	0.000 (0.001)
White	-0.086*** (0.016)	-0.088*** (0.020)	-0.003 (0.025)
Full-time	-0.017 (0.016)	0.006 (0.017)	-0.025 (0.022)
Married	-0.019 (0.016)	-0.023 (0.017)	0.003 (0.022)
Child under 18 in household	0.017 (0.016)	0.004 (0.017)	0.012 (0.022)
Manager	0.004 (0.026)	-0.051** (0.025)	0.052 (0.034)
Rural	-0.012 (0.017)	0.019 (0.017)	-0.028 (0.023)
Happy	-0.018 (0.012)	-0.040*** (0.013)	0.022 (0.017)
Constant	0.786*** (0.048)	0.763*** (0.054)	0.043 (0.063)
Observations	4098	4194	4007
R^2	0.112	0.135	0.039

* $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$. Numbers reported are OLS coefficients (robust standard errors in parentheses). All of the dependent variables and regressors are dummy variables except for age and WHYPOOR-WHYRICH.

Table 7. Prior measures of beliefs in experiment on giving to welfare recipients

Original source of wording for question used in experiment	Question wording and responses as coded in data set (prior to standardization).	Spearman rank corr. coef. with offers (p-value)
Panel A: Target-specific beliefs		
Gallup (1998)	Which of the following more often explains why a person is poor: circumstances beyond his or her control = 0, both = .5, lack of effort on his or her part = 1.	-0.173 (0.038)
Katz-Hass (1989)	Most people who don't succeed in life are just plain lazy. Scaled from 1 (disagree strongly) to 5 (agree strongly).	-0.211 (0.011)
Katz-Hass (1989)	People who fail at a job have usually not tried hard enough. Scaled from 1 (disagree strongly) to 5 (agree strongly).	-0.159 (0.057)
NA	<i>First principal component of above questions in Panel A.</i>	<i>-0.2129 (0.010)</i>
Panel B: Non-target-specific beliefs		
Gallup (1998)	Which of the following more often explains why a person is rich: circumstances beyond his or her control = 0, both = .5, strong effort on his or her part = 1.	-0.122 (0.147)
Katz-Hass (1989)	Anyone who is willing and able to work hard has a good chance of succeeding. Scaled from 1 (disagree strongly) to 5 (agree strongly).	-0.110 (0.189)
Katz-Hass (1989)	The person who can approach an unpleasant task with enthusiasm is the person who gets ahead.	0.092 (0.274)
Katz-Hass (1989)	If people work hard enough they are likely to make a good life for themselves. Scaled from 1 (disagree strongly) to 5 (agree strongly).	-0.024 (0.773)
Gallup (1998)	There is plenty of opportunity in America today. Anyone who works hard can go as far as he or she wants. Scaled from 1 (disagree strongly) to 5 (agree strongly).	-0.075 (0.374)
NA	<i>First principal component of above questions in Panel B.</i>	<i>-0.057 (0.500)</i>

Table 8. Tobit regressions of dictator game offers to welfare recipients on target-specific and non-target-specific beliefs.

	(1)	(2)	(3)
Target-specific belief	-0.973*** (-2.89)		-1.070*** (-2.72)
Non-target-specific belief		-0.420 (-1.26)	0.169 (0.44)
Constant	1.943*** (6.11)	1.955*** (5.97)	1.940*** (6.08)
sigma			
Constant	3.730*** (9.49)	3.823*** (9.63)	3.731*** (9.48)
Observations	144	144	144

* $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$. Robust standard errors (in parentheses).

Appendix A: Surveys

Table A1. Variable names and exact wording of social survey variables in 1998 Gallup and 2014 SOEP data.

PANEL A: Questions from the 1998 Gallup Social Audit

WHYRICH_{Gallup}

Just your opinion, which is more often to blame if a person is rich –strong effort to succeed on his or her part, or luck or circumstances beyond his or her control? (Strong effort=1, Both=2, Circumstances beyond his/her control=3).

WHYPOOR_{Gallup}

Just your opinion, which is more often to blame if a person is poor – lack of effort on his or her part, or circumstances beyond his or her control? (Lack of effort=1, Both=2, Circumstances beyond his/her control=3).

TAXRICH_{Gallup}

People feel differently about how far a government should go. Here is a phrase which some people believe in and some don't. Do you think our government should or should not redistribute wealth by heavy taxes on the rich? (should =1, should not = 0).

HELPPoor_{Gallup}

Some people feel that the government in Washington, DC should make every possible effort to improve the social and economic position of the poor. Others feel that the government should not make any special effort to help the poor, because they should help themselves. How do you feel about this? (The government should help the poor =1, The poor should help themselves =0).

PANEL B: Questions written by us for the 2014 wave of the German Socio-economic Panel.

Q8201. I will now read out a series of statements. For each statement, please tell me whether you strongly disagree, disagree, neither agree nor disagree, agree, or strongly agree. (Response categories are: Strongly against; Somewhat against; Neither in favor nor against it; Somewhat in favor; Strongly in favor; Prefer not to answer/don't know.)

TAXRICH_{SOEP}

Taxes on those with high incomes in Germany should be increased.

HELPPoor_{SOEP}

Financial help to those with low incomes in Germany should be increased.

WHYPOOR_{SOEP}

Just in your opinion, if a working-age person's income is low in Germany, which is most often the reason - lack of effort on his or her part, circumstances beyond his or her control, or both? (Response categories are: Lack of effort; Circumstances beyond his/her control; Both; Prefer not to answer/don't know.) We code this variable to increase in the belief that luck matters.

WHYRICH_{SOEP}

Just in your opinion, if a working-age person's income is high in Germany, which is most often the reason - strong effort on his or her part, circumstances beyond his or her control, or both? (Response categories are:

Strong Effort; Circumstances beyond his/her control; Both; Prefer not to answer/don't know.) We code this variable to increase in the belief that luck matters.

Q8201. Ich lese Ihnen nun zwei Aussagen vor. Bitte sagen Sie mir jeweils, ob Sie dieser Aussage überhaupt nicht zustimmen, eher nicht zustimmen, weder zustimmen noch diese ablehnen, eher zustimmen oder voll und ganz zustimmen. (Response categories are: Stimme überhaupt nicht zu; Stimme eher nicht zu; Stimme weder zu noch lehne ich ab; Stimme eher zu; Stimme voll und ganz zu; Keine Angabe.)

Personen mit hohem Einkommen sollten in Zukunft stärker besteuert werden

Personen mit geringem Einkommen sollten in Zukunft mehr Sozialleistungen erhalten

Q8202. Was ist Ihrer Meinung nach meistens der Grund dafür, dass eine Person in Deutschland wenig verdient? Liegt das am mangelnden Einsatz der Person, an äußeren Umständen, die er oder sie nicht kontrollieren kann, oder an beidem? (Response categories are: Mangelnder Einsatz; Äußere Umstände; die er oder sie nicht kontrollieren kann; Beides; Keine Angabe.)

Q8203. Was ist Ihrer Meinung nach meistens der Grund dafür, dass eine Person in Deutschland viel verdient? Liegt das am hohen Einsatz der Person, an äußeren Umständen, die er oder sie nicht kontrollieren kann, oder an beidem? (Response categories are: Hoher Einsatz; Äußere Umstände, die er oder sie nicht kontrollieren kann; Beides; Keine Angabe.)

Table A2. Gallup data: Summary statistics for control variables.

Variable	Obs.	Mean	s.d.
Panel A – Dependent measures			
<i>HELPPOOR</i>	4704	0.694	0.461
<i>TAXRICH</i>	4832	0.450	0.498
Panel B – Beliefs measures			
<i>WHYPOOR</i>			
Both circumstances and lack of effort	4869	0.145	0.352
Lack of effort	4869	0.436	0.496
<i>WHYRICH</i>			
Both good luck and effort	4833	0.118	0.323
Effort	4833	0.561	0.496
Panel C – Control variables			
\$10,000 ≤ Y < \$15,000	4571	0.055	0.228
\$15,000 ≤ Y < \$20,000	4571	0.072	0.258
\$20,000 ≤ Y < \$30,000	4571	0.161	0.368
\$30,000 ≤ Y < \$50,000	4571	0.282	0.450
\$50,000 ≤ Y < \$75,000	4571	0.193	0.394
\$75,000 ≤ Y < \$100,000	4571	0.093	0.290
\$100,000 ≤ Y < \$150,000	4571	0.052	0.222
\$150,000 ≤ Y	4571	0.033	0.180
High school graduate	4959	0.267	0.442
Technical, trade, or business degree after high school	4959	0.052	0.221
Some college	4959	0.261	0.439
College degree	4959	0.145	0.352
Some post-graduate education or more	4959	0.159	0.366
White	4899	0.814	0.389
Male	4998	0.454	0.498
Age	4925	44.732	16.537
Employed part-time	4961	0.129	0.335
Not employed	4961	0.287	0.453
Suburban resident	5001	0.457	0.498
Rural resident	5001	0.238	0.426
Child under 18 living at home	4967	0.405	0.491
Married	4961	0.557	0.497

Note: All variables are dummy variables except age.

Appendix B: Moral Release Equilibrium

To show the possibility of moral release equilibrium in a simple setting, assume that there are no entitled rich, p is common knowledge and identical for everyone choosing between low and intermediate effort investment, $m_h = 0.5$, the rich are politically decisive, and they all have the same γ . If the economy is in an equilibrium in which everyone chooses either high or low effort investment, $b = t_h$ and the rich choose b to maximize

$$U^j = y_h - b - \gamma(0.5b^2 + 0.5b^2).$$

Differentiating and solving the first-order condition gives $b = -\frac{1}{2\gamma}$. Therefore, high-effort agents prefer to engage in regressive redistribution, but are restricted in this by their social justice considerations. Assume next that the alternative is to choose b and t_i optimally so that intermediate investment becomes optimal. In that case the government budget constraint implies $t_h = (1 - p)b - pt_i$. The utility of the rich is given by

$$U^j = y_h - (1 - p)b + pt_i - \gamma(0.5((1 - p)b - pt_i)^2 + 0.5(1 - p)(y_i - y_l - b)^2 + 0.5pt_i^2)$$

The first-order conditions are

$$\begin{aligned} -(1 - p) - \gamma[(1 - p)((1 - p)b - pt_i) - (1 - p)(y_i - y_l - b)] &= 0 \\ p - \gamma[-p((1 - p)b - pt_i) + pt_i] &= 0. \end{aligned}$$

The second-order conditions are satisfied, so the first-order conditions give the maximum utility. The second first-order condition yields

$$t_i = \frac{1 + \gamma(1 - p)b}{\gamma(1 + p)}.$$

Inserting this into the first first-order condition gives

$$-(1 - p) - \gamma \left[(1 - p) \left((1 - p)b - p \frac{1 + \gamma(1 - p)b}{\gamma(1 + p)} \right) - (1 - p)(y_i - y_l - b) \right] = 0.$$

Solving this gives

$$b = -\frac{1}{2\gamma} + \frac{(1 + p)(y_i - y_l)}{2}.$$

Inserting this into the solution for t_i gives

$$t_i = \frac{1}{2\gamma} + \frac{(1 - p)(y_i - y_l)}{2}.$$

Note that with these values, intermediate effort investment is optimal only with zero costs, while with any positive c the policies pursued by those expecting high incomes discourage investment in intermediate

effort. To show that the rich may want to actively discourage effort that could help the poor escape poverty, assume that $c=0$. In that case, the government budget constraint with the optimally chosen t_i and b gives

$$t_h = (1-p)b - pt_i = -\frac{1}{2\gamma} + \frac{(1-p)(y_i - y_l)}{2}.$$

Therefore, the transfer to those with high incomes is now smaller than without investment in intermediate effort. As for Ω , we have

$$\begin{aligned} \Omega = 0.5 & \left(-\frac{1}{2\gamma} + \frac{(1-p)(y_i - y_l)}{2} \right)^2 + \frac{p}{2} \left(\frac{1}{2\gamma} + \frac{(1-p)(y_i - y_l)}{2} \right)^2 \\ & + \frac{1-p}{2} \left(y_i - y_l + \frac{1}{2\gamma} - \frac{(1+p)(y_i - y_l)}{2} \right)^2. \end{aligned}$$

Simplifying gives

$$\begin{aligned} \Omega = 0.5 & \left(-\frac{1}{2\gamma} + \frac{(1-p)(y_i - y_l)}{2} \right)^2 + \frac{p}{2} \left(\frac{1}{2\gamma} + \frac{(1-p)(y_i - y_l)}{2} \right)^2 + \frac{1-p}{2} \left(\frac{1}{2\gamma} + \frac{(1-p)(y_i - y_l)}{2} \right)^2 \\ \Omega = \frac{1}{2} & \left(\frac{1}{2\gamma^2} + \frac{(1-p)^2(y_i - y_l)^2}{4} \right). \end{aligned}$$

Therefore, Ω is larger with intermediate effort investment than without it. As a result, a high-effort agent would prefer to prevent investment in intermediate effort even if it would be costless. This can be done by choosing prohibitively high taxes on intermediate incomes. If everyone chooses low effort investment, then they do not deserve more than low incomes.