Intergenerational Educational Mobility and Preferences for Redistribution in Europe*

Oğuz Öztunali† *Istanbul Bilgi University*

Orhan Torul‡ *Boğaziçi University*

Ufuk Serkan Yildirim§ *Boğaziçi University*

First Version: October 12th, 2018

This Version: October 12th, 2018

Abstract

In this paper, we study how preferences for redistribution vary at the individual level in Europe. Using survey data from a large set of countries, we empirically show that controlling for socio-economic and demographic characteristics, personal intergenerational educational movements play a decisive role in redistributive preferences: individuals with low education and those born to low-educated parents are more in favor of redistributing incomes. Matching subjects with their country-cohort-gender-specific intergenerational educational mobility estimates, we further show that individuals whose clusters faced better upward educational mobility prospects when growing up are more in favor of equalizing incomes. We offer a parsimonious economic model that accords with these empirical observations.

Keywords: *Redistributive Preferences, Social Mobility, Inequality, Equality of Opportunity*

JEL Classification: *I20, I24, J62*

*We would like to thank faculty at the Department of Economics, Boğaziçi University for their helpful comments and suggestions. Torul acknowledges financial support by Boğaziçi University Research Fund, grant number BAP 9081 and 13920. All remaining errors are ours.

†Address: Istanbul Bilgi University, Department of Economics, 34060 Eyüp, Istanbul, Turkey. E-Mail: oguz.oztunali@bilgi.edu.tr

‡Address: Boğaziçi University, Department of Economics, 34342 Bebek, Istanbul, Turkey. E-Mail: orhan.torul@boun.edu.tr

§Address: Boğaziçi University, Department of Economics, 34342 Bebek, Istanbul, Turkey. E-Mail: serkan.yildirim@boun.edu.tr

1 Introduction

Economic inequalities have become the center of attention both in academia and public policy debates over the recent decades.[1] Individual redistributive preferences matter for economic inequalities in modern democracies, particularly because of their subsequent implications on political outcomes and public policies.[2] In this paper, we study how preferences for redistribution vary at the individual level in Europe. Using survey data from a large set of countries, we empirically show that controlling for socioeconomic and demographic characteristics, personal intergenerational educational movements play a decisive role in shaping redistributive preferences: individuals with low education *and* those born to low-educated parents are more in favor of redistributing incomes. Matching subjects with their country-cohort-gender-specific realized intergenerational educational mobility estimates, we further show that individuals whose clusters faced better upward educational mobility prospects when growing up are more in favor of equalizing incomes. We offer a parsimonious economic model that accords with these empirical observations.

The literature on redistributive preferences is mainly twofold. The theoretical strand of literature mainly focuses on why continental European countries have more pronounced redistributive policies than the United States, despite their comparable economic performances and inclusive political democracies. A vast majority of this literature concentrates on the existence of multiple equilibria with respect to redistributive preferences, and Alesina and Glaeser (2004) categorize the possible sources of the Transatlantic differences into economic, political and behavioral foundations.[3]

The empirical strand of literature explores several dimensions of potential factors shaping redistributive preferences. The seminal work by Alesina et al. (2011) provides empirical evidence for individual-level determinants of preferences for redistribution, and shows that several socio-economic and demographic factors have significant predictive power over redistributive preferences, while intergenerational difference in years of schooling could also matter in the case of the United States.[4] Cojocaru (2014b) shows empirically that individuals' expectations of upward mobility reduce their preference for redistribution only when coupled with low risk aversion in the EU member states.[5] Krawczyk (2010)'s experimental results suggest that in the presence of only limited control over

[1] Among others, see Piketty (2014), Piketty (2015), Atkinson (2015), Stiglitz (2012), and Milanovic (2016) for recent advances in the study of economic inequalities.

[2] See Höchtl et al. (2012) and Rueda and Stegmueller (2015), among others.

[3] For some of the seminal works in this literature, see Piketty (1995), Bénabou (2000), Bénabou and Ök (2001), Saint-Paul (2001), Hassler et al. (2003), Alesina and La Ferrara (2005), Alesina and Angeletos (2005) and Bénabou and Tirole (2006).

[4] Alesina et al. (2011) show that some key individual-level variables effecting redistributive preferences are income, education, age, and race. They further show that an increase in educational mobility correlates positively with pro-redistributive policies. However, their mobility definition is confined to intergenerational difference in years of schooling, and their conclusions on the implications of intergenerational mobility stem only from their American subjects. For some examples of the recent frontier research on intergenerational mobility in the U.S., see Chetty et al. (2017), Chetty et al. (2018), Chetty et al. (2014), Chetty and Hendren (2018b), Chetty and Hendren (2018a), and for an elaborate discussion on the developments in intergenerational mobility, see Güner (2015), among others.

[5] Using survey data from a large number of transition economies, Cojocaru (2014a) further argues that inequality aversion is tied to fairness concerns.

outcomes, individuals demand higher redistribution. Corneo and Grüner (2002) empirically show that pecuniary self-interest is not the only force shaping redistributive preferences, and status effects and public values are also important at the individual level. Bavetta et al. (2017) also find that self-positioning in the society, social mobility background, parents' wealth and education are important determinants of perceived inequality. However, how these differences in perceived inequality translate into preferences for redistribution is not investigated by the authors. In a recent paper, Alesina et al. (2018) investigate how beliefs about intergenerational mobility affect preferences for redistribution in France, Italy, Sweden, the United Kingdom, and the United States, and conclude that Americans are more optimistic than Europeans about social mobility, as do Alesina and Glaeser (2004). Alesina et al. (2018) further show that pessimistic information about mobility increases support for redistribution, which varies notably over political polarization. Gimpelson and Treisman (2017) also investigate misperceptions on inequality and report that perceived inequality instead of actual inequality correlates strongly with demand for redistribution.

In this paper, we use a recent European Values Study (EVS) survey (in 2008) to study how preferences for redistribution vary at the individual-level in Europe.[6] Similar to the previous empirical literature, our cross-country estimations confirm that an individual's income and intergenerational educational movements correlate significantly with his preferences for redistribution: controlling for demographic factors, income and educational attainment correlate negatively with pro-redistributive preferences; and further controlling for income and education, those born to better-educated parents are asymmetrically less in favor of redistributing incomes. We next use World Bank's Global Database on Intergenerational Mobility (GDIM) dataset to match subjects in EVS with their realized country-cohort-gender-specific intergenerational educational mobility estimates, and show for the first time that individuals whose clusters faced better upward educational mobility prospects when growing up are more in favor of equalizing incomes. While novel and albeit contradictory some of the earlier findings in the literature, we show that our results are robust to the choice of intergenerational educational mobility measures, and accord with economic theory, for which we offer a parsimonious economic model in Appendix.

2 Data and Methodology

2.1 Data Description

The main data source we use is the EVS wave in 2008. Due to data availability, we restrict our working sample to 41 countries and 32,425 respondents.[7] The participants of the EVS survey were asked questions about demographics, moral, political, societal, work and family values. In this paper,

[6] European Values Study (EVS), World Values Survey (WVS) and International Social Survey Programme (ISSP) ask different yet similar questions to capture the individual's preferences for redistribution. Our choice for the EVS survey in 2008 is due to its extensive information about respondents and along with their parents, thereby enabling the scrutiny of the role intergenerational educational mobility in shaping redistributive preferences.

[7] For a list of countries, see Table A.1 in Appendix.

we focus on the question with the code `v198`, which asks respondents to declare their views on a 1-10 Likert scale ranging from "*incomes should be made more equal*" to "*there should be greater incentives for individual effort*".[8] The scale for the question is illustrated in Figure 1.

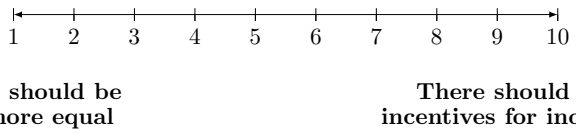

Figure 1: `v198` question card of EVS

The EVS dataset contains background information about parental education. In particular, the EVS re-codes parental education as 1-Lower, 2-Middle, 3-Upper via `International Standard Classification of Education` (`ISCED`) classification: Lower (1) if parent's education corresponds to `ISCED 0,1,2` levels (i.e. lower secondary education or below), Middle (2) if parent's education corresponds to `ISCED 3,4` levels (i.e. secondary and post-secondary education), and 3) Upper (3) if parent's education corresponds to `ISCED 5,6` levels (i.e. tertiary education or above). Using the 3-category classification of education levels, we define the *intergenerational educational movement* experienced by the respondent as a combination of his and his (better-educated) parent's education, e.g. $E = 3|P = 2$ pair referring to a university-graduate (3) descendant whose *better-educated* parent is a high-school graduate (2).[9]

As briefly discussed, we use World Bank's GDIM variables as proxy for historical upward mobility prospects faced by subjects as they grew up. We use three variables by GDIM for our purposes: 1-`IGP`: intergenerational persistence in education, i.e. the estimated correlation coefficient via intergenerational years of schooling regressions from microdata; 2-`MAcatM`: the absolute upward mobility probability measured as the probability of a descendant obtaining a higher education level than his parents or both the descendant and the parent to have the top education level; 3-`MAcatC1`: the (conditional) absolute upward mobility in education that measures the probability of a descendant surpassing his parent's education conditional on the parent not being in the top category (i.e. holding

[8] Earlier literature relies either directly on `v198` or questions with similar wording to `v198` in order to measure respondent's preference for redistribution. See Alesina et al. (2011) for the use of different wording to measure redistributive preferences, and Kerr (2014) and Winthrop et al. (2015) for the use of a question with almost identical wording (from WVS) to infer about preferences for inequality.

[9] For robustness purposes, we also re-do our estimations via a 2-category classification. As displayed in Table A.2, our results are robust to the choice of a more coarse categorization. The fact that parental education in EVS is reported only via a 3-category scale constitutes a binding constraint for finer intergenerational educational mobility definitions.

a tertiary education degree).[10] We match subjects in the EVS database with the intergenerational mobility variables by GDIM based on their country, gender and birth-year cohort (reported in decades by GDIM).

2.2 Methodology

In all our econometric specifications, we regress our dependent variable, preference for redistribution (`v198`) to a set of demographic and other control variables via ordinary least squares (OLS) regressions. Our control variables include country-fixed effects, demographic variables (age and sex), household income, intergenerational educational movement dummies, and subjects' country-cohort-gender-specific realized intergenerational educational mobility estimates. Our benchmark specification takes the following form:

$$y_i = \beta_0 + \beta_1 \text{Demographics}_i + \beta_2 \text{Country}_i + \beta_3 \log(\text{Income}_i) + \beta_4 \text{ Education}_i^{m,n} + \beta_5 \text{ GDIM}_i + u_i$$

where Demographics_i denotes the vector of demographic control variables (age and gender) for individual i, Country_i denotes the country-fixed dummy, $\log(\text{Income}_i)$ denotes the natural logarithm of PPP-adjusted household income, $\text{Education}_i^{m,n}$ denotes the vector of education dummy variables that take the value 1 for subject i whose education level is $n \in \{1, 2, 3\}$ and better-parent's education is $m \in \{1, 2, 3\}$ and 0 otherwise, GDIM_i denotes one of the three country-cohort-gender specific intergenerational educational mobility prospect estimate by GDIM, and u_i denotes the error term.[11,12]

3 Results

We report our main findings in Table 1. The five models we report in Table 1 vary over the inclusion of demographic controls, and the GDIM mobility prospect variables, respectively.[13] Our estimation

[10] For the calculations of the absolute mobility measures `MAcatM` and `MAcatC1`, GDIM uses a five-level categorization via `ISCED` definitions: 1-less than primary `ISCED 0`, 2-primary `ISCED 1`, 3- lower secondary `ISCED 2`, 4- upper secondary or post-secondary non-tertiary `ISCED 3-4`, and 5-tertiary `ISCED 5-6`. The literature on intergenerational mobility interprets intergenerational persistence as the inverse of upward mobility prospects, since a coefficient of 1 implies that on average descendants' years of schooling perfectly mimics parental years of schooling, a coefficient close to 0 suggests parental educational background exhibits no correlation with descendants' educational attainment, thus upward mobility is still possible for those born to low-educated parents. See Corak (2013) for further discussion on intergenerational income mobility.

[11] In our benchmark estimations, we keep age and gender as our demographic controls. We test for other potentially influential demographic variables, such as marital status or number of descendants, and omit them from our estimations after ensuring that they are not significantly correlated with our dependent variable.

[12] We cluster standard errors at the country level to correct for possible country-specific heterogeneities.

[13] Our estimation results indicate that the coefficient before age is insignificant (with a coefficient value lower than 0.002 in absolute magnitude) in all our specifications and the coefficient before gender (male dummy) is significant at $p = 0.01$ with a coefficient of 0.168 if one of the GDIM variables is controlled for, and 0.157 if not. We keep both variables as demographic controls despite their different significance levels so as to avoid omitted variable bias.

results reveal that in all our model specifications, the dependent variable `v198` increases over educational attainment of both descendants and their parents. In other words, our findings imply that controlling for other factors, those with lower educational attainment favor equalizing incomes more than their better-educated counterparts, and conditional on same educational attainment, those born to less-educated parents favor redistribution more. These findings are robust to the inclusion of additional controls and alternative specifications.[14]

Our findings further suggest the presence of notable asymmetries in the correlation between redistributive preferences and individual's educational attainment. In particular, contrary to the seminal work by Alesina et al. (2011) which reports relatively close estimates on the marginal effect of high school and university graduation for the United States and world-wide, our estimations suggest the marginal effect of university graduation to be considerably more sizeable than that of high school in the case of Europe.[15] In addition, our estimations suggest the presence of sizeable asymmetries in the effects of intergenerational educational movements, as well. For instance conditional on same educational attainment of the descendant, e.g. say high school degree, better-educated parent's completion of university (after high school graduation) marginally increases subjects' preferences by approximately 0.08 units. Conditional on same parental education, e.g. say high school degree again, university completion of subjects (after high school) marginally increases their preferences by approximately 0.23 units.[16] These findings contradict with estimation strategy by Alesina et al. (2011) who formulate intergenerational mobility *symmetrically* merely as the intergenerational difference in years of schooling.

Our cross-country estimation results verify that income correlates with redistributive preferences, as in accordance with economic theory. In particular, those subjects with higher (PPP-adjusted log) income levels are more likely to favor greater incentives for individual effort, and the marginal effect of income is highly significant and robust over alternative model specifications.

[14] Throughout our estimations in Table 1, we omit the dummy variables for low-educated individuals. We omit the dummy variable for $(E = 1|P = 1)$ to avoid perfect multicollinearity, and we omit the dummy variables for $(E = 1|P = 2)$ and $(E = 1|P = 3)$ due to their limited empirical frequency and linear dependancy. The inclusion of dummy variables for $(E = 1|P = 2)$ and $(E = 1|P = 3)$ results in insignificant coefficients, as we report in Table A.4.

[15] It is worthy to note that Alesina et al. (2011) rely on different datasets in their estimation: General Social Survey (GSS, all available data from 1972 to 2004) for the case of the United States and World Values Survey (WVS, waves 1-4: 1981-84, 1990-94, 1995-98, 1999-2004) for the cross-country estimations. Further, the wording of the GSS redistribution question they use is: *"Some people think that the government in Washington should do everything to improve the standard of living of all poor Americans. (1) Other people think it is not the government's responsibility, and that each person should take care of himself. (5) Where are you placing yourself in this?"*, whereas the wording of the WVS redistribution question they use asks subjects' to express their views over the scale: *"People should take more responsibility to provide for themselves (1) vs The government should take more responsibility to ensure that everyone is provided for (10)"*. Thus, both differences in the timing of surveys and differences in wording of questions to proxy for redistributive preferences might account for the differences in the estimated coefficients for the marginal effect of high school and college graduation.

[16] We report the average effects of high school and college graduation in our estimations on Table A.5.

Table 1: Regression Results for 9-category representation of educational mobility

Preference for Redistribution (`v198`)

Variables	Model 1	Model 2	Model 3	Model 4	Model 5
$E = 2 \mid P = 1$	0.154**	0.143**	0.154**	0.164***	0.165***
	(0.063)	(0.063)	(0.061)	(0.060)	(0.061)
$E = 3 \mid P = 1$	0.430***	0.427***	0.438***	0.452***	0.455***
	(0.096)	(0.096)	(0.095)	(0.094)	(0.094)
$E = 2 \mid P = 2$	0.252***	0.244***	0.251***	0.252***	0.252***
	(0.076)	(0.079)	(0.078)	(0.079)	(0.079)
$E = 3 \mid P = 2$	0.472***	0.472***	0.478***	0.485***	0.487***
	(0.084)	(0.086)	(0.085)	(0.085)	(0.085)
$E = 2 \mid P = 3$	0.339**	0.330**	0.337**	0.337**	0.337**
	(0.133)	(0.133)	(0.133)	(0.133)	(0.133)
$E = 3 \mid P = 3$	0.572***	0.572***	0.578***	0.585***	0.587***
	(0.108)	(0.109)	(0.109)	(0.109)	(0.109)
log(Income)	0.180***	0.176***	0.174***	0.173***	0.173***
	(0.059)	(0.059)	(0.059)	(0.059)	(0.059)
Intergenerational Persistence (`IGP`)			0.338**		
			(0.166)		
Cond. Abs. Upward Mobility (`MAcatC1`)				-0.573**	
				(0.219)	
Abs. Upward Mobility (`MAcatM`)					-0.696***
					(0.236)
Constant	4.806***	4.714***	4.566***	5.006***	5.112***
	(0.070)	(0.096)	(0.113)	(0.158)	(0.174)
Observations	32,425	32,425	32,425	32,425	32,425
R-squared	0.151	0.152	0.152	0.152	0.152
Demographic Controls	NO	YES	YES	YES	YES
Country FE	YES	YES	YES	YES	YES

Robust standard errors in parentheses

*** p<0.01, ** p<0.05, * p<0.1

In models 3 to 5, we add the GDIM mobility variables one by one in our estimations so as to unveil the role of country-cohort-gender specific intergenerational educational prospects faced by subjects as they grew up. Model 3 on Table 1 shows that subjects favor incentives for individual effort more when their country-cohort-gender specific clusters faced higher intergenerational educational persistence. Similarly, when we control for absolute and conditional absolute upward mobility prospects in Models 4 and 5, we report that higher upward mobility probabilities coincide with more leaning of subjects towards equalizing incomes.[17] Krawczyk (2010) shows in an experimental setting that when performance (as opposed to sheer luck) is more decisive in the determination of final outcomes, support for redistribution decreases. If subjects attribute intergenerational persistence in education

[17] Torul and Öztunalı (2017) show that at the country level, intergenerational educational persistence and upward mobility co-move negatively over time in Europe for cohorts born between 1940-1985. Thus, the fact that the coefficients before intergenerational educational persistence and upward mobility estimates have opposite signs signals the robustness of our estimation results.

to stem from performance, then that they favor redistribution less is in accordance with Krawczyk (2010)'s results. Krawczyk (2010) further discusses the possibility that equality of opportunity in a society could diminish support for redistribution. If intergenerational educational persistence can be considered a proxy for (the lack of) equality of opportunity, then our results contradict with Krawczyk (2010)'s conjecture.[18]

While these findings could stem possibly from psychological foundations, we show that these results are not at odds with economic theory, either. For this goal, we offer a 2-period parsimonious economic model in the Appendix. The proposed model elicits that 1) conditional on same parental educational background, those with higher educational attainment favor redistribution less (via lower most preferred tax rates); 2) conditional on same educational attainment, those born to better-educated parents favor redistribution less; and 3) an increase in intergenerational educational persistence can reduce average taxation most preferred tax rate (and the level of redistribution).

4 Conclusions

Preferences for redistribution have important implications for political outcomes and public policies. The previous literature studying individual-level determinants of redistributive preferences has shown that socio-economic and demographic characteristics such as age, gender, income, and education are important determinants of redistributive preferences. In this paper, we contribute to the literature by showing other significant factors that were not previously documented: intergenerational educational movements and intergenerational educational mobility prospects. Specifically, we show that *ceteris paribus* i) conditional on same educational attainment, those born to better-educated parents favor redistribution less, and ii) conditional on same intergenerational educational movements, those who grew up in less mobile environments favor redistribution less. We also offer a parsimonious model that accords well with our empirical findings.

There is severe intergenerational educational persistence in several European countries.[19] Under stark educational persistence, it is harder for individuals from low socio-economic backgrounds to attain tertiary education and surpass their parents' education, which is one of the primary means of upward social mobility. Our findings via utilizing GDIM's mobility prospect variables deliver some dismal news for the more persistent economies: individuals who grew up in less mobile environments favor equalizing incomes less. Our findings suggest that higher inequality could generate its own inertia via shaping preferences. In an era of increasing concerns over economic inequalities, further research on the sources and implications of the documented relationship is warranted.

[18] Krawczyk (2010) also shows that greater inequality of opportunity did not lead to higher redistribution in his experiments.

[19] See Narayan et al. (2018) and Torul and Öztunalı (2017) for different measures of intergenerational educational mobility estimates in Europe.

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Appendix

A Appendix Figures and Tables

Table A.1: Frequencies of Respondent Education Levels by Parental Education

	Parent: Lower			Parent: Middle			Parent: Upper			
Country \ Education	Lower	Middle	Upper	Lower	Middle	Upper	Lower	Middle	Upper	Mean of v198
Albania	39.1%	31.1%	9.1%	2.0%	7.3%	6.4%	0.2%	1.3%	3.5%	3.50
Armenia	11.6%	22.6%	3.1%	1.3%	30.1%	13.2%	0.3%	5.3%	12.5%	6.85
Austria	13.8%	24.1%	2.5%	4.0%	43.3%	6.7%	0.1%	2.4%	3.1%	1.41
Belarus	7.2%	25.5%	7.5%	0.6%	28.8%	17.2%	0.0%	3.9%	9.3%	5.47
Belgium	30.1%	21.2%	11.7%	2.3%	7.7%	12.4%	0.7%	2.4%	11.4%	4.98
Bosnia Herzegovina	23.6%	30.2%	3.4%	3.4%	26.4%	7.8%	0.3%	2.7%	2.3%	3.68
Bulgaria	23.9%	33.5%	4.0%	1.3%	20.2%	10.5%	0.1%	1.6%	4.9%	9.10
Croatia	24.1%	27.6%	5.7%	1.6%	20.7%	11.0%	0.4%	4.5%	4.4%	2.51
Cyprus	36.8%	37.7%	9.1%	0.2%	7.4%	6.4%	0.0%	0.2%	2.2%	3.63
Czech Republic	7.3%	16.5%	0.3%	4.1%	58.0%	9.3%	0.0%	2.1%	2.5%	2.63
Denmark	10.7%	12.8%	9.7%	6.8%	19.5%	17.7%	2.6%	6.3%	13.9%	8.37
Estonia	39.3%	20.5%	15.0%	5.0%	4.2%	5.6%	1.1%	3.2%	6.1%	5.88
Finland	8.1%	15.9%	29.2%	1.0%	8.4%	17.6%	0.5%	3.1%	16.2%	2.78
France	20.5%	30.1%	12.5%	0.8%	10.3%	11.9%	0.8%	3.7%	9.5%	3.91
Georgia	4.0%	12.7%	2.6%	1.0%	32.2%	21.3%	0.1%	5.1%	21.0%	8.98
Germany	7.3%	12.5%	2.9%	3.9%	44.8%	12.3%	0.3%	7.1%	8.7%	2.13
Great Britain	42.4%	11.5%	18.8%	2.4%	2.3%	4.2%	1.9%	4.2%	12.2%	3.90
Greece	44.2%	25.5%	9.9%	1.7%	7.5%	5.8%	0.5%	1.5%	3.2%	2.91
Hungary	21.1%	25.3%	3.2%	2.9%	30.9%	7.9%	0.2%	2.9%	5.5%	3.82
Iceland	11.2%	15.2%	9.2%	5.8%	20.3%	19.9%	1.3%	5.6%	11.4%	3.73
Ireland	38.6%	26.3%	13.5%	1.0%	6.4%	7.4%	0.2%	2.2%	4.4%	4.55
Italy	35.3%	34.5%	9.5%	0.8%	8.9%	6.1%	0.0%	1.9%	3.1%	5.91
Kosovo	19.2%	40.4%	8.1%	0.6%	16.6%	7.6%	0.3%	2.2%	4.9%	3.69
Latvia	13.4%	32.5%	10.1%	2.2%	18.6%	12.2%	0.7%	4.0%	6.2%	7.77
Lithuania	16.2%	24.1%	19.7%	1.1%	9.7%	13.8%	0.5%	3.3%	11.5%	5.04
Macedonia	20.1%	30.8%	7.8%	0.4%	17.1%	11.7%	0.2%	4.7%	7.3%	8.37
Moldova	19.4%	39.8%	7.9%	1.8%	17.5%	9.2%	0.0%	1.4%	2.9%	4.20
Montenegro	19.8%	28.1%	6.2%	1.5%	23.3%	10.2%	0.3%	4.2%	6.4%	6.41
Netherlands	36.3%	16.7%	18.4%	1.5%	4.8%	6.5%	0.9%	3.0%	12.0%	4.05
Norway	22.5%	19.0%	21.5%	2.1%	5.8%	11.8%	1.0%	4.2%	12.2%	5.23
Poland	14.8%	55.1%	7.7%	0.5%	9.6%	5.8%	0.1%	2.1%	4.3%	4.80
Portugal	76.7%	12.7%	5.5%	0.8%	1.2%	1.1%	0.3%	0.5%	1.2%	3.95
Romania	29.2%	37.7%	4.1%	2.2%	18.9%	4.7%	0.1%	0.9%	2.0%	2.19
Russian Federation	13.3%	28.8%	8.3%	1.7%	21.9%	12.6%	0.4%	3.8%	9.1%	7.45
Serbia	24.7%	27.3%	6.9%	1.7%	19.7%	9.5%	0.1%	3.7%	6.3%	3.53
Slovak Republic	18.5%	35.1%	2.4%	1.6%	32.4%	6.7%	0.0%	1.5%	1.9%	5.65
Slovenia	41.6%	23.1%	13.1%	2.0%	7.4%	5.7%	0.3%	1.8%	5.1%	1.77
Spain	48.9%	26.2%	9.8%	0.8%	3.0%	4.0%	0.8%	1.8%	4.6%	2.93
Sweden	18.2%	28.5%	19.4%	1.0%	9.9%	9.7%	0.3%	4.0%	9.0%	2.80
Switzerland	9.4%	16.0%	3.8%	3.1%	37.1%	13.9%	0.4%	5.8%	10.5%	2.98
Turkey	75.2%	13.3%	4.9%	1.5%	1.8%	1.4%	0.4%	0.4%	1.1%	3.60
Ukraine	10.3%	23.3%	14.7%	0.7%	16.1%	13.1%	0.2%	5.7%	16.1%	9.38
All Countries	25.8%	24.7%	9.0%	2.1%	17.9%	9.6%	0.4%	3.1%	7.2%	5.07

Notes: Table A.1 displays the within-country frequencies of respondents' education levels with along with their (better-educated) parent's education levels. The last column reports country averages by subjects for redistributive preferences.

Table A.2: Preference for Redistribution via 2-Category Mobility

Preference for Redistribution (v198)					
Variables	Model 1	Model 2	Model 3	Model 4	Model 5
$E = 2 \mid P = 1$	0.308***	0.312***	0.314***	0.319***	0.321***
	(0.066)	(0.067)	(0.067)	(0.067)	(0.066)
$E = 1 \mid P = 2$	0.165	0.156	0.156	0.151	0.151
	(0.120)	(0.121)	(0.121)	(0.120)	(0.120)
$E = 2 \mid P = 2$	0.420***	0.421***	0.420***	0.423***	0.425***
	(0.100)	(0.099)	(0.099)	(0.099)	(0.099)
log(Income)	0.199***	0.191***	0.190***	0.190***	0.189***
	(0.058)	(0.059)	(0.059)	(0.059)	(0.059)
Intergenerational Persistence (IGP)			0.282		
			(0.178)		
Cond. Abs. Upward Mobility (MAcatC1)				-0.512**	
				(0.232)	
Abs. Upward Mobility (MAcatM)					-0.638**
					(0.248)
Constant	4.918***	4.879***	4.761***	5.150***	5.253***
	(0.053)	(0.074)	(0.105)	(0.146)	(0.164)
Observations	32,425	32,425	32,425	32,425	32,425
R-squared	0.150	0.151	0.151	0.151	0.152
Demographic Controls	NO	YES	YES	YES	YES
Country FE	YES	YES	YES	YES	YES

Robust standard errors in parentheses

*** p<0.01, ** p<0.05, * p<0.1

Table A.3: Preference for Redistribution via 2-Category Education

Preference for Redistribution (v198)					
Variables	Model 1	Model 2	Model 3	Model 4	Model 5
$P = 2$	0.133*	0.127*	0.126*	0.122	0.122
	(0.075)	(0.074)	(0.074)	(0.074)	(0.074)
$E = 2$	0.300***	0.305***	0.306***	0.311***	0.313***
	(0.060)	(0.060)	(0.060)	(0.060)	(0.060)
log(Income)	0.199***	0.191***	0.190***	0.190***	0.189***
	(0.058)	(0.059)	(0.059)	(0.059)	(0.059)
Intergenerational Persistence (IGP)			0.282		
			(0.178)		
Cond. Abs. Upward Mobility (MAcatC1)				-0.512**	
				(0.232)	
Abs. Upward Mobility (MAcatM)					-0.638**
					(0.248)
Constant	4.919***	4.881***	4.763***	5.152***	5.255***
	(0.052)	(0.072)	(0.104)	(0.146)	(0.164)
Observations	32,425	32,425	32,425	32,425	32,425
R-squared	0.150	0.151	0.151	0.151	0.152
Demographic Controls	NO	YES	YES	YES	YES
Country FE	YES	YES	YES	YES	YES

Robust standard errors in parentheses

*** p<0.01, ** p<0.05, * p<0.1

Table A.4: Regression Results with Low-Educated Descendant Controls

Preference for Redistribution (v198)					
Variables	Model 1	Model 2	Model 3	Model 4	Model 5
$E = 2 \mid P = 1$	0.181***	0.171**	0.182***	0.192***	0.193***
	(0.066)	(0.067)	(0.064)	(0.064)	(0.064)
$E = 3 \mid P = 1$	0.457***	0.455***	0.466***	0.480***	0.482***
	(0.103)	(0.104)	(0.102)	(0.102)	(0.101)
$E = 1 \mid P = 2$	0.238*	0.240	0.242*	0.238	0.238
	(0.141)	(0.143)	(0.143)	(0.143)	(0.143)
$E = 2 \mid P = 2$	0.282***	0.278***	0.284***	0.285***	0.284***
	(0.076)	(0.080)	(0.080)	(0.080)	(0.080)
$E = 3 \mid P = 2$	0.501***	0.504***	0.511***	0.517***	0.519***
	(0.091)	(0.093)	(0.092)	(0.092)	(0.092)
$E = 1 \mid P = 3$	0.126	0.124	0.121	0.117	0.116
	(0.264)	(0.267)	(0.266)	(0.268)	(0.268)
$E = 2 \mid P = 3$	0.369**	0.363**	0.371**	0.370**	0.370**
	(0.137)	(0.137)	(0.138)	(0.137)	(0.138)
$E = 3 \mid P = 3$	0.601***	0.605***	0.611***	0.617***	0.620***
	(0.110)	(0.112)	(0.112)	(0.112)	(0.112)
log(Income)	0.179***	0.174***	0.173***	0.172***	0.171***
	(0.059)	(0.059)	(0.059)	(0.059)	(0.059)
Intergenerational Persistence (IGP)			0.340**		
			(0.166)		
Cond. Abs. Upward Mobility (MAcatC1)				-0.571**	
				(0.220)	
Abs. Upward Mobility (MAcatM)					-0.694***
					(0.237)
Constant	4.783***	4.675***	4.526***	4.967***	5.073***
	(0.074)	(0.102)	(0.117)	(0.167)	(0.184)
Observations	32,425	32,425	32,425	32,425	32,425
R-squared	0.151	0.152	0.152	0.152	0.152
Demographic Controls	NO	YES	YES	YES	YES
Country FE	YES	YES	YES	YES	YES

Robust standard errors in parentheses

*** p<0.01, ** p<0.05, * p<0.1

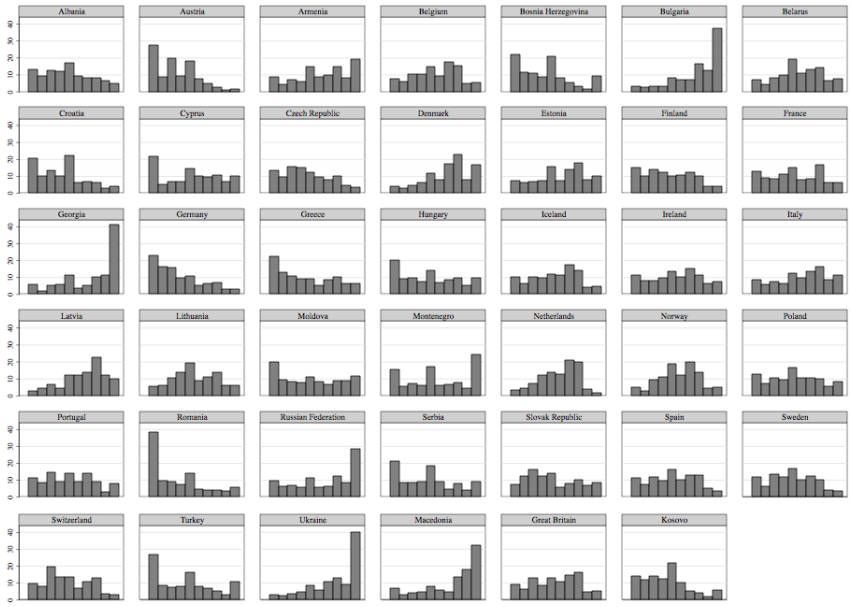
Table A.5: Regression Results without Intergenerational Mobility Controls

Preference for Redistribution (v198)					
Variables	Model 1	Model 2	Model 3	Model 4	Model 5
$P = 2$	0.098**	0.103**	0.099**	0.091**	0.090**
	(0.041)	(0.044)	(0.044)	(0.043)	(0.043)
$P = 3$	0.175**	0.179**	0.175**	0.167**	0.166**
	(0.081)	(0.082)	(0.082)	(0.081)	(0.081)
$E = 2$	0.170***	0.161**	0.171***	0.180***	0.181***
	(0.062)	(0.062)	(0.060)	(0.060)	(0.061)
$E = 3$	0.414***	0.413***	0.423***	0.436***	0.439***
	(0.078)	(0.078)	(0.077)	(0.076)	(0.076)
log(Income)	0.179***	0.175***	0.173***	0.172***	0.172***
	(0.059)	(0.059)	(0.059)	(0.059)	(0.059)
Intergenerational Persistence (IGP)			0.336*		
			(0.167)		
Cond. Abs. Upward Mobility (MAcatC1)				-0.566**	
				(0.222)	
Abs. Upward Mobility (MAcatM)					-0.689***
					(0.239)
Constant	4.794***	4.689***	4.542***	4.979***	5.084***
	(0.070)	(0.099)	(0.116)	(0.161)	(0.177)
Observations	32,425	32,425	32,425	32,425	32,425
R-squared	0.151	0.152	0.152	0.152	0.152
Demographic Controls	NO	YES	YES	YES	YES
Country FE	YES	YES	YES	YES	YES

Robust standard errors in parentheses

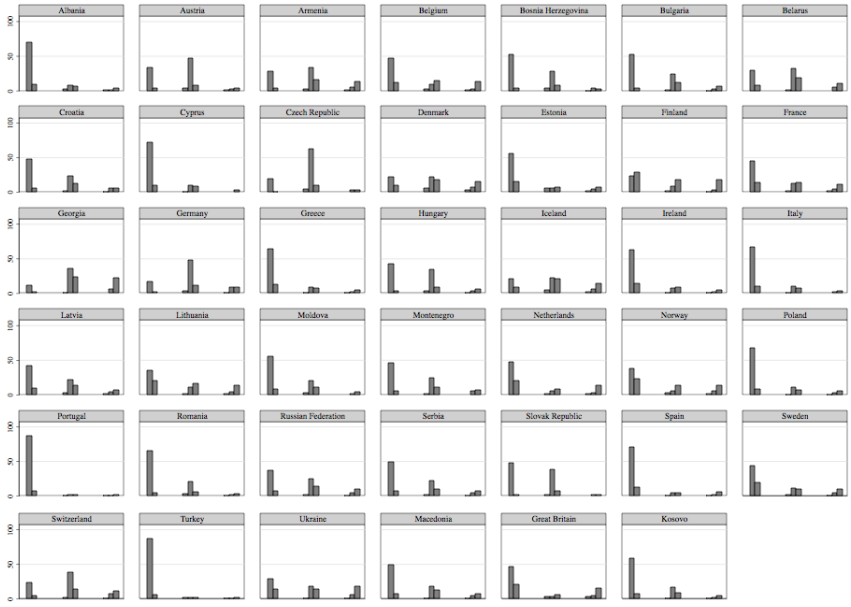
*** p<0.01, ** p<0.05, * p<0.1

Figure A.1: Distribution of Redistributive Preference Responses (`v198`) by Country



Notes: Figure A.1 displays the distribution of responses for redistributive preferences, as shown in Figure 1.

Figure A.2: Distribution of Intergenerational Educational Movements by Country



Notes: Figure A.2 displays the histogram of descendants' 3-category educational attainment (1: low; 2: medium, 3: high) conditional on 3-category parental education. The nine bars are respective frequencies (in %) of Parental Education and Descendant Education pairs: {1,1},{1,2},{1,3},{2,1},{2,2},{2,3},{3,1},{3,2},{3,3}, e.g. the sixth bar denotes the frequency of descendants who graduated from university (i.e. 3: higher) and whose *better-educated* parent is a high-school graduate (i.e. 2: middle).

Appendix B: A Parsimonious Model

Consider a two-period model environment, where each generation lives only for one period. Assume that each individual has one offspring. Assume further that there are only two types of individuals with regards to education: half of the population has *H*igh level of educational attainment (denoted by e_H), and the other half has *L*ow educational attainment (denoted by e_L). Assume that the total population is normalized to unity.

Suppose that intergenerational education follows a symmetric Markovian process $\Gamma(e_{t+1}|e_t)$ as follows:

$$\Gamma(e_{t+1}|e_t) = \begin{array}{c} \\ e_L \\ e_H \end{array} \begin{array}{c} \begin{array}{cc} e_L & e_H \end{array} \\ \begin{bmatrix} p & 1-p \\ 1-p & p \end{bmatrix} \end{array}$$

where $\Gamma(e_{t+1}|e_t)$ implies a conditional intergenerational educational persistence probability of p, and an intergenerational educational correlation coefficient of $2p-1$.

For the sake of simplicity suppose income is a (linear) product of education and constant inelastic labor supply $\bar{l}$, i.e. $y = e\bar{l}$ so that $y_L = e_L\bar{l}$ and $y_H = e_H\bar{l}$. Suppose that both high and low-educated individuals start the world with zero net asset positions, i.e. $a_0^L = a_0^H = 0$, where the superscript denotes education history, and the subscript denotes the period of the asset choice decision.

For the sake of further simplicity, suppose that there is no government intervention in the first period, and as such, there is no taxation, redistribution or provision of a public good. Assume further that agents in the first period expect the second period to be a *laissez-faire* economy with no government intervention, as well. Both low and high-educated agents are equally altruistic, and care about the well-being of their offsprings. Accordingly, the expected two-dynastic utility of households with the education level of e_1 is as follows:

$$V(e_1) = u(c_1) + \beta\, \mathbb{E}_1\left[u(c_2)\right]$$

where

$$\mathbb{E}_1\left[u(c_2)\right] = \begin{cases} p\ u(c_2^{LL}) + (1-p)\ u(c_2^{LH}) & \text{if } e_1 = e_L \\ p\ u(c_2^{HH}) + (1-p)\ u(c_2^{HL}) & \text{if } e_1 = e_H. \end{cases}$$

Period 1 budget constraint requires:

$$c_1^i + a_1 = a_0^i R + y^i$$

where $i \in \{L, H\}$, and R denotes the gross real interest rate. Period 2 budget constraint of the

low-educated households ($e_1 = e_L$) require:

$$\begin{aligned} c_2^{LL} &= a_1^L R + y_L \quad \text{if } e_2 = e_L \\ c_2^{LH} &= a_1^L R + y_H \quad \text{if } e_2 = e_H \end{aligned}$$

Similarly, period 2 budget constraint of the high-educated households ($e_1 = e_H$) require:

$$\begin{aligned} c_2^{HL} &= a_1^H R + y_L \quad \text{if } e_2 = e_L \\ c_2^{HH} &= a_1^H R + y_H \quad \text{if } e_2 = e_H \end{aligned}$$

Without loss of generality, suppose $\beta = R = 1$. Then, the Euler equation requires that:

$$u'(c_1) = \mathbb{E}_1\, u'(c_2)$$

holds. For the case of the low-educated household, optimal intertemporal allocation requires:

$$u'(c_1^L) = \mathbb{E}_1\, u'(c_2^L) = p\ u'(c_2^{LL}) + (1-p)\ u'(c_2^{LH})$$

Likewise, for the case of the high-educated household, optimality requires:

$$u'(c_1^H) = \mathbb{E}_1\, u'(c_2^H) = p\ u'(c_2^{HH}) + (1-p)\ u'(c_2^{HL})$$

Assuming logarithmic utility $u(c) = \log(c)$ for the sake of a closed-form solution, the optimal asset allocations implied by the Euler equation after ruling out negative values of consumption require:[20,21]

$$a_1^L(e_L) = \frac{p\,y_L - p\,y_H - y_L - y_H}{4} + \frac{\sqrt{[p(y_H - y_L)]^2 + (y_H - 3y_L)^2 + p(-10y_L^2 + 8y_H y_L + 2y_H^2)}}{4}$$

$$a_1^H(e_H) = \frac{p\,y_H - p\,y_L - y_L - y_H}{4} + \frac{\sqrt{[p(y_H - y_L)]^2 + (3y_H - y_L)^2 + p(-10y_H^2 + 8y_H y_L + 2y_L^2)}}{4}$$

Suppose, despite the expectations, the second period features a *government*, which collects taxes to finance redistribution and provides a public good. Specifically, the government taxes labor income

[20]The curious reader could verify that due to the strict concavity of the logarithmic utility function, the asset choices rank as $a_1^L(e_L) < 0 < a_1^H(e_H)$. This ranking is more evident when the utility function takes a quadratic form $u(c) = c - \frac{b}{2}c^2$, which requires $a_1^L(e_L) = \frac{(1-p)(y_L - y_H)}{2} < 0 < a_1^H(e_H) = \frac{(1-p)(y_H - y_L)}{2}$. Of course, the simplicity of the closed-form solution under the quadratic utility is due to the lack of precautionary savings when $u'''(c) = 0$. We proceed with logarithmic utility due to its desirable implications for the most preferred tax calculations.

[21]A natural prediction of the model, $a_1^L(e_L) < a_1^H(e_H)$ requires that conditional on same educational background, those born to better-educated parents are better off. We check if this conjecture of the model has support in the data: for the 41 countries in our sample, we compare whether average incomes of university graduates born to university-graduate parents are more than those who are born to parents with below-secondary school degrees. In 34 our of 41 countries, we verify this is indeed the case, the exceptions being Austria, Denmark, Greece, Ireland, Italy, Macedonia, and Norway.

(y_2) and asset holdings inherited from the previous generation a_2 at the same rate τ, and uses α fraction of the collected tax revenue for redistribution (hence equalizing incomes) and the remaining $1-\alpha$ fraction for the provision of a public good, over which all agents have identical preferences defined by $v(g)$.[22] Thus, after the introduction of the government, preferences of the second-generation households follow:

$$V(a_1, e_2) = u(c_2) + v(g)$$

where the public good also displays diminishing marginal utility, i.e. $v(g)$ satisfies $v'(g) > 0$ and $v''(g) < 0$.[23] After government's involvement via proportional taxation, redistribution and provision of a public good, the budget constraint of the household requires:

$$c_2 = (1-\tau)(a_1 + y_2) + r$$

where r refers to the rebate by the government.

Given the Markov chain transition probability matrix and that half of the previous generation is high and the other half is low-educated, the measure of the population with education histories $\{HH, HL, LH, LL\}$ are $\{\frac{p}{2}, \frac{1-p}{2}, \frac{p}{2}, \frac{1-p}{2}\}$, respectively. Accordingly, the total tax revenue by the government equals:

$$\mathcal{T} = \tau(\frac{a_1^L(e_L) + a_1^H(e_H)}{2} + \frac{y_H + y_L}{2}) = \tau(\overline{a_1} + \overline{y})$$

As discussed, suppose the government has to keep a balanced budget and allocates α fraction of the tax revenue for redistribution and the remaining $1-\alpha$ fraction to provision of a public good:

$$r = \alpha\mathcal{T} = \alpha\tau(\overline{a_1} + \overline{y})$$

$$g = (1-\alpha)\mathcal{T} = (1-\alpha)\tau(\overline{a_1} + \overline{y})$$

The most-preferred tax rate of the household with the asset position a_1 and labor income y_2 would then satisfy:

$$\max_{\{\tau\}} = u(c) + v(g) = u(\underbrace{[(1-\tau)(a_1 + y_2)]}_{\text{post-tax income \& asset}} + \underbrace{\alpha\tau(\overline{a_1} + y)}_{\text{redistribution } (r)}) + v(\underbrace{[(1-\alpha)\tau(\overline{a_1} + y))]}_{\text{public good } (g)})$$

Note that as common in the literature, the household internalizes the role of tax rate on his post-tax income, as well as on the rebate and the public good when deciding on his most-preferred tax rate.

[22] Our assumption that the first-generation agents expect no government presence in the second period is for the sake of simplicity: we introduce the first period only to construct intergenerational history and with wealth heterogeneity. Alternatively, if the first-generation agents expected a second-period tax rate $\check{\tau}$, possibly via a rational-expectations politico-economic equilibrium, then $a_1^L(e_L)$ and $a_1^H(e_H)$ would be distorted by $\check{\tau}$, and the absolute distance between $a_1^L(e_L)$ and $a_1^H(e_H)$ would differ, yet our qualitative conclusions would still carry through.

[23] We introduce a public good in order to ensure that most-preferred tax rate of the more-endowed and/or the better-educated households do not hit the corner solution, zero, and thus a ranking by interior solutions can be attained.

The interior solution to the above problem yields:[24,25]

$$\frac{v'(g)}{u'(c)} = \frac{a_1 + y_2}{(1-\alpha)(\overline{a_1} + \overline{y})} - \frac{\alpha}{1-\alpha}$$

Lemma 1. *Under logarithmic utility, conditional on same parental educational background, high-educated households prefer lower tax rates than their low-educated counterparts.*

Proof of Lemma 1. The closed-form solution for the most preferred tax rate when $u(c) = \log(c)$ and $v(g) = \log(g)$ is

$$\tilde{\tau}(a_1, y_2) = \frac{1}{2\left[1 - \alpha\left(\frac{\overline{a_1}+\overline{y}}{a_1+y_2}\right)\right]}$$

Assuming interior solution, $\tilde{\tau}(a_1^L, y_H) < \tilde{\tau}(a_1^L, y_L)$ and $\tilde{\tau}(a_1^H, y_H) < \tilde{\tau}(a_1^H, y_L)$ hold true based on the above solution closed-form solution. Accordingly, using the history notation, $\tilde{\tau}^{LH} < \tilde{\tau}^{LL}$, and $\tilde{\tau}^{HH} < \tilde{\tau}^{HL}$.

Lemma 2. *Under logarithmic utility, conditional on same educational attainment, households born to high-educated parents prefer lower taxes than their counterparts born to low-educated parents.*

Proof of Lemma 2. First, note that $a_1^H > a_1^L$ as long as $p < 1$. Assuming interior solution again, it is clear from the closed-form solution for the most-preferred tax rate that $\tilde{\tau}(a_1^H, y_H) < \tilde{\tau}(a_1^L, y_H)$ and $\tilde{\tau}(a_1^H, y_L) < \tilde{\tau}(a_1^L, y_L)$. Then, it immediately follows that, $\tilde{\tau}^{LH} < \tilde{\tau}^{HH}$, and $\tilde{\tau}^{HL} < \tilde{\tau}^{LL}$.

Lemma 3. *Under logarithmic utility, an increase in intergenerational educational persistence can raise average most-preferred tax rate in the economy.*

Proof of Lemma 3. First, note that under any conventional utility function with $u'(\cdot) > 0$ and $u''(\cdot) < 0$; $a_1^H(e_H) > 0 > a_1^L(e_L)$ holds. In addition, the third derivative of the utility function governs the level of the asset choices (thus also with their sum). If $u'''(\cdot) = 0$ as in the case of a quadratic utility function, $u(c) = c - \frac{b}{2}c^2$, asset choices satisfy:

$$a_1^L(e_L)^{\text{QUAD}} = \frac{(1-p)(y_L - y_H)}{2} < 0 < a_1^H(e_H)^{\text{QUAD}} = \frac{(1-p)(y_H - y_L)}{2}$$

Thus, $a_1^L(e_L)^{\text{QUAD}} + a_1^H(e_H)^{\text{QUAD}} = 0$. The reason for this result is clear: when $u'''(\cdot) = 0$, there is no impetus for *precautionary savings*, i.e. savings due only to the existence of uncertainty. As a result, households decide on their asset levels with only the intention to smooth their consumption over the two periods when their preferences can be represented by a quadratic utility function. When

[24] In order to ensure that even the high-endowed and high-educated individuals desire at least some taxation, the limiting condition $\lim_{g\to 0} v'(g) = \infty$ would suffice.

[25] Note that both the numerator $v'(g)$ and the denominator $u'(c)$ of the most-preferred tax equation are positive. Thus, for all households to have interior solution (over most preferred taxes $\tau \in [0,1]$), we assume that $\frac{a_1+y_2}{(1-\alpha)(\overline{a_1}+\overline{y})} > \frac{\alpha}{1-\alpha}$ and $\frac{a_1+y_2}{(1-\alpha)(\overline{a_1}+\overline{y})} < 1 + \frac{\alpha}{1-\alpha}$ for all possible values of a_1, and y_2.

$u'''(\cdot) > 0$ as in the case of most utility functions, the natural logarithm included, the precautionary impetus kicks in, and the low-educated household does not borrow as much as in the case with quadratic utility, $a_1^L(e_L)^{\text{QUAD}} < a_1^L(e_L)$. Also, the high-educated households saves up more than the amount under quadratic utility, $a_1^H(e_H)^{\text{QUAD}} < a_1^H(e_H)$. As a result, when $u'''(\cdot) > 0$, total assets in the beginning of the second period is strictly positive, $\overline{a_1} = \frac{a_1^H(e_H)+a_1^L(e_L)}{2} > 0$.

When intergenerational educational persistence p is higher (and above 0.5 so that intergenerational educational correlation $2p-1$ is non-negative as in the data), future income uncertainty of both types diminishes and the asset choices of both types get closer to zero: high-educated agents save less and low-educated agents borrow less. The rationale behind this behavior is that as a result of higher persistence, the descendant of the high-educated type is also more likely to receive a high draw, hence his parent has less motivation for bequeathing wealth than in the less-persistent case. Likewise, the descendant of the low-educated type is also more likely to receive a low draw, hence his parent does not borrow nearly as much in the low-persistence world in order to limit his descendant's debt burden. This negative relationship between intergenerational persistence and the absolute value of asset holdings is clearest under the case of the quadratic utility function, ($a_1^L(e_L)^{\text{QUAD}} = \frac{(1-p)(y_L-y_H)}{2}$ & $a_1^H(e_H)^{\text{QUAD}} = \frac{(1-p)(y_H-y_L)}{2}$) where asset holding decisions are free of precautionary savings. In the case logarithmic utility, the presence of precautionary impetus complicates asset choice decisions, which respond to an infinitesimal increase in persistence as follows:

$$\frac{d\ a_1^L(e_L)}{d\ p} = \frac{y_L}{4} - \frac{y_H}{4} + \frac{(y_H - y_L)\ (y_H + 5\,y_L + p\,y_H - p\,y_L)}{4\sqrt{[p(y_H - y_L)]^2 + (y_H - 3y_L)^2 + p(-10y_L^2 + 8y_H y_L + 2y_H^2)}}$$

$$\frac{d\ a_1^H(e_H)}{d\ p} = \frac{y_H}{4} - \frac{y_L}{4} - \frac{(y_H - y_L)\ (5\,y_H + y_L - p\,y_H + p\,y_L)}{4\sqrt{[p(y_H - y_L)]^2 + (3y_H - y_L)^2 + p(-10y_H^2 + 8y_H y_L + 2y_L^2)}}$$

The careful reader could confirm that 1) $\frac{d\ a_1^L(e_L)}{d\ p} > 0$ & $\frac{d\ a_1^H(e_H)}{d\ p} < 0$, and 2) $|\frac{d\ a_1^L(e_L)}{d\ p}| < |\frac{d\ a_1^H(e_H)}{d\ p}|$. In other words, when future uncertainty is lower (as a result of higher persistence, p), asset holdings get closer to zero, yet the drop in high-educated agent's saving is higher than the drop in low-educated agent's borrowing. Accordingly $|\frac{d\ \overline{a_1}}{d\ p}| < 0$, i.e. average asset holdings is lower when persistence is higher. Then, the closed-form solution for the most-preferred tax rate $\tilde{\tau}(a_1, y_2) = \frac{1}{2\left[1-\alpha\left(\frac{\overline{a_1}+\overline{y}}{a_1+y_2}\right)\right]}$ requires the most-preferred tax rates of those born to low-educated parents $\tilde{\tau}^{LL}$ & $\tilde{\tau}^{LH}$ to unambiguously decrease over persistence, since $\overline{a_1}$ decreases and $a_1^L(e_L)$ increases over p. In the case of those born to high-educated parents, the drop in $a_1^L(e_L)$ can be faster than the drop in $\overline{a_1}$, and most-preferred tax rates of those born to high-educated parents $\tilde{\tau}^{HL}$ & $\tilde{\tau}^{HH}$ can increase over p. Finally, higher in persistence induces distributional implications: when persistence is higher, the share of low-educated descendants born to low-educated parents, and the share of high-educated descendants born to high-educated parents ($\frac{p}{2}$ and $\frac{p}{2}$) are also higher, while the shares of descendants whose education differs from that of their parents ($\frac{1-p}{2}$ for both cases) are lower. As a result of these

rich interactions, average most-preferred tax rate, $\overline{\tilde{\tau}} \equiv \frac{p}{2}\ \tilde{\tau}^{LL} + \frac{1-p}{2}\ \tilde{\tau}^{LH} + \frac{p}{2}\ \tilde{\tau}^{HH} + \frac{1-p}{2}\ \tilde{\tau}^{HL}$ can decrease over intergenerational persistence, p.

In order to illustrate these important channels in action, we provide a numerical example. Suppose that we fix the parameter values as follows: $\alpha = 0.2; y_L = 0.5; y_H = 1.5$; and vary only intergenerational persistence in education. The model's predictions under two different persistence levels are then as follows:

Table B.1: Simulation Results

	a_1^L	$a_1^{L^{\text{QUAD}}}$	a_1^H	$a_1^{H^{\text{QUAD}}}$	$\overline{a_1}$	$\tilde{\tau}^{LL}$	$\tilde{\tau}^{HL}$	$\tilde{\tau}^{LH}$	$\tilde{\tau}^{HH}$	$\overline{\tilde{\tau}}$
$p = 0.70$	-0.058	-0.150	0.250	0.150	0.096	0.992	0.707	0.590	0.572	0.742
$p = 0.80$	-0.037	-0.100	0.190	0.100	0.077	0.934	0.727	0.586	0.573	0.734

Thus, higher intergenerational persistence in education raises average most-preferred tax rate in the model economy, as in accordance with our empirical findings.