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Abstract

We analyze if upward or downward mobility prospects affect individuals' willingness to pay higher taxes or give part of their income to: 1. improve the public health system, 2. improve public education, and, as a benchmark with previous literature, 3. help the needy. Individuals who expect to move up the socio-economic ladder, who, at the same time, are not too risk averse, are less willing to pay. Risk averse individuals who hold upward prospects, are, however, more willing to pay than individuals without any upward prospects. We also find some evidence in favor of a prospect of a downward mobility effect.

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Introduction

Most governments redistribute income using direct and indirect measures. Direct measures typically involve cash-in-hand transfers like unemployment benefits while indirect measures include public education and public healthcare systems.[3] Although the role of government in providing redistribution in most countries is substantial, interpersonal inequality persists, and large differences between countries exist.[4] Many factors have been put forward to explain the level of redistribution within countries, for example: disparities in gross incomes, culture and institutions, perceptions of fairness, and individual preferences and beliefs (e.g., Alesina et al. 2001; Durante et al. 2014; Fong 2001; Meltzer & Richards 1985). While a substantial literature investigates what drives preferences for direct redistribution, see also below for the specific Prospects of Upward Mobility (POUM) literature, other literatures study what drives support for public education and public healthcare.

In the long run, public education and public healthcare is sustainable only if citizens are willing to finance it through either taxes or direct payments (He 2016; Thomson et al. 2010). Understanding the extent of public support to public healthcare and education is therefore critical. Consequently, identifying the factors that influence the willingness to pay for them currently stands at the center of political discussion and health research (Habibov et al 2017; Footman et al. 2013; Missinne et al. 2013). Our study contributes to the literature on public support for public healthcare (e.g., Habibov 2017; Jensen and Petersen 2017; Ogundeji et al. 2019; Tambor et al. 2014) as well as that for public education (e.g., Cattaneo and Wolters 2009; Hilber and Mayer 2009; Gertler and Glewwe 1990; Poterba 1998). This paper connects these literatures with the POUM literature by investigating whether income mobility prospects affect individuals' willingness to pay for public health systems and public education systems.[5] To our knowledge we are the first to do so.

Public healthcare and public education, apart from providing these services, also redistribute income. Van Doorslaer et al. (1999) and Wagstaff et al. (1999) show, using comparisons of GINI coefficients pre- and post-taxes and transfers devoted to healthcare, that public healthcare systems redistribute income from high income groups to low-income groups. A similar type of redistribution takes place with public education systems. If public education is financed primarily via income taxes, then the progressivity of most tax systems means that high-income households will be contributing more than low-income households. Additionally, high-income households may be less likely to use the public education system to the fullest extent. Instead, they are more likely to make use of private education while paying progressive income taxes. Herrington (2015) finds that differences in public education and labor taxes partly account for differences across countries in income inequality and

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[3] We label public education and public health as *indirect* means of redistribution because their primary aim is to provide the services in question; redistribution is a bi-product thereof.

[4] Social protection expenditures relative to GDP in 2017 were: 18.3% in Bulgaria, 15.25 in Romania, 22.3% in Slovenia, 31.6% in Germany and 26.6% in Greece (Source: Eurostat). The GINI coefficient on equivalized disposable income in 2019 was: 40.8 in Bulgaria, 34.8 in Romania, 23.9 in Slovenia, 29.7 in Germany and 31,0 in Greece (Source: Eurostat).

[5] If positive externalities of public education and public healthcare exist, a pure market-based system to provide these services may lead to a sub-optimal level of health and education in the population (Poterba 1996). If large parts of the population hold prospects of upward mobility and therefore oppose public provision of these services, this could cause a significant welfare loss.

intergenerational earnings persistence. Saint-Paul and Verdier (1993) show that redistribution via public education may increase both economic growth and economic equality.

The theoretical background of the POUM literature rests on the work of Benabou and Ok (2001).[6] They show in a rational-expectations framework that people with below mean incomes may be against redistribution if they expect to transition upward on the income ladder in the future. This prediction rests on two premises. First, the dampening effect of prospects of upward mobility on preferences for redistribution among the currently less well-off only holds for individuals that are not too risk averse. Otherwise, these individuals may prefer redistribution to insure themselves against the outcome when the expectation of moving upwards in the future does not materialize. Second, the effect only holds for redistribution schemes that are expected to persist into the future. Otherwise, future taxable income would not be affected by the schemes, and prospects for upward mobility would be irrelevant. Theoretically, the reverse also holds. People with above mean incomes today who expect to have below mean incomes in the future may support redistributive schemes that persist into the future. This effect should hold particularly for individuals who are risk averse.

A considerable empirical literature confirms that prospects of upward mobility determine individual preferences for redistribution. This literature unanimously finds that expected upward income mobility leads to less support for redistribution, either unconditionally or conditionally on other factors like political beliefs, perceptions of fairness, etc. This consensus holds for studies focusing on objective mobility, subjective expectations of mobility, perceptions of mobility and those focusing on intra- and\or intergenerational mobility. Most of these use survey designs to test the POUM hypothesis (Alesina and Guiliano 2011; Alesina and La Ferrara 2005; Andreoli and Olivera 2020; Buscha 2012; Cojocaru 2014; Corneo and Gruner 2000; Lameris et al. 2020; Rainer and Seidler 2007; Ravallion & Lokshin 2000), while a few use experimental or mixed approaches (Agranov and Palfrey 2020; Alesina et al. 2018; Checchi and Filippin 2004).

One aspect that all of these POUM studies have in common is that they elicit preferences for redistribution without specifying the type of the redistributive policy instrument.[7] The type of questions used to measure preferences for redistribution considers, in general terms, whether the gap between the poor and the rich should be reduced (e.g., Cojoaru 2014) and sometimes specific information about how the gap could be reduced, i.e., by increasing taxes (e.g., Alesina and La Ferrara 2005; Lameris et al. 2020). However, to our knowledge, no study considers the impact of prospects for upward mobility on preferences for *indirect* redistribution, for example, through public healthcare or public schools. This is our main contribution to the POUM literature.

On the one hand, this type of redistribution may be more acceptable than what is implied by previously used survey questions on preferences for redistribution. It does not imply a direct transfer of income like a transfer via unemployment benefits would. Therefore, individuals may be more inclined to support this type of redistribution since it also implies helping deserving individuals, for example, ill people (see Jensen & Petersen 2017). Additionally, some scholars argue that merit goods are more

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[6] Their work builds on the theoretical work of Hirschman and Rothschild (1973), Putterman (1996), and Roemer (1998).

[7] Experimental studies also do not specify the type of redistribution in question. Agranov and Palfrey (2020), for example, vary the degree of income mobility and tax persistence to identify whether that affects the preferred tax rate.

acceptable instruments for redistribution partly due to the alleged positive externalities that are generated if such goods are provided to the general public; see Musgrave and Musgrave (1989).

On the other hand, the type of question we use to elicit preferences for redistribution are of the 'willingness-to-pay' type.[8] This is contrary to previous studies that generally employ questions that possibly trigger answers that are mostly influenced by expressive and/or altruistic motivations. Particularly when the survey question is silent about how redistribution should be paid for and achieved in practice. Willingness-to-pay questions have the advantage that they make clear to the survey respondent that an increased level of the public services in question, and thereby also the resulting redistribution, will have to be financed by individual contributions, taxes, or direct payments. This is something that has been less directly stated or even omitted in many previous survey questions about preferences for redistribution.

Our data is from the 3rd wave of the Life in Transition Survey (LiTS3). It provides data from 34 Eurasian countries including western European countries, former Eastern-bloc countries, Russia, Turkey, and several central Asian countries. The LiTS3 offers several improvements over earlier waves. First, it contains questions that ask respondents to report on the past, present, and expected future position on the income ladder in their respective country. This allows us to identify the relevant (reverse) POUM individuals and their expected jumps on the income ladder. Second, the dataset contains 'willingness-to-pay' type questions about preferences for increased contributions to public healthcare and public education. This captures the preferences for *indirect* redistribution in which we are interested. Third, the dataset contains information about risk preferences that allows us to capture the POUM effect as originally formulated by Benabou and Ok (2001, p. 2). This is absent in many empirical POUM studies (e.g., Alesina and La Ferrara 2005; Corneo and Gruner 2000; Alesina et al. 2018). Additionally, the data allows us to include a large set of socio-economic\demographic controls like health status and number children in the household.

We find that prospect of upward mobility affects the willingness to pay for public education and public health systems. By exploiting the variation in upward prospects within the POUM group, we find that individuals who expect income increases large enough to move them into the POUM group, who, at the same time, are not too risk averse, are less willing to pay. This finding imply that survey respondents recognize the redistributive features of the public services in question. Otherwise, mobility prospects should not play a role in explaining the willingness to pay for these services. However, risk averse individuals in the POUM group are more willing to pay, especially if they expect modest upward transition. These patterns hold when using a willingness-to-pay question about help to the needy, which is closer to what some previous POUM studies have used (e.g., Corneo and Gruner 2000). The findings underscore that mobility prospects are important in shaping preferences for public education and public health systems. This is an important finding as there are substantial differences between countries in providing these services. If large parts of the population in a country hold (subjective or objective) upward mobility prospects and at the same time are not too risk averse, this could lead to an under-provision of these services. This could be the case if POUM individuals form

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[8] Willingness-to-pay type questions are also not without issues; see Olsen et al. (2004). More discussion on this is in section 2.

political coalitions with individuals at the higher end of the income distribution. This potentially can decrease economic welfare of a country as a whole and for weak groups and individuals in particular. However, we also find some evidence of a reverse POUM effect.[9] Downward mobility prospects seem to affect the willingness to pay for public education and health systems. This potentially cancels the aggregate effects of upward mobility prospects on preferences for redistribution.

Section 2 explains the data and our empirical strategy. Section 3 reports the results of the empirical analysis while section 4 provides a robustness analysis. Section 5 concludes.

2. Data & empirical strategy

The analysis in this paper relies on data from the third round of the Life in Transition Survey (LiTS3) run by the European Bank for Reconstruction and Development (EBRD) in collaboration with Transparency International and the World Bank. The survey was conducted at the end of 2015 and in the beginning of 2016. It provides data from 34 Eurasian countries including western European countries, former Eastern-bloc countries, Russia, Turkey, and several central Asian countries; see Table 1 for a complete list. In each country, the sample was stratified by geographical region and level of urbanity; 75 Primary Sampling Units (PSUs) were selected. Aiming for 1,500 household responses per country, on average, 20 households had to be visited in each of the selected PSUs.[10] In each selected household, up to three respondents were interviewed, and the primary respondent was selected randomly from eligible respondents in the household that were interviewed. A household was defined as "a group of individuals who live together, put resources in common, and share meals".[11]

To identify the (reverse) POUM individuals, we used two questions from the LiTS3. These questions relate to a respondent's current and expected future position on the income ladder. Question 1: "Please imagine a ten-step ladder where, on the bottom, the first step, stand the poorest 10% people in our country and, on the highest step, the tenth, stand the richest 10% people in our country. On which step of the ten is your household today?". Question 2: "Where on the ladder do you believe your household will be four years from now?". Notice that for the first question we cannot formally distinguish whether this capture subjective or objective current income placement. Some individuals may know the current household income distribution in their country and hence be able to objectively place their household on that distribution. Others though, may place themselves on this scale based on some subjectively selected reference group. Most individuals may have a fairly accurate idea of whether their household income is close to the country average, or above or below. But placing themselves on one of the ten steps specifically will in many cases involve a degree of subjective judgement. A similar discussion applies for question 2. Although this question contains a subjective judgement of the future position on the household income distribution, this may also to some degree be based on objective judgements. For example, objective judgements because of expected effects of private investments in human capital

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[9] This is in line with Ravallion & Lokshin (2000) who find evidence in favor of what we call the reverse POUM effect using Russian survey data.

[10] The survey was designed as a multi-stage random probability stratified clustered sampling, where the sample was stratified by geographical region and level of urbanity. Therefore, we cluster standard errors at the PSU level, as it is reasonable to expect that the sampling is correlated within each of these groups; see Cameron & Miller (2020).

[11] The details of the sampling methodology can be found at: http://www.ebrd.com/documents/oce/pdf-life-in-transition-iii.pdf

or entrepreneurial ideas, see Benebou and Ok (2001) and the discussion in Alesina and La Ferrara (2005). We do not believe this issue has major consequences for our findings. Regardless of whether the placement on the scales is subjective or objective, they are still a main driver of preferences for redistribution.

We follow Cojocaru (2014) and begin by categorizing the respondents into four groups. The groups are defined in the following way. The Poor-Poor (PP) consists of individuals who currently have below average household incomes and expect to have below average household incomes four years from now. Poor-Rich (PR), aka the POUM group, are individuals who currently have below country average household incomes and expect to have above average household incomes four years ahead. The Rich-Rich (RR) are individuals who currently have above country average household incomes and expect to have above average household incomes four years ahead. Rich-Poor (RP), aka the reverse POUM group, are individuals who currently have above country average household incomes and expect to have below average household incomes four years ahead.

Table 1 shows the distribution of households in the 4 groups over the countries in our sample. It stands out in Table 1 that the POUM (PR) group is, by far, the smallest group. A weak test of the POUM hypothesis on the willingness to pay for public education and public healthcare entails testing whether individuals in the POUM group are less likely to be willing to pay for these public services compared to all other groups. A strong test of the hypothesis entails comparing the POUM group to the most relevant comparison group, namely, the poor-poor group. A strong test of the reverse POUM hypothesis thus entails comparing the rich-poor group to the rich-rich group. In the results section, we perform these strong tests of the hypotheses.

Table 1: Mobility categories by country

	Poor-Poor	Poor-Rich	Rich-Rich	Rich-Poor
Albania	.46	.02	.27	.25
Armenia	.69	.04	.12	.14
Azerbaijan	.44	.1	.19	.28
Belarus	.54	.07	.23	.16
Bosnia and Herz.	.55	.03	.29	.14
Bulgaria	.69	.02	.16	.12
Croatia	.59	.04	.23	.13
Cyprus	.77	.04	.12	.08
Czech Rep.	.65	.04	.22	.09
Estonia	.7	.02	.17	.11
FYR Macedonia	.57	.04	.23	.15
Georgia	.64	.02	.09	.25
Germany	.42	.02	.37	.19
Greece	.75	.15	.07	.04
Hungary	.67	.04	.19	.1
Italy	.38	.08	.48	.05
Kazakhstan	.57	.02	.17	.25
Kosovo	.48	.02	.18	.32
Kyrgyz Rep.	.39	.01	.2	.39
Latvia	.68	.02	.15	.15
Lithuania	.74	.01	.12	.13
Moldova	.69	.04	.13	.15
Mongolia	.54	.01	.07	.38
Montenegro	.51	.02	.3	.17
Poland	.47	.02	.43	.08
Romania	.65	.03	.21	.11
Russia	.57	.05	.28	.1
Serbia	.5	.04	.28	.17

Slovak Rep.	.57	.02	.32	.09
Slovenia	.75	.04	.14	.07
Tajikistan	.45	0	.17	.38
Turkey	.38	.1	.41	.1
Ukraine	.67	.05	.15	.12
Uzbekistan	.23	.01	.22	.54
Overall	.57	.04	.22	.17

Notes: based on the full sample

A drawback of using groups as described above in a pure dummy variable formulation is that we do not exploit all of the available variation in the data. Therefore, we refine our approach such that it allows both a comparison of the relevant groups but also takes the variation within the (reverse) POUM group into account. If a respondent belongs to the (reverse) POUM group, we can calculate their expected movement up (down) the income ladder by subtracting their expected future placement on the economic ladder from their current placement on it; see Tables 2 and 3. That way, we obtain a measure for how far the (reverse) POUM respondent expects to jump up (down) the ladder. The idea is that individuals that expect large jumps up (down) the income ladder that puts them into another group may increasingly be less (more) willing to pay for public education and public health systems. Even with a flat tax rate, individuals with higher incomes pay more taxes.

Table 2: Transition matrix, current and future income ladder placement

Current ladder	Future ladder										
	1	2	3	4	5	6	7	8	9	10	Total
1	1148	181	99	45	66	13	9	4	3	17	1585
2	592	1311	479	226	137	44	17	15	6	14	2841
3	364	991	2582	1207	787	309	133	64	11	32	6480
4	123	354	1102	3058	1953	1007	387	170	34	51	8239
5	125	158	562	1366	5739	2606	1610	682	147	243	13238
6	19	25	111	292	748	2252	1406	744	174	108	5879
7	14	12	23	70	211	398	1400	789	308	125	3350
8	6	9	9	20	25	93	188	648	279	141	1418
9	2	2	2	2	5	8	22	53	152	94	342
10	2	2	3	4	6	2	5	11	19	186	240
Total	2395	3045	4972	6290	9677	6732	5177	3180	1133	1011	43,612

Notes: based on the full sample

Table 2 shows the distribution matrix of household's position on the current and expected future income ladder, within the respondent's country. Most households report to have close to mean incomes on the current ladder and expect to remain so in the future. Table 3 shows the distribution of our continuous and dummy POUM variables. Most respondents expect no transition up (down) the income ladder in the future that would be large enough for their household to make it to another group, i.e., from the PP group to the PR group (from the RR group to the RP group). Table 3 also makes clear that a pure dummy variable formulation of our test ignores a substantial amount of variation in the jumps that POUM households expect to make.

Table 3 – continuous POUM variable

Panel A – (reverse) POUM variable continuous							
Jump on welfare ladder	Freq.	Percent	Cum.	Jump on welfare ladder	Freq.	Percent	Cum.
0	35,982	82.51	82.51	-9	2	0.00	0.00
1	2605	5.97	88.49	-8	4	0.01	0.01
2	2616	6.00	94.48	-7	11	0.03	0.04
3	1378	3.16	97.64	-6	29	0.07	0.11
4	494	1.13	98.78	-5	48	0.11	0.22
5	371	0.85	99.63	-4	73	0.17	0.38
6	86	0.20	99.83	-3	206	0.47	0.86
7	42	0.10	99.92	-2	503	1.15	2.01
8	17	0.04	99.96	-1	748	1.72	3.72
9	17	0.04	100.00	0	41,984	96.28	100.00
Panel B – dummy (reverse) POUM variable							
In POUM group	Freq.	Percent	Cum.	In reverse POUM group	Freq.	Percent	Cum.
0	35,982	82.51	82.51	0	41,984	96.28	96.28
1	7626	17.49	100.00	1	1624	3.72	100.00

Note: Panel A shows the continuous (reverse) POUM variable which is 0 if a respondent does not belong to the (reverse) POUM group and takes on a value >0 if a respondent belongs to the (reverse) POUM group, the value indicating the number of step up (down) the ladder the respondent sees him or herself in 4 years from now. Panel B shows the dummy (reverse) POUM variable which is equal to 1 if the respondent belongs to the (reverse) POUM group and 0 otherwise.

For a moment, ignore the fact that individuals' risk preferences are crucial for identifying the POUM effect. Our test of the POUM hypothesis is based on yes\no questions that specifically ask survey respondents to report on the following: "would you be willing to give part of your income or pay more taxes if you were sure that the extra money was used to…". "(1) - improve public education; (2) – improve public health system; (3) – help the needy". Numbers 1 and 2 specifically address potential *indirect* transfers from the respondent through merit goods to receivers of public education and healthcare while 3 addresses potential *direct* transfers aimed at reducing the income gap by helping the needy.[12] Our approach thus allows us to test whether the POUM effect is present concerning *indirect* redistribution via merit goods, but also whether differences exist between the effect of POUM on preferences for *indirect* and *direct* redistribution when elicited using willingness-to-pay type questions.

Willingness to pay (WTP) for public health or public education systems signify whether an individual is in favor of a given policy. Ex ante willingness to pay formulations for such policies can take two forms, either insurance-based or taxation-based. Olsen et al. (2004) refer to the latter as a community-based approach to elicit WTP for public healthcare and show that this approach leads to different valuations than the insurance-based approach. The former approach represents a contract between the insured and the insurer, and the potential beneficiary is the only insured entity. The latter approach may provide benefits to other people beyond or even instead of the payer. Hence, a community-based framing may activate preferences for fellow citizens' improved access to health care or education in addition to the private benefits from the program and therefore lead to higher WTP than the insurance approach. The WTP questions that we used are of the community type as the insurance type would be unable to elicit preferences related to the POUM hypothesis.

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[12] Also, the word 'improved' in 1 and 2 is important as it implies payments to education and health above and beyond the status quo.

A drawback of WTP-type questions in this setting is that people at the lower end of the income distribution who expect to remain there in the future may interpret the question as if they will be paying more without getting it back via redistribution from the well-off. People with above mean incomes typically pay relatively more via tax contributions depending on the progressivity of the tax system and the redistributive effect of the type of system in question. In our setup, such an interpretation by the poor-poor would dampen the POUM effect since the difference between the poor-poor and the poor-rich will be smaller. If anything, this leads to an underestimation of the POUM effect in our setup.

Risk preferences in the POUM context are crucial since individuals in the (reverse) POUM group may not prefer (more) less redistribution than individuals in the relevant comparison group. Prospects of upward mobility are based on an expectation, and this expectation may not materialize. Therefore, risk averse individuals in the POUM group will be likely to prefer a level of redistribution closer to that of the comparison group whereas individuals with a high level of risk appetite will not demand such insurance and therefore prefer a lower level of redistribution. The opposite holds for individuals in the reverse POUM group. Very risk averse individuals in this group may prefer more redistribution than individuals who expect to remain rich in the future to further ensure themselves against expected downward transition. We elicit risk preferences using the following LiTS3 question: "Please rate your willingness to take risks, in general, on a scale from 1 to 10, where 1 means that you are not willing to take risks at all, and 10 and means that you are very much willing to take risks." Dohmen et al. (2011) finds that a question about the willingness to take risk in general is the best all-round measure to elicit individual risk preferences.

In order to obtain consistent estimates in our analysis of preference for redistribution, it is important to control for observable characteristics. We therefore include a number of characteristics that are important in determining preferences for redistribution. The list of control variables can be grouped into: 1) Socio-economic/demographic characteristics; 2) past mobility experience; 2) political ideology of the respondent; 3) religious preferences; and 4) beliefs about the factors influencing success in life and factors influencing need in society. [13]

Socio-demographic variables are particularly important. A potential confounder in the analysis on the WTP for public education is the number of children in the household (HH). An individual who has to provide for a large family with many children may find it harder to exert the effort required for upward transition. Meanwhile, such individuals may also have more to gain from public education systems. It may also be the case that respondents with many children are worried about intergenerational upward mobility prospects and do not want to tax future incomes of his/her offspring and is therefore less willing to support public education. A potential confounder in the analysis of the WTP for health is health status. For example, an individual with poor health may expect to remain poor since upward mobility typically requires effort that may be harder to exert if in poor health. At the same time, it is reasonable to expect that poor health is corelated with the WTP for healthcare. The same argument applies concerning the age of the respondent as older respondents are at greater risk of health conditions. We also include past mobility experience of the individual as that may influence a person's beliefs about future mobility while it is also likely to impact preferences for redistribution (Piketty,

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[13] See Table 4 for a complete list of the control variables included in the analysis.

1995).[14] Factors like location, social trust, and political beliefs are also important (Aizuddin et al. 2012; Cattaneo and Wolters 2009; Habibov 2017; Naumann 2014). See Tables 4 and 5 for the complete list of control variables included in the analysis.

Based on the data described above, we can explain the willingness of respondent i, R_i to pay for public education, public health systems, or help to the needy via the following simple econometric model:

$$R_i = \alpha + \beta * X_i + \delta * POUM_i + \gamma * RA_i + \theta * POUM_i * RA_i + \varepsilon_i \qquad (1)$$

R_i is a vector of outcome variables. We distinguish between the willingness to pay for: 1) public education; 2) public health systems, and 3) help to the needy. X refers to a vector of observables characteristics, as explained above. The vector X also includes dummies for the RP and RR groups (for the reverse POUM test the groups PP and PR are included) and a set of country dummies to ensure we identify the within country effect. $POUM$ is a continuous variable, measuring the respondent's expected jump on the economic ladder given that the respondent belongs to the PR (POUM) group. The $POUM$ variable takes the value of 0 for all other individuals; see Table 3. However, since we control for RR and RP with group dummies, zeroes effectively capture the PP group which allows for a comparison between the PR (POUM) group and the poor who expect no upward transition. RA is a measure of risk appetite, taking a higher value the more risk that a respondent is willing to take. In this specification, θ is the coefficient of interest, capturing the average effect of the expected jump on the economic ladder conditional on risk appetite. The POUM hypothesis suggests that the more risk that a respondent is willing to take, the less supportive that respondent would be to redistribution as measured by our outcome variables, controlling for observable characteristics. We therefore expect that $(\theta > 0)$ $\theta < 0$ in order to be consistent with the (reverse) POUM hypothesis.

Since our outcome variables are binary, we apply logit models to estimate Equation 1. This provides us with predictions that do not lead to unbounded predicted probabilities as could have been the case with a linear probability model. The estimates we obtain are in log odds. We therefore report the average marginal effects such that the coefficients can be interpreted as probabilities.

3.1 Summary statistics

According to the LiTS3 data, survey respondents, on average, report a willingness to pay for education in 48.4% of the sample; for healthcare, it is 54.1%; and to help the needy, it is 57.9%. Willingness to pay thus roughly balances around a fifty-fifty share of the survey respondents. Before proceeding with empirical tests of whether the (reverse) POUM hypothesis can explain such preferences, it is useful to look more closely at the groups that, when compared, strongly identifies whether a (reverse) POUM effect exists in our setting, i.e., the POUM (poor–rich) group compared with the poor–poor group and the reverse POUM group (rich-poor) compared to the rich-rich group. Table 4 presents descriptive logit regressions in which the dependent variable equals 1 if the respondent is in the poor–rich group and zero if (s)he is in the poor–poor group for Models 1-3. Similarly, the dependent variable equals 1 if the respondent is in the rich–poor group and zero if (s)he is in the rich–rich group in Models 4-6.

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[14] Information about past mobility experiences is obtained from the following question in LiTS3: "Now, imagine the same ten-step ladder four years ago. On which step was your household at that time?"

Estimates for core socio-demographic characteristics based on the pooled sample are reported in columns 1 and 4. The regressions include a set of country dummies such that the estimates rely on within country variation. The estimates suggest, for instance, that those in the poor–rich group are younger than those in the poor–poor group and vice versa when comparing rich-poor to rich-rich. People in the POUM group have better perceived health and vice versa for those in the reverse POUM group. Interestingly, people in the POUM group are less likely to be employed compared to those that expect to remain poor in the future. Also, a university education does not seem to matter much for mobility prospects. Both upward and downward past mobility compared to a stable past mobility are positively related to whether a respondent is in the (reverse) POUM group. It is not surprising that the younger and healthier respondents are more likely to expect to be above average on the socio-economic ladder in the future. What can strike as surprising is that unemployed individuals are more likely to expect upward transition. This can be caused by people who are currently unemployed who expect to find employment that would lead to upward transition while many poor, employed individuals may have jobs without many mobility prospects. Likewise, past upward and downward mobility experience compared to stable past mobility contribute positively to both upward and downward expected mobility. Past upward mobility experiences may trigger further future upward mobility expectations. Likewise, downward mobility experiences mean that the past may trigger expectations of reaching that level again. For the reverse POUM group, the opposite holds. Past upward or downward mobility experiences trigger expectations of downward mobility.

The regressions are also repeated for the sub-sample of EU member states (columns 2 and 5) and non-EU countries (columns 3 and 6). The estimates differ across these two subgroups. A Notable difference is that household size in EU countries is associated with fewer upward mobility prospects, a pattern that does not hold for non-EU countries or the pooled sample. Other differences are observed concerning the role of marital status and the origins of success in life. This indicates that a sample split is warranted as individuals in these different groups of countries may systematically think differently about redistribution, see Corneo and Gruner (2000).

Table 5 presents the summary statistics for the variables used in the empirical analysis, both for the pooled sample as well as by region (EU and non-EU). The most notable observation is that, for almost all variables, the differences in the average between the group of EU countries and the non-EU countries is highly significant. Together, Table 4 and Table 5 highlight the need to control for a relatively large set of socio-demographical variables in our regression analysis. The descriptive statistics also indicate that there are differences between EU and non-EU countries. Therefore, we not only perform the test of the (reverse) POUM hypothesis on the pooled sample, we also split the sample between EU and non-EU countries.

Table 4: Characteristics of the four wealth groups.

Dep. Var.:	Pooled sample	EU	Non-EU	Dep. Var.:	Pooled sample	EU	Non-EU
Mobility status (PR = 1 / PP = 0)	(1)	(2)	(3)	Mobility status (RP = 1 / RR = 0)	(4)	(5)	(6)
Age	-0.003***	-0.004***	-0.003***		0.001***	0.002***	0.001**
	(0.000)	(0.000)	(0.000)		(0.000)	(0.001)	(0.001)
Female	0.004	0.004	0.003		-0.016	-0.009	-0.019
	(0.006)	(0.008)	(0.010)		(0.010)	(0.014)	(0.014)
University Education	0.014	0.007	0.013		-0.021*	-0.026*	-0.007
	(0.009)	(0.010)	(0.013)		(0.012)	(0.014)	(0.019)
Employed	-0.024***	-0.017*	-0.028***		-0.012	-0.036**	-0.002
	(0.007)	(0.009)	(0.011)		(0.011)	(0.018)	(0.016)
ln(HH size)	-0.002	-0.057***	0.023		0.001	0.045*	-0.024
	(0.013)	(0.014)	(0.018)		(0.018)	(0.026)	(0.025)
Children's share in HH	0.011	0.044*	0.007		-0.018	-0.020	-0.019
	(0.021)	(0.026)	(0.032)		(0.029)	(0.044)	(0.038)
Female share in HH	-0.001	0.001	0.009		0.028*	0.030	0.009
	(0.011)	(0.011)	(0.019)		(0.017)	(0.026)	(0.030)
Elderly share in HH	-0.041***	0.002	-0.033		-0.005	0.014	-0.041
	(0.014)	(0.016)	(0.024)		(0.022)	(0.026)	(0.030)
Market is preferred	0.008	0.002	0.014		-0.011	-0.010	-0.011
	(0.006)	(0.007)	(0.010)		(0.010)	(0.015)	(0.014)
Non-Orthodox	-0.020**	-0.021	-0.021		0.033*	0.004	0.044*
	(0.010)	(0.014)	(0.014)		(0.018)	(0.025)	(0.025)
Not Married	-0.004	-0.020**	-0.006		0.006	0.022	-0.004
	(0.008)	(0.010)	(0.011)		(0.012)	(0.015)	(0.016)
Urban	-0.006	0.003	-0.016		0.020*	0.013	0.031*
	(0.008)	(0.008)	(0.013)		(0.011)	(0.017)	(0.016)
Self-perceived health: Bad(4)-Very good(1)	-0.037***	-0.027***	-0.043***		0.026***	0.027***	0.022***
	(0.005)	(0.005)	(0.007)		(0.006)	(0.008)	(0.008)
Trust in people: Complete distrust(1) - Complete trust(5)	0.018***	0.015***	0.019***		-0.009**	-0.010*	-0.009
	(0.003)	(0.004)	(0.004)		(0.005)	(0.006)	(0.007)
ln(total HH income)	0.041***	0.053***	0.044***		-0.020***	-0.058***	-0.013*
	(0.009)	(0.007)	(0.013)		(0.007)	(0.014)	(0.008)
Past mobility: stable	Ref.	Ref.	Ref.		Ref.	Ref.	Ref.
Upward past mobility	0.161***	0.113***	0.194***		0.050***	0.057***	0.047***
	(0.008)	(0.008)	(0.012)		(0.010)	(0.018)	(0.016)
Downward past mobility	0.079***	0.061***	0.093***		0.118***	0.111***	0.126***
	(0.007)	(0.008)	(0.012)		(0.011)	(0.016)	(0.018)
Need due to: Unlucky	Ref.	Ref.	Ref.		Ref.	Ref.	Ref.
Laziness	0.024*	-0.006	0.051**		-0.006	0.005	-0.012
	(0.013)	(0.013)	(0.021)		(0.015)	(0.024)	(0.022)
Injustice	-0.020	-0.026*	-0.008		0.021	0.012	0.030
	(0.013)	(0.013)	(0.020)		(0.016)	(0.019)	(0.025)
Inevitable part of life	0.017	-0.001	0.039*		-0.017	-0.013	-0.021
	(0.013)	(0.015)	(0.023)		(0.019)	(0.023)	(0.027)
Other	-0.004	-0.010	0.000		-0.019	-0.005	-0.042
	(0.017)	(0.019)	(0.027)		(0.036)	(0.047)	(0.039)
Success due to: effort and hard work	Ref.	Ref.	Ref.		Ref.	Ref.	Ref.
Intelligence and skills	0.003	0.005	0.000		0.006	0.004	0.004
	(0.008)	(0.008)	(0.013)		(0.010)	(0.012)	(0.016)
Political connections	-0.017**	-0.000	-0.029**		0.025**	0.017	0.029
	(0.009)	(0.011)	(0.013)		(0.013)	(0.015)	(0.019)
Breaking the law	-0.025*	-0.009	-0.036		0.020	0.018	0.006
	(0.013)	(0.015)	(0.023)		(0.017)	(0.024)	(0.028)
Other	-0.062***	-0.021	-0.110***		0.054**	0.033	0.066
	(0.017)	(0.019)	(0.033)		(0.028)	(0.038)	(0.041)
Observations	19,631	9,193	10,438		6,532	3,129	3,403

Notes: Average marginal effects (AMEs) from the logit models. Dependent variable for columns (1)-(3) equals 1 if Poor-Rich and 0 if Poor-Poor. Dependent variable for columns (4)-(6) equals 1 if rich-poor and 0 if rich-rich. Robust standard errors, clustered in a primary sampling unit level in parentheses. Country dummies included in all regressions but not reported. *** p<0.01, ** p<0.05, * p<0.1

Table 5: Summary statistics by region

VARIABLES	(1) Total mean	(2) sd	(3) Non-EU mean	(4) sd	(5) EU mean	(6) sd	(7) Difference in mean (5)-(3)
Risk Appetite (1-10)	4.678	2.709	4.830	2.857	4.465	2.471	-0.365***
Age	48.27	17.40	45.70	16.61	51.93	17.83	6.235***
Female	0.561	0.496	0.560	0.496	0.562	0.496	0.002
University Education	0.141	0.348	0.132	0.339	0.153	0.360	0.021***
Employed	1.373	0.484	1.349	0.477	1.402	0.490	0.054***
Ln(HH size)	0.910	0.588	1.068	0.578	0.686	0.526	-0.382***
Children's share in HH	0.257	0.270	0.324	0.275	0.162	0.231	-0.161***
Female share in HH	0.527	0.273	0.514	0.249	0.547	0.303	0.033***
Elderly share in HH	0.168	0.338	0.118	0.278	0.240	0.397	0.122***
Market is preferred	0.365	0.481	0.369	0.482	0.360	0.480	-0.009
Non-Orthodox	0.369	0.482	0.456	0.498	0.245	0.430	-0.211***
Not Married	0.411	0.492	0.350	0.477	0.498	0.500	0.149***
Urban	0.573	0.495	0.572	0.495	0.574	0.495	0.002
Self-perceived health: Bad(4)-Very good(1)	2.480	0.926	2.487	0.922	2.469	0.932	-0.018
Trust in people: Complete distrust(1) - Complete trust(5)	2.799	1.088	2.792	1.134	2.809	1.020	0.018
Ln(total HH income)	8.690	2.649	9.392	2.962	7.676	1.655	-1.716***
Downward past mobility	0.314	0.464	0.310	0.463	0.319	0.466	-0.092***
stable past mobility	0.459	0.498	0.425	0.494	0.508	0.500	0.083***
Downward past mobility	0.227	0.419	0.265	0.441	0.173	0.379	0.008
Main determinant of need in society today							
Unlucky	0.101	0.301	0.0950	0.293	0.108	0.311	0.013***
Laziness	0.242	0.428	0.266	0.442	0.208	0.406	-0.058***
Injustice	0.444	0.497	0.452	0.498	0.432	0.495	-0.020**
Inevitable part of life	0.159	0.366	0.140	0.347	0.186	0.389	0.046***
Other	0.0545	0.227	0.0467	0.211	0.0655	0.247	0.019***
Main determinant of success today							
Effort and hard work	0.418	0.493	0.444	0.497	0.380	0.485	-0.064***
Intelligence and skills	0.263	0.440	0.251	0.434	0.280	0.449	0.029***
Political connections	0.220	0.414	0.219	0.413	0.223	0.416	0.004
Breaking the law	0.0605	0.238	0.0515	0.221	0.0732	0.261	0.022***
Other	0.0384	0.192	0.0347	0.183	0.0436	0.204	0.009***

Notes: Mean of each variable with standard deviation in parentheses. Column (7) is the result of a regression for which each variable has been regressed on a dummy for the EU, equal to 1 if a respondent resides in an EU country, and 0 otherwise. Robust standard errors, clustered in a primary sampling unit level were used but not reported. *** p<0.01, ** p<0.05, * p<0.1

4. Results

We have to account for the fact that the individuals in the POUM group, on average, are younger, healthier, etc. than individuals who are not in the POUM group. Table A1 in the Appendix makes it clear that our data suffer from a lack of balance on covariates. Such a lack of balance can cause bias in the estimates when the 'control group', on average, differs from the (reverse) POUM group. This lack of balance violates the assumption of random sampling underlying any regression estimate. Since we are dealing with observational data, the lack of balance comes from the fact that we, by nature, over- or under-sample individuals with specific traits in the (reverse) POUM group compared to individuals who are not in the (reverse) POUM group. Therefore, we pre-process our data using entropy balancing; see Nikolova (2019) for a similar approach.

This approach has some advantages over traditional matching methods such as propensity score matching (PSM).[15] Specifically, entropy balancing is more efficient and reduces covariate imbalance. Unlike PSM, which requires an iterative trial and error process and researcher judgment regarding the tolerance levels and the inclusion of covariates, entropy balancing achieves covariate balance by weighting the sample units. The procedure allows obtaining covariate balance by imposing a set of constraints on different moments of the covariate distribution.[16] Different from PSM in which some units are discarded after matching, the weights obtained from entropy balancing deviate as little as possible from the base weights to prevent loss of information and to maintain efficiency (Hainmueller, 2012). After this preprocessing step, we estimate logit models using the entropy weights, effectively estimating weighted logit regressions as specified in Equation 1. Table A2 in the Appendix shows the distribution of the weights.

We exploit the variation in upward prospects for individuals in the POUM group by using the continuous POUM variable. The tables below report the marginal effect of the variables of interest concerning individuals' willingness to pay for public education, public health systems, and help to the needy. Dummy variables for the rich-rich and rich-poor groups are included as controls in panel A in all regression tables, but are not reported. Concerning the reverse POUM hypothesis reported in panel B, the poor-poor and poor-rich dummy variables are included as controls. All results include a full set of country dummies to identify the effects on the within country variation. Additionally, all variables mentioned in Tables 4 and 5 are included as controls in all regression tables.

Table 6 presents the marginal effects of logit regressions of the continuous POUM variable on individuals' willingness to pay for public education, public health systems, and help to the needy. Panel A shows the test of the POUM hypothesis. Our key interest is in the θ coefficient on the interaction between *risk appetite* and *POUM – RA_POUM* that test the POUM hypothesis as formulated by Benabou and Ok (2001). That is, individuals in the POUM group should prefer less redistribution compared to other currently poor individuals who do not hold upward mobility prospects, conditional on risk preferences. Risk averse individuals may demand insurance against a non-realization of upward mobility; for these individuals, the POUM effect should be less pronounced. Indeed, we find a statistically significant negative effect of the interaction term. However, the *POUM* variable is positive and shows that people in the POUM group are around 2 percentage points more likely to report a willingness to pay compared to the poor-poor for the most risk averse individuals. This goes against the POUM hypothesis. We did not expect to find any significant difference of POUM at the lowest level of risk appetite.

This effect diminishes as people have increasingly more risk appetite. The marginal effect of POUM on the WTP turns negative around the point where individuals are risk neutral (risk appetite=5 or 6). Specifically, the marginal effect of POUM on the WTP for public education turns negative when risk appetite is equal to 6 and the most risk willing individuals in the POUM group are around 2 percentage point less likely to be willing to pay. Concerning WTP for health systems the marginal effect of POUM

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[15] PSM has increasingly come under attack because it may aggravate the problem it intends to solve; see King and Nielsen (2019).

[16] We balance data on the first moment only; Table A1 makes clear that standard deviations are similar across groups.

turns negative when risk appetite is equal to 4. The most risk willing individuals in the POUM group are around 3 percentage point less willing to pay. A similar pattern holds for the WTP to help the needy, but here risk appetite has to be equal to 8 before the marginal effect of POUM turns negative.

While it is straightforward to interpret the coefficient of an interaction term in a linear model, it is not the case for nonlinear (maximum-likelihood) models. The interpretation is complicated by the fact that the terms in the likelihood function are not linearly separable. The interaction effect instead requires computing the cross derivatives of the interaction effect and all other variables in the model; see Ai and Norton (2003). Simply looking at the sign, magnitude, or statistical significance of the coefficient for the interaction term can be misleading. Therefore, we plot the marginal effects calculated the correct way to check if the effect stays close to the linear interpretation given above, but also to check whether it stays significant over the whole range of predicted probabilities. Indeed, the marginal effects of the interaction terms stay close to the interpretation given above in terms of sign, magnitude, and significance; see Appendix Figures A1-A3. Hence, the interpretation given above holds.

Table 6 also reports the results of the reverse POUM hypothesis in panel B. The interaction effect is estimated with a positive sign and it is statistically significant at the 5% level for WTP for public health systems. In line with the reverse POUM hypothesis this means that individuals who expect to transition downwards on the income ladder (remember that this variable takes the values 0 to -9) becomes increasingly more likely to pay when they are more risk averse. Concerning WTP for public education and help to the needy neither of the interaction terms are significant at the 5% level. Again, we plot the marginal effects calculated the correct way to check if the effect stays close to the linear interpretation. Figures A4-A6 in the Appendix confirms that the interaction term stays positive, but the effect is insignificant for the majority of observations concerning WTP for help to the needy. The interaction effect is statistically significant for some observations with a low predicted probability of being WTP for public education and health. This holds for about one fourth of the observations concerning WTP for public education, and for about half of the observations concerning WTP for public health systems. Thus, although we find evidence in favor of the reverse POUM hypothesis, the statistical relationship is less strong compared to the POUM hypothesis.

To gauge the impact of the POUM effect in our sample we show the joint distribution of POUM and risk appetite in tables A3-A5 in the Appendix. Table A3 shows that 42% of the individuals in the POUM group are in the region where the marginal effect of POUM on the WTP for public education is negative. Table A4 shows that almost 70% of the individuals in the POUM group are in the region where the marginal effect of POUM on the WTP for public health is negative. Table A5 shows that 20% of the individuals in the POUM group are in the region where the marginal effect of POUM on the WTP for help to the needy is negative. Thus, particularly concerning public health systems and to some extent also public education systems a sizeable proportion of POUM individuals are affected by POUM in a way that reduces their willingness to pay.[17]

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[17] In this interpretation we ignore statistical significance of the marginal effect of POUM. In the region where the sign of the marginal effect switches sign (i.e., where the marginal effect is close to zero), the marginal effect by construction is going to be insignificant.

Table 6: Average marginal effects of mobility prospects on WTP

VARIABLES	(1) WTP- to improve public education system	(2) WTP- to improve public health system	(3) WTP- to help the needy
Panel A: POUM hypothesis			
Risk appetite: Not willing (1) -Very willing (10)	0.016***	0.017***	0.014***
	(0.003)	(0.003)	(0.003)
POUM	0.022**	0.017*	0.022**
	(0.009)	(0.010)	(0.009)
RA_POUM	-0.004***	-0.005***	-0.003**
	(0.001)	(0.001)	(0.001)
Observations	24,311	24,515	24,222
Panel B: reverse POUM hypothesis			
Risk appetite: Not willing (1) -Very willing (10)	0.014***	0.016***	0.016***
	(0.004)	(0.004)	(0.004)
(rev) POUM	-0.005	-0.009	0.006
	(0.016)	(0.016)	(0.016)
RA_(rev)POUM	0.005*	0.006**	0.002
	(0.003)	(0.002)	(0.002)
Observations	24,311	24,515	24,222

Notes: Average marginal effects (AMEs) from the logit models. Dependent variable is yes=1/no=0 the response to the statement. "Would you be willing to give part of your income or pay more taxes, if you were sure that the extra money was used to…". (1) - improve public education; (2) – improve public health system; (3) – help the needy. Full set of control variables and country dummies included but not reported. All observations have been weighted using entropy balancing. Robust standard errors, clustered at primary sampling unit level in parentheses. *** $p<0.01$, ** $p<0.05$, * $p<0.1$

4.1. Robustness analysis

As Tables 4 and 5 show, there are differences between EU and non-EU countries. Therefore, we repeat the analysis in Table 6 but split the sample in EU and non-EU countries; see table 7. Corneo and Gruner (2002) point out that attitudes toward redistribution of citizens in formerly socialist countries differ from those of western citizens in a systematic way. Although a number of former socialist countries in our sample have joined the EU, we believe that a split along the chosen dimension is most meaningful. EU countries are generally at a higher level of development both economically and politically than the non-EU countries in our sample, regardless of whether the non-EU country is a former socialist country or not.

The results in Table 7 largely confirm the findings in Table 6. Concerning both EU and non-EU countries, the effect of POUM conditional on risk preferences is estimated to be negative and significant for the WTP for public education and public health systems; see Panel A. One clear difference is that the coefficients on POUM and the interaction term are roughly twice as large for the EU countries. The most important difference, though, is that, for EU countries, the POUM effect conditional on risk preferences does not affect the WTP to help the needy. This lack of a POUM effect conditional on risk preferences is not present in non-EU countries. Panel B in Table 7 reports the results of the reverse POUM effect. These results largely confirm the findings in Table 6. There is limited evidence that expected downward mobility affects the willingness to pay for redistribution, and there are little differences between EU and non-EU countries. These results are confirmed when we calculate the effect and significance of the interaction term as described in Ai and Norton (2003).[18]

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[18] Results are available on request.

Table 7: Average marginal effects of mobility prospects on WTP, EU/Non-EU

VARIABLES	(1)	(2)	(3)	(4)	(5)	(6)
	EU=1			EU=0		
	WTP- to improve public education system	WTP- to improve public health system	WTP- to help the needy	WTP- to improve public education system	WTP- to improve public health system	WTP- to help the needy
Panel A: POUM hypothesis						
Risk appetite: Not willing (1) - Very willing (10)	0.019***	0.022***	0.009	0.014***	0.014***	0.017***
	(0.006)	(0.007)	(0.005)	(0.004)	(0.004)	(0.004)
POUM_	0.048**	0.047**	0.027	0.015	0.010	0.021**
	(0.021)	(0.022)	(0.022)	(0.011)	(0.010)	(0.010)
RA_POUM	-0.007**	-0.009***	-0.000	-0.004**	-0.004***	-0.004***
	(0.003)	(0.003)	(0.003)	(0.001)	(0.001)	(0.001)
Observations	11,425	11,520	11,315	12,886	12,995	12,907
Panel B: reverse POUM hypothesis						
Risk appetite: Not willing (1) - Very willing (10)	0.011	0.014*	0.008	0.015***	0.015***	0.024***
	(0.007)	(0.008)	(0.007)	(0.005)	(0.005)	(0.004)
(rev) POUM	-0.016	-0.022	-0.006	0.000	0.001	0.005
	(0.025)	(0.025)	(0.026)	(0.021)	(0.020)	(0.021)
RA_(rev)POUM	0.005	0.004	0.004	0.004	0.005*	0.002
	(0.004)	(0.005)	(0.005)	(0.003)	(0.003)	(0.003)
Observations	11,425	11,520	11,315	12,886	12,995	12,907

Notes: Average marginal effects (AMEs) from the logit models. Dependent variable is the yes=1/no=0 response to the statement. "Would you be willing to give part of your income or pay more taxes, if you were sure that the extra money was used to…". (1) & (4) - improve public education; (2) & (5) – improve public health system; (3) & (6) – help the needy. Full set of control variables and country dummies included but not reported. All observations have been weighted using entropy balancing. Sample only includes EU countries in column (1) - (3), and only non-EU countries in column (4) - (6). Robust standard errors, clustered at primary sampling unit level in parentheses. *** p<0.01, ** p<0.05, * p<0.1

In Table 8, we estimate group average marginal effects. A disadvantage of this dummy variable approach is that we do not exploit variation in the expected upward (downward) jumps on the within country income ladder, specifically, dummies are used for the PP, PR, RR, RP groups. An advantage of this approach is that we do not assume that the effect of mobility prospects is linear as we do in the estimations above. Rather, when using group dummies for the (reverse) POUM group, we estimate population differences in group means conditional on risk preferences. As evident in Table 3, most individuals who hold upward or downward mobility prospects expect small jumps up or down the income ladder. This means that the group average marginal effect will be most heavily affected by the large proportion of individuals in the POUM group who expect small jumps. The results in Table 8 makes this clear. The interaction term is consistently estimated with a negative and statistically significant sign. In line with the POUM hypothesis, this indicates that POUM individuals, compared to the PP group which is the reference group in the regressions underlying panel A, are increasingly less likely to be willing to pay conditional on risk appetite. However, the total effect only becomes negative concerning a willingness to pay for public health systems at very high levels of risk appetite. Regarding willingness to pay for public education and help to the needy, the total effect of POUM stays positive even at the highest level of risk appetite. Concerning the reverse POUM hypothesis the results in Table 8, panel B shows that downward mobility prospects affect the willingness to pay for public education and public health systems, while there is little evidence that downward mobility prospects affect the WTP to help the needy. For example, individuals in the reverse POUM group, at the lowest level of risk appetite are about 8 percentage point more likely to be willing to pay to public

health systems compared to the RR group which is the reference group in the regressions underlying panel B. In line with the reverse POUM hypothesis, this effect diminishes as RP individuals have increasingly higher risk appetite. These results are by and large confirmed when we calculate the effect and significance of the interaction term as described in Ai and Norton (2003).[19]

Table 8: Group average marginal effects of mobility prospects on WTP

VARIABLES	(1) WTP- to improve public education system	(2) WTP- to improve public health system	(3) WTP- to help the needy
Panel A: POUM hypothesis			
Risk appetite: Not willing (1) -Very willing (10)	0.016***	0.017***	0.015***
	(0.004)	(0.004)	(0.003)
POUM-dum	0.117***	0.111***	0.122***
	(0.026)	(0.026)	(0.025)
RA_POUM-dum	-0.011***	-0.012***	-0.009**
	(0.004)	(0.005)	(0.004)
Observations	24,311	24,515	24,222
Panel B: reverse POUM hypothesis			
Risk appetite: Not willing (1) -Very willing (10)	0.017***	0.019***	0.019***
	(0.004)	(0.004)	(0.004)
(rev) POUM-dum	0.078*	0.104**	0.032
	(0.045)	(0.045)	(0.040)
RA_(rev)POUM-dum	-0.018**	-0.020***	-0.012*
	(0.007)	(0.008)	(0.007)
Observations	24,311	24,515	24,222

Notes: Average marginal effects (AMEs) from the logit models. Dependent variable is the yes=1/no=0 response to the statement. "Would you be willing to give part of your income or pay more taxes, if you were sure that the extra money was used to…". (1) - improve public education; (2) – improve public health system; (3) – help the needy. In panel A, PP is the reference category, in panel B, RR is the reference category. Full set of control variables and country dummies included but not reported. All observations have been weighted using entropy balancing. Robust standard errors, clustered at primary sampling unit level in parentheses. *** p<0.01, ** p<0.05, * p<0.1

To illustrate the point that the marginal effect of being the (reverse) POUM group depends in the number of steps and individual expects to take (down) up the income ladder we construct group indicator variables based on the continuous (reverse) POUM variable. Specifically, we define 3 groups. Group 1 is a dummy variable equal to one for (reverse) POUM individuals that expects to take 1, 2 or 3 steps up (down) the income ladder. Group 2 is a dummy variable equal to one for (reverse) POUM individuals that expects to take 4, 5 or 6 steps up (down) the income ladder. Group 3 is a dummy variable equal to one for (reverse) POUM individuals that expects to take 7, 8 or 9 steps up (down) the income ladder. Table 9 shows that the categorization roughly doubles the effect of POUM conditional on risk appetite on the WTP relative to the reference group, when comparing group 1 and 2. However, the results in Table 9 also shows that the effect of being in group 3, has an insignificant effect on the WTP. This is most likely cause by the fact that we have few observations that expects such large jumps up (down) the income ladder, see Table 3. Again, these results are by and large confirmed when we calculate the effect and significance of the interaction term as described in Ai and Norton (2003).[20]

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[19] Results are available on request.
[20] Results are available on request.

Table 9: Multiple POUM groups, average marginal effects of mobility prospects on WTP

VARIABLES	(1) WTP- to improve public education system	(2) WTP- to improve public health system	(3) WTP- to help the needy
Panel A: POUM hypothesis			
Risk appetite: Not willing (1) -Very willing (10)	0.016***	0.017***	0.015***
	(0.004)	(0.004)	(0.003)
POUM_dum1 (POUM = 1, 2 or 3)	0.109***	0.104***	0.116***
	(0.028)	(0.029)	(0.026)
POUM_dum2 (POUM = 4, 5, or 6)	0.161***	0.137***	0.159***
	(0.045)	(0.043)	(0.043)
POUM_dum3 (POUM > 6)	0.053	0.067	0.197
	(0.170)	(0.142)	(0.204)
RA_POUM_dum1	-0.010**	-0.010**	-0.008*
	(0.005)	(0.005)	(0.005)
RA_POUM_dum2	-0.017**	-0.019***	-0.012
	(0.008)	(0.007)	(0.008)
RA_POUM_dum3	-0.021	-0.032*	-0.022
	(0.022)	(0.019)	(0.028)
Observations	24,311	24,515	24,222
Panel B: reverse POUM hypothesis			
Risk appetite: Not willing (1) -Very willing (10)	0.017***	0.020***	0.019***
	(0.004)	(0.004)	(0.004)
(rev)POUM_dum1 (POUM = -1, -2 or -3)	0.065	0.099**	0.023
	(0.048)	(0.048)	(0.043)
(rev) POUM_dum2 (POUM = -4, -5 or -6)	0.128	0.091	0.097
	(0.093)	(0.102)	(0.108)
(rev) POUM_dum3 (POUM < -6	-0.261	-0.281	-0.553
	(0.316)	(0.320)	(0.371)
RA_(rev)POUM_dum1	-0.013*	-0.017**	-0.009
	(0.008)	(0.008)	(0.008)
RA_(rev)POUM_dum2	-0.038**	-0.034**	-0.032**
	(0.016)	(0.016)	(0.015)
RA_(rev)POUM_dum3	-0.009	-0.009	0.070
	(0.042)	(0.044)	(0.047)
Observations	24,311	24,515	24,222

Notes: Average marginal effects (AMEs) from the logit models. Dependent variable is the yes=1/no=0 response to the statement. "Would you be willing to give part of your income or pay more taxes, if you were sure that the extra money was used to…". (1) - improve public education; (2) – improve public health system; (3) – help the needy. Full set of control variables and country dummies included but not reported. The continuous (rev)POUM variable has been split into three dummies. (rev)POUM_dum1 = 1 if the continuous (rev)POUM variable takes on the values (-1, -2 or -3) 1, 2 or 3, and 0 otherwise. (rev)POUM_dum2 = 1 if the continuous (rev)POUM variable takes on the values (-4, -5 or -6) 4, 5 or 7, and 0 otherwise. (rev)POUM_dum3 = 1 if the continuous (rev)POUM variable is (smaller)larger than (-6)6, and 0 otherwise. All covariates have been weighted using entropy balancing. Robust standard errors, clustered at primary sampling unit level in parentheses. *** p<0.01, ** p<0.05, * p<0.1

As the discussion above suggest, we may have a problem with our main results (Table 6) since the linear specification of the continuous (reverse) POUM variable allows us to extrapolate in to regions of the data where we have very few observations. This is particularly a problem concerning individuals that expects large steps up (down) the income ladder. Therefore, we winsorize our data such that all (reverse) POUM observation with a value above (below) 5 (-5) are recoded to take the value 5 (-5). Table 10 shows that our findings are robust to this change in specification.[21] Like our main results, we find that individuals in the POUM group at low level of risk appetite are more willing to pay than individuals in the PP group. Again, we find a negative effect of the interaction term. As individuals have increasing levels of risk appetite the marginal effect of POUM switches sign an becomes negative. Concerning the reverse POUM hypothesis in panel B in Table 10 the interaction effect is

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[21] This also holds if we drop (reverse) POUM observations with a value above (below) 5 (-5).

estimated with a positive sign and it is statistically significant at the 5% level for WTP for public education and health systems. In line with the reverse POUM hypothesis this means that individuals who expect to transition downwards on the income ladder (remember that this variable takes the values 0 to -5) becomes increasingly more likely to pay when they are more risk averse. These results are by and large confirmed when we calculate the effect and significance of the interaction term as described in Ai and Norton (2003).[22]

Table 10: Average marginal effects of mobility prospects on WTP, winsorized (reverse) POUM

VARIABLES	(1) WTP- to improve public education system	(2) WTP- to improve public health system	(3) WTP- to help the needy
Panel A: POUM hypothesis			
Risk appetite: Not willing (1) -Very willing (10)	0.016***	0.017***	0.014***
	(0.003)	(0.003)	(0.003)
POUM_winsor	0.025**	0.020*	0.024**
	(0.010)	(0.010)	(0.010)
RA_POUM_winsor	-0.004***	-0.005***	-0.003**
	(0.001)	(0.001)	(0.001)
Observations	24,311	24,515	24,222
Panel B: reverse POUM hypothesis			
Risk appetite: Not willing (1) -Very willing (10)	0.015***	0.016***	0.016***
	(0.004)	(0.004)	(0.004)
(rev) POUM_winsor	-0.008	-0.015	0.003
	(0.017)	(0.017)	(0.017)
RA (rev)POUM_winsor	0.005**	0.006**	0.003
	(0.003)	(0.003)	(0.003)
Observations	24,311	24,515	24,222

Notes: Average marginal effects (AMEs) from the logit models. Dependent variable is the yes=1/no=0 response to the statement. "Would you be willing to give part of your income or pay more taxes, if you were sure that the extra money was used to…". (1) - improve public education; (2) – improve public health system; (3) – help the needy. Full set of control variables and country dummies included but not reported. (rev) POUM variable has been winsorized such that all values above (-5)5, has been replaced with (-5)5. All covariates have been weighted using entropy balancing. Robust standard errors, clustered at primary sampling unit level in parentheses. *** $p<0.01$, ** $p<0.05$, * $p<0.1$

6. Conclusion

We are the first to analyze whether income mobility prospects affect willingness to pay to improve public education systems, public health systems, and to help the needy. Our findings suggest that upward mobility prospects, conditional on risk preferences, decreases the probability of being willing to pay. However, at low levels of risk appetite individuals in the POUM group are more willing to pay. This finding is not in line with the POUM hypothesis. At this point it is speculative what is behind this finding. It could be caused by risk averse individuals that may expect negative spillovers from poor education of fellow citizens (crime) or poor health status in the country as a whole and therefore want to minimize those risks. It could also be caused by systematic differences in altruism between individuals with high versus low levels of risk appetite in the POUM group. Our data does not allow us to analyze what may cause this effect. Future research could look into this. We find evidence of a reverse POUM effect concerning the willingness to pay for public education and public health. However, we do not find much evidence in favor of a reverse POUM effect concerning help to the needy. Together these findings highlight the importance of mobility prospect in shaping individuals' preferences for indirect redistribution.

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[22] Results are available on request.

We also show that the country specific context is important. Specifically, differences in political and economic conditions impact the size and existence of the POUM effect. Concerning merit goods, the POUM effect is stronger in EU countries than in non-EU countries. However, there is little effect of POUM on the willingness to pay to help the needy in EU countries while there is some evidence that such an effect exists in non-EU countries.

Our results have implications for future research. First, it would be interesting to explore whether our findings hold in an experimental setting. Additionally, it would be relevant to investigate whether mobility prospect affects other areas of public policy that have indirect or even direct distributional consequences. For example, by eliciting preferences for redistribution using WTP-type questions about unemployment benefits.

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Appendix
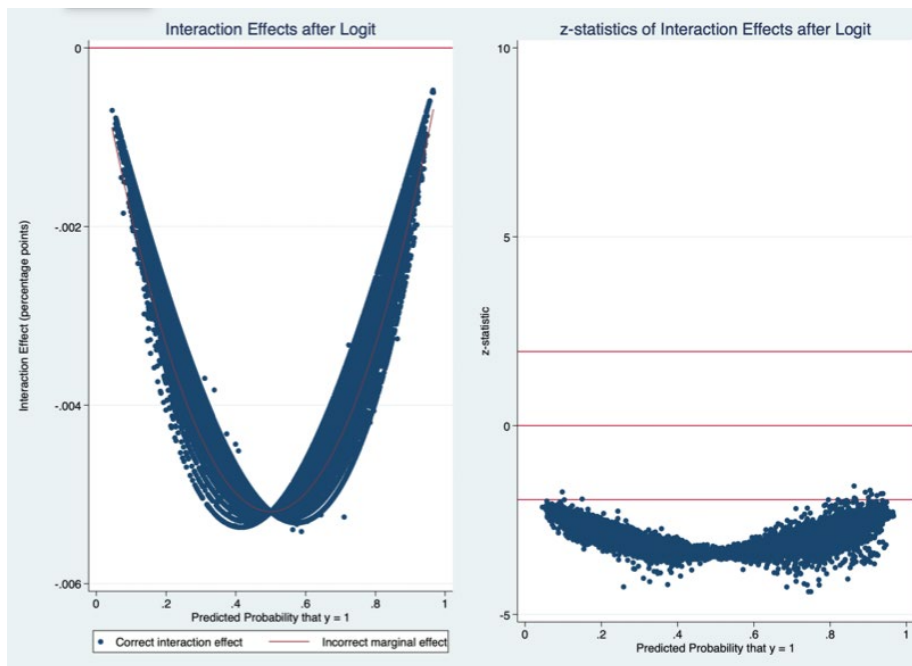
Figure A1: Public education, interaction effect of POUM and risk appetite.
Note: The left panel plots the interaction effect on the y-axis for each observation in the sample against the predicted probability of the willingness to pay on the x-axis. The concave read line shows the incorrect marginal effect of the interaction term calculated as the cross-derivative of the likelihood of being willing to pay wrt. the interaction term, without accounting for the fact the interaction effect depends on all covariates in the model; see Ai and Norton (2003). The right panel plots the z-statistics of the interaction term on the y-axis against the predicted probability of the willingness to pay on the x-axis. Dots/observations outside the upper or lower red line are significant at the 5% level.
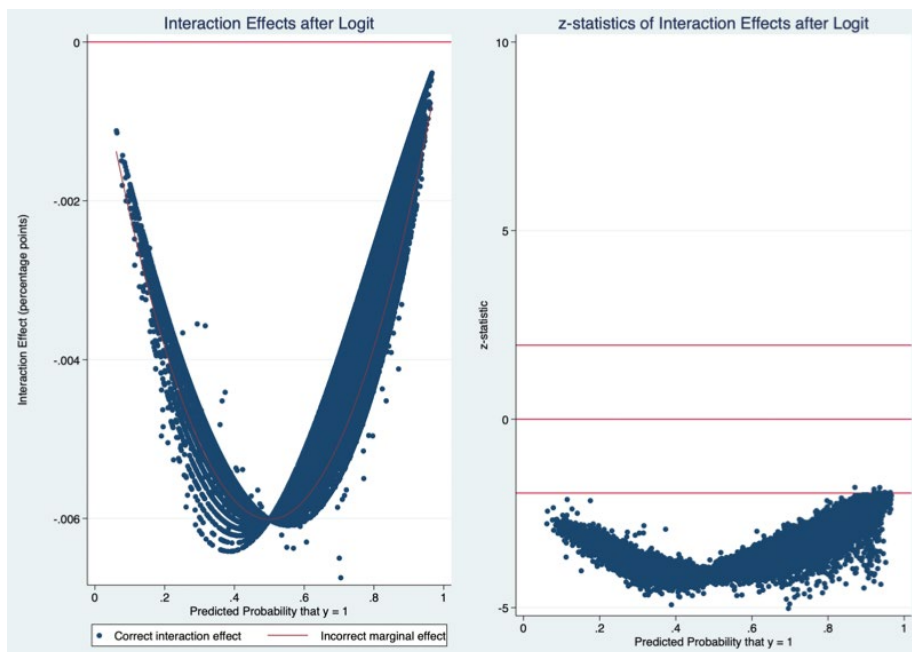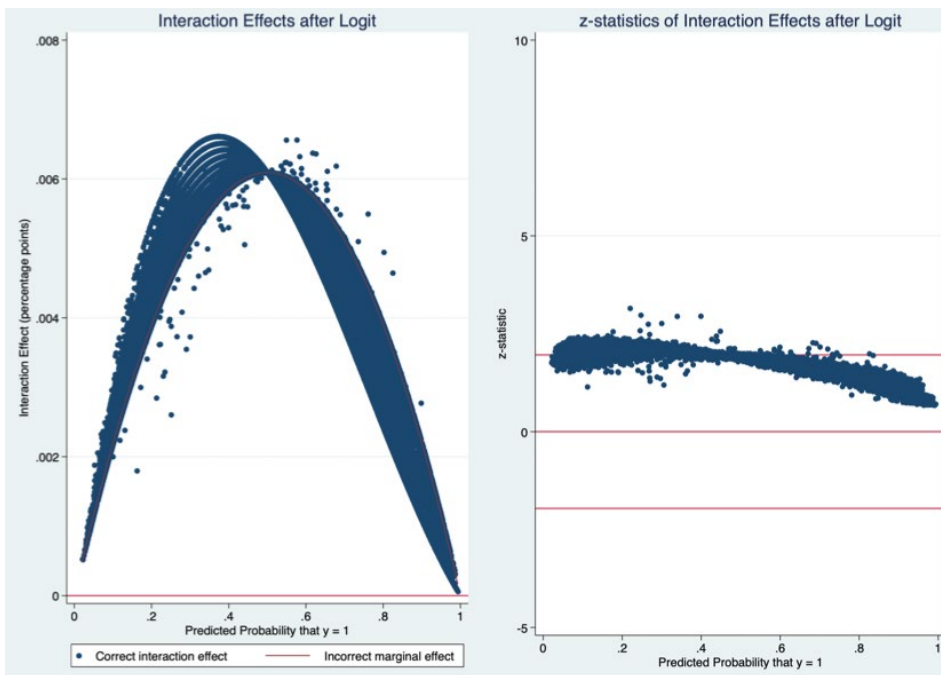

Figure A2: Public health, interaction effect of POUM and risk appetite.
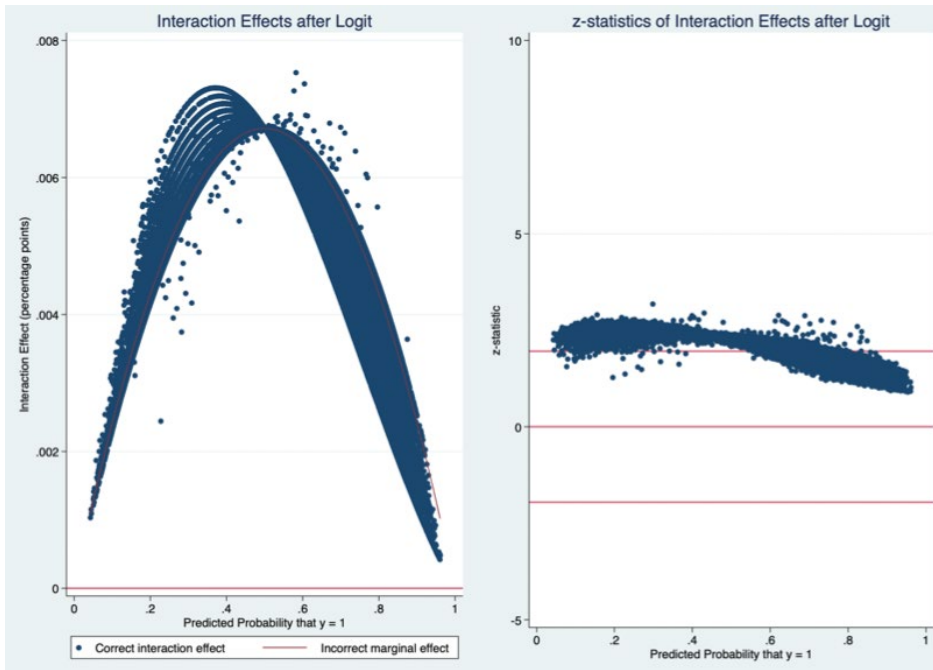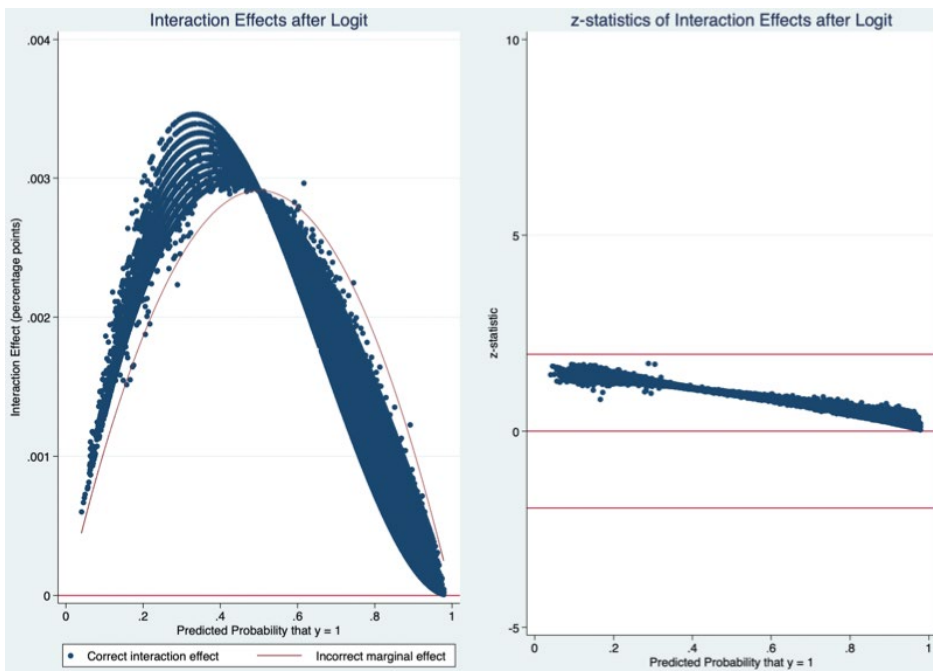Note: see notes to figure A1.

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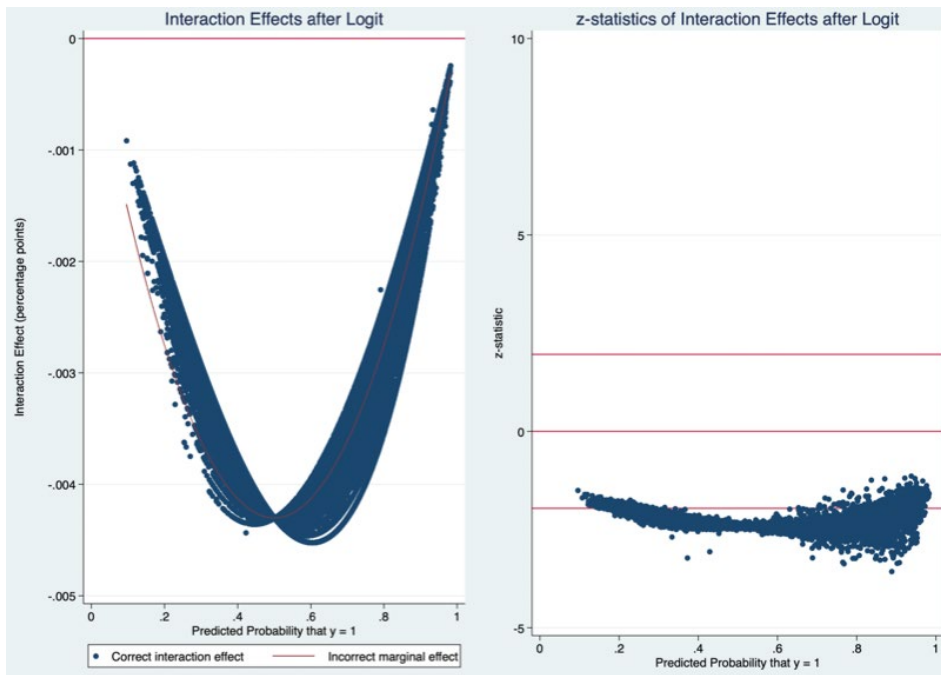
Figure A3: Help the needy, interaction effect of POUM and risk appetite.
Note: see notes to figure A1.

Figure A4: Public education, interaction effect of reverse POUM and risk appetite.
Note: see notes to figure A1.

Figure A5: Public health systems, interaction effect of reverse POUM and risk appetite.
Note: see notes to figure A1.

Figure A6: Help the needy, interaction effect of reverse POUM and risk appetite.
Note: see notes to figure A1.

Table A1: Balancing tests

VARIABLES	(1) Total (PP,RP,RR) mean	(2) sd	(3) PR mean	(4) sd	(5) Total (PP,PR,RR) mean	(6) sd	(7) RP mean	(8) sd	(9) Difference in mean (3)-(1)	(10) Difference in mean (7)-(5)
Risk Appetite (1-10)	4.645	2.635	5.032	2.753	4.69	2.662	5.28	2.531	0.387***	0.589***
Age	49.306	17.326	40.897	15.1	47.854	17.272	47.356	16.83	-8.409***	-0.498
Female	.558	.497	.535	.499	.555	.497	.53	.499	-0.023***	-0.025*
University Education	.143	.35	.155	.362	.144	.351	.172	.377	0.012**	0.028**
Employed	1.384	.486	1.23	.421	1.36	.48	1.324	.468	-0.154***	-0.035**
Ln(HH size)	.863	.573	1.142	.579	.913	.586	.882	.508	0.280***	-0.031**
Children's share in HH	.234	.261	.354	.273	.256	.268	.225	.246	0.120***	-0.030***
Female share in HH	.531	.277	.501	.243	.526	.272	.515	.253	-0.030***	-0.011*
Elderly share in HH	.183	.351	.058	.187	.162	.333	.147	.317	-0.125***	-0.015
Market is preferred	.37	.483	.443	.497	.384	.486	.355	.479	0.074***	-0.029*
Non-Orthodox	.367	.482	.264	.441	.345	.475	.433	.496	-0.103***	0.088***
Not Married	.416	.493	.354	.478	.407	.491	.356	.479	-0.062***	-0.051***
Urban	.581	.493	.52	.5	.566	.496	.678	.467	-0.061***	0.111***
Self-perceived health: Bad(4)-Very good(1)	2.49	.928	2.242	.817	2.452	.916	2.333	.883	-0.248***	-0.119***
Trust in people: Complete distrust(1) - Complete trust(5)	2.816	1.074	2.923	1.093	2.834	1.079	2.856	1.06	0.107***	0.022
Ln(total HH income)	8.565	2.509	9.542	2.949	8.738	2.624	8.766	2.507	0.977***	0.027
Downward past mobility	.307	.461	.362	.481	.23	.421	.374	.484	0.153***	0.144***
stable past mobility	.484	.5	.312	.463	.462	.499	.253	.435	-0.172***	-0.209***
Downward past mobility	.307	.461	.326	.469	.308	.462	.373	.484	0.019**	0.065***
Main determinant of need in society today										
Unlucky	.104	.305	.088	.283	.101	.301	.101	.301	-0.016***	-0.000
Laziness	.228	.42	.326	.469	.245	.43	.236	.425	0.098***	-0.009
Injustice	.456	.498	.37	.483	.44	.496	.463	.499	-0.086***	0.023
Inevitable part of life	.16	.367	.168	.373	.162	.368	.156	.363	0.007	-0.005
Other	.052	.223	.049	.216	.052	.222	.043	.203	-0.003	-0.009
Main determinant of success today	.402	.49	.465	.499	.416	.493	.341	.474	0.063***	-0.075***
Effort and hard work										
Intelligence and skills	.263	.44	.28	.449	.265	.441	.29	.454	0.017**	0.025*
Political connections	.233	.423	.187	.39	.223	.416	.277	.448	-0.046***	0.054***
Breaking the law	.064	.245	.041	.199	.06	.238	.057	.232	-0.023***	-0.003
Other	.037	.189	.026	.158	.035	.185	.034	.181	-0.012***	-0.001

Notes: Mean of each variable with standard deviation in parentheses. Column (9) is the result of a regression where each variable has been regressed on a dummy for PR, equal to 1 if a respondent is in the PR group and 0 otherwise. Column (10) is the result of a regression where each variable has been regressed on a dummy for RP, equal to 1 if a respondent is in the RP group and 0 otherwise. Robust standard errors clustered in a primary sampling unit level were used but not reported. *** p<0.01, ** p<0.05, * p<0.1

Table A2: Descriptive Statistics – Entropy balancing weights

Variables	Obs	Mean	Std.Dev.	Min	Max	p1	p99
Poor-Rich							
weight	25852	.341	.516	0	6	0	2.001
weight_eu	12196	.202	.38	0	5.783	0	1.221
weight_noneu	13656	.465	2.019	0	75.787	0	7.193
Rich-Poor							
weight	25852	.077	.215	0	3.053	0	1
weight_eu	12196	.079	.23	0	3.687	0	1
weight_noneu	13656	.075	.208	0	1.441	0	1

Notes: The variables weight, weight_eu and weight_noneu represent the entropy balancing weights generating via the Stata command ebalance.

Table A3: Joint distribution of risk appetite and POUM in the WTP for public education sample

POUM continous	Risk appetite:(1)-(10)										Total
	Not willing to take risks at all	2	3	4	5	6	7	8	9	Very much willing to take risks	
0	3195	1991	2336	1975	3149	2152	2148	1480	577	1135	20138
1	*152*	*107*	*124*	*157*	*257*	**177**	**157**	**95**	**46**	77	1349
2	*186*	*130*	*146*	*133*	*265*	**157**	**201**	**107**	**42**	132	1499
3	*131*	*61*	*65*	*64*	*115*	**85**	**76**	**57**	**25**	83	762
4	*53*	*20*	*23*	*24*	*45*	**17**	**27**	**21**	**16**	30	276
5	*40*	*10*	*12*	*6*	*29*	**15**	**7**	**9**	**6**	54	188
6	*8*	*3*	*4*	*2*	*14*	**1**	**3**	**4**	**1**	11	51
7	*1*	*2*	*2*	*0*	*5*	**5**	**2**	**2**	**2**	7	28
8	*3*	*0*	*0*	*0*	*1*	**0**	**0**	**0**	**0**	4	8
9	*1*	*0*	*0*	*0*	*5*	**0**	**0**	**1**	**1**	4	12
Total	3770	2324	2712	2361	3885	2609	2621	1776	716	1537	24311

Note: Table A5 is based on the available observations used to estimate model 1, panel A in table 6. Numbers in bold represent observations in the POUM group with an estimated negative marginal effect of POUM on the WTP for public education systems, 1767 observations in total are in the negative region. Numbers in italics represent observations in the POUM group with an estimated positive marginal effect of POUM on the WTP for public education systems, 2406 observations in total are in the positive region.

Table A4: Joint distribution of risk appetite and POUM in the WTP for public health sample

POUM continous	Risk appetite:(1)-(10)										Total
	Not willing to take risks at all	2	3	4	5	6	7	8	9	Very much willing to take risks	
0	3204	2011	2368	1995	3185	2172	2165	1490	581	1140	20311
1	*152*	*108*	*125*	**159**	**261**	**177**	**160**	**95**	**49**	**78**	1364
2	*188*	*130*	*147*	**133**	**265**	**163**	**200**	**107**	**44**	**133**	1510
3	*133*	*63*	*65*	**64**	**118**	**86**	**77**	**57**	**24**	**83**	770
4	*52*	*20*	*23*	**24**	**45**	**17**	**26**	**22**	**16**	**30**	275
5	*39*	*10*	*14*	**6**	**27**	**15**	**7**	**9**	**6**	**54**	187
6	*8*	*2*	*4*	**2**	**14**	**1**	**3**	**3**	**1**	**12**	50
7	*1*	*2*	*1*	**0**	**5**	**5**	**2**	**2**	**3**	**7**	28
8	*3*	*0*	*0*	**0**	**1**	**0**	**0**	**0**	**0**	**4**	8
9	*1*	*0*	*0*	**0**	**5**	**0**	**0**	**1**	**1**	**4**	12
Total	3781	2346	2747	2383	3926	2636	2640	1786	725	1545	24515

Note: Table A6 is based on the available observations used to estimate model 2, panel A in table 6. Numbers in bold represent observations in the POUM group with an estimated negative marginal effect of POUM on the WTP for public healthcare, 2913 observations in total are in the negative region. Numbers in italics represent observations in the POUM group with an estimated positive marginal effect of POUM on the WTP for public healthcare, 1291 observations in total are in the positive region.

Table A5: Joint distribution of risk appetite and POUM in the WTP for help to the needy sample

POUM continous	Risk appetite:(1)-(10)										Total
	Not willing to take risks at all	2	3	4	5	6	7	8	9	Very much willing to take risks	
0	3184	1981	2330	1945	3141	2135	2138	1480	580	1146	20060
1	*154*	*106*	*124*	*154*	*261*	*179*	*154*	**96**	**47**	**77**	1352
2	*188*	*126*	*143*	*126*	*256*	*160*	*198*	**106**	**44**	**129**	1476
3	*134*	*63*	*64*	*62*	*114*	*87*	*78*	**59**	**25**	**85**	771
4	*53*	*20*	*23*	*24*	*45*	*17*	*28*	**20**	**16**	**30**	276
5	*39*	*10*	*14*	*6*	*28*	*15*	*7*	**9**	**6**	**53**	187
6	*8*	*3*	*4*	*2*	*13*	*1*	*3*	**3**	**1**	**12**	50
7	*1*	*2*	*2*	*0*	*5*	*5*	*2*	**2**	**3**	**7**	29
8	*3*	*0*	*0*	*0*	*1*	*0*	*1*	**0**	**0**	**4**	9
9	*1*	*0*	*0*	*0*	*5*	*0*	*0*	**1**	**1**	**4**	12
Total	3765	2311	2704	2319	3869	2599	2609	1776	723	1547	24222

Note: Table A7 is based on the available observations used to estimate model 3, panel A in table 6. Numbers in bold represent observations in the POUM group with an estimated negative marginal effect of POUM on the WTP for help to the needy, 840 observations in total are in the negative region. Numbers in italics represent observations in the POUM group with an estimated positive marginal effect of POUM on the WTP for help to the needy, 3322 observations in total are in the positive region.

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