E C O N O M I C S B U L L E T I N

The Effect of Relative Income Position on Social Capital

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Abstract

This paper examines the influence of relative income position on individuals' attitudes by analyzing ISSP 1998 microdata from 25 countries along four different dimensions. Our results provide evidence for a sizeable relative income effect while also suggesting that absolute income level may be relevant. Changing the income reference group from regional to national does not significantly alter the results.

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1. Introduction

Envy, a "subtle and powerful feeling, motivating everything from political movements to murders" (Zeckhauser 1991, p. 9), plays an important social role by shaping the relations between human beings. Historically, envy has attracted much attention in both philosophy and social science. For example, as early as the third century BCE, Aristotle (1924) discusses envy in his *Rhetoric*, while Francis Bacon addresses it several centuries later in his ninth essay *Of Envy* (1890). Subsequently, Immanuel Kant (1964), in his *Metaphysic of Morals,* not only details the psychology of ingratitude and *schadenfreude* but provides a well-developed definition of envy and points to the importance of social comparisons. Other important philosophers, including Schopenhauer, Kierkegaard, and Nietzsche, also stress the function of envy in human society.

Economists, whose science originated from the field of moral philosophy, interpret envy primarily through the phenomenon of positional concerns among individuals. For example, Adam Smith (1759/1976) sees relative wants as central to human behavior, while Marx (1849) emphasizes that humans measure their wants and pleasure in relation to society. Even Marshall (1961), often seen as the creator of modern demand theory, notes the relevance of human distinction. It is therefore surprising that many economists have largely neglected the topic, possibly because standard utility theory assumes that individuals evaluate their welfare in absolute terms, whereas the theory of envy creation assumes that individual welfare depends on comparisons with others. Whatever the reason, there is a dearth of empirical research into the impact of relative income position on individual attitudes and behavior (see Senik 2005). Thus, this paper aims to provide further empirical evidence in this area.

Specifically, this investigation focuses on the impact of relative income position on social capital. Since the notion of social capital encompasses multiple aspects, we present an analysis of four different measurements covering social norms, vertical and horizontal trust, and networks. Moreover, we expand the methodological framework used by empirical studies to date, virtually all of which, whether they focus on income position's effect on happiness (the majority) or health (a few), use cross-sectional data from one single country (Eibner and Evans 2004, 2005, Ferrer-i-Carbonell 2005, Luttmer 2005, Mullahy, Robert and Wolfe 2004, Stutzer 2004, Easterlin 2001, Clark and Oswald 1996). In contrast, we employ international survey data from the 1998 wave (RELIGION II) of the International Social Survey Programme (ISSP), which covers approximately 24,000 persons in 25 countries. In addition, because the survey asks many questions related to various aspects of social capital, the dataset allows inclusion of a very complete set of control variables to better isolate partial correlations between relative income position and social capital.

The remainder of the paper is organized as follows. Section 2 outlines the four dimensions of social capital, after which Section 3 develops the hypotheses. Section 4 describes the dataset and model, and Section 5 discusses the empirical results. Section 6 concludes the paper.

2. Social Capital

The concept of social capital, studied at length in many different disciplines, has been strongly influenced by political scientist Robert Putnam (2000). In addition, several economists use social capital to explain economic phenomena (see, e.g. Knack and Keefer 1997, Schaltegger and Torgler 2005, and Slemrod 1998). Thus, social capital encompasses multiple aspects (see Putnam 2001 and Bjørnskov 2005), of which this paper investigates the following four

dimensions: compliance with social norms, trust among people, confidence in state institutions, and the active creation of networks.

The first dimension of social capital, compliance with social norms, is measured using a question related to tax morale, the intrinsic motivation or willingness to pay taxes, which many researchers argue helps explain unexpectedly high levels of tax compliance (see, e.g., Alm, McClelland and Schulze 1992, Frey and Feld 2002, Torgler 2006a). We assess this dimension in line with previous studies (see Torgler 2005b, 2005c) using the following question from the ISSP 1998: "Do you feel it is wrong or not wrong if a taxpayer does not report all of his or her income in order to pay lower income taxes?" Thus, this social norm variable is a proxy for an ethical attitude in daily life. Second, we analyze two facets of the traditional social capital variable "trust" (see, e.g., Glaeser et al. 2000, Knack 2000, Uslaner 2002): trust among people and the people's trust in national institutions. The first facet refers to generalized trust, the belief that most people can be trusted, which does not depend on a specific individual or on group characteristics (see, e.g., Uslaner 2002). We measure it using the following question: "Generally speaking, would you say that people can be trusted or that you cannot be too careful in dealing with people?" In a further step, we also address the particularized or institutional trust (in this case, the country's lawmaking body) that is a key factor in measuring the vertical interaction between citizens and the state. To measure this dimension for Switzerland, we use the question: "How much confidence do you have in the [parliament] <use national legislature, e.g. US Congress>?" Finally, we measure social capital's networking aspect by the level of civic engagement in voluntary work like charitable activities (Putnam 2000) because, depite lack of empirical evidence (see Bjørnskov 2005), such engagement may generate positive externalities and thus more trust among and in people not formally part of such organizations; for example, strangers in the community (Putnam 2000).

3. Hypotheses

In general, if people care about their relative economic position, positional concerns should affect many different life facets at the attitudinal or behavioral level. Schoeck (1966) stresses that "throughout history, in all stages of cultural development, in most languages and as members of widely differing societies, men recognized a fundamental problem of their existence and have given it specific names: the feeling of envy and being envied" (p. 3). Thus, the perception of the relative position should greatly affect people's morale. As a result, a relative economic disadvantage may lead to a lower willingness to pay taxes because of dissatisfaction and distress over the discrepancy between the actual and the aspired-to financial situation of a reference group. Thus, taxes might be perceived as a strong restriction, which increases the incentives to be less honest (for evidence, see Torgler 2006a, 2006b). Thus, our first hypothesis suggests that *the willingness to pay taxes depends positively on the relative income position*.

However, individuals' positional concerns or degree of envy may equally have a negative effect on their perceptions of others' fairness and their trust in others. That is, their generalized trust could decrease due to frustration ("it *could* have or *should* have been me") and a certain resignation of not being able to "keep up with the Joneses." In consequence, feelings of envy may lead not only to distrust of the Joneses (i.e., the reference group) but also of all other citizens. Thus, our second hypothesis suggests *there is a negative correlation between positional concerns (disadvantage in the relative income position) and generalized trust*.

In addition, individuals may blame the state or its institutions for the relative income disadvantages they experience compared to the Joneses. Thus, frustration or resignation may lead

not only to a decrease in trust at the horizontal level (generalized trust) but also at the vertical level; that is, the relation between the government and the citizen, for which we use the politico-economically linked variable "confidence in parliament." Our resultant third hypothesis suggests that *positional concerns lead to lower trust in state institutions like parliament*.

Lastly, we explore the possibility of a correlation between positional concerns and people's willingness to contribute to society through participation in voluntary organizations. For example, individuals may become involved in such institutions intending to correct or deal with their own relative social disadvantages through charitable activities (e.g., helping the sick, elderly, or poor). Accordingly, we develop our fourth hypothesis that *there is a positive correlation between positional concerns and the active participation in charity organizations*.

4. Data and Model

This analysis uses a cross section of individual data from the 1998 ISSP survey, which contains various questions related to our four dimensions of social capital. For each dimension, we choose one representative ISSP measure, which categorical variables are recoded so that higher values correspond to higher levels of social capital.

It is important to our analysis that this dataset not only covers approximately 24,000 observations from 25 countries but provides information on personal income, our variable of interest, and various additional sociodemographic variables usually employed in multivariate analyses of issues like tax morale, health status, or life satisfaction (see, e.g., Torgler 2006b and Dorn et al. 2005). To make income comparable across countries and persons, we calculate PPP-adjusted equivalent income in U.S. dollars based on the World Penn Tables 6.1 (Heston et al. 2002) and the modified OECD equivalence scale (Van Doorslaer and Masseria 2004). National average income we compute as the average of the personal equivalence income observed in one country, and analogously, as the regional average income for regions. If fewer than 30 observations exist for one region, we form larger entities for statistical inference. We measure the subsistence income as 40 percent of the average income of a country or region, and both average and subsistence income serve as a benchmark. Relative income position (*difference*) is the difference between an individual's income and the reference income (*income*) (see Tables I–III of the Appendix for descriptive statistics).

In this cross-sectional model, we regard the level of social capital (Y_i) as a function of the relative or absolute income position of an individual (Z_i),a vector of additional control variables (V_i) and an error term (ε_i).[1]

$$Y_i = \beta_1 Z_i + \beta_2 V_i + \varepsilon_i \tag{1}$$

To ensure comparability of the estimation results, computation for the various regressands employs the identical set of control variables. Our variable of interest, relative income position (*difference*), is measured in four different ways: (1 & 2) the difference between an individual's income and the national (subsistence) income (*income*) and (3 & 4) the difference between the individual's income and the regional (subsistence) income (*income*). In general, using a regional or national reference level is advantageous in that it is exogenously given for the single

[1] We are aware that cross-sections are subject to problems like endogeneity; however, using individual data has the advantage that at least the macrodeterminants are not influenced by the behavior of one single individual.

individual. The nonlinearity of the effect of income on social capital is taken into account by the squared terms of the income difference variables, *d2pos*[2] and *d2neg*[3].[4]

The regional factor takes into account that income levels are not equally distributed within countries and people are more likely to compare their societal position with that of close neighbors than with the rest of the world. The subsistence level as the benchmark income is expected to mirror the shape of a utility function,[5] while the average income seems intuitively more appealing for social comparison. The set of income variables allows differentiation between the absolute and relative income hypothesis. If only relative income matters, the coefficient of the average or subsistence income should be zero. If absolute income matters, the coefficients of the reference group and the relative income should be both positive and identical. To test the relative income hypothesis against the absolute income hypothesis, we conduct a Wald-test on the difference between the two relevant coefficients after each regression. In addition, because the estimated coefficients do not indicate the magnitude of the effect, we also compute marginal effects for the highest level of social capital. (See Table 1 of the Appendix, for a complete list of the model variables).

The model is estimated using a weighted ordered probit method, in which clustering at the regional or national level takes into account that the error terms for individuals living in the same country or region might be correlated because identical institutions and conditions are shared. Otherwise, the standard errors of the coefficients might be biased downward (Moulton 1990). The estimation results are weighted to ensure that they are representative of the corresponding national population.

5. Estimation Results

5.1. Regional Average Income as a Benchmark of Comparison

Table I and II report the empirical results for only the income variables. Figures I to IV in the Appendix illustrate the different impact of relative income when the predicted probabilities for the two highest categories of the four different social capital measures are plotted. Only the probability of charity engagement declines with a higher relative income.

Compliance with social norms

The first social capital dimension, compliance with norms, is measured by tax morale, the respondent's view of whether it is morally wrong to report income taxes incorrectly (see Table 1).[6] The estimates indicate that overall regional income level has no impact on tax morale but the level of tax morale seemingly increases with the distance between the individual's equivalent income and the regional subsistence level. In other words, the closer people's own earnings are to the subsistence level, the more prone they are not to report income taxes correctly. This result is particularly noteworthy given that low income earners (people below the subsistence level) pay lower income taxes; in consequence, the financial gain from tax evasion is greater for taxpayers with a higher income . Thus, as predicted by our first hypothesis, envy and positional

[2] *d2pos* = square term of *difference* if *difference* > 0 otherwise 0.
[3] *d2neg* = square term of *difference* if *difference* < 0, otherwise 0.
[4] For the use of squared income terms to capture nonlinearities, see Evans and Viscusi (1993).
[5] This concept assumes that positive utility levels are attached to income at least as high as the subsistence level, which is not necessarily the case for an income below this threshold.
[6] The wording of the related questions can be found in Table III of the Appendix.

concerns on the part of the deprived decreases social capital in the form of tax morale. Interestingly, the income difference apparently exerts a considerable marginal effect on the highest tax morale (about 3.9 percentage points). The positive and weakly significant coefficient on the negative difference squared (*d2neg*) even suggests that marginal tax morale increases with relative income for persons below the subsistence level. Nonetheless, because the Wald-test cannot reject the hypothesis of equal coefficients for both the subsistence and difference incomes, the absolute income hypothesis cannot be completely rejected. Using the regional average income instead of the subsistence level produces fairly similar estimation outcomes. The sole difference is that the coefficient of the negative distance squared (*d2neg*) loses its significance, whereas the negative coefficient of the positive distance squared (*d2pos*) becomes statistically significant at the 10 percent level. These estimates indicate that the propensity to report taxes honestly increases with an increase in relative income position but at a decreasing rate.

Generalized trust

The second regressand relates to the social capital dimension of generalized trust, which measures whether respondents believe that people can generally be trusted (see Table I). Even though regional average level does not appear decisive for the level of trust, trust does rise as relative income increases, which supports the impact of positional concerns. That is, the richer people are relative to their peers, the more they regard their environment as trustworthy. This finding supports our second hypothesis. Moreover, the marginal effects are not negligible, with 1.8 percentage points for the highest category. Nonetheless, the Wald-test on the income variables again fails to support the relative income hypothesis. For negative differences in income, the estimate of the squared term reveals an increasing marginal trust, whereas for positive differences, the estimate indicates a decreasing marginal trust. However, when the alternative income benchmark is used, both relative and absolute income become decisive and positive determinants of social trust. Notwithstanding, the Wald-tests' support of the absolute income hypothesis contradicts the observed significances of the coefficients.

Trust in state institutions

The next dimension of social capital measures confidence in state institutions, specifically the parliament. The estimation results (see Table II) show that confidence in parliament is influenced by neither general social wealth (regional subsistence income) nor an individual's relative income position. A totally different picture is observable when the regional average income is used as the reference income: that is, the confidence in parliament clearly rises with regional income and also (weakly) with relative income position. Thus, persons with fewer positional concerns have more trust in institutions that are subject to political business and re-election cycles than the relatively deprived. Nonetheless, the Wald-test on the income variables does not reject the absolute income hypothesis, which supports the subjective view that better institutions are found in wealthier nations. Overall, contrary to our third hypothesis, trust in parliament appears to be driven by the absolute income level.

Social networking

The last regressand is linked to the social networks that form a decisive part of social capital (see Table II), measured here by the frequency of the interviewee's voluntary participation in, for example, charitable activities. As the significant coefficient on the regional subsistence level

indicates, voluntary work in charity organizations appears to increase with absolute social wealth. On the other hand, the frequency of such activities decreases with a rise in relative income position, with a considerable marginal effect (2.1 percentage points). The Wald-test on the two income variables supports the view that it is relative income position and not absolute individual income level that matters. Obviously, no detrimental effect of envy exists here; rather, as predicted by our fourth hypothesis, persons with a low or middle relative income position become socially active.

Admittedly, those with higher income may face tighter time constraints; however, it might also be that persons with a relatively low income prefer to actively engage in a cooperative re-distributive equilibrium activity among their peers rather than support such organizations financially. In addition, for this dimension of social capital, we observe that the estimation results are comparable to those based on the regional average income. The only difference is that for positive income distances, the propensity to become socially active decreases but at an increasing rate. In conclusion, relative income becomes decisive when the regional average income is employed instead of the regional subsistence level.

5.2 National Average Income as a Benchmark of Comparison

By outlining the estimates for both the subsistence and average incomes measured at the national level, Tables III and IV illustrate the different results when the reference group is changed—that is, when the relative individual income position is measured with respect to the national rather than the regional situation. The following discussion focuses particularly on these differences, with the regional income as the income of comparison.

As regards tax morale, we report qualitatively identical results for the income variables in all four models except for a 10 percent significance level for the *d2pos* variable when the regional average income is used. The marginal impacts of the relative income position are comparably large for all models, and the Wald-tests cannot reject the null hypothesis in any model.

When the focus is the level of social trust among the country's residents, the impact of the subsistence level and the relative income position variables are again virtually identical for both incomes. In addition, the marginal effects are quantitatively consistent, with a certain decline in the average income impact for both regional and national cases but no clear tendency for positional concerns to work more strongly in the regional than in the national context.

In terms of trust in parliament, differences do emerge. We observe some changes in the significance levels but only for those at the 10 percent level. Most particularly, relative income position now seems to matter for both regional average income and national subsistence level but not for the other two cases. This result indicates that envy is weakly associated with a lower level of confidence in the legislating institution, which now supports our third hypothesis.

Finally, as regards frequency of participation in charitable organizations, the income variables based on the national levels show exactly the same pattern and similar quantitative effects as those for the regional benchmark models. In addition, the size of the income impact is almost identical when the national level is employed

6. Conclusion

The importance of relative preferences is not a new concept. However, empirical evidence on the extent to which relative income position matters in different aspects of life is relatively rare.

Moreover, most empirical studies to date focus on its impact on happiness. Thus, as Paldam (2000) correctly points out, social capital literature is a "new field, [but] suffering from a great lack of good, reliable data. Both time series and cross-country evidence are missing. In the meantime much speculation is going on" (p. 649). In contrast, this current cross-sectional study uses the rich ISSP 1998 dataset for 25 countries and about 24,000 individuals to go beyond previous studies that, by focusing on a single country, are unable to abstract the impact of cultural differences. Thus, our paper contributes to the social capital literature in general and the cross-sectional research in particular by (1) analyzing the impact of relative income position on social capital and (2) using the responses to different questions to measure social capital along four different dimensions: compliance with social norms, general trust between people, citizen trust in institutions, and voluntary activities.

In general, we find empirical support for relative income position's relevance for social capital. In most cases, we observe that the coefficients measuring an interviewee's relative income position are statistically significant with considerable marginal effects. For the generalized trust measure, social capital rises with relative income or, in other words, declines with growing envy. One exception, however, is confidence in parliament, at least in some of the model specifications. The social capital measure most strongly affected quantitatively by the relative income position is tax morale. As regards individual participation in charity organizations, in the presence of an income disadvantage (compared to the reference income), the effect of relative income position becomes more prominent together with stronger social involvement.

For most models, it is impossible to completely reject either the relative or the absolute income hypothesis. Moreover, in many cases, we find evidence that the relative income effect is not symmetrical; but shows the tendency of decreasing marginal utility for incomes above the reference level. Most surprisingly, the majority of findings are fairly robust to a change in reference groups—national versus regional or subsistence versus average income level. Only the marginal impacts of the positional variable appear more sizeable when the subsistence income serves as the reference income.

Appendix

Table I: Description of control variables and summary statistics

Variable	Obs.	Mean	Std. dev.	Min.	Max.	VWS variables
Regional subsistence income / 10000	23969	0.151	0.261	0.000	0.894	OECD equivalized V216
Difference to subsistence income / 10000	23969	0.228	0.548	−0.706	6.980	See above
Difference squared if income < 0	23969	0.001	0.011	0.000	0.498	See above
Difference squared if income > 0	23969	0.352	1.384	0.000	48.720	See above
Regional average income / 10000	23969	0.151	0.259	0.000	0.785	See above
Difference to average income / 10000	23969	0.228	0.552	−0.697	6.962	See above
Difference squared if income < 0	23969	0.001	0.010	0.000	0.486	See above
Difference squared if income > 0	23969	0.355	1.403	0.000	48.471	See above
National subsistence income / 10000	23969	0.378	0.652	0.000	2.234	See above
Difference to subsistence income /10000 income	23969	0.001	0.383	−1.995	5.912	See above
Difference squared if income < 0	23969	0.055	0.229	0.000	3.978	See above
Difference squared if Income > 0	23969	0.092	0.619	0.000	34.947	See above
National average income / 10000	23969	0.378	0.648	0.000	1.963	See above
Difference to average income / 10000	23969	0.001	0.390	−1.792	5.867	See above
Difference squared if income < 0	23969	0.056	0.226	0.000	3.213	See above
Difference squared if income > 0	23969	0.096	0.641	0.000	34.420	See above
Female	23969	0.529	0.499	0	1	V200
Age 30–39	23969	0.220	0.414	0	1	V201
Age 40–49	23969	0.198	0.398	0	1	V201
Age 50–59	23969	0.161	0.367	0	1	V201
Age 60–69	23969	0.139	0.346	0	1	V201
Age 70–79	23969	0.080	0.272	0	1	V201
Age 80	23969	0.014	0.117	0	1	V201

Table I (cont.): Description of control variables and summary statistics

Level of education	23969	4.584	1.460	1	7	V205
Level of education squared	23969	23.143	13.580	1	49	V205
Single	23969	0.189	0.391	0	1	V202
Separated or divorced	23969	0.075	0.264	0	1	V202
Widowed	23969	0.086	0.280	0	1	V202
Attendance at relig. services	23969	2.325	2.015	1	9	V59
Catholic	23969	0.414	0.493	0	1	V217
Jewish	23969	0.031	0.174	0	1	V217
Protestant	23969	0.202	0.402	0	1	V217
Orthodox	23969	0.060	0.237	0	1	V217
No religion	23969	0.234	0.423	0	1	V217
Buddhist	23969	0.015	0.123	0	1	V217
Muslim	23969	0.011	0.104	0	1	V217
Urban	23969	0.486	0.500	0	1	Community variables
Rural area	23969	0.279	0.449	0	1	See above
Self-employed	23969	0.093	0.291	0	1	V206
Unemployed	23969	0.054	0.226	0	1	V206
Retired	23969	0.194	0.395	0	1	V206
Housewife	23969	0.100	0.300	0	1	V206
Disabled	23969	0.021	0.144	0	1	V206
Out of labor force	23969	0.010	0.102	0	1	V206
Germanic languages	23969	0.183	0.387	0	1	V3
Romance languages	23969	0.219	0.414	0	1	V3
Northern Germanic lang.	23969	0.124	0.329	0	1	V3
Balto-Slavic countries	23969	0.297	0.457	0	1	V3
Other, non-English lang.	23969	0.120	0.324	0	1	V3

Table is based on the number of observations in the tax morale regression model.

Table II: Description of dependent variables and summary statistics

Variable	Obs.	Mean	Std. dev.	Min.	Max.	VWS variables
Happiness	24'166	2.8995	0.7370	1	4	V4
Generalized trust	24'290	2.2681	0.8022	1	4	V19
Confidence in parliament	23'690	2.4466	1.4098	1	5	V20
Tax morale	23'969	2.9641	0.9445	1	4	V16
Voluntary charity engagement	24'396	1.4560	0.9049	1	4	V33

Table III: Wording of the ISSP questions for the social capital measures

Measure	Question
Happiness	"If you were to consider your life in general these days, how happy or unhappy would you say you are, on the whole?" Possible answers: "very happy," fairly happy," not very happy," or "not at all happy."
Generalized trust	"Generally speaking, would you say that people can be trusted or that you can't be too careful in dealing with people?" Possible answers: "people can almost always be trusted," "people can usually be trusted," "you usually can't be too careful in dealing with people," or "you almost always can't be too careful in dealing with people."
Confidence in parliament	"How much confidence do you have in parliament?" Possible answers: "complete confidence," "some confidence," "very little confidence," or "no confidence."
Tax morale	"Do you feel it is wrong or not wrong if a tax payer does not report all of [his/her] income in order to pay less income tax?" Possible answers: "not wrong," "a bit wrong," "wrong," and "seriously wrong."
Voluntary charity engagement	"Have you done any voluntary activity in the last 12 months in any of the following areas? Voluntary activity is unpaid work, not just belonging to an organization or group. It should be of service or benefit of other people or the community and not only to one's family or personal friends. During the last 12 months, did you do volunteer work in any of the following areas: …charitable activities (helping the sick, elderly, poor etc.)?" Possible answers: "no," "yes, once or twice," "yes, 3–5 times," or "yes, 6 or more times."

Table III: Descriptive statistics for the 25 countries included

Country	Freq.	Percent	Germanic	Romance	Northern-Ger.	Balto-Slavic	Other
Germany	1405	5.86	1	0	0	0	0
Austria	646	2.70	1	0	0	0	0
Hungary	811	3.38	0	0	0	1	0
Italy	591	2.47	0	1	0	0	0
Netherlands	1419	5.92	1	0	0	0	0
Norway	1259	5.25	0	0	1	0	0
Sweden	857	3.58	0	0	1	0	0
Czech Republic	693	2.89	0	0	0	1	0
Slovenia	693	2.89	0	0	0	1	0
Poland	901	3.76	0	0	0	1	0
Bulgaria	920	3.84	0	0	0	1	0
Russia	1009	4.21	0	0	0	1	0
New Zealand	773	3.22	0	0	0	0	0
Canada	610	2.54	0	0	0	0	0
Philippines	1058	4.41	0	0	0	0	1
Israel	830	3.46	0	0	0	0	1
Japan	978	4.08	0	0	0	0	1
Spain	1522	6.35	0	1	0	0	0
Latvia	994	4.15	0	0	0	1	0
Slovak Republic	1099	4.59	0	0	0	1	0
France	865	3.61	0	1	0	0	0
Portugal	1075	4.48	0	1	0	0	0
Chile	1194	4.98	0	1	0	0	0
Denmark	854	3.56	0	0	1	0	0
Switzerland	913	3.81	1	0	0	0	0
Total	24,166	100					

Number of countries and observations based on the tax morale regression model.

Figure I: Tax Morale and Relative Income

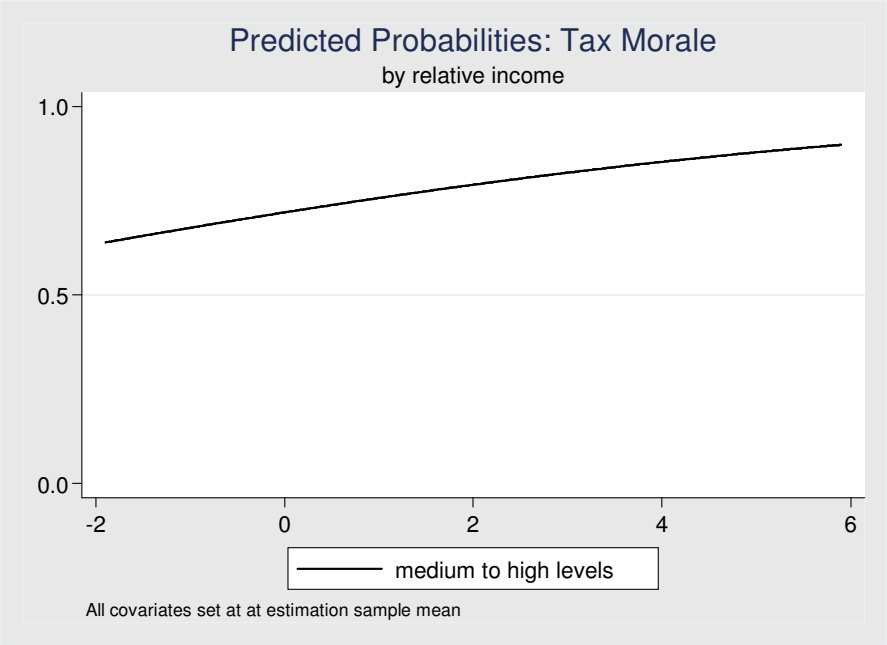


Figure II: Generalized Trust and Relative Income

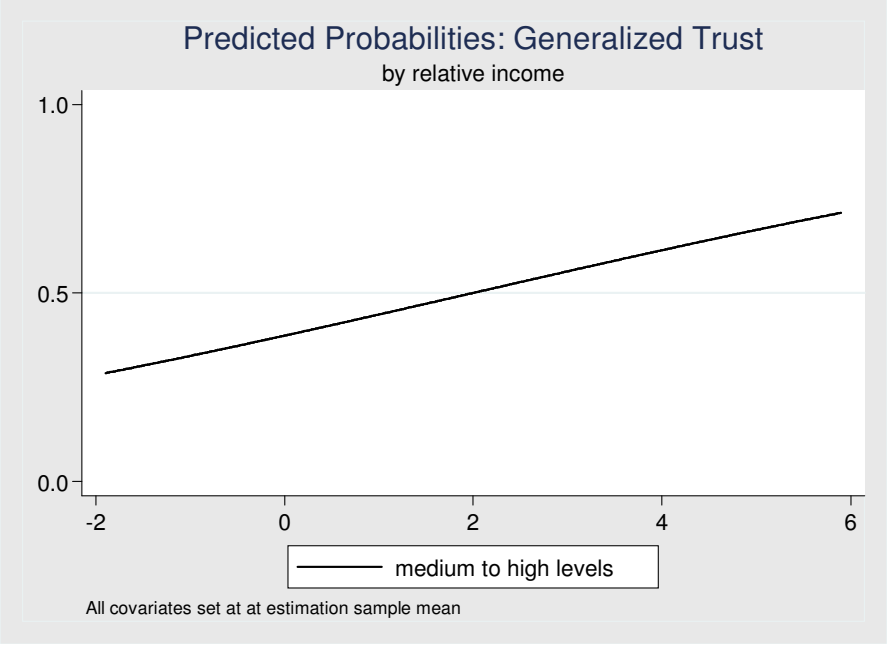


Figure III: Confidence in Parliament and Relative Income

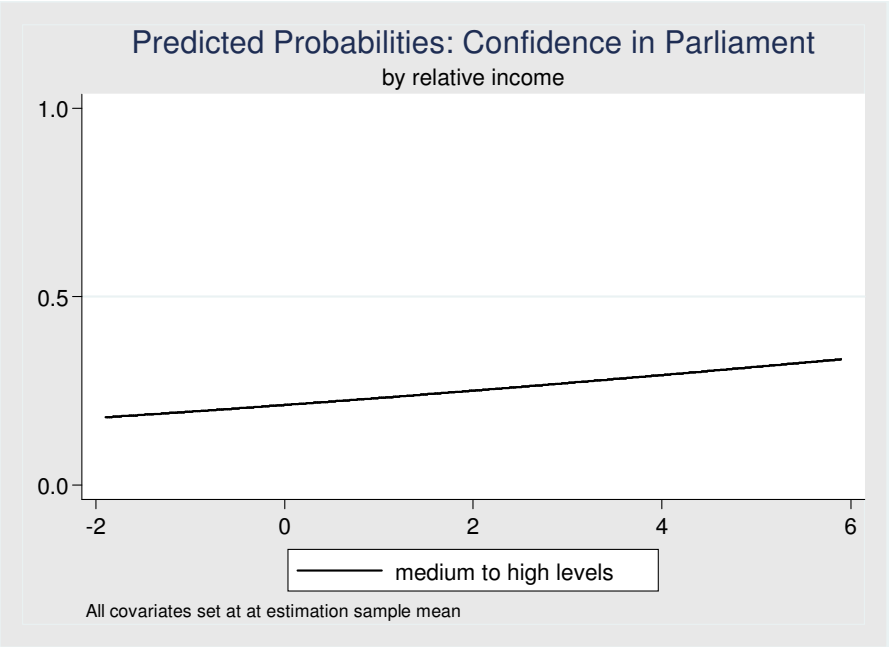
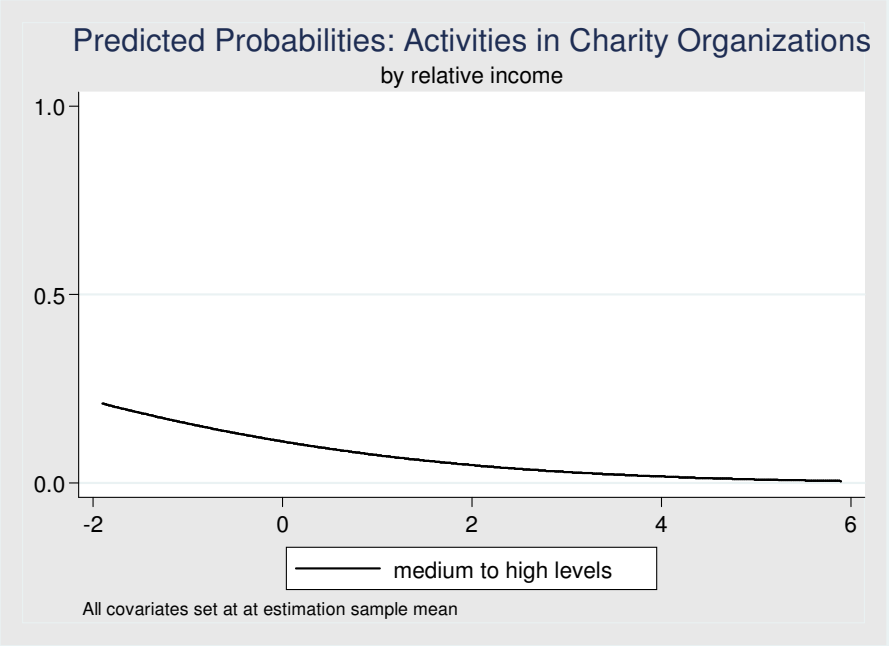


Figure IV: Activities in Charity Organizations and Relative Income



Tables

Table I: Regional income as a benchmark for social comparison

	Tax morale				Generalized trust			
	Subsistence income		Average income		Subsistence income		Average income	
	Coeff.	Marg. eff.	Coeff.	Marg. eff.	Coeff.	Marg. eff.	Coeff.	Marg. eff.
income	0.003	0.001	0.048	0.018	0.084	0.006	0.128**	0.010
	(0.03)		(1.49)		(0.90)		(3.78)	
difference	0.107*	0.039	0.117**	0.043	0.242**	0.018	0.144**	0.011
	(2.56)		(3.45)		(4.12)		(2.75)	
d2neg	0.741(*)	0.270	0.067	0.024	1.605(*)	0.120	0.032	0.002
	(1.71)		(1.55)		(1.69)		(0.45)	
d2pos	−0.014	-0.005	−0.027(*)	−0.010	−0.057**	-0.004	−0.055(*)	−0.004
	(1.10)		(1.67)		(3.01)		(1.84)	
Observations	23969		23969		24290		24290	
Wald-test (income var.)	0.86		2.17		1.43		0.06	
Prob. > chi^2	0.3529		0.1410		0.2322		0.8140	
Pseudo R^2	0.0216		0.0217		0.0623		0.0621	

Weighted ordered probit regression with clustering by regions. Marginal effects calculated at the averages for the highest category. Absolute value of the z-statistics in parentheses. **, *, and (*) denote significances at the 1, 5, and 10 percent levels, respectively.

Table II: Regional income as a benchmark for social comparison

	Confidence in parliament				Voluntary work for charity organizations			
	Subsistence income		Average income		Subsistence income		Average income	
	Coeff.	Marg. eff.	Coeff.	Marg. eff.	Coeff.	Marg. eff.	Coeff.	Marg. eff.
income	0.036	0.010	0.044**	0.012	0.607**	0.076	0.164*	0.021
	(0.57)		(2.68)		(3.02)		(2.08)	
difference	0.078	0.021	0.062(*)	0.017	-0.164*	−0.021	−0.221**	-0.028
	(1.54)		(1.72)		(2.21)		(3.66)	
D2neg	0.716	0.190	0.034	0.009	-1.784	-0.223	-0.111	-0.014
	(1.03)		(0.60)		(1.31)		(1.03)	
D2pos	−0.017	−0.005	-0.022	−0.006	0.026	0.003	0.088**	0.011
	(1.15)		(1.34)		(1.02)		(3.44)	
Observations	23690		23690		24396		24396	
Wald-test (income var.)	0.15		0.16		10.90**		14.03**	
Prob. > chi^2	0.6970		0.6850		0.0010		0.0002	
Pseudo R^2	0.0056		0.0056		0.0565		0.0568	

Weighted ordered probit regression with clustering by regions. Marginal effects calculated at the averages for the highest category. Absolute value of the z-statistics in parentheses. **, *, and (*) denote significances at the 1, 5, and 10 percent levels, respectively.

Table III: National income as a benchmark for social comparison

	Tax morale				Generalized trust			
	Subsistence income		Average income		Subsistence income		Average income	
	Coeff.	Marg. eff.	Coeff.	Marg. eff.	Coeff.	Marg. eff.	Coeff.	Marg. eff
income	-0.014	-0.005	0.046	0.017	0.058	0.004	0.131**	0.010
	(0.15)		(1.40)		(0.61)		(3.79)	
difference	0.119**	0.044	0.121**	0.044	0.259**	0.019	0.131*	0.010
	(2.93)		(3.34)		(4.46)		(2.45)	
D2neg	0.986*	0.360	0.067	0.024	1.791(*)	0.133	−0.009	-0.001
	(2.17)		(1.33)		(1.80)		(0.12)	
D2pos	−0.017	−0.006	-0.028	−0.010	−0.061**	−0.005	−0.051(*)	−0.004
	(1.37)		(1.60)		(3.27)		(1.80)	
Observations	23969		23969		24290		24290	
Wald-test (income var.)	1.33		2.22		2.29		0.00	
Prob. > chi^2	0.2479		0.1364		0.1306		0.9992	
Pseudo R^2	0.0217		0.0217		0.0623		0.0621	

Weighted ordered probit regression with clustering by countries. Marginal effects calculated at the averages for the highest category. Absolute value of the z-statistics in parentheses. **, *, and (*) denote significances at the 1, 5, and 10 percent levels, respectively.

Table IV: National income as a benchmark for social comparison

	Confidence in parliament				Voluntary work for charity organizations			
	Subsistence income		Average income		Subsistence income		Average income	
	Coeff.	Marg. eff.	Coeff.	Marg. eff	Coeff.	Marg. eff.	Coeff.	Marg. eff.
income	0.022	0.006	0.048**	0.013	0.681**	0.085	0.179*	0.022
	(0.35)		(2.75)		(3.53)		(2.31)	
difference	0.093(*)	0.025	0.058	0.015	−0.195**	−0.024	−0.218**	-0.027
	(1.89)		(1.47)		(2.80)		(3.73)	
D2neg	1.042(*)	0.277	0.013	0.004	−2.143	−0.268	−0.094	-0.012
	(1.92)		(0.20)		(1.49)		(0.97)	
D2pos	−0.021	−0.006	−0.024	−0.006	0.033	0.004	0.082**	0.010
	(1.42)		−1.36		(1.42)		(3.37)	
Observations	23690		23690		24396		24396	
Wald-test (income var.)	0.45		0.04		15.99**		15.48**	
Prob. > chi^2	0.5015		0.8392		0.0001		0.0001	
Pseudo R^2	0.0056		0.0058		0.0569		0.0571	

Weighted ordered probit regression with clustering by countries. Marginal effects calculated at the averages for the highest category. Absolute value of the z-statistics in parentheses. **, *, and (*) denote significances at the 1, 5, and 10 percent levels, respectively.

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