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by

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Intra-Household Income Inequality and Preferences for Redistribution

Tina Haussen*

Abstract

We empirically analyze the relationship between income inequality and individual preferences for public redistribution, focusing on intra-household income inequality between spouses. Using data from the German Socio-Economic Panel, we find that both one's own earned income and earned intra-household income inequality are significantly negatively related to preferences for public redistribution. However, as the earned income inequality between partners increases, the poorer partner's preference for public redistribution declines while the richer partner's preference for public redistribution increases. The poorer partners' preferences may, in fact, indicate preferences for intra-household redistribution from the richer to the poorer partner. The richer partners' preferences may be explained by the fact that, when married, they can realize tax savings and, therefore, have to pay relatively less for public redistribution. Moreover, our results confirm previous findings regarding a partner's future social mobility prospects upon cohabitation ending, because they show that having a strong outside option, i.e., a high wage potential, is significantly negatively related to redistributive preferences, especially among those with an above-average future wage potential.

Keywords: Redistributive preferences · intra-household income inequality · cohabitation · prospects of upward mobility

JEL-Codes: D13, D31, D63, J12, H23

1 Introduction

Governmental income redistribution is a balancing act between satisfying individuals' preferences regarding income equality and dealing with the potential negative consequences concerning economic efficiency (Großer and Reuben, 2013). While redistribution can help insure individuals against risks, relax credit constraints, and reduce the variance in lifetime incomes (Benabou, 2000), it may likewise distort individuals labor-leisure choices (Kleven and Schultz, 2014) and human capital investment decisions, as the rate of return is reduced (Bovenberg and Jacobs, 2005; Jacobs and Yang, 2016). Assuming that, in democratic societies, the actual realized scope of redistributive politics largely

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reflects individuals' redistributive preferences, e.g., aggregated through collective choice mechanisms (Borek, 2007), understanding the determinants of these preferences is deemed important. Empirically, income inequality has—besides other factors¹—regularly been proven to be a significant predictor of individuals' redistributive preferences (see, e.g., Ravallion and Lokshin, 2000; Fong, 2001; Acemoglu and Robinson, 2005; Alesina and Fuchs-Schuendeln, 2007; Rainer and Siedler, 2008; Yamamura, 2012). However, empirical studies on this topic often use household income as a measure of income (Couprie, 2007; Grabka et al., 2015), which neglects that income inequality may also exist within households, e.g. between partners. Using data of cohabiting individuals from the German Socio-Economic Panel, the goal of this paper is to empirically analyze the relationship between income inequality and individual preferences for public redistribution, placing special emphasis on the role of intra-household income inequality.

Under the assumption of self-interest, economists traditionally model individuals' preferences for public income redistribution as being defined by their position in their society's income distribution and, thus, income inequality (Romer, 1975; Meltzer and Richard, 1981). With public redistribution from the rich to the poor by means of a progressive income tax, one would expect individuals who earn a comparatively low pre-tax income to favor such redistribution, since they are more likely to benefit from it and less likely to pay for it. Conversely, relatively richer individuals within a society should oppose income redistribution (Alesina and La Ferrara, 2005). Since, based on Meltzer and Richard's (1981) theory, individuals first draw their income and then build their preference for redistribution, the actual (earned) income, i.e., income pre-taxes and pre-transfers, should be used to estimate the determinants of individuals' redistributive preferences (Milanovic, 2000). Furthermore, we argue that household income, which is often used in empirical studies on that topic, does not adequately reflect the income inequality faced by individuals. Instead, individual income, on the one hand, and income inequality within households, on the other hand, should be used, for several reasons.

First, and most generally, by using the income of individuals, not the income of their households, we take into consideration the fact that individuals are independent decision makers who have separate finances, utility functions, and, thus, preferences (Grossbard, 2011; 2015). This standpoint places this paper on the individualistic—the nonunitary—side within household economics.²

Second, additionally accounting for differences in earned incomes within households is important. Although applying the household income may be reasonable for single people, a large fraction of individuals does not live in single households but in multi-person households. In Germany—the country under focus in the present paper—this applied to more than 80% of the population in 2013 (German Federal Statistical Office, 2017). For such households, using the household income implicitly assumes that there is no income inequality within households (Couprie, 2007). However, this is typically not the case, as incomes within households have been found to be considerably unequally

¹ Other determinants of individual preferences for public redistribution (see also Section 2.3) encompass individual beliefs about one's future well-being (Benabou and Ok, 2001; Alesina and La Ferrara, 2005; Steele, 2015), concerns for distributive justice, and beliefs about the underlying sources of income inequality (Fong, 2001; Corneo and Fong, 2008; Isaksson and Lindskog, 2009).

² In unitary models, multi-person households are analyzed as having one single household utility function being maximized to one joint budget constraint. Alternative, i.e., nonunitary, models include, e.g., bargaining (see, e.g., McElroy and Horney, 1981) and consensual models (see, e.g., Chiappori, 1988) in addition to independent individual models of decision-making (see, e.g., Grossbard-Shechtman, 1984).

distributed. Lise and Seitz (2011) and Haddad and Kanbur (1990), for example, find for the UK and the Philippines, respectively, that total income inequality is underestimated by approximately 30% to 50% when only measuring income inequality between, but not within, households.

Third, it is particularly relevant to account for differences in earned incomes among spouses as the cohabitational status either may or may not change their eligibility for some forms of public assistance. This, in turn, should affect utility maximization of individuals' preferences for governmental income redistribution. In Germany, eligibility for some transfer payments, e.g. specific unemployment benefits, are based on the income of the household economic community of need, i.e., on the assets of the claimant's partner, if either he or she is in a committed marriage-like partnership (Federal Ministry of Labor and Social Affairs, 2015). Put differently, if the richer partner's income is sufficiently large, the poorer partner may not be entitled to redistribution through either specific public funds or benefits. Given the assumption that an individual should favor public redistribution if either he or she can gain from it, we may expect the non-entitled individuals to oppose public redistribution.

Fourth, just as individuals decide on the extent of redistribution they prefer within society, they may also do the same within their own household. Living together with the partner, for example, opens up the possibility for redistribution among spouses (henceforth 'private redistribution'); typically from the richer to the poorer partner.³ If private redistribution is considered to be more advantageous than is public redistribution, the former may be regarded as a (partial) substitute for the latter.⁴ Nevertheless, it may make a difference whether redistributed money comes from the pool of all tax payers or from one's own partner, given that, while private redistribution will end when cohabitation ends, public redistribution will remain. The end of cohabitation is an ever-present risk, be it from the end of a relationship or the death of one's partner. Individual preferences for public and private redistribution, therefore, likely also depend on individuals' expectations about their (financial) well-being at this 'threat point'.

Our paper differs from the existing empirical literature in several ways regarding the determinants of preferences for public income redistribution. Using data of the GSOEP on cohabiting individuals, we explicitly account both for earned individual, but not household, income and for the earned income inequality within households. We can also assess whether individuals are either the poorer or the richer partner within the household and whether they are actually relatively either poor or rich within the society. To be precise, we determine who is either the poorer or the richer partner in the household on the basis of their earned income, i.e., their income before taxes and public or private transfers. Moreover, we calculate the potential earned income of cohabiting individuals, that is, their outside option, if cohabitation ends. We do so by using the earned incomes of the non-cohabiting individuals in our dataset to estimate the determinants of their labor market wages using a Mincer earnings equation. This, in turn, is then applied to the characteristics of the cohabiting individuals.

³ Private redistribution is considered to depend on household public goods and partners' relative bargaining power (Lundberg et al., 1997; Donni, 2007; Cherchye et al., 2009) or on the division of labor between spouses (Amuedo-Dorantes et al., 2010). Spouses may transfer income (or in-kind transfers) among each other, for example, in exchange for 'work-in-household', i.e., specific household work that benefits the partner (Grossbard-Shechtman, 1984).

⁴ Note, however, in this paper, we observe neither the nature nor the scope of private redistribution between spouses. Rather, private redistribution is considered as one possible rationale behind partners' different preferences for public redistribution.

The results of our empirical analysis suggest that not only one's own earned income but also earned intra-household income inequality and one's wage potential at the threat point are significantly negatively related to preferences for public redistribution. Moreover, being the poorer (richer) partner makes one more likely to oppose (prefer) public redistribution, with these effects being more pronounced the larger the differences in earned incomes between the partners. The larger the earned income inequality between partners the more likely it is that the richer partner will redistribute resources to the poorer partner intra-household. Then, the poorer partner's opposition to public redistribution could be an expression either that he or she is less in need of it or that it is less beneficial than is private redistribution. The fact that the richer partners in households with very unequal earned incomes prefer public redistribution could be due to the more beneficial taxation of such kinds of cohabitations in Germany, implying that more public redistribution by means of higher taxation would hit these richer partners less severely.

The present paper is organized as follows. In Sections 2 and 3, we present our data and the empirical strategy. In Section 4, we illustrate our econometric results, i.e., we comment on the effect of being either the poorer or the richer partner in more or less unequal households with respect to one's preferences for public income redistribution. In Section 5, we conclude.

2 Data and Descriptive Statistics

To test whether and how earned intra-household income inequality is related to preferences for public redistribution, we use survey data from the German Socio-Economic Panel (GSOEP), a longitudinal annual survey of individuals living in private households in Germany. This panel data set not only contains a large number of questions related to socio-economic characteristics, such as individual income [before taxes and transfers ('pre-fisc')] and marital status but also, in respect of a few years, about subjective preferences for public redistribution (Wagner et al., 2007; Grabka et al., 2015). In particular, we use data from the 2005 wave, as this is one of the few waves in which respondents were asked about their opinion on the appropriate level of income taxation—and, with this, the amount of money available for public redistribution⁵—for certain occupational groups.

Given our specific interest in income inequality within households, we restrict the sample to cohabiting respondents (independent of their marital status) aged 18 and older living in two-person households.⁶ We exclude single households, as, by definition, there is no intra-household income inequality and because we lack the information on consumption shares that would be needed to quantify household economies of scale. Cohabiting respondents with children are also excluded—a strong but necessary restriction to avoid biases due to the intra-household allocation of resources for children (Lise and Seitz, 2011). Given these restrictions, we obtain full information for 4,379 individuals. Summary statistics regarding all the variables used in our analysis can be found in Table A.1.

In the following subsections, we focus, first, on the dependent variable—the preference for public redistribution—and, second, on the main explanatory variables, i.e.,

⁵ In Germany, public income redistribution takes place mainly via progressive income taxes and social security spending (Bach et al., 2015).

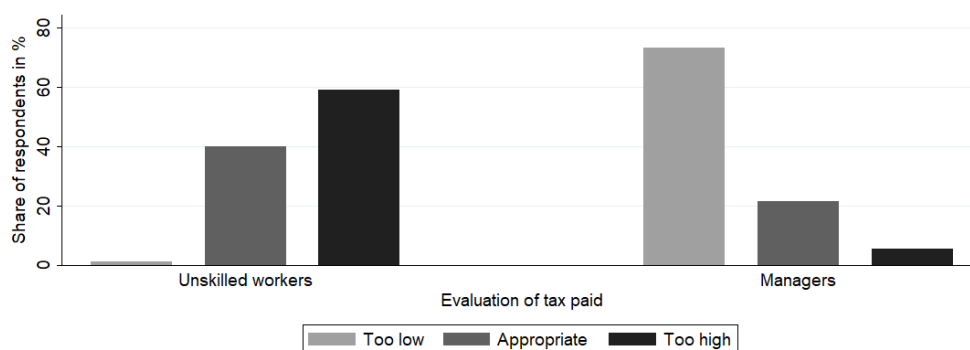
⁶ We exclude cohabiting individuals living in households with more adults than just the own partner. We do so because we may not be able to disentangle the income of the own partner from the incomes of other household members if they did not agree to be surveyed in the GSOEP.

individual income and intra-household income inequality. Moreover, we introduce further control variables.

2.1 Dependent Variables

In 2005, the GSOEP's special focus was 'Personality and Politics'. Respondents were asked, most importantly, about their perceptions of income equality and tax justice. Following the example of Rainer and Siedler (2008), we use two questions assessing opinions regarding the marginal tax rates being paid by the poor and the rich, i.e., the evaluation of income taxes paid either by unskilled workers or by managers. The first question reads as follows: 'In Germany, everyone has to pay taxes in relation to his/her income. Those who earn more have to pay higher taxes (also known as 'progressive taxes'). What do you think: Is the amount of taxes paid by an unskilled worker in Germany too much compared to other groups, too little, or exactly appropriate?'. The second question is 'And what do you think about the taxes paid by a manager on the board of directors of a large company? Does he/she pay too much, too little, or an exactly appropriate amount in taxes compared to other groups?'.⁷ Although these kinds of questions do not specify the redistributive tax scheme, they do address who is supplying the funding. Respondents are expected to implicitly build expectations about both the tax level and how changes in the taxation of either the poor or the rich would affect their own standard of living. Perceiving oneself as relatively poor (rich) should lead to favoring higher (lower) taxes for the rich (Ravallion and Lokshin, 2000). Using both, and not just one, of the questions helps to assess whether individuals want to either redistribute income or decrease higher tax rates in general.

Looking at Figure 1, most respondents noticeably perceive the taxes paid by unskilled workers as being too high, but those of managers as being too low. Roughly 40% (20%), however, reported that the taxes for unskilled workers (managers) are appropriate.



Notes: Share of respondents choosing one of the response categories to the question 'Is the amount of taxes paid by an unskilled worker in Germany too much compared to other groups, too little, or exactly appropriate?' and 'And what do you think about the taxes paid by a manager on the board of directors of a large company? Does he/she pay too much, too little, or an exactly appropriate amount in taxes compared to other groups?'. In each panel, the bars add up to 100%.

Fig. 1: Preferences for redistribution by tax evaluation question and response categories

2.2 Main Explanatory Variables

⁷ Note that 'manager' is supposed to denote someone with a prestigious and high paying job.

Data limitations in population surveys often make it difficult to determine income and wealth information for each individual household member. In the GSOEP, however, individuals are asked about a wide range of income sources, reflecting 14 different categories. We start by employing each respondent’s individual, actual pre-fisc annual income, as well as the corresponding income of either his or her spouse of the previous year (here in 2004). This pre-fisc individual earned income includes labor earnings (i.e., wage income, income from self-employment, and income from additional employment), private retirement incomes, and private transfers from outside the household, each measured at the 2004 Euro rate before taxes and public transfers (Grabka, 2012).

Note that we assign the retirees in our sample their reported pre-fisc statutory pension and their widows’ pensions income if they state that they have received pensions. Likewise, we assign unemployed individuals their unemployment benefits (type I)—if eligible—that is, the benefit that is paid to eligible individuals for a limited time after job loss, with the amount received being dependent on one’s previous income.⁸ We are well aware that statutory pensions and unemployment benefits (type I) belong to the social security transfer payments. However, we follow Milanovic (2010), who argues that statutory public pensions and unemployment benefits type I are similar to deferred wage payments, as individuals are legally obliged to contribute to the pension and unemployment system through social security contributions while working. Assigning, for example, retirees zero income (or, at least, only their private retirement income) may misrepresent their living standard considerably. Moreover, retiree’s partners are largely also retired. If there was no private retirement income—as is true for most (90%) of the retirees in our sample—we would, by construction, assign them zero income inequality within the household. This would lead to a rather incorrect income assignment.⁹

As shown in Figure 2(a), the distribution of the annual actual pre-fisc incomes not only displays the typical positively skewed distribution but also includes a comparatively large fraction of households with either very low or zero income. Individuals with either zero or very low pre-fisc incomes consist of non-employed individuals and retirees without either private or statutory pensions. The average earned annual pre-fisc income of all respondents in our sample is 25,659 Euro.

However, individuals may not only face income inequality in society, as such, but also face income inequality within their own household. To measure earned intra-household income inequality, we build, to some extent, on Haddad and Kanbur (1990) and Woolley and Marshall (1994) and use the absolute monetary difference z in earned incomes between partners (see Equation (1))

$$z = |y^R - y^P| \tag{1}$$

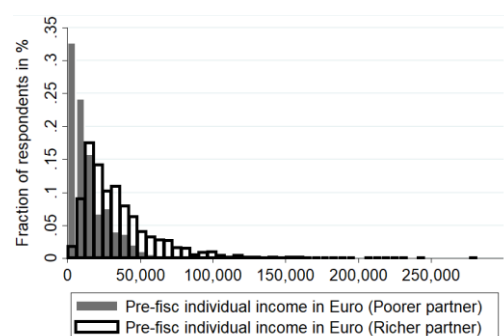
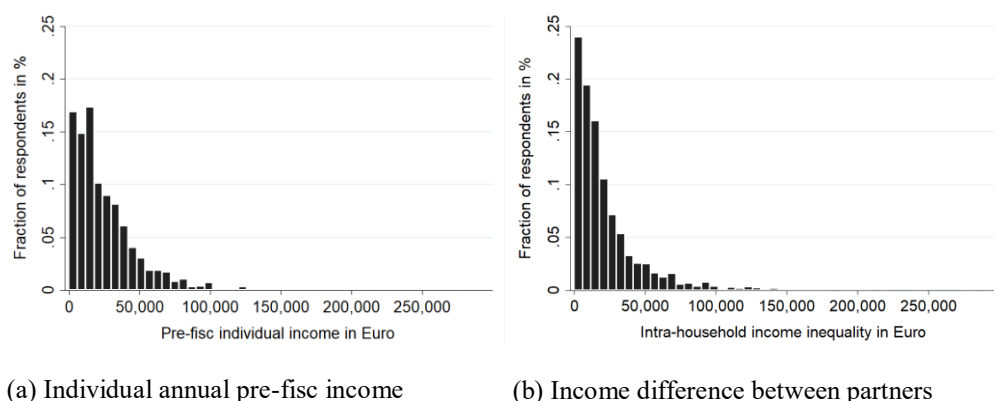
⁸ An unemployed individual is eligible for unemployment benefits (type I) for typically 12 months, if he or she has paid contributions for at least 12 months preceding the job loss. Payments amount to between 60 and 67% of the previous net salary (§147 SGBIII). An unemployed individual is, among some other requirements, eligible for unemployment benefits (type II) if he or she is not eligible for unemployment benefits (type I) and does not live in a household community of need (‘Bedarfsgemeinschaft’), with total household income exceeding a given threshold (§1 SGBII).

⁹ However, in Section 4, we perform robustness checks of our estimations where we do not assign these transfers. This does not strongly alter our main results. Results can be obtained upon request from the authors.

where y^R and y^P are the annual pre-fisc earned incomes of the respondent (R) and his or her partner (P), respectively. The absolute value is chosen to achieve a meaningful interpretation of the sign of the coefficient in the later regression output.

In the inequality index of Haddad and Kanbur (1990) and Woolley and Marshall (1994), the income difference z is additionally divided by the sum of the two incomes ($y^R + y^P$). Here, we deviate from doing so, as this procedure hides the information about how large the actual income difference is. To see this, consider two households h ($h = 1, 2$), with incomes I_1 (20.000 Euro; 40.000 Euro) and I_2 (40.000 Euro; 80.000 Euro), where each value represents the income of one of the partners. While the absolute differences $z_1 = 20.000$ Euro and $z_2 = 40.000$ Euro obviously differ, the inequality index of Haddad and Kanbur (1990) and Woolley and Marshall (1994) would be $0.\overline{33}$ in either couple.

We visualize the distribution of absolute earned income differences between partners in Figure 2(b). Only 3% of respondents in our sample have an income similar to that of their partner (including those who have zero pre-fisc income), while income differences are below 14,320 Euro for 50% of the respondents and below 52,100 Euro (146,050 Euro) for 90% (95%) of the respondents.



(c) Poorer and richer partners' individual annual pre-fisc income

Fig. 2: Distribution of income and income differences

However, because we take the absolute value, our inequality measure does not contain the information as to who is the poorer partner and who is the richer partner in the household. We will take this into account in a second step in our regression analysis. Approximately 43.5% of the respondents are the poorer partner in their household, while

approximately 53.7% are the richer partner.¹⁰ In all, 76% of the poorer partners are female while the female share among the richer partners is just 21%. The earned incomes of both groups are visualized in Figure 2(c).¹¹ Approximately 50% of the poorer partners in the households obtain an annual pre-fisc income that is lower than 10,000 Euro, while this is only true for less than 5% of the respondents who are classified as the richer partner. The average earned income of the poorer (richer) partner is 14,043 Euro (37,032 Euro). From the visualized income distributions of either group in Figure 2(c), it becomes clear that being classified as the poorer partner does not automatically mean that the individual earned income is comparatively low with respect to the overall income distribution of the society. Conversely, respondents who are classified as the richer partner may well have comparatively low individual earned incomes. We will address this point in more detail in Section 4.3.

2.3 Further Explanatory Variables

The GSOEP also contains questions on several factors that have been repeatedly proven to affect preferences for redistribution, i.e., socio-economic characteristics, the willingness to take risks, perceptions of the role of luck and effort for economic success, and cultural heritage (see, e.g., Ravallion and Lokshin, 2000; Fong, 2001; Acemoglu and Robinson, 2005; Alesina and Fuchs-Schuendeln, 2007; Rainer and Siedler, 2008; Yamamura, 2012).

We include a female dummy in our regressions since women typically prefer more governmental income redistribution than do men. On the one hand, women are, on average, poorer and are, therefore, more likely to benefit and less likely to pay for this through progressive taxation (Lott and Kenny, 1999; Edlund and Pande, 2002). On the other hand, women also tend to be more risk averse and altruistic than are men and to more strongly dislike competition (Croson and Gneezy, 2009; Luttmer and Singhal, 2011), which is why larger redistributive preferences for governmental income redistribution among females may also represent greater demand for insurance (Edlund and Pande, 2002; Iversen and Rosenbluth, 2006).

Besides gender, further covariates encompass respondents' age, marital status, education, and employment. Regarding age, individuals are mostly found to shift their redistributive preferences over their life cycle, preferring those public spending categories that they benefit from most, given their age. While younger individuals prefer larger public expenditures on education, older individuals prefer public spending on health care and old-age pensions (Sørensen, 2013). We include respondents' age in years and age squared to capture possible non-linearities.

The potential effect of one's educational level on redistributive preferences is less clear-cut. On the one hand, the positive correlation between education and income (Mincer, 1974) would indicate that individuals with a higher level of education rather oppose governmental income redistribution. On the other hand, after controlling for income differences, more highly-educated people may be more left-wing, that is, pro redistribution (Alesina and Giuliano, 2011). Respondents' education is measured by a categorical variable capturing their highest degree, i.e., 'below secondary' (reference category), 'secondary', and 'tertiary'.

¹⁰ Our sample contains a greater number of richer than poorer partners, since only one of the partners answered the questionnaire in some of the surveyed households.

¹¹ Those few individuals who have an income similar to that of their partner are not classified either as a richer or a poorer partner and are not included in Figure 2(c).

The variable related to respondents' employment comprises information on whether the respondent is 'not in labor force' (reference category), 'employed', 'civil servant', or 'self-employed'. Self-employed people, as compared to other individuals, tend to be less risk averse and to believe more strongly that future outcomes depend on their own ability and effort, rather than on random, external factors, such as luck (internal vs. external locus of control) (Hansemark, 2003; Oosterbeek et al., 2010). Both these characteristics have been found to negatively correlate with preferences for redistribution (Rainer and Siedler, 2008). Unlike self-employed individuals, public sector employees, i.e., civil servants, have been found to be more risk averse than are employees in the private sector (Buurman et al., 2012). This may be because risk-averse individuals are more likely to self-select into public sector jobs, as these jobs are typically accompanied by greater job security and wages that are less volatile (Bonin et al., 2007; Clark and Postel-Vinay, 2009).

As noted above, individual risk attitudes have been found to strongly affect redistributive preferences (Alesina and La Ferrara, 2005), e.g., because the redistribution of income from the rich to the poor allows governments to reduce variance in real lifetime incomes (Sinn, 1995). We denote an individual to be risk-loving (i.e., Risk = 1) if his or her response to the survey question 'How do you see yourself: Are you generally a person who is fully prepared to take risks or do you try to avoid taking risks?' is higher than 5 on the given 11-point scale (i.e., 0 = risk averse to 10 = fully prepared to take risks). Risk is set to 0 if a score under 5 was selected.

A vast and growing body of not only experimental literature but also survey-based investigations, confirms that individual redistributive preferences are affected both by purely individualistic economic motives and the pro-social behaviors of altruism, fairness, reciprocity, and inequality aversion (Fehr and Schmidt, 1999; Bolton and Ockenfels, 2000). Individuals have been found to exhibit strong reciprocal and equity-preferring behavior; however, this was the case only if the reason for being needy is perceived as being beyond recipients' control, such as through bad luck (Fong, 2001; Isaksson and Lindskog, 2009).¹² We code the variable 'Luck' to equal 1 if a respondent's agreement with the statement 'What a person achieves in life is above all a question of fate or luck' is either 4 or higher on the 7-point scale, ranging from 1 = disagree completely to 7 = agree completely, and 0 otherwise.

Considerable empirical evidence also indicates that equality preferences may be shaped by historical institutional and political conditions, as well as by the culture that individuals grew up in. Alesina and Fuchs-Schuendeln (2007) find that East Germans tend to prefer larger income redistribution than do West Germans, with this effect being robust even after controlling for persistent income differences at the household level. The authors attribute this to the East German socialist cultural heritage, which not only tends to promote dependence on publicly provided security but also fosters the belief that social conditions, in particular, determine individual outcomes in life.¹³ Therefore, we introduce an East Germany dummy that equals one 1 if the respondent lives in East Germany and 0 otherwise.

In Table 1, to obtain an initial descriptive view of how different groups of people evaluate the level of taxes paid by either unskilled workers or managers, we cross-tabulate our explanatory variables with the two categorical variables capturing redistributive

¹² See also Fong (2007), Klor and Shayo (2010), and Schildberg-Hörisch (2010) on inequality-reducing altruistic behavior with regard to income redistribution.

¹³ This pro-social behavior may also serve self-interested, economic motives, such as an individual's discomfort with being surrounded by poverty (Alesina and Fuchs-Schuendeln, 2007).

preferences. In particular, for each control variable, we show the difference between the respondents' group share to that of the overall respondents' sample mean represented in Figure 1.

The first general observation drawn from Table 1 is that the way a respondent evaluates the level of taxes paid by managers is generally a mirror image of how either he or she evaluates the level of taxes paid by unskilled workers, at least for the perception that one group pays taxes that are either too low or too high. Those respondents who perceive the taxes paid by unskilled workers as being too high tend to perceive the taxes paid by managers as too low, and vice versa. The second observation is that sample means differ strongly, especially for respondents with different education levels and from different employment groups. The higher one's education, the less one tends to prefer redistribution. Likewise, both civil servants and self-employed individuals tend to oppose both lowering taxes on unskilled workers and levying higher taxes on managers. Mean differences for the variables of East, Luck, and Risk confirm previous results in the literature: while both East Germans and those who see outcomes in life as being largely a matter of luck seem to support public redistribution, more risk-loving individuals oppose it.

Table 1: Intra-household income inequality and preferences for redistribution—Descriptive statistics

Response	Evaluation of tax paid by unskilled workers			Evaluation of tax paid by managers		
	Too low	Appropriate	Too high	Too high	Appropriate	Too low
Poorer partner	-0.43	-0.29	0.71	-0.79	0.10	0.69
Richer partner	0.44	2.97	-3.42	0.86	2.33	-3.19
Female	-0.33	-2.90	3.22	-1.13	-2.74	3.87
Male	-0.07	1.38	-1.32	-0.37	1.13	-0.76
Below secondary	-0.60	-10.60	11.19	-1.64	-4.27	5.91
Secondary	-0.15	-3.72	3.86	-1.73	-3.62	5.35
Tertiary	-0.06	12.18	-12.12	2.23	8.51	-10.74
Partner, not married	0.21	0.45	-0.67	2.44	0.30	-2.74
Married	-0.28	-0.82	1.09	-1.47	-0.86	2.33
Not in labor force	-0.67	-5.79	6.45	-3.16	-2.91	6.07
Employed	-0.08	-0.65	0.73	0.32	-0.31	-0.01
Civil servant	0.09	12.58	-12.68	-0.66	2.54	-1.89
Self-employed	2.32	10.80	-13.13	7.16	8.21	-15.37
Retired	-0.63	-1.95	2.57	-2.44	-2.16	4.59
East = 1	-0.44	-8.31	8.74	-1.89	-8.65	10.55
East = 0	-0.11	1.76	-1.66	-0.36	1.78	-1.42
Luck = 1	-0.63	-6.93	7.56	-1.63	-4.64	6.27
Luck = 0	0.03	2.56	-2.60	-0.27	1.34	-1.07
Risk = 1	0.20	4.79	-5.00	0.29	3.04	-3.33
Risk = 0	-0.36	-3.02	3.38	-1.18	-2.31	3.49

Notes: Deviations from the sample average (see Figure 1) are given for respondents with the characteristics listed in Column 1. Answers were obtained in response to the questions 'Is the amount of taxes paid by an unskilled worker in Germany too much compared to other groups, too little, or exactly appropriate?' and 'And what do you think about the taxes paid by a manager on the board of directors of a large company? Does he/she pay too much, too little, or an exactly appropriate amount in taxes compared to other groups?'.

3 Empirical Strategy

Since both dependent variables are discrete and can be naturally ordered, we can estimate preferences for public redistribution using the ordered probit model displayed in Equation (2) (Cameron and Trivedi, 2006). In our baseline model, latent support for redistribution,

R_{ih}^* , with individual $i = 1, \dots, I$ being a member of household $h = 1, \dots, H$, is assumed to be represented by:

$$R_{ih}^* = \beta_1 y_i + \beta_2 z_h + \beta_3 x_i + \varepsilon_{ih} \quad (2)$$

where R_{ih} is the observed preference for redistribution:

$$R_{ih} = j \text{ if } \kappa_{j-1} \leq R_{ih}^* < \kappa_j \text{ for } j = 1, 2, 3 \quad (3)$$

κ_j represents the unknown cut points with $\kappa_0 = -\infty$ and $\kappa_3 = \infty$. We observe R_{ih} through the survey question regarding whether respondents think that the level of taxation for an unskilled worker or managers is ‘too low’, ‘appropriate’ or ‘too high’. For our regression, we code the answer categories such that, when evaluating taxes paid by an unskilled worker, R_{ih} takes values 1 (‘too low’), 2 (‘appropriate’), and 3 (‘too high’). When evaluating taxes paid by managers R_{ih} , however, takes the values 1 (‘too high’), 2 (‘appropriate’), and 3 (‘too low’). In our opinion, this transformation not only captures, at best, the wish for redistribution from the rich to the poor but also eases reading the direction of the effects across regressions.

y_i represents the annual pre-fisc earned income of individual i . Intra-household inequality of household h is captured by index z_h . Further, the relationship is assumed to depend on x_i , a vector that encompasses the observable characteristics of household member i , such as gender, age, education, and labor force status (among other demographic variables), in addition to an indicator for risk aversion, beliefs about the sources of inequality, and for East Germany. In most specifications, the vector x_i also includes a set of federal state dummies to control for unobserved differences between individuals’ home states. Errors ε_{ih} are robust to heteroskedasticity and clustered at the household level. Although we estimate Equation (2) with our intra-household income inequality variable only in a first step, in a second step, we estimate it with interactions between the intra-household income inequality and the poor partner and rich partner dummies, respectively.

Our empirical analysis has several limitations. First, we only observe preferences for public redistribution, and we do not observe either preferences for private redistribution or whether and how much spouses actually redistribute intrahousehold. We also have no information about whether spouses are eligible for several forms of public assistance. Whether spouses actually see private redistribution as a substitute for public redistribution remains a hypothesis to be tested in future empirical papers.

Second, our setting likely suffers from endogeneity. There may be omitted variable bias, meaning that there may be unobserved factors that affect not only income inequality both between and within households but also redistributive preferences. We carefully studied the previous literature, in which determinants of preferences for redistribution are estimated, and followed those guidelines closely when deciding which control variables to use to minimize the possibility of omitted variable bias. Moreover, in our baseline regression (see Section 4), we initially use our income variables as the only independent variables before adding further controls. Nevertheless, as is argued by Alesina and La Ferrara (2005), redistributive preferences may promote specific redistributive policies through voting. These policies could then, in turn, affect preferences. For these reasons, we focus on identifying correlations rather than causal effects.

4 Estimation Results

4.1 Baseline Results

In Table 2, we present the results of our baseline model, for which the dependent variable is the respondents' evaluation of the taxes paid by an unskilled worker [Models (1) to (3)] and by managers [Models (4) to (6)], respectively. For each dependent variable, we first report a specification with income measures only, and then we add our control variables (see Section 2.3). Moreover, we include dummy variables for the federal states in which the respondents live.

Table 2: Intra-HH income inequality and preferences for redistribution—Baseline specification

Dependent variable	Evaluation of tax paid by unskilled workers			Evaluation of tax paid by managers		
	(1)	(2)	(3)	(4)	(5)	(6)
<i>Income</i>						
Individual income	-0.079*** (0.009)	-0.062*** (0.010)	-0.063*** (0.010)	-0.070*** (0.009)	-0.049*** (0.010)	-0.049*** (0.010)
Intra-household inequality	-0.039*** (0.009)	-0.035*** (0.009)	-0.034*** (0.009)	-0.049*** (0.009)	-0.051*** (0.010)	-0.049*** (0.010)
<i>Socio-economic characteristics</i>						
Age		0.028*** (0.010)	0.028*** (0.010)		0.038*** (0.011)	0.038*** (0.011)
Age ²		-0.000** (0.000)	-0.000** (0.000)		-0.000** (0.000)	-0.000** (0.000)
Female		-0.052 (0.037)	-0.052 (0.037)		0.004 (0.038)	0.002 (0.038)
<i>Educational degree</i>						
Secondary		-0.178*** (0.064)	-0.175*** (0.064)		0.011 (0.067)	0.011 (0.067)
Tertiary		-0.356*** (0.075)	-0.362*** (0.075)		-0.268*** (0.079)	-0.271*** (0.079)
<i>Marital status</i>						
Married		-0.007 (0.064)	-0.013 (0.065)		0.058 (0.069)	0.047 (0.069)
<i>Employment status</i>						
Employed		0.079 (0.067)	0.074 (0.067)		0.058 (0.069)	0.050 (0.069)
Civil servant		-0.055 (0.107)	-0.050 (0.108)		0.171 (0.111)	0.171 (0.112)
Self-employed		-0.134 (0.100)	-0.128 (0.099)		-0.196** (0.098)	-0.197** (0.099)
Retired		-0.047 (0.078)	-0.042 (0.079)		-0.079 (0.084)	-0.076 (0.084)
<i>Other variables</i>						
East Germany		0.196*** (0.055)	0.034 (0.163)		0.280*** (0.063)	0.355* (0.188)
Luck		0.159*** (0.044)	0.154*** (0.044)		0.076 (0.048)	0.072 (0.048)
Risk		-0.064 (0.043)	-0.065 (0.043)		0.003 (0.046)	0.004 (0.046)
<i>State dummies</i>						
Observations	No	No	Yes	No	No	Yes
Pseudo R ²	4,379	4,379	4,379	4,379	4,379	4,379
Log-Likelihood	0.035	0.049	0.053	0.039	0.059	0.062
	-3075.88	-3033.18	-3019.16	-3028.48	-2965.75	-2953.81

Notes: Ordered probit regressions. The dependent variable is the response (1) 'too low', (2) 'appropriate', (3) and 'too high' to the question 'Is the amount of taxes paid by an unskilled worker in Germany too much compared to other groups, too little, or exactly appropriate?' and (1) 'too high', (2) 'appropriate', (3) and 'too low' to the question 'And what do you think about the taxes paid by a manager on the board of directors of a large company? Does he/she pay too much, too little, or an exactly appropriate amount in taxes compared to other groups?'. Robust standard errors in parentheses, clustered at the 'Household ID in 2005'. * p < 0.10, ** p < 0.05, *** p < 0.01.

With all the various specifications, individual pre-fisc earned income emerges as a highly significant predictor for individual attitudes towards public redistribution: The lower the earned individual income, the more likely respondents are to support lower taxes for unskilled workers and higher taxes for managers. While this result refers to between-

individual income inequality, we also add the effect of earned intra-household income inequality, whose regression coefficient indicates that income inequality within a household is both negatively and strongly significantly associated with preferences for redistribution. The larger the intra-household earned income inequality, the more (less) that individuals support decreasing (increasing) the taxes paid by the rich (poor).

Our estimates of the control variables largely confirm findings from previous studies (e.g., Ravallion and Lokshin, 2000; Alesina and La Ferrara, 2005; Rainer and Siedler, 2008; Alesina and Giuliano, 2011), e.g., that the more educated respondents are, the less willing they are to advocate for lower taxes for the poor, and the more likely they are to support lowering taxes for managers. Moreover, in line with the argument put forth by Fong (2001), our results indicate that people who believe that either fate or luck mostly determines a person's achievements in life prefer more redistribution—at least when expressing preferences over taxes paid by an unskilled worker. Individual risk attitudes are not significantly linked to preferences for the tax obligations of unskilled workers or managers. Our results also indicate that East Germans favor more redistribution, which may reflect the long-lasting effects of this area's socialist history (Alesina and Fuchs-Schuendeln, 2007).

4.2 Poorer and Richer Partners

In only controlling for the respondents' earned income and the earned intra-household income inequality that the respondent faces, we have not yet controlled for whether the respondent is the poorer or the richer partner. This is especially important as, first, this information is not included when measuring intra-household income inequality by the absolute difference between partners' earned incomes. Second, similar to the situation with earned income inequality within the society, it likely matters who is the poorer and who is the richer individual within the household, as redistribution typically takes place from the latter to the former.

Therefore, we run our full regressions (3) and (6) with an interaction between intra-household income inequality and a dummy for being either the poorer or the richer partner. In Table 3, the results for the evaluation of the tax paid by an unskilled worker are presented in Models (7) and (8), while the results for the evaluation of the tax paid by a manager are displayed in Models (10) and (11). One must bear in mind that our sample contains not only poorer and richer partners but also some individuals who have the same income as their partner. To rule out the possibility that our results are driven by the latter group, we additionally run a regression where we drop these individuals (Models (9) and (12) in Table 3). Note that, in either model, earned individual income exerts the expected strong negative and significant effect on redistributive preferences.

When we interact earned intra-household income inequality with being the poorer partner [Models (7) and (10)], the coefficient of the earned intra-household income inequality variables is positive and remains significant when evaluating the tax burden of unskilled workers; however, it becomes insignificant when evaluating the tax burden of managers. The earned intra-household income inequality coefficient expresses the effect of earned intra-household income inequality on redistributive preferences for the non-poorer partners, i.e., richer partners and individuals whose income is similar to that of their partners. Moreover, the coefficient of the poorer partner dummy indicates whether there is a significant difference between poorer and non-poorer partners when earned intra-household income inequality is zero. This difference is only significant at the 10% level when evaluating the level of tax payments by an unskilled worker, but it is insignificant when evaluating that of managers.

The coefficients of main interest in this paper are those of the interaction terms. They express the difference in the slopes between poorer and non-poorer partners. In both Models (7) and (10), these coefficients are negative and highly significant at the 1%-level. Hence, with increasing earned intra-household income inequality, poorer partners are significantly less likely to prefer an increase in public redistribution than are non-poorer partners.

Table 3: Intra-household income inequality and preferences for redistribution—Subgroups and interactions

Dependent variable	Evaluation of tax paid by unskilled workers			Evaluation of tax paid by managers		
Equation	(7)	(8)	(9) ^a	(10)	(11)	(12) ^a
<i>Income</i>						
Individual income	-0.138*** (0.018)	-0.137*** (0.018)	-0.138*** (0.018)	-0.114*** (0.019)	-0.113*** (0.019)	-0.114*** (0.019)
Intra-household inequality	0.053*** (0.018)	-0.069*** (0.011)	0.051*** (0.018)	0.020 (0.018)	-0.073*** (0.012)	0.018 (0.018)
Poorer partner	0.080* (0.046)		0.071 (0.047)	-0.017 (0.048)		-0.023 (0.048)
Poorer partner × Intra-HH inequality	-0.125*** (0.021)		-0.123*** (0.021)	-0.094*** (0.021)		-0.092*** (0.021)
Richer partner		-0.050 (0.046)			0.037 (0.048)	
Richer partner × Intra-HH inequality		0.119*** (0.021)			0.091*** (0.021)	
<i>Socio-economic characteristics</i>						
Age	0.032*** (0.010)	0.032*** (0.010)	0.031*** (0.010)	0.043*** (0.011)	0.043*** (0.011)	0.043*** (0.011)
Age ²	-0.000*** (0.000)	-0.000*** (0.000)	-0.000*** (0.000)	-0.000*** (0.000)	-0.000*** (0.000)	-0.000*** (0.000)
Female	-0.008 (0.041)	0.001 (0.041)	-0.009 (0.042)	0.069 (0.042)	0.076* (0.043)	0.067 (0.043)
<i>Educational degree</i>						
Secondary	-0.138** (0.064)	-0.140** (0.064)	-0.143** (0.066)	0.039 (0.068)	0.038 (0.068)	0.044 (0.069)
Tertiary	-0.286*** (0.077)	-0.290*** (0.077)	-0.297*** (0.078)	-0.211*** (0.081)	-0.214*** (0.081)	-0.213*** (0.082)
<i>Marital status</i>						
Married	-0.005 (0.064)	-0.004 (0.064)	-0.004 (0.065)	0.055 (0.069)	0.055 (0.069)	0.037 (0.070)
<i>Employment status</i>						
Employed	0.120* (0.068)	0.119* (0.069)	0.110 (0.070)	0.081 (0.071)	0.077 (0.071)	0.078 (0.072)
Civil servant	0.035 (0.109)	0.032 (0.109)	0.028 (0.110)	0.231** (0.112)	0.226** (0.112)	0.234** (0.113)
Self-employed	-0.093 (0.100)	-0.093 (0.100)	-0.103 (0.101)	-0.172* (0.100)	-0.174* (0.100)	-0.174* (0.101)
Retired	-0.026 (0.079)	-0.027 (0.079)	-0.041 (0.081)	-0.065 (0.085)	-0.066 (0.085)	-0.076 (0.086)
<i>Other variables</i>						
East Germany	-0.013 (0.162)	-0.013 (0.162)	-0.003 (0.164)	0.312* (0.188)	0.312* (0.188)	0.297 (0.189)
Luck	0.148*** (0.044)	0.148*** (0.044)	0.153*** (0.045)	0.068 (0.048)	0.068 (0.048)	0.072 (0.049)
Risk	-0.064 (0.044)	-0.064 (0.044)	-0.053 (0.044)	0.006 (0.046)	0.007 (0.046)	0.019 (0.046)
State dummies	Yes	Yes	Yes	Yes	Yes	Yes
Observations	4,379	4,379	4,256	4,379	4,379	4,256
Pseudo R ²	0.059	0.059	0.060	0.067	0.067	0.067
Log-Likelihood	-3000.08	-3000.72	-2917.16	-2940.24	-2940.08	-2870.28

Notes: Ordered probit regressions. The dependent variable is the response (1) 'too low', (2) 'appropriate', and (3) 'too high' to the question 'Is the amount of taxes paid by an unskilled worker in Germany too much compared to other groups, too little, or exactly appropriate?' and (1) 'too high', (2) 'appropriate', and (3) 'too low' to the question 'And what do you think about the taxes paid by a manager on the board of directors of a large company? Does he/she pay too much, too little, or an exactly appropriate amount in taxes compared to other groups?'. Robust standard errors in parentheses, clustered at the 'Household ID in 2005'. * p < 0.10, ** p < 0.05, *** p < 0.01.

^a Respondents whose income is equal to that of their partner are excluded.

The results for the interactions with a richer partner dummy [Models (8) and (11)] are largely mirror-images of those obtained for the poorer partner dummy. The more unequal the earned incomes within a household, the more that richer partners prefer public income redistribution. In Models (9) and (12) of Table 3, we rerun Models (7) and (10) but exclude those individuals whose income is equal to that of their partner; i.e., those with zero earned intra-household income inequality.¹⁴ With this, the binary variable poorer partner equals 1 if an individual is classified as the poorer partner and 0 if either he or she is classified as the richer partner. The findings confirm the previous results and, therefore, rule out the possibility that they are driven by this specific group of individuals.

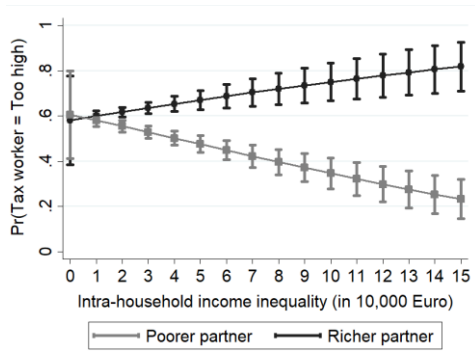
We give a visual outline of the main results of interest of Models (9) and (12) by graphing the predictive margins for poorer and richer partners for each answer category of our two tax evaluation questions at increasing levels of the earned intra-household income inequality. In particular, we let our earned intra-household income inequality variable vary between 0 and 150,000 Euro, in increments of 10,000 Euro. Results are displayed in Figure 3, with the three graphs at the left-hand side [3(a), (c) and (e)] referring to the evaluation of taxes paid by an unskilled worker, and the graphs at the right-hand side [3(b), (d) and (f)] referring to the evaluation of taxes paid by a manager.

For a given earned intra-household income difference, the poorer partner is less likely to state that taxes paid by an unskilled worker are too high but is more likely to state that taxes paid by managers are too low [3(a), (b)]. Consistently, the predicted probabilities of poorer partners to perceive taxes paid by unskilled workers (managers) as being too low (too high) are higher (lower) compared with those of the richer partners [3(e), (f)]. In either graph, the difference between the predicted probabilities of the poorer and richer partner increases along with increasing intra-household earned income difference. This difference equals the marginal effect of the poorer partner dummy at a specific level of earned intra-household income inequality. In Figure 3(a), for example, at an absolute income difference between partners of 50,000 Euro, the poorer partner is approximately 15 percentage points more likely to answer that taxes paid by unskilled workers are too high.

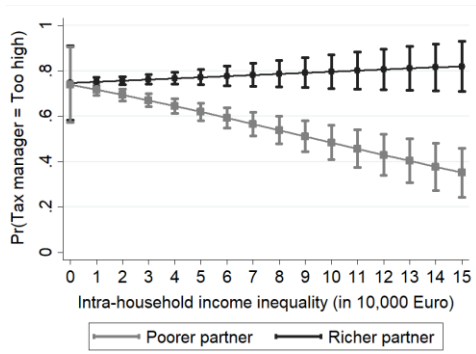
Tests of the statistical significance of these differences reveal that, when evaluating the height of unskilled workers' tax payments, the difference between poorer and richer partners is highly significant at the 1% level if the difference in earned incomes between partners is larger than 10,000 Euro. When evaluating the level of tax payments of managers, the respective difference is always significant if there is a positive income difference between partners.¹⁵

¹⁴ With this, the interpretation of the coefficient of the poorer partner dummy becomes somewhat meaningless, as there are no individuals left in the sample for which earned intra-household income inequality is zero.

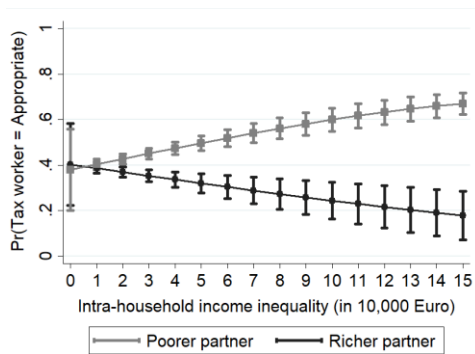
¹⁵ Results can be obtained upon request from the authors.



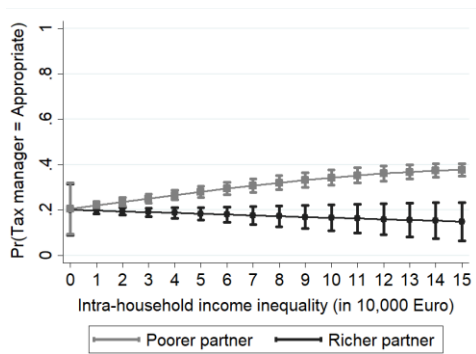
(a) Taxes paid by an unskilled worker: Too high



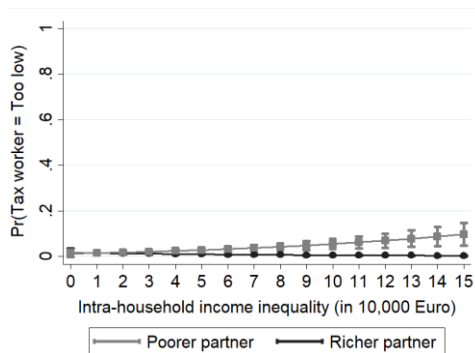
(b) Taxes paid by a manager: Too low



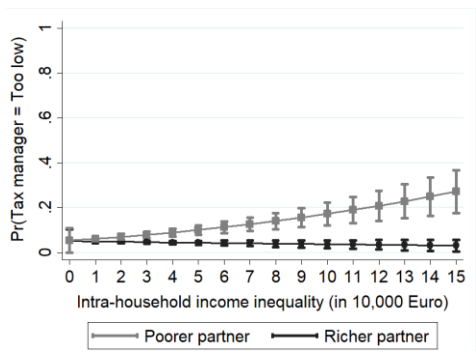
(c) Taxes paid by an unskilled worker: Appropriate



(d) Taxes paid by a manager: Appropriate



(e) Taxes paid by an unskilled worker: Too low



(f) Taxes paid by a manager: Too high

Notes: Displayed are the predicted probabilities with 95% CIs for poorer and richer partners at different levels of the earned intra-household income inequality (based on Models (9) and (12) in Table 3).

Fig. 3: Predicted probabilities for poorer and richer partners at different levels of the earned intra-household income inequality

4.3 Robustness Checks

As is evident in Figure 2(c), there are different types of poorer and richer partners. Poorer partners can be those with an earned income that is lower than that of their partner and is comparatively low in relation to the society's overall income distribution. However, we also observe poorer partners whose earned income is comparatively high in relation to the society's overall earned income distribution but not in relation to their partner's earned income (such as a member of a power couple). The opposite is true for richer partners. Our finding that the poorer partners in unequal households oppose redistribution may be driven by poorer partners whose earnings are still comparatively high in relation to the overall income distribution, which would be in line with the hypothesis of Meltzer and Richard (1981). Likewise, richer partners' preference for an increase in public redistribution may be driven by those richer partners with a relatively low earned income (but who have an even poorer partner).

To test whether different groups of poorer and richer partners affect our results, we subdivide the poorer and richer partner dummies from Models (9) and (12) into those whose income is either less or equal to our sample's mean earned income (25,659 Euro, see Table A.1) and those who earn more. In our sample, approximately 82% of the poorer partners and 45% of the richer partners earn less than the sample's mean earned income.

Table 4 presents the results of the evaluation of the taxes paid by unskilled workers [Models (13) and (14)] and managers [Models (15) and (16)]. However, for greater clarity, we do not display the results of all other control variables, although they are included in the estimations. Again, we are most interested in the signs and significance of the interaction effects. Models (13) and (15) show that both groups of poorer partners prefer significantly less public income redistribution the more unequal partners' earned incomes are; the significance is stronger among those poorer partners who earn less than the mean income. In turn, we find a positive and significant interaction of those richer partners who earn more than the mean income and their earned intra-household income inequality, but do not find a corresponding interaction for those richer partners who earn less than the mean income [Models (14) and (16)]. Hence, the more unequal are partners' earned incomes, the more likely are richer partners with a higher-than-average income to prefer public income redistribution. These results contradict the Meltzer and Richard (1981) hypothesis.

As an intermediate conclusion, we can emphasize that the more unequal are partner's earned incomes, the less that poorer partners prefer public redistribution and the more that richer partners prefer public redistribution. From the poorer partner's perspective, one possible explanation for this result may be that greater earned income inequality between partners opens up the possibility of the richer partner transferring resources to the poorer partner. In this case, the poorer partner may oppose public redistribution, because of being less in need of public redistribution. However, it may also be that private redistribution is more advantageous than is public redistribution, e.g., because the former is typically associated with lower transaction costs (Kotlikoff and Spivak, 1981). Additionally, poorer partners who live together with a distinctly richer partner may not be eligible for some transfers that they would be eligible for if not cohabitating with a richer partner. If the richer partner's income is sufficiently high, poorer partners may see insurance provided through cohabitation, e.g., through monetary transfers paid from the richer to the poorer partner (Grossbard-Shechtman, 1984), as a substitute for governmental provision of insurance through public redistribution.

Table 4: Intra-household income inequality and preferences for redistribution—Subgroups by income and interactions

Dependent variable	Evaluation of tax paid by unskilled workers		Evaluation of tax paid by managers	
	(13)	(14)	(15)	(16)
Equation				
Individual income	-0.133*** (0.020)	-0.130*** (0.019)	-0.120*** (0.021)	-0.113*** (0.020)
Intra-household inequality	0.047** (0.019)	-0.072*** (0.012)	0.024 (0.019)	-0.074*** (0.012)
Poorer partner (<= mean income)	0.102** (0.052)		-0.031 (0.055)	
Poorer partner (> mean income)	-0.064 (0.095)		-0.022 (0.092)	
Poorer partner (<= mean income) × Intra-HH inequality	-0.124*** (0.022)		-0.100*** (0.023)	
Poorer partner (> mean income) × Intra-HH inequality	-0.069* (0.037)		-0.073** (0.035)	
Richer partner (<= mean income)		0.058 (0.078)		0.163* (0.091)
Richer partner (> mean income)		-0.177*** (0.060)		-0.022 (0.062)
Richer partner (<= mean income) × Intra-HH inequality		0.060 (0.062)		-0.016 (0.071)
Richer partner (> mean income) × Intra-HH inequality		0.129*** (0.021)		0.098*** (0.021)
Control variables	Yes	Yes	Yes	Yes
State dummies	Yes	Yes	Yes	Yes
Observations	4,256	4,256	4,256	4,256
Pseudo R ²	0.060	0.061	0.067	0.068
Log-Likelihood	-2915.67	-2913.60	-2869.74	-2868.53

Notes: Ordered probit regressions. Sample equals that of Models (9) and (12) in Table 3. The dependent variable is the response (1) ‘too low’, (2) ‘appropriate’, and (3) ‘too high’ to the question ‘Is the amount of taxes paid by an unskilled worker in Germany too much compared to other groups, too little, or exactly appropriate?’ and (1) ‘too high’, (2) ‘appropriate’, and (3) ‘too low’ to the question ‘And what do you think about the taxes paid by a manager on the board of directors of a large company? Does he/she pay too much, too little, or an exactly appropriate amount in taxes compared to other groups?’. Robust standard errors in parentheses, clustered at the ‘Household ID in 2005’. * p < 0.10, ** p < 0.05, *** p < 0.01.

Our finding that richer partners who earn more than the mean income prefer public redistribution, the more unequal are partners’ earned incomes, is more puzzling. A possible explanation could be in the different (more advantageous) income taxation, i.e., joint income tax splitting, of married couples in Germany compared to non-married but otherwise equal couples. Realized tax savings through joint taxation are the larger the more unequal are the earned incomes of married partners (Steiner and Wrohlich, 2008; Meier and Wrede, 2013). More public redistribution through higher taxation of rich people would hit the richer partner who is married to a much poorer partner less severely than it would either without the advantageous taxation of marriages or if the partners’ earnings were more equal. In fact, if we once again estimate regression (15) and (16) with an additional category for richer partners whose income is among the top 10%, as well as for only the married richer partners, the richer partners’ preference for an increase in public redistribution is more pronounced within these subgroups.¹⁶

4.4 Future Prospects

In a growing body of literature, economists emphasize that not only the position on the income ladder that individuals occupy today but also the positions that they either experienced in the past or expect to have in the future may be important (Alesina and Giuliano, 2011). According to the prospect of upward mobility (POUM) hypothesis

¹⁶ Within this subgroup, 92% are men, 86% are married, and 50% have partners who earn between zero and 11,520 Euro per year. Regression results can be obtained from the authors upon request.

(Piketty, 1995; Benabou and Ok, 2001), some individuals may, despite being relatively poor today, anticipate being wealthier tomorrow, causing them to oppose higher taxes on those with higher incomes. Likewise, expecting to be worse off (i.e., obtaining relatively less income) in the future may induce individuals who are currently well-off to prefer redistribution. Future prospects have been proxied in a number of ways, including one's personal history of economic mobility or past experiences (Steele, 2015), comparisons between respondents' occupational prestige and that of their fathers (Alesina and La Ferrara, 2005), subjective expectations of occupational upward and downward mobility (Rainer and Siedler, 2008), subjective income and consumption expectations (Ravallion and Lokshin, 2000; Cojocaru, 2014), and changes in one's relative income as compared to objective yearly transition matrices (Alesina and La Ferrara, 2005).

Given the focus of this paper, we take a closer look at objective future prospects of cohabiting partners stemming from their cohabitation status and its effects on preferences for redistribution. Specifically, we make use of the idea of standard cooperative Nash bargaining models of the family that each partner's utility in the cooperative equilibrium positively depends on the well-being at the threat point. This threat point is a non-cooperative equilibrium when cohabitation ends, e.g., in the case of either separation or divorce (Pollak, 2005). Future prospects can be assumed to be based on the individual's outside option, i.e., the well-being at the threat point. Knowing one's own outside option may affect preferences for public and intra-household income redistribution, as intra-household income redistribution will end at the non-cooperative equilibrium, whereas public redistribution will remain. Incorporating future prospects enlarges the analysis, in that it adds one's position on income distribution at the threat point. A currently poor individual who has a strong outside option (e.g., someone who has highly marketable skills but who has chosen not to work) may oppose public redistribution not only because (i) current intra-household income redistribution provides higher utility but also because (ii) he or she could earn a relatively high wage at the threat point.

In line with Pollak (2005), we argue that current income is a relatively poor proxy of the income situation at the threat point, as it is likely to be an outcome of one's household situation. For example, a childless couple who both have advanced educational qualifications might choose to be a single-earner couple: Although both may be able to earn the same high wages, they have decided that one partner will specialize in home production while the other will specialize in market production. One reason for this decision may be that the partner who specializes in market production compensates his/her spouse monetarily for providing work in the household, thereby influencing the latter's labor supply decision (Grossbard-Shechtman, 1984; Grossbard, 2015). The stay-at-home partner, however, retains the option of working in the market and earning a wage that reflects individual productivity (a function of factors such as one's educational attainment and labor market experience). To measure well-being at the threat point, we use hourly wages, rather than monthly wages, as individuals may work part-time.

To proxy the outside option and to analyze its relationship with preferences for redistribution, we empirically proceed in three steps. To assess what an individual could earn had he or she not cohabited, we first estimate a Mincer earnings function (Mincer, 1974) based on the non-cohabiting, working individuals who responded to the GSOEP in 2005. In a second step, we calculate the outside option for each cohabiting individual, composing our sample based on their individual characteristics plugged into the estimated

Mincer earnings equation.¹⁷ Third, we use this estimated value as an additional control variable in our preference regression.

The Mincer earnings equation takes the following form:

$$\ln(y_l) = \gamma_0 + \gamma_1 educ_l + \gamma_2 exp_l + \gamma_3 exp_l^2 + v_l \quad (4)$$

where y_l is the hourly wage calculated as the ratio of the non-cohabiting individual l 's monthly net labor income and stated (agreed) monthly hours; $educ_l$ represents the years of education and exp_l the years of labor market experience, with exp_l^2 being the squared term (so as to account for human capital depreciation); γ_0 represents initial earnings capacity; γ_1 represents the rate of return on education¹⁸; and γ_2 and γ_3 represent the rate of return on labor market experience measured in years. We estimate the Mincer earnings equation once with education and observed labor market experience obtained from the GSOEP (Model (17) in Table 5) and once by, as is traditional in the Mincer model, proxying labor market experience by individual age minus years of education minus 6 [Model (18)]. The estimations give the following results:

Table 5: Intra-household income inequality and preference for redistribution—Mincer earnings equation

Dependent variable	Hourly wage (ln)	
	(17)	(18)
Equation		
Education (γ_1)	0.110*** (0.008)	0.127*** (0.008)
Labor market experience (γ_2)	0.101*** (0.005)	0.103*** (0.006)
Labor market experience squared (γ_3)	-0.002*** (0.000)	-0.002*** (0.000)
Constant	0.308*** (0.103)	-0.288*** (0.109)
Observations	1,501	1,503
Pseudo R ²	0.414	0.412
Log-Likelihood	-1639.08	-1646.54

Notes: OLS regression. The dependent variable is the hourly net wage rate (ln) of single individuals. Education and labor market experience are measured in years. Robust standard errors in parenthesis. * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$.

Both models explain equally well the variance in hourly wages i.e., the independent variables explain 41% of the variance, whereas the rest of the variance remains unexplained. Moreover, education and labor market experience are highly significant predictors in both models.

Applying the estimated coefficients of the variables used in Model (17) of non-cohabiting individuals l , we can calculate approximately the potential log hourly wage the cohabiting individuals i could earn if cohabitation ends:

$$\ln(y_i) = \gamma_0 + \gamma_1 educ_i + \gamma_2 exp_i + \gamma_3 exp_i^2 + \mu_i \quad (5)$$

Finally, the predicted hourly wages \hat{y}_i are included in our preference regressions. Results are displayed in Table 6. Note that, because the hourly wage rate is a predicted, rather than an observed, variable, standard errors are likely unreliable (Senik, 2008), which

¹⁷ Note that, in this approach we neglect any transfers following changes in partnership, such as divorce (i.e., alimony).

¹⁸ All educational costs are assumed to be opportunity costs.

is why they are bootstrapped based on 1,000 replications. For reasons of clarity and comprehensibility, we only display the results for our main variables of interest but not the coefficients of the control variables.¹⁹

First, we run the regressions from Table 4 again, but this time we include each individual's outside option (see Models (19) and (25) for the poorer partner-interaction and Models (22) and (28) for the richer partner-interaction). In both these models, we find a strong negative significant association of the outside option with redistributive preferences: The lower an individual's wage upon cohabitation ending, the greater the likelihood of this individual preferring lower taxation of unskilled workers and higher taxation of managers. Conversely, having a strong outside option decreases preferences for redistribution. These findings of the negative and significant association between the outside option wage and redistributive preferences is in line with the POUM hypothesis and, therefore, also in line with the many consistent empirical findings in this respect (Alesina and La Ferrara, 2005; Rainer and Siedler, 2008; Steele, 2015).

Second, we run a sub-sample analysis thereof. Specifically, we split each of the samples from Models (19), (22), (25), and (28) into two groups, i.e., those individuals who have either a below or an above-average outside option wage rate at the threat point (Models (20), (21), (23), and (24) and Models (26), (27), (29) and (30), respectively, in Table 6). With this, we can assess the different effects of being either relatively poor or relatively rich today among those who are potentially either relatively poor or relatively rich tomorrow.

This outside option is negative and significant only among those individuals who have an above-average outside option when cohabitation ends, whereas the effect becomes insignificant for individuals with a below-average outside option.²⁰ With respect to the intra-household earned income inequality interactions, the results largely remain robust. With increasing intra-household earned income inequality, poorer partners who moreover obtain below-average income prefer less public redistribution [Models (20), (21), and (27)]. The only noticeable exception is the insignificant effect of this interaction in Model (26), that is, for the group of individuals with a below-average outside option.

For the richer partner-interactions [Models (23), (24), (29), and (30)], results are more mixed. Among those individuals who have a below-average outside option (Model (23)), richer partners with below-average earned incomes today prefer lower taxes for unskilled workers the larger the earned intra-household income inequality (i.e. the poorer their own partner is). This is in line with the Meltzer and Richard (1981) hypothesis, because, although these individuals are the richer partner in their household, they are relatively poor from the perspective of the society's income distribution not only today but also if cohabitation were to end. We do not find similar results in the corresponding model when evaluating managers' taxes, i.e., Model (29). However, among those individuals who have an above-average outside option [Models (24) and (30)], with increasing earned intra-household income inequality, it is those richer partners who earn an above-average income who prefer more public redistribution. This result contradicts the Meltzer and Richard (1981) hypothesis.

¹⁹ Including the wage rate into our baseline Models (3) and (6) of Table 2 lets the main results virtually unchanged (see Table A.2 in the Appendix.)

²⁰ Similar results for these subgroups also apply if we do not include the interaction effects.

Table 6: Intra-household income inequality and preferences for redistribution—
Outside option

Dependent variable	Evaluation of taxes paid by unskilled workers					
	Full sample	Below mean outs. opt.	Above mean outs. opt.	Full sample	Below mean outs. opt.	Above mean outs. opt.
Equation	(19)	(20)	(21)	(22)	(23)	(24)
<i>Income</i>						
Individual income	-0.131*** (0.020)	-0.154*** (0.044)	-0.117*** (0.023)	-0.128*** (0.019)	-0.138*** (0.042)	-0.125*** (0.022)
Intra-household inequality	0.043** (0.020)	0.029 (0.046)	0.040* (0.022)	-0.077*** (0.011)	-0.076*** (0.015)	-0.073*** (0.019)
Wage rate (Outside option)	-0.168*** (0.053)	-0.157 (0.108)	-0.338*** (0.107)	-0.155*** (0.053)	-0.161 (0.108)	-0.315*** (0.107)
Poorer partner (<= mean income)	0.107** (0.051)	0.029 (0.083)	0.171** (0.081)			
Poorer partner (> mean income)	-0.051 (0.095)	0.142 (0.232)	-0.121 (0.113)			
Poorer partner (<= mean income) x Intra-HH inequality	-0.126*** (0.022)	-0.104** (0.048)	-0.130*** (0.031)			
Poorer partner (> mean income) x Intra-HH inequality	-0.066* (0.038)	-0.113 (0.112)	-0.047 (0.044)			
Richer partner (<= mean income)				0.041 (0.078)	-0.113 (0.104)	0.274* (0.140)
Richer partner (> mean income)				-0.179*** (0.061)	-0.019 (0.129)	-0.183** (0.077)
Richer partner (<= mean income) x Intra-HH inequality				0.064 (0.063)	0.170** (0.084)	-0.121 (0.108)
Richer partner (> mean income) x Intra-HH inequality				0.129*** (0.021)	0.081* (0.049)	0.135*** (0.028)
Control variables	Yes	Yes	Yes	Yes	Yes	Yes
State dummies	Yes	Yes	Yes	Yes	Yes	Yes
Observations	4,230	1,993	2,237	4,230	1,993	2,237
Pseudo R ²	0.060	0.046	0.072	0.060	0.047	0.073
Log-Likelihood	-2901.16	-1337.10	-1548.09	-2899.68	-1336.76	-1545.86
<i>Evaluation of taxes paid by managers</i>						
Dependent variable	Evaluation of taxes paid by managers					
Sample	Full sample	Below mean outs. opt.	Above mean outs. opt.	Full sample	Below mean outs. opt.	Above mean outs. opt.
Equation	(25)	(26)	(27)	(28)	(29)	(30)
<i>Income</i>						
Individual income	-0.121*** (0.021)	-0.079* (0.047)	-0.122*** (0.025)	-0.114*** (0.021)	-0.083* (0.045)	-0.117*** (0.024)
Intra-household inequality	0.022 (0.019)	-0.072 (0.046)	0.032 (0.023)	-0.079*** (0.012)	-0.070*** (0.015)	-0.083*** (0.017)
Wage rate (Outside option)	-0.157*** (0.056)	-0.026 (0.123)	-0.474*** (0.110)	-0.143** (0.056)	-0.017 (0.122)	-0.455*** (0.110)
Poorer partner (<= mean income)	-0.025 (0.055)	-0.093 (0.091)	0.020 (0.090)			
Poorer partner (> mean income)	-0.010 (0.098)	-0.104 (0.232)	-0.034 (0.117)			
Poorer partner (<= mean income) x Intra-HH inequality	-0.103*** (0.023)	0.002 (0.049)	-0.124*** (0.032)			
Poorer partner (> mean income) x Intra-HH inequality	-0.072* (0.038)	0.093 (0.173)	-0.082* (0.042)			
Richer partner (<= mean income)				0.150 (0.095)	0.072 (0.124)	0.261 (0.166)
Richer partner (> mean income)				-0.032 (0.063)	0.189 (0.132)	-0.067 (0.086)
Richer partner (<= mean income) x Intra-HH inequality				-0.007 (0.074)	-0.023 (0.097)	-0.061 (0.121)
Richer partner (> mean income) x Intra-HH inequality				0.100*** (0.021)	-0.016 (0.048)	0.117*** (0.029)
Control variables	Yes	Yes	Yes	Yes	Yes	Yes
State dummies	Yes	Yes	Yes	Yes	Yes	Yes
Observations	4,230	1,993	2,237	4,230	1,993	2,237
Pseudo R ²	0.064	0.050	0.087	0.064	0.050	0.088
Log-Likelihood	-2862.39	-1288.86	-1547.14	-2861.44	-1288.80	-1545.74

Notes: Ordered probit regressions. The dependent variable in the upper panel is the response (1) 'too low', (2) 'appropriate', and (3) 'too high' to the question 'Is the amount of taxes paid by an unskilled worker in Germany too much compared to other groups, too little, or exactly appropriate?'. The dependent variable in the lower panel is the response (1) 'too high', (2) 'appropriate', and (3) 'too low' to the question 'And what do you think about the taxes paid by a manager on the board of directors of a large company? Does he/she pay too much, too little, or an exactly appropriate amount in taxes compared to other groups?'. Robust, bootstrapped standard errors in parentheses, clustered at the 'Household ID in 2005'. * p < 0.10, ** p < 0.05, *** p < 0.01.

5 Concluding Remarks

With public income redistribution going from the rich to the poor one would expect the latter to favor it and the former to oppose it. Using data of cohabiting individuals from the German Socio-Economic Panel, we empirically analyze the relationship between income inequality and individual preferences for public redistribution, focusing on intra-household income inequality between spouses.

We find that not only one's earned individual income but also the earned intra-household income inequality, i.e., between partners, is significantly negatively related to preferences for public redistribution. However, the larger the earned intra-household income inequality, the less the poorer partner prefers public income redistribution and the more the richer partner prefers public income redistribution. This finding may result from the fact that larger earned income inequality between partners increases the possibility of resource transfers from the richer to the poorer partner (Grossbard-Shechtman, 1984), i.e., private redistribution. The poorer partner's opposition to public redistribution may then reflect either that he or she is less in need of it or that it is less beneficial than is private redistribution. Additionally, poorer partners who live with a distinctly richer partner may not be legally eligible for some public transfers that they would be eligible for were they not cohabitating with a richer partner. These poorer partners may see insurance provided through private redistribution as a substitute for governmental provision of insurance through public redistribution. The result that richer partners prefer more public redistribution, on the other hand, seems to be driven by richer partners living in marriages with a large income gap between partners. In Germany, this income situation enables them to realize tax savings through joint income tax splitting, compared to partnerships with more similar incomes. More public redistribution by means of higher taxation of rich people would, thus, hit these richer partners less severely.

Building on the ever-present possibility of the end of cohabitation, we also test whether the individual's outside option, i.e., the wage level had he or she not cohabited, constitutes another significant determinant. Specifically, we estimate Mincer earnings functions based on non-cohabiting individuals to predict the hourly wage that a cohabiting individual could earn when cohabitation ends. In line with previous empirical findings on the effects of individuals' beliefs about their future well-being, our results indicate a significant and negative relationship between the outside option and preferences for public redistribution. Although one may earn relatively less during cohabitation, knowing that one could earn a comparatively high wage as a single person decreases preferences for public redistribution and vice versa.

In future empirical research, the precise rationales behind the redistributive preferences of poorer and richer household partners should be further investigated. From a public policy perspective, it would be especially interesting to analyze whether the opposition to public redistribution by those poorer partners who are objectively poor but live together with a distinctly richer partner actually results from the preference for intra-household resource transfers from the richer partner. If this were so, the potential dependency of the poorer partner on the richer partner could lead to financial difficulties—and, ultimately, welfare state dependency—in the event of separation or divorce or in old-age; i.e., for the poorer partners in single-earner households. Then appropriate policies should be set and formulated in such a way as to encourage the poorer partners to maintain their financial independence, even if transfers from the richer partner would suffice at this point in time.

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6 Appendix

Table A.1: Intra-household income inequality and preferences for redistribution—
Summary statistics

Variable	Mean	Std. Dev.	Min.	Max.	N
Evaluation of taxes paid by unskilled workers	2.58	0.52	1.00	3.00	4,379
Evaluation of taxes paid by managers	2.68	0.57	1.00	3.00	4,379
Individual income (/10,000)	2.57	2.57	0.00	31.80	4,379
Intra-household income inequality (/10,000)	2.23	2.72	0.00	29.40	4,379
Potential hourly earnings (ln) (/10)	2.56	0.50	0.31	3.60	4,353
Poorer partner	0.44	0.50	0.00	1.00	4,379
Age	56.45	15.17	19.00	95.00	4,379
Female	0.46	0.50	0.00	1.00	4,379
Secondary	0.62	0.49	0.00	1.00	4,379
Tertiary	0.25	0.43	0.00	1.00	4,379
Married	0.81	0.39	0.00	1.00	4,379
Employed	0.42	0.49	0.00	1.00	4,379
Civil servant	0.05	0.21	0.00	1.00	4,379
Self-employed	0.06	0.24	0.00	1.00	4,379
Retired	0.29	0.46	0.00	1.00	4,379
East Germany	0.23	0.42	0.00	1.00	4,379
Luck	0.33	0.47	0.00	1.00	4,379
Risk	0.31	0.46	0.00	1.00	4,379

Notes: Own computations based on the 2005 wave of the GSOEP.

Table A.2: Intra-HH income inequality and preferences for redistribution—
Baseline specification with outside option

Dependent variable	Evaluation of taxes paid by unskilled workers			Evaluation of taxes paid by managers		
	Full sample	Below mean outs. opt.	Above mean outs. opt.	Full sample	Below mean outs. opt.	Above mean outs. opt.
Equation	(31)	(32)	(33)	(34)	(35)	(36)
<i>Income</i>						
Individual income	-0.056*** (0.011)	-0.080*** (0.023)	-0.060*** (0.014)	-0.045*** (0.011)	-0.069*** (0.023)	-0.051*** (0.015)
Intra-household inequality	-0.038*** (0.010)	-0.059*** (0.013)	-0.020 (0.015)	-0.051*** (0.009)	-0.067*** (0.014)	-0.037*** (0.014)
Wage rate (Outside option)	-0.122* (0.063)	-0.073 (0.107)	-0.398*** (0.129)	-0.086 (0.067)	0.055 (0.119)	-0.522*** (0.142)
Control variables	Yes	Yes	Yes	Yes	Yes	Yes
State dummies	Yes	Yes	Yes	Yes	Yes	Yes
Observations	4,230	1,993	2,237	4,230	1,993	2,237
Pseudo R ²	0.055	0.047	0.064	0.063	0.054	0.082
Log-Likelihood	-2914.76	-1331.41	-1564.30	-2859.57	-1276.41	-1556.58

Notes: Ordered probit regressions based on Models (3) and (6) in Table 2. See also the notes of Table 6.