Effect of social capital on income distribution preferences: comparison of neighborhood externality between high- and low-income households

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24 July 2011

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Abstract

This paper explores how individual preferences for income redistribution are influenced by social capital, which is measured by rates of participation in community activities. I combined individual-level data and place of residence data to examine how social capital accumulated in residential areas influences an individual's preference for income redistribution. After controlling for individual characteristics, I obtained the following key findings: people are more likely to prefer income redistribution in areas with higher rates of community participation. This tendency is more clearly observed in high-income groups than in low-income groups. This implies that one's preference for income redistribution is influenced by psychological externalities.

JEL classification: D30; D63, H20, Z13
Keywords: Redistribution; Social capital; Inequality; Externality

1. Introduction

A major role of governments is to reduce income inequality via income redistribution policies. Income redistribution increases the welfare of the poor, while decreasing that of the wealthy. Income inequality also has several indirect effects—it can lead to a decrease in trust among people (Alesina and La Ferrara 2002) and impede levels of community involvement (Alesina and La Ferrara 2000; La Ferrara 2002). Social capital, which is defined as trust or participation within a community, is considered to play a critical role in increasing social welfare (Putnam 1993; 2000). Hence, income redistribution is thought to increase social welfare, in part through social capital formation. However, the reverse causality that social capital influences political redistribution has not been investigated to date.

Since 2000, a growing number of studies have attempted to explore how and why people prefer income redistribution (e.g., Ravallian and Lokshin, 2000; Corneo and and Gruüner, 2002; Alesina and La Ferrara 2005; Rainer and Seidler, 2008; Alesina and Giuliano 2009; Klor and Shayo 2010). Theoretical models suggest that expectations of upward and downward mobility play an important role in determining individual attitudes toward redistribution (Piketty, 1995). The "prospect of upward mobility" hypothesis supposes that people who expect to move up the income scale will not favor a distributive policy even if they are currently poor (Bénabou and OK, 2001). This hypothesis is empirically supported by prior works (Alesina and La Ferrara 2005; Rainer and Siedler, 2008). In contrast, it has also been found that people with current wealth tend to support redistribution if they expect their welfare to fall (Ravallion and Lokshin, 2000).

The existing literature that explores the determinants of preference for redistribution does not sufficiently consider the effect of interaction among people. However, an individual's perception and behavior are thought to be influenced by the people around them and the surrounding community structure (e.g., Alesina and La Ferrara 2000;2002; La Ferrara 2002; Jensen and Harris 2008; Shields et al., 2009). There are empirical works that support the hypothesis that it is "relative" income rather than "absolute income" that has an effect on the degree of happiness (e.g., Clark and Oswald, 1996; Neumark and Postlewaite, 1998; McBride, 2001; Stutzer 2004; Luttmer 2005). Veblen (1899) argued that "conspicuous consumption" by rich people serves to impress other people. However, it seems plausible that poor people envy rich people, and therefore hope that the rich will become poor. Owing to

such externalities, rich people are likely to be unhappy. In this case, rich people tend to support income redistribution, thereby reducing the externality, and achieving increased levels of happiness. This possibility seems to be more likely when the rich and poor meet and interact more frequently. In other words, rich people are more likely to support income redistribution when people are more inclined to participate in social activities. However, little is known regarding the interaction mechanism for redistribution. Thus, it is worthwhile to examine how and the extent to which the preference for redistribution is affected by interactions among people. Furthermore, preference appears to be significantly affected by structure and traditional societal values (Alesina et al. 2004; Chang 2010). However, existing literature on redistribution preferences has focused largely on Western countries, with the exception of Ohtake and Tomioka (2004) and Chang (2010). Asian countries are characterized by the fact that their cultures and societies are different from those of Western countries, and as such it would be a valuable and necessary exercise to consider the preference for income redistribution in Asian countries. To this end, this paper attempts to compare the effect of social capital on preferences for redistribution between poor and rich groups using Japanese General Social Surveys (JGSS), which include more than 10,000 observations. I found that people are more inclined to prefer income redistribution in areas where residents are more actively involved in community activities. This tendency was more clearly observed for people from high-income groups than with people in low-income groups. This paper is in line with Alesina et al (2004), which marks the crossroad for the determinants of happiness and preferences for redistribution.

The remainder of this paper is organized as follows. In Section 2, the testable hypotheses are discussed. Section 3 provides an explanation regarding data and the empirical method used. Section 4 presents the estimation results and their interpretation. The final section offers some conclusions.

2. Hypotheses

The seminal work of Becker (1974) stated that social interaction is defined in terms of a consumption externality or as the utility function of a person to include the reactions of others in his/her actions. Along similar lines, there is an argument that relative income is related to happiness (e.g., Clark and Oswald, 1996; Neumark and Postlewaite, 1998; McBride, 2001; Luttmer 2005). Luttmer concluded “that the negative effect of neighbor’s earnings on well-being is real and that it is most likely

caused by a psychological externality" (Luttmer 2005, 990). It follows from this that an individual's preference depends, in part, on those that surround them (Luttmer 2001). Furthermore, frequency of contact with surrounding people reinforces this effect (Stutzer 2004). Luttmer provided the evidence that "increased neighbors' earnings have the strongest negative effect on happiness for those who socialize more in their neighborhood" (Luttmer 2005, 989–990).

If one's household income is higher than the average household income within a residential area, they are considered as relatively wealthy. The remainder of the people are regarded as relatively poor. Rich people are more likely to meet people with lower household income than to meet higher-income people within their residential area. In contrast, poorer people are more likely to meet people with higher household incomes than people with lower incomes within their residential area. As suggested in previous works, people are believed to care about their relative position. Because of interpersonal preferences, higher earnings of neighbors are related with lower levels of happiness (Luttmer 2005). "An envious or malicious person presumably would feel better off if some other persons become worse off in certain respects. He could "harm" himself (i.e., spend his own resources) in order to harm others" (Becker 1996, 190). Further, envy possibly causes poorer people to engage in criminal behaviors such as theft or vandalism, not only to increase their "wealth" but also to reduce rich people's wealth (Skaperdas, 1992; Mitsopoulos, 2009). Thus, such criminal behavior caused by envy is considered to result in "illegal" income redistribution.

When there is greater societal interaction among residents (i.e., more frequent contact between rich and poor), there is also an increase in the degree of envy felt by poorer residents toward the richer ones, leading to an increase in negative effects (crimes committed against them by the poor) on the wealthy. Hence, I advance Hypothesis 1:

Hypothesis 1:

Poor people are more inclined to prefer income redistribution when they live in areas where residents are more likely to interact with each other.

This effect gives poorer people an incentive to support a "legal" redistribution policy. In contrast, richer people are more averse to redistribution simply because redistribution policies transfer their income to the poor. For example, a rich person's welfare depends not only on his/her own income and consumption levels but also on

how the surrounding poorer people view his/her income and consumption. If a rich person enjoys the goodwill of those surrounding him/her or fears their envy, that rich person may transfer some of his/her own income to them up to the point where his/her marginal utility loss from the income transfer equals the marginal utility gain owing to an improvement in the evaluation from the surrounding people. As a consequence, a rich person's utility is maximized. To put it more concisely, when the effect of negative externality caused by the envy of poorer people outweighs the negative effect of a reduction of income caused by a redistribution policy, rich people will support a redistribution policy. Whether rich people prefer income redistribution depends on the frequency of interaction among residents because the negative externality is considered to be an increasing function of contact with surrounding poor people. This leads me to propose Hypothesis 2:

Hypothesis 2:

Rich people are more inclined to prefer income redistribution when they live in an area where residents are more likely to interact with each other.

3. Data and Methods

3.1. Data

This paper used JGSS data, which are individual-level data.[1] JGSS surveys use a two-stage stratified sampling method and were conducted throughout Japan from 2000. This paper used a dataset covering 2000, 2001, 2002, 2003, 2005, 2006, and 2008.[2] JGSS was designed as a Japanese counterpart to the General Social Survey (GSS) from the United States. JGSS asks standard questions concerning an individual's characteristics via face-to-face interviews. The data cover information related to preferences regarding income redistribution policies, marital and demographic (age and gender) status, annual household income[3], years of schooling,

[1]Data for this secondary analysis, "Japanese General Social Surveys (JGSS), Ichiro Tanioka," was provided by the Social Science Japan Data Archive, Information Center for Social Science Research on Japan, Institute of Social Science, The University of Tokyo.

[2]Surveys were not conducted in 2004 and 2007. Surveys were conducted in 2009 and 2010 but the data is not available.

[3]In the original dataset, annual earnings were grouped into 19 categories, and we assumed that everyone in each category earned the midpoint value. For the top category of "23 million yen and above," I assumed that everybody earned 23 million yen. Of the 11,808 observations used in the regression estimations, there were only 116 observations in this category. Therefore, the problem of top-coding should not be an

age, prefecture of residence, and prefecture of residence at 15 years old. A Japanese prefecture is the equivalent to a state in the United States or a province in Canada. There are 47 prefectures in Japan, and the average values for the variables included in the JGSS can be calculated for each prefecture. The construction of the research sample is presented in Table 1. Data were collected from 22,796 adults, between 20 and 89 years old. Respondents did not answer all of the survey questions; therefore, data regarding some variables are not available, and the number of samples used in the regression estimations is reduced, ranging between 11,048 and 11,808. The use of JGSS data in this paper has certain advantages. First, compared with international data (e.g., Crneo and Gruüner, 2002; Alesina and Angeletos, 2005, Aristei and Perugini, 2010), "within country analysis is much less likely to be subject to measurement error due to changes in institutional structures of redistributive policies" (Alesina and Giuliano 2009, 22). Second, previous works related to preferences for income redistribution used the United States GSS (e.g., Alesina and La Ferrara, 2005; Alesina and Giuliano, 2009; Derin-Güre and Uler, 2010). JGSS was designed as the Japanese counterpart to the United States GSS, and therefore analysis using JGSS enables researchers to compare findings between Japan and United States. Recent studies have highlighted the significant effect that cultural and social backgrounds have on "happiness" (Alesina et al., 2004), as well as their influence on individual preferences for income redistribution (Luttmer 2011). Hence, the findings of this paper will help researchers to examine how social, historical, and cultural differences influence redistribution preferences. Finally, previous works have not fully investigated how and why Japanese people prefer redistribution, with the exception of Ohtake and Tomioka (2004). Ohtake and Tomioka (2004) used a smaller sample (approximately 1,000 observations) than that used in this paper. The JGSS data used in this paper contain approximately 11,000 observations, and as such these results are more accurate and reliable than previous works.

Following the discussion in Putnam (2000), the degree of participation in community activities is considered to be social capital in this research. The aim of this paper is to examine the externality from surrounding people on preferences for income redistribution policies. The influence of surrounding people is thought to be greater when people are more likely to participate in community activities. That is, people are influenced by surrounding people to a greater extent when they live in areas with higher levels of community involvement. In 1996, the Japan

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issue here.

Broadcasting Corporation conducted a survey on the consciousness and behaviors of prefecture residents, capturing community activity involvement rates in prefectures (Japan Broadcasting Corporation 1997). One of the survey questions asked "Do you actively participate in community activities?" Respondents could choose one of three responses: "yes", "unknown", or "no". I calculated the rates for those who answered "yes" within a prefecture, and used this value as a measure of social capital (however, it should be noted that care should be taken with regard to the definition of social capital). Further, I assumed that the rate of participation in community activities was stable over time. As mentioned earlier, there are 47 prefectures, and I obtained a proxy for each prefecture.

Gini data coefficients for prefecture level household income were calculated using data from the "National Survey of Family Income and Expenditure", conducted by the Ministry of Internal Affairs and Communications (1999, 2004). These surveys are conducted every 5 years, e.g., 1999, 2004, and 2009. However, the data for 2009 are not available. The data used in this paper cover the period 2000–2008. Therefore, as explained in the following section, I used Gini coefficients for 1999 as an initial value. In addition, I also used Gini coefficients for 2004 as independent variables. I matched the information regarding individual characteristics sourced from the JGSS data with prefecture characteristics such as community participation rates and Gini coefficients. Thus, I was able to investigate how income inequality within a community affects an individual's preference for income redistribution.

The variables used in the regression estimations are shown in Table 2, which provides definitions and mean comparisons of the high- and low-income groups. High-income earners are defined as those with a household income that is higher than the average household income within a prefecture. The remainder of the residents are defined as low-income earners. The average household income within a prefecture (AVINCOM) is calculated using JGSS data. The utility of people is thought to be affected not only by one's own income but also by the income level of surrounding people (e.g., Clark and Oswald, 1996; Neumark and Postlewaite, 1998; McBride, 2001; Stutzer 2004). In other words, not only absolute income but also relative income is considered to be related to an individual's utility and, therefore, perceptions. This paper controls for both individual-level household income and average household income within residential prefectures to capture the relative income effect. The regional characteristics used in this paper are SC (rate of those who participate in community events), GINI99 and GINI04 (Gini coefficients for

1999 and 2004, respectively), and AVINCOM (average household income within a prefecture).

Turning to individual characteristics, OEQUAL and EQUAL are proxies for preferences for income redistribution. The question regarding income redistribution asked: What is your opinion of the following statement? “It is the responsibility of the government to reduce the differences in income between families with high incomes and those with low incomes.” There were five response options, ranging from “1 (strongly disagree)” to “5 (strongly agree)”. OEQUAL is the values that the respondents chose. Figure 1 shows the distribution of views regarding political redistribution, and reveals that the number of respondents who chose “1” or “2” is smaller than those who chose “4” or “5”. Thus, the shape of histogram is skewed towards the right. Respondents most frequently chose the median number “3”. However, there is a problem with this proxy for redistribution preferences. Of the five possible responses, “3 (depends)” requires the greatest care in interpretation. It is unclear whether “depends” can be considered as an intermediate category, or whether it includes a number of respondents who might have answered in other categories if other possible responses were included in the questionnaire. To alleviate any bias arising from this, in addition to OEQUAL, I also used an alternative dummy variable “EQUAL” as a proxy for preferences for redistribution. EQUAL takes the value of 1 if the response is “4 (agree)” or “5 (strongly agree)”, and is otherwise 0. As explained later in the paper, an ordered probit model is used for the estimations when OEQUAL is the dependent variable. In the alternative specification, a probit model is used when EQUAL is the dependent variable. It can be seen from Table 2 that OEQUAL and EQUAL are larger for the low-income group than for the high-income group and are statistically significant at the 1% level, which is consistent with the inference that poorer people are more likely to prefer income redistribution to increase their welfare.

Years of schooling, SCHOOL, is significantly greater for the high-income group than the low-income group, suggesting that human capital contributes to an increase in income levels.

Political ideology plausibly influences preferences for redistribution and so should be controlled for when preferences for income redistribution are estimated (Alesina Giuliano 2009). I constructed a proxy for capturing this effect based on responses to the question: “Where would you place your political views on a five-point scale?” There are five response options: “1 (conservative)” to ‘5 (progressive)”. The placement of political views is captured by dummies: PROG_5

takes the value of 1 when the response is “5”, otherwise 0. PROG_1, PROG_2, PROG_3, and PROG_4 are defined in a similar manner. It is of interest that political views did not differ between the high- and low-income groups, with the exception of PRGO_ 5. This tells us that political views are unrelated to individual income levels in Japan.

An expectation of future income is a key determinant in preferences for income redistribution (e.g., Alesina and La Ferrara 2005; Rainer and Siedler, 2008). A JGSS question asks “In your opinion, how much opportunity would you say there is in Japanese society to improve the standard of living for you and/or your family?” There are five response options: “1 (not sufficient at all)” to “5 (sufficient)”. Dummies capture the degree of improvements in standards of living: BLIFE_5 takes the value of 1 when the response is “5”, otherwise 0. BLIFE_1, BLIFE_2, BLIFE_3, and BLIFE_4 are defined in a similar manner. As shown in Table 2, there are significantly larger values for BLIFE_1 and BLIFE_2 in the low-income group than for the high-income group. These results indicate that people in the low-income group are less likely to believe that there is an opportunity for improvements in standards of living than high-income people. The significantly larger value of BLIFE_4 for the high-income group shows that they are more likely to believe that there is sufficient opportunity for improvement compared with the low-income group. This appears to imply that income mobility is less likely to occur in Japan. However, interestingly, there is no significant difference in the values for BLIFE_5 between the high- and low-income group, which suggests that both poor and rich people have a similar expectation regarding upward mobility. As a whole, Japanese people appear to hold a mixed perception regarding income mobility.

3.2. Social capital and its definition

According to Putnam (2000), social capital is defined as the features of a social organization such as networks and norms, and that social trust facilitates coordination and cooperation. Hence, social capital can be interpreted in various ways, thereby causing ambiguity and criticism regarding its measurement and definition (e.g., Paldam 2000; Sobel 2002; Durlauf 2002; Bjørnskov 2006). The effects of social capital are considered to differ according to its definition and choice of proxy. Therefore, for an in-depth study, it is important to focus on just one aspect of social capital. In recent works, researchers have tended to indicate exactly what type of social capital was used as a proxy when analyzing the effect of social capital. As

stated earlier, this study uses community involvement as social capital to examine its externality on preferences for redistribution. Frequency of participation in community events can be theoretically interpreted as an investment in social capital (Glaeser et al., 2002). With regard to Japan, prior works have reported that community involvement increases the benefit for community members by decreasing crime rates (Yamamura 2009) and the number of deaths in natural disasters (Yamamura 2010). These studies show that involvement in one's community has an important role in Japanese society. In contrast, frequent interaction among community members is also thought to increase negative externalities such as envy toward richer members. Japanese society is therefore regarded as an example of the positive effects of social capital.

3.3. Econometric Framework and Estimation Strategy

In Figures 2(1) and 3(1), the vertical axis shows the average OEQAUL within a prefecture. In Figures 2(2) and 3(2), the vertical axis shows EQAUL (rate of those who prefer redistribution within a prefecture). A cursory examination of Figures 2(1) and (2) reveals a positive association between social capital and a preference for redistribution, which is congruent with the hypotheses raised previously. However, this relationship is observed when individual characteristics are not controlled for. A more precise examination calls for a regression analysis using individual-level data matched with characteristics from residential areas.

Turning now to the relationship between income inequality and preferences for redistribution, Figures 3(1) and (2) show that the Gini coefficients for 1999 are not associated with a preference for income redistribution. Derin-Güre and Uler (2010) found that income inequality had a differing effect on the private charitable contributions of high-income earners and those of low-income earners. Preference for redistribution within a prefecture is calculated using observations from both high- and low-income groups. Therefore, the effect of income inequality is thought to be neutralized, and as such it is worth comparing the effects of income inequality on preferences for redistribution between high- and low-income groups using regression estimations.

For the purpose of examining the hypotheses proposed previously, the estimated function of the baseline model takes the following form:

$$OEQUAL_{im} \text{ (or } EQUAL_{im}) = \alpha_0 + \alpha_1 SC_m + \alpha_2 AVINCOM_m + \alpha_3 GINI99_m + \alpha_4 INCOM_{im} + \alpha_5 AGE_{im} + \alpha_6 MARRY_{im} + \alpha_7 SCHOOL_{im} + \alpha_8 UNEMP_{im} + \alpha_9 MALE_m$$

$+ \alpha_{10} PROG\_2_{im} + \alpha_{11} PROG\_3_{im} + \alpha_{12} PROG\_4_{im} + \alpha_{13} PROG\_5_{im} + u_{im},$

where $OEQUAL_{im}$ (or $EQUAL_{im}$) represents the dependent variable in individual i, and prefecture m. Regression parameters are represented by α. As explained earlier, values for *OEQUAL* range from 1 to 5 and so the ordered probit model is used to conduct the estimations. In the alternative specification, *EQUAL* is the dummy variable and so takes either 1 or 0. Hence, the probit model is used when *EQUAL* is the dependent variable. The error term *is* represented by u_{im}. It is reasonable to assume that the observations may be spatially correlated within a prefecture, as the preference of one agent may well relate to the preference of another in the same prefecture. To consider such spatial correlation in line with this assumption, I used the Stata cluster command and calculated z-statistics using robust standard errors. The advantage of this approach is that the magnitude of spatial correlation can be unique to each prefecture.

In previous works, individual characteristics have been used to measure levels of socialization in a neighborhood (Stutzer 2004; Luttmer 2005). It seems plausible that people who feel happier are more likely to have contact with their neighbors. If so, those who are satisfied and do not prefer redistribution are less likely to have contact with neighbors. Therefore, the causality between socialization and preference for redistribution is ambiguous. To alleviate this bias, this paper examined the effect of social capital formed in residential areas rather than an individual's socialization. Hence, SC is incorporated as an independent variable and is anticipated to take the positive sign. AVINCOM and GINI99 are included to control for relative income and income inequality within a prefecture. As suggested by Luttmer (2005), increases in average income within a locality lead to reductions in the residents' welfare. People are thought to support redistribution to improve their welfare. In this paper, AVINCOM is expected to take the positive sign. However, an increase in AVINCOM appears to lead people to expect that they can earn more. If so, the sign for AVINCOM becomes negative. If people wish to address inequality, the sign for GINI99 should be positive. Furthermore, income inequality increases the psychological externality of poor against rich, leading rich people to support income redistribution. Therefore, GINI99 is more likely to take the positive sign for rich people than for poor people. In the alternative specification, GINI 04 is also included in addition to GINI99.

Following existing literature (e.g., Ravallian and Lokshin, 2000; Corneo and and Gruüner, 2002; Ohtake and Tomioka 2004; Alesina and La Ferrara 2005; Rainer and Seidler, 2008; Alesina and Giuliano 2009), INCOME, AGE, MARRY, SCHOOL,

and MALE are included as independent variables to control for individual characteristics. Political views are captured by PROG_2–PROG_5, with PROG_1 (conservative view) as the reference group. Progressive views generally support left-wing policies such as political income redistribution. Hence, the coefficients of PROG_2–PROG_5 are predicted to take the positive sign, with the absolute value of the coefficient PROG_5 to be largest among them.

4. Estimation Results

The estimation results of the ordered probit model are presented in Tables 3(a), 4 and 5. The probit model results that correspond to Table 3(a) are shown in Table 3(b). The results of the baseline model are reported in Tables 3(a) and (b). Table 4 shows the results for when both GINI99 are GINI04 are included. As presented in the theoretical model (Piketty, 1995; Bénabou and OK, 2001), expectations regarding upward and downward mobility determine an individual's attitude or preference for redistribution. Prior empirical works estimating preference for redistribution are in line with the theoretical model and stress the role of expectation regarding future income or social position (e.g., Alesina and La Ferrara 2005; Rainer and Siedler, 2008).

Aside from the inclusion of the baseline model to capture this effect, I also incorporated BLIFE_2, BLIFE_3, BLIFE_4, and BLIFE_5 as independent variables in an alternative model. These results are exhibited in Table 5.

In each table, the estimation results, based on a sample of rich and poor respondents, are shown in columns (1) and (4). The results for the rich respondents are presented in columns (2) and (5), while the results for the poor respondents are presented in columns (3) and (6). As argued by Luttmer (2005), there is "the possibility that cross-section results are driven by selection of people who are happier by nature into area that are relatively poor… One might worry that movers may have had something unobserved happen to them" (Luttmer 2005, 977). This unobserved factor is a possible reason for estimation bias. The JGSS provided data regarding not only current residential prefectures but also the residential prefectures of the respondents at 15 years of age. If the current residential prefecture is not the same prefecture at 15 years old, respondents are defined as "movers". For the purpose of alleviating this bias, following Luttmer (2005), I also conducted the estimations by excluding all respondents who had moved to a different prefecture. These results are exhibited in columns (4)–(6) of Tables 3 (a),

(b), 4, and 5.

In Table 3(a), the signs for SC take the expected positive signs and are statistically significant, with the exception of column (3). AVINCOM takes the negative sign and is statistically significant in columns (1), (3), (4), and (6). This suggests that an increase in the average income leads low-income earners to be less inclined to support a redistribution policy. Hence, concerning redistribution policies, average income is not related to poorer people's negative feelings (e.g., envy) but to positive feelings such as expectations of higher earnings. Interestingly, GINI99 takes a significantly positive sign only for the high-income group. It follows then that income inequality represents a psychological externality for rich people, and hence they support income redistribution. As for individual characteristics, the sign for INCOME is negative in all estimations, and is not statistically significant for the low-income group. This indicates that a reduction in income via a policy of income redistribution leads rich people to oppose such a policy. Significant negative values for SCHOOL are observed in all estimations. I interpret this result as suggesting that people with higher education are more likely to expect higher future earnings. UNEMP takes the positive signs in all estimations, but is only statistically significant in columns (1) and (2), implying that the effect of job status on preference for redistribution is ambiguous. Consistent with expectations, PROG_5 takes a significant positive sign in all estimations. This implies that political views influence preferences for redistribution.

Results reported in Table 3(b) are similar to those in Table 3(a). The coefficients exhibited in Table 3(a) cannot be interpreted as marginal effects and it is difficult to interpret them in the ordered probit model. Therefore, I will focus largely on the reported marginal effects of the probit model. In Table 3(b), the positive sign for SC continues to be statistically significant in columns (1), (2), (4) and (5), but not in columns (3) and (6). Therefore, SC influences rich people but not poor people. The focus is further narrowed to the results that are obtained after "movers" were excluded from the sample. Its marginal effects are 0.28 in column (5), meaning that a 1% increase in the rate of participation in community events leads to a 0.28% increase in support for redistribution policies. The negative sign of AVINCOM is only statistically significant in column (6). GINI99 takes a significant positive sign only in columns (2) and (5), implying that income inequality results in richer people supporting redistribution policies but not poorer people. The marginal effect shown in column (5) can be interpreted as suggesting that a 0.1-point increase in Gini coefficients leads to a 0.13-point increase in support from rich people for income

redistribution.

Turning now to Table 4, results for SC, AVINCOM, and GINI99 are similar to those presented in Table 3(a). The sign for GINI04 is negative with the exception of column (5). Further, GINI04 is not statistically significant in all estimations. This indicates that GINI99 has a significant effect on preferences of rich people, whereas GINI04 has no influence at all. This shows that the effects of income inequality are not stable and so care should be taken when interpreting these results. Concerning Table 5, results for SC, AVINCOM, GINI99, and GINI04 in columns (1)–(3) are similar to those in Table 4. However, the sign for SC is positive but not statistically significant in columns (5) and (6). This result is partly because of the reduction in observations used for the estimations. In line with the prediction, the signs for BLIFE_2–BLIFE_5 are negative in all estimations. Further, BLIFE_3–BLIFE_5 are statistically significant at the 1% level in columns (1), (3), (4), and (6). In contrast, only BLIFE_5 is statistically significant in columns (2) and (5). Thus, expectations for a "better life" have a greater influence on preferences for income redistribution for poor people than rich people.

To sum the various estimated results presented thus far, I conclude, as a whole, that the estimation results examined in this section are consistent with Hypothesis 2, and support it reasonably well, but not Hypothesis 1. The above findings imply that rich people are more likely to support a redistribution policy when they live in an area where residents have frequent contact with each other. This is in line with findings from the United States, where rich people are more likely to increase charitable contributions for inequality reduction than poor people (Derin-Güre and Uler 2010). These results imply that, for rich people, the effect of negative externalities caused by the envy of poor people is greater in areas supporting a tightly-knit community. In contrast, poor people's attitudes regarding redistribution policies are unlikely to depend on the degree of residential contact within a community.

In rural Asian villages, it has been observed that an individual with a higher socioeconomic status will use his/her own influence and resources to provide protection and/or benefits to someone with a lower status (Hayami 2001). Such relationships are called patron–client relationships by anthropologists and sociologists (Scott, 1972). Rural Asian villages are characterized by long-term and intensive personal interactions between village members. Even in modern Japanese society, when community members frequently attend community events and interact with each other, the relationships between members mirror the

relationships in rural villages. If such relationships exist to a certain extent in modern Japanese society, then the wealthy are expected to play the role of patron and offer patronage to the poor (client). The finding that social capital leads the rich to prefer income redistribution possibly reflects the cultural and anthropological characteristics of parts of Asia.

5. Conclusions

Individuals feel worse off when others around them earn more, and so residents are concerned not only about their income but also the average local income. The influence of relative income is greater for those who socialize more in their neighborhood (Stutzer 2004, Luttmer 2005). Preference for income redistribution are inevitably influenced by relative income and also by social capital captured by frequency of contact with neighbors. However, little is known about the effect of social capital on preferences for income redistribution. Further, there is the possibility that people who feel happier are more likely to socialize with neighbors. Accordingly, the causality between socialization and happiness is ambiguous. To alleviate this bias, this paper focused on the degree of social capital present in the neighborhoods of individuals, rather than by looking at socialization. In this paper, social capital was measured by the rate of participation in community activities in 1996. Matching this data with micro data from JGSS for 2000–2008, I estimated the effect of social capital in residential areas on preferences for income redistribution.

The major findings are that after controlling for various individual characteristics, people are more likely to prefer income redistribution in areas where there are higher rates of community participation. This is in line with Luttmer (2005), implying that the consumption externality suggested by Becker (1974) depends on the degree of frequency of personal interaction within a community. Further, the effect of social capital on preference for income redistribution was more clearly observed in the high-income group than the low-income group. From this I derive the argument that for rich people, frequency of interaction increases the effect of the negative externality caused by the envy of poorer people. Further, the effect of the negative externality outweighs the negative effect of reducing the income of the wealthy via income redistribution policies.

However, the effect of the residential area characteristics appeared to vary according to individual characteristics. That is, even when individuals live in tightly-knit communities with significant social capital, their preferences are not

necessarily influenced by surrounding people if they do not socialize in the neighborhood. Owing to a lack of data, however, this paper cannot explore this issue further. Furthermore, Japan is generally characterized as a racially homogenous society. Aside from such homogeneity, Japan's historical and cultural backgrounds also distinguish it from Western countries. Hence, to test the generality of these findings, it is necessary to examine the hypotheses proposed in this paper using other countries with different characteristics. These remaining issues require attention in future studies.

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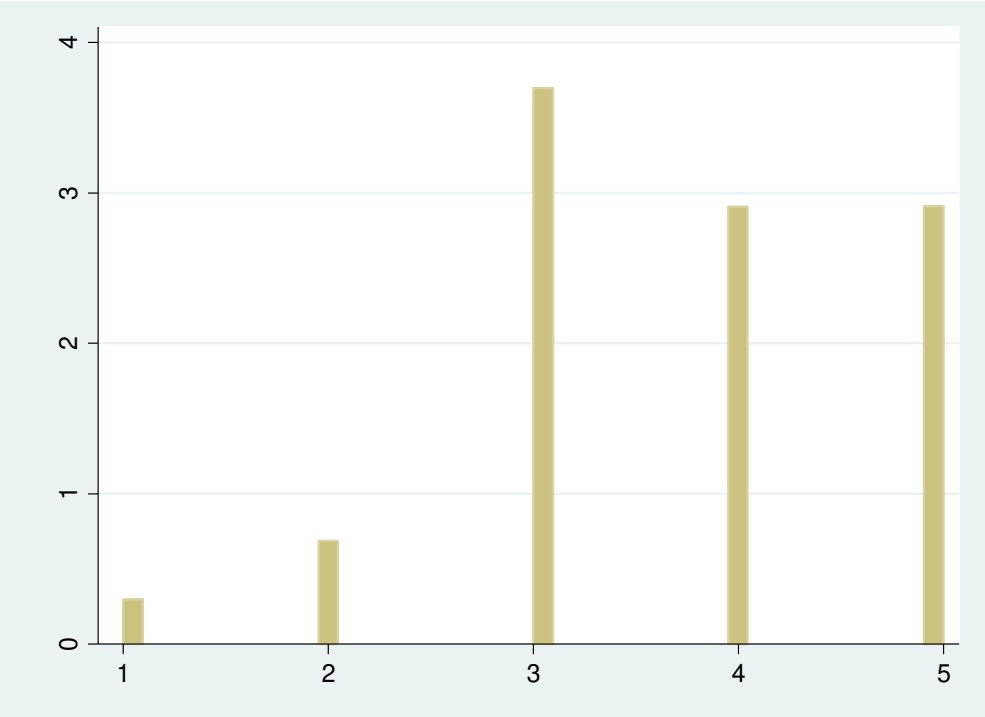

Figure 1. Distribution of views regarding income redistribution

Note:

The question asked of respondents was: What is your opinion of the following statement? “It is the responsibility of the government to reduce the differences in income between families with high incomes and those with low incomes.”

There were five response options: “1 (strongly disagree)” to “5 (strongly agree)”.

The number indicated in the figure is equivalent to the number of responses.

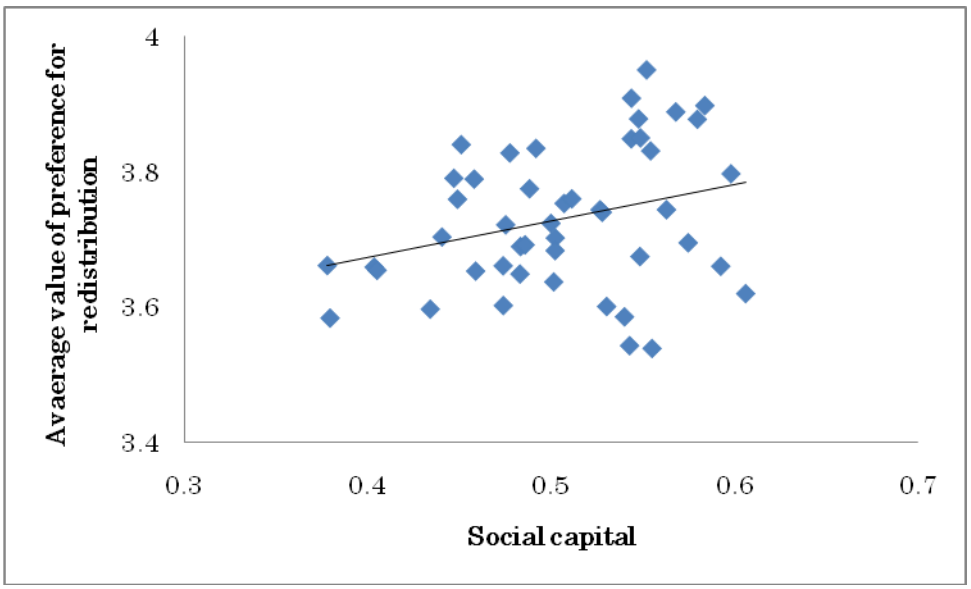

Figure 2(a). Relationship between social capital and preference for income distribution

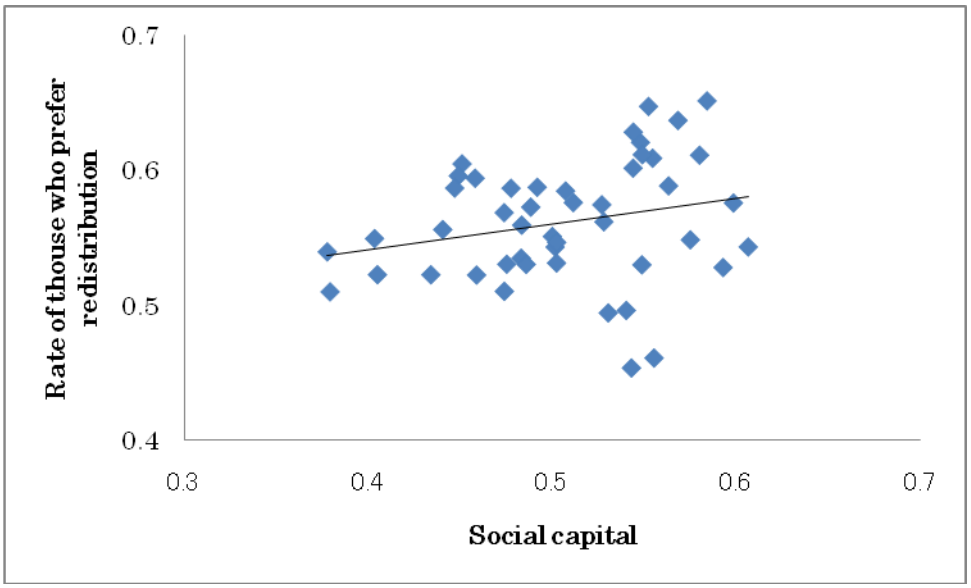

Figure 2(b).

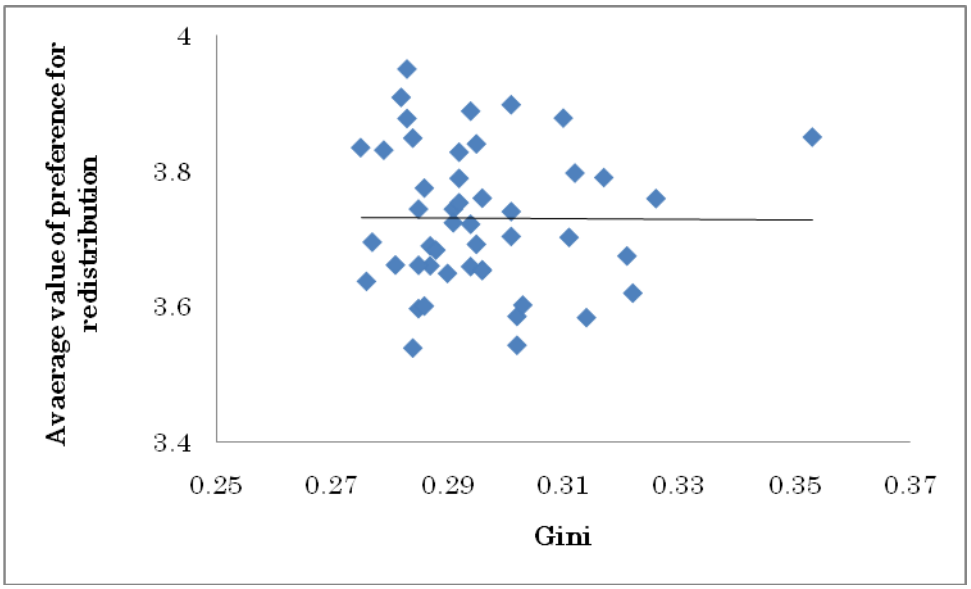

Figure 3(a). Relationship between Gini coefficients for 1999 and preference for income distribution

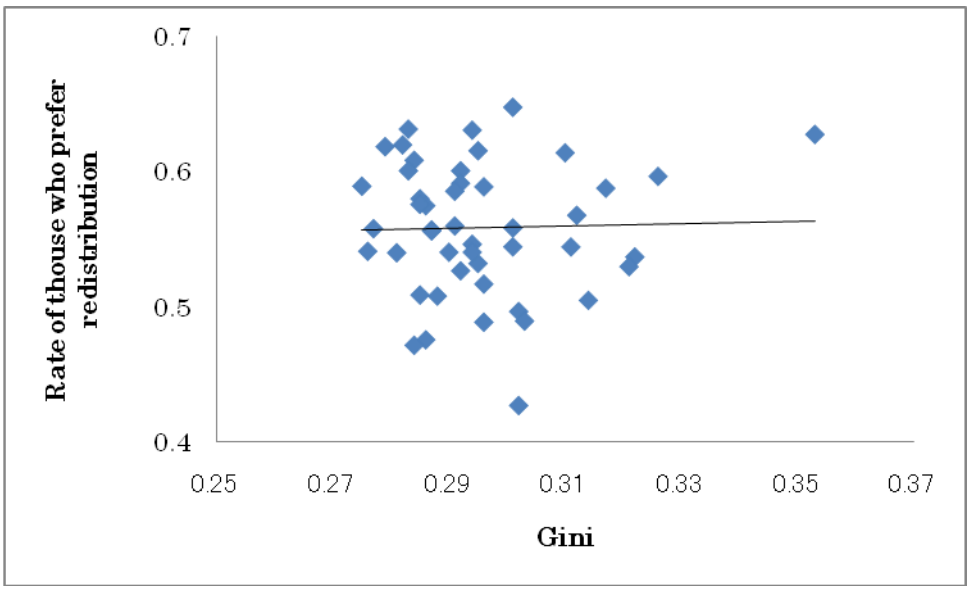

Figure 3(b). Relationship between Gini coefficients for 1999 and preference for income distribution

Table 1. Construction of research sample

Year	Observations from original sample	Observations used in analysis
2000	2,893	1,920
2001	2,790	1,786
2002	2,953	1,915
2003	3,663	1,287
2005	2,023	1,056
2006	4,254	1,248
2008	4,220	2,596
Total	27,790	11,808

Note: Observations were used in the analysis when they were available to be used for all variables in the estimations.

Table 2
Mean values for high-income household group and low-income household group

	Definitions	High-income	Low-income	t-statistics
Regional characteristics				
SC	Rate of those who actively participate in community events	0.48	0.47	4.18***
AVINCOM	Average household income within a prefecture (million yen)	6.14	6.09	4.31***
GINI99	Gini coefficients for 1999	0.295	0.295	1.26
GINI04	Gini coefficients for 2004	0.302	0.303	3.02***
Individual characteristics				
OEQUAL	Degree of agreement with the argument that the government should reduce income inequality: 1 (strongly disagree) – 5 (strongly agree)	3.62	3.82	14.1***
EQUAL	Response to the question regarding income redistribution, those whose response was 4 (agree) or 5 (strongly agree) take 1, otherwise 0.	0.52	0.60	11.6***
INCOME	Individual household income (million yens)	9.79	3.43	140***
AGE	Ages	50.0	55.3	22.4***
MARRY	It takes 1 if respondents are currently married, otherwise 0.	0.81	0.75	10.1***
SCHOOL	Years of schooling	12.4	11.6	22.8***
UNEMP	It takes 1 if respondents are currently unemployed, otherwise 0.	0.01	0.02	2.58***
MALE	It takes 1 if respondents are male, otherwise 0.	0.44	0.47	4.38***
PROG_1	Concerning political views, it takes 1 if respondents choose 1, otherwise 0. 1 (conservative) – 5 (progressive)	0.07	0.07	1.25
PROG_2	Concerning political views, it takes 1 if respondents choose 2, otherwise 0. 1 (conservative) – 5 (progressive)	0.20	0.20	0.25
PROG_3	Concerning political views, it takes 1 if respondents choose 3, otherwise 0 1 (conservative) – 5 (progressive)	0.52	0.51	1.49
PROG_4	Concerning political views, it takes 1 if respondents choose 4, otherwise 0. 1 (conservative) – 5 (progressive)	0.16	0.16	1.02
PROG_5	Concerning political views, it takes 1 if respondents choose 5, otherwise 0. 1 (conservative) – 5 (progressive)	0.03	0.04	3.59***
BLIFE_1	Concerning “opportunity for better life”, it takes	0.08	0.11	8.03***

	1 if respondents choose 1, otherwise 0.			
	1 (not sufficient at all) – 5 (sufficient)			
BLIFE_2	Concerning "opportunity for better life", it takes	0.37	0.39	2.58***
	1 if respondents choose 2, otherwise 0.			
	1 (not sufficient at all) – 5 (sufficient)			
BLIFE_3	Concerning "opportunity for better life", it takes	0.37	0.34	4.24***
	1 if respondents choose 3, otherwise 0.			
	1 (not sufficient at all) – 5 (sufficient)			
BLIFE_4	Concerning "opportunity for better life", it takes	0.13	0.11	4.13***
	1 if respondents choose 4, otherwise 0.			
	1 (not sufficient at all) – 5 (sufficient)			
BLIFE_5	Concerning "opportunity for better life", it takes	0.24	0.21	1.39
	1 if respondents choose 5, otherwise 0.			
	1 (not sufficient at all) – 5 (sufficient)			

Note: All observations used. Absolute values of t-statistics are the results of a mean difference test between high- and low-income household groups. *, **, and *** indicate significance at the 10%, 5%, and 1% levels, respectively.

Table 3(a) Baseline model: dependent variable is OEQUAL (ordered probit model)

	All			People live in the same prefecture they lived in at 15 years of age		
	(1) All	(2) High-income	(3) Low-income	(4) All	(5) High-income	(6) Low-income
Regional characteristics						
SC	0.50*** (2.78)	0.69*** (2.77)	0.39 (1.40)	0.55** (2.31)	0.62* (1.67)	0.58* (1.90)
AVINCOM	–0.02* (–1.80)	–0.01 (–0.61)	–0.04** (–2.13)	–0.02* (–1.86)	–0.001 (–0.06)	–0.05*** (–2.81)
GINI99	–0.22 (–0.30)	2.41*** (3.30)	–2.16* (–1.70)	0.13 (0.17)	3.28** (2.53)	–2.16 (–1.58)
Individual characteristics						
INCOME	–0.03*** (–9.99)	–0.03*** (–5.83)	–0.01 (–0.91)	–0.03*** (–8.24)	–0.03*** (–5.22)	–0.01 (–0.81)
AGE	0.004*** (6.81)	0.006*** (4.79)	0.003*** (4.45)	0.003*** (4.04)	0.006*** (3.76)	0.002** (2.49)
MARRY	0.04* (1.91)	0.01 (0.32)	0.002 (0.93)	0.03 (1.22)	–0.001 (–0.03)	0.01 (0.53)
SCHOOL	–0.03*** (–6.46)	–0.03*** (–5.50)	–0.02** * (–4.21)	–0.03*** (–5.11)	–0.04*** (–5.00)	–0.02*** (–2.82)
UNEMP	0.16* (1.74)	0.35** (2.25)	0.09 (0.81)	0.08 (0.74)	0.26 (1.38)	0.02 (0.22)
MALE	0.07*** (3.14)	0.04 (1.44)	0.08*** (2.70)	0.08*** (3.82)	0.05 (1.33)	0.11*** (3.28)
PROG_1	<Reference group>			<Reference group>		
PROG_2	–0.005 (–0.12)	–0.02 (–0.43)	0.007 (0.11)	0.03 (0.60)	0.01 (1.33)	0.03 (0.45)
PROG_3	0.07 (1.56)	0.04 (0.59)	0.09 (1.33)	0.09 (1.57)	0.05 (0.24)	0.11 (1.41)
PROG_4	0.15*** (3.51)	0.09 (1.32)	0.21*** (2.99)	0.17*** (3.55)	0.13 (0.67)	0.21*** (2.88)
PROG_5	0.25*** (3.27)	0.21* (1.71)	0.27** (2.44)	0.27*** (2.80)	0.28* (1.99)	0.25** (2.05)
Wald Statistics	1065	630	348	775	412	240
Observations	11808	5152	6656	8479	3680	4799

Note: Values are coefficients. Numbers in parentheses are z-statistics calculated using robust standard errors clustered in the prefecture. *, **, and *** indicate significance at the 10%, 5%, and 1% levels, respectively. In all estimations, constant and year dummies are included as independent variables but are not reported because of space limitations.

Table 3(b) Dependent variable is EQUAL (probit model)

	All			People live in the same prefecture they lived in at 15 years of age.		
	(1) All	(2) High-income	(3) Low-income	(4) All	(5) High-income	(6) Low-income
Regional characteristics						
SC	0.19**	0.21*	0.18	0.22*	0.28*	0.20
	(2.09)	(1.74)	(1.52)	(1.86)	(1.69)	(1.46)
AVINCOM	–0.006	–0.006	–0.01	–0.006	–0.003	–0.01*
	(–1.14)	(–0.97)	(–1.50)	(–1.06)	(–0.36)	(–1.86)
GINI99	–0.009	0.93***	–0.70	0.04	1.30**	–0.84
	(–0.03)	(2.91)	(–1.36)	(0.13)	(2.34)	(–1.63)
Individual characteristics						
INCOME	–0.01***	–0.01***	–0.0007	–0.01***	–0.01***	–0.001
	(–7.73)	(–4.40)	(–0.18)	(–6.27)	(–3.49)	(–0.36)
AGE	0.001***	0.002***	0.001***	0.001***	0.002***	0.001***
	(6.52)	(4.37)	(4.89)	(3.64)	(3.46)	(2.93)
MARRY	0.01	–0.005	–0.008*	0.01	–0.01	0.01
	(1.25)	(–0.22)	* (–2.58)	(0.85)	(–0.56)	(0.61)
SCHOOL	–0.01***	–0.01***	0.04	–0.01***	–0.01***	–0.006*
	(–3.85)	(–3.70)	(1.07)	(–3.12)	(–3.27)	(–1.71)
UNEMP	0.06*	0.11	0.04	0.04	0.08	0.03
	(1.80)	(1.46)	(1.07)	(1.06)	(0.96)	(0.72)
MALE	0.05***	0.05***	0.05***	0.05***	0.05***	0.05***
	(5.30)	(3.62)	(3.67)	(4.85)	(2.82)	(3.39)
PROG_1		<Reference group>			<Reference group>	
PROG_2	0.02	0.01	0.03	0.04*	0.04	0.04
	(1.37)	(0.54)	(1.18)	(2.03)	(1.17)	(1.55)
PROG_3	0.02	0.23	0.03	0.03	0.03	0.02
	(1.57)	(0.81)	(1.25)	(1.28)	(0.99)	(0.90)
PROG_4	0.09***	0.06**	0.12***	0.10***	0.10***	0.11***
	(5.38)	(2.32)	(4.48)	(5.34)	(2.72)	(3.96)
PROG_5	0.10***	0.12***	0.08**	0.10***	0.15***	0.06
	(3.74)	(2.69)	(2.52)	(2.64)	(2.69)	(1.54)
Wald statistics	585	417	292	545	408	180
Observations	11808	5152	6656	8479	3680	4799

Note: Numbers indicate marginal effect. Numbers in parentheses are z-statistics calculated using robust standard errors clustered in the prefecture. *, **, and *** indicate significance at the 10%, 5%, and 1% levels, respectively. In all estimations, constant and year dummies are included as independent variables but are not reported because of space limitations.

Table 4 Dependent variable is OEQUAL (ordered probit model including GINI04)

	All			People live in the same prefecture they lived in at 15 years of age		
	(1) All	(2) High-income	(3) Low-income	(4) All	(5) High-income	(6) Low-income
Regional characteristics						
SC	0.50***	0.69***	0.38	0.53**	0.66*	0.53*
	(2.75)	(2.95)	(1.34)	(2.35)	(1.81)	(1.70)
AVINCOM	–0.02*	–0.01	–0.04**	–0.02*	–0.001	–0.05***
	(–1.80)	(–0.60)	(–2.13)	(–1.84)	(–0.06)	(–2.72)
GINI99	–0.16	2.41**	–2.09	0.42	2.73*	–1.36
	(–0.15)	(2.31)	(–1.20)	(0.39)	(1.80)	(–0.75)
GINI04	–0.13	–0.0002	–0.14	–0.62	1.08	–1.57
	(–0.12)	(–0.00)	(–0.09)	(–0.44)	(0.54)	(–0.90)
Wald statistics	1067	632	392	803	445	242
Observations	11808	5152	6656	8479	3680	4799

Note: Values are coefficients. Numbers in parentheses are z-statistics calculated using robust standard errors clustered in the prefecture. *, **, and *** indicate significance at the 10%, 5%, and 1% levels, respectively. In all estimations, constant, year dummies and other independent variables used in Table 2(a) are included as independent variables but are not reported because of space limitations.

Table 5 Dependent variable is OEQUAL (ordered probit model including "expected better life" dummies and GINI04)

	All			People live in the same they lived in at 15 years of age		
	(1) All	(2) High-income	(3) Low-income	(4) All	(5) High-income	(6) Low-income
Regional characteristics						
SC	0.40**	0.52**	0.38	0.40*	0.44	0.49
	(2.29)	(2.01)	(1.36)	(1.80)	(1.14)	(1.54)
AVINCOM	–0.02	–0.007	–0.04*	–0.02*	0.0003	–0.05***
	(–1.54)	(–0.41)	(–1.87)	(–1.79)	(0.01)	(–2.67)
GINI99	0.07	2.88**	–2.09	0.79	3.45**	–1.32
	(0.07)	(2.54)	(–1.25)	(0.68)	(2.16)	(–0.72)
GINI04	–0.36	–0.57	–0.04	–0.99	0.28	–1.57
	(–0.30)	(–0.33)	(–0.03)	(–0.66)	(0.13)	(–0.85)
Individual characteristics						
BLIFE_1	<Reference group>			<Reference group>		
BLIFE_2	–0.06	–0.04	–0.06	–0.05	–0.02	–0.07
	(–1.53)	(–0.59)	(–1.30)	(–1.48)	(–0.33)	(–1.64)
BLIFE_3	–0.16***	–0.10	–0.19***	–0.15***	–0.09	–0.18***
	(–4.15)	(–1.26)	(–4.29)	(–3.64)	(–1.04)	(–4.02)
BLIFE_4	–0.16***	–0.13	–0.17***	–0.14***	–0.12	–0.15**
	(–3.91)	(–1.54)	(–3.17)	(–3.07)	(–1.31)	(–2.40)
BLIFE_5	–0.41***	–0.31**	–0.51***	–0.47***	–0.38**	–0.54***
	(–6.48)	(–2.22)	(–5.22)	(–4.65)	(–2.20)	(–4.28)
Wald statistics	1218	593	526	998	431	228
Observations	11048	4814	6234	7932	3440	4492

Note: Values are coefficients. Numbers in parentheses are z-statistics calculated using robust standard errors clustered in the prefecture. *, **, and *** indicate significance at the 10%, 5%, and 1% levels, respectively. In all estimations, constant, year dummies, and other independent variables used in Table 2(a) are included as independent variables but are not reported because of space limitations.