Do Income Status and Mobility Determine Demand for Income Redistribution? Experimental Evidence

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Abstract: - In this paper, demand for income redistribution is elicited through a discrete choice experiment performed with a representative sample of the Swiss population. Attributes include both the amount of redistribution as a share of GDP and its uses (working poor, the unemployed, old-age pensioners, families with children, people in ill health) as well as the nationality of beneficiaries. The paper investigates economic determinants of citizens’ willingness to pay for redistribution, using static and dynamic measures of well-being. Demand for redistribution is shown to increase rather than decrease with income and other static measures of well-being, contradicting the conventional Meltzer-Richard model. However, the dynamic Prospect of Upward Mobility hypothesis receives limited empirical support.

Key-Words: - Income redistribution, preferences, willingness to pay, discrete choice experiments, stated choice, economic well-being, social mobility

1 Introduction
Politicians and interest groups often claim to know citizens’ preferences with regard to income redistribution. While the typical right-wing stance is to decry it as excessive, the left points to pockets of poverty even in rich societies that need to be eradicated through more redistribution. The economists’ contribution to the debate traditionally has been to analyze the effects of redistributive policies on employment, output, and growth. This paper intends to go a step further by measuring citizens’ willingness to pay (WTP) for redistribution. Through a Discrete Choice experiment (DCE), it seeks to determine not only the desired amount of redistribution but also to test several hypotheses concerning the determinants of this WTP. The data come from a DCE performed in the fall of 2008 and involving 979 Swiss citizens. Recently, there has been a great deal of research into the demand for redistribution and its determinants, which will be discussed in detail in Section 2 below.

One strand relates the measured amount of redistribution to economic, institutional, and behavioral factors. Examples are [1] and [2]. However, the observed amount of redistribution is the outcome of an interaction between demand and supply, with supply governed by a country’s political institutions and processes. This classical identification problem would have to be addressed in order to make inference about citizens’ preferences for redistribution. A second strand of research, exemplified by [3] and more recently [4], relies on surveys designed to measure attitudes towards redistribution. The problem with this approach is its failure to impose a budget constraint. It therefore cannot predict actual decision making (e.g. voting at the polls), where citizens take the consequences in terms of their own income and wealth into account. A third approach seeks to solve this problem through Contingent Valuation (CV) experiments, see e.g. [5]. The weakness of the CV approach is that it holds all the attributes of the good in question constant, varying its price only. In the present context, one would want to vary other attributes of redistribution besides its tax price, viz. its use (for health, old age, etc.) and the type of beneficiary (foreigner, national). By way of contrast, a DCE allows to measure preferences uncontaminated by supply influences, it imposes the budget constraint through the price attribute, and it
does so in a realistic way by making respondents choose between alternatives where all attributes are allowed to vary. There are two contributions whose methodology is similar to the one adopted in this paper. In the first one, the authors test the consistency of altruistic revealed preferences in a dictatorship experiment, varying an implicit price, see [6]. Their method of inferring preferences through estimating WTP values is close to this paper. In the other one, the author asked Swiss respondents to estimate wages earned by different professions as well as indicated the wages they deemed fair, see [7]. The difference between these two values was then used as an indicator of the demand for redistribution. On average, preferences were for the wages of high-earning professions such as lawyers, physicians or federal ministers to be reduced by 10 percent while those of low-income groups, to be increased by some 5 percent. Interestingly, such a redistributive scheme would roughly result in budget balance. The remainder of this paper is structured as follows. Section 2 contains a literature review from which hypotheses to be tested are derived. Its first part concerns the general determinants of the demand for redistribution, the second, economic well-being, and the third, mobility as determinants of preferences for redistribution. Section 3 presents a general description of the method of DCEs as well as the design of the present experiment. The descriptive statistics of the experiment follow in Section 4, and hypothesis tests, in Section 5. Section 6 summarizes the results and concludes with implications for public policy.

2 Literature Review and Statement of Hypotheses

This section first presents research that defines the general background of this paper and then moves on to contributions that lead to a set of specific hypotheses to be tested.

2.1 General Determinants of the Demand for Income Redistribution

In their reviews, [1], [2] and [8] identify a wide set of factors influencing preferences that can be categorized as economic, political, and behavioral determinants. As to the economic determinants, [3] empirically analyze the effects of current and future income on the demand for redistribution in the United States. While low current income bolsters demand, chances for higher future income reduce it when the tax system is expected to become more progressive. Another economic explanation, suggested by the social contract literature, is that a preference for redistribution can at least in part be interpreted as demand for insurance by risk-averse individuals. In a hypothetical situation, where individuals do not yet know their endowment as well as their future position in society (‘veil of ignorance’, cf. [9]), a positive WTP for an income transfer from more favorable future states to less favorable ones. Redistributive policies can thus be interpreted as reflecting this hypothetical demand for insurance.

In [10], individual behavior is investigated under the ‘veil of ignorance’ in an experiment. Placing participants in a hypothetical society with random differences in income, represented by lotteries, he derives the desired amount of income redistribution. Individuals indeed display risk aversion, albeit not of the extreme kind implied by the Rawlsian maximin rule. Furthermore, they show no preference for income redistribution in excess of what can be explained by risk aversion. As to the political determinants, the literature (see [11], [12], [13], [14]) predicts that proportional representation tends towards universal programs benefiting various groups (old-age pensioners, working poor, minorities), while majority rule results in targeted “pork barrel” programs. [12] find supporting empirical evidence in that countries with proportional representation have GDP shares of government expenditure that ceteris paribus are 5 percentage points higher than with majority rule. Moreover, [2] show that there is a weak evidence of a positive correlation between the degree of proportional representation and the transfer share in GDP in OECD countries. Additional political determinants of redistribution include two-party vs. multiparty system, presidential vs. parliamentary democracy, and direct vs. representative democracy, with two-party systems, presidential, and direct democracies all predicted to induce less public redistribution. Switzerland on the one hand has a high degree of proportional representation and a parliamentary democracy; on the other hand, its extensive direct democratic control might serve to limit public welfare spending while enforcing efficiency in redistribution, cf. [15]. Among the behavioral determinants of income redistribution, beliefs have been at the center of attention. The theoretical base is laid by [16], who develop a model where society’s belief whether effort or luck determines economic success gives rise to multiple self-fulfilling equilibria; [17] propose a model for the emergence and persistence of such collective beliefs. On the empirical side, [18] presents evidence in line with [3] suggesting that beliefs
about the role of luck in determining economic success are an important determinant of the demand for redistribution. She also considers the effects of incentives. If effort determines income, then an increased income tax rate causes a loss in output due to its effect on incentives. This consideration is hypothesized to qualify the link between beliefs and the demand for redistribution. However, the data fail to support this hypothesis.

[19] study international attitudes towards redistribution with a focus on pension and unemployment schemes in France, Germany, Italy, and Spain. They also perform CV experiments that impose an explicit trade-off between income and social insurance coverage on respondents. They find that people oppose an extension of the welfare state, with conflicts between young and old, rich and poor, and insiders and outsiders creating significant hurdles to welfare reform.

2.2 Economic Well-Being and Demand for Income Redistribution

The standard model of income redistribution, originally proposed by Romer in [20] and Roberts in [21] and extended by Meltzer and Richard in [22], assumes that identical non-altruistic utility-maximizing individuals are only differentiated by their income levels and determine their individually optimal consumption and leisure [RRMR model]. The utility function of individual i takes the following quasi-linear form, cf. [11],

\[ u_i(c_i, l_i) = c_i + \nu(l_i), \]

where \( c_i \) denotes individual consumption, \( l_i \) leisure, and \( \nu(\cdot) \) is an increasing and concave function. The government pays a lump-sum transfer \( T \) to all citizens, which is financed by a linear uniform income tax \( \tau \). Thus, the household budget constraint takes the form

\[ c_i + (1 - \tau)l_i \leq (1 - \tau)(\omega + y_i) + T \]

where \( \omega \) denotes the household’s time endowment and \( y_i \), individual productivity, distributed in the population according to a distribution function \( F(\cdot) \) with \( E[y_i] = \mu \) and \( Med[y_i] = m < \mu \). Solving the utility maximization problem yields the following optimal demand for leisure: \( \hat{l}_i = \nu^{-1}(1 - \tau) \), with \( \nu_i \) denoting \( i \)'s marginal utility of leisure (subscript \( i \) dropped for simplicity). The government’s budget constraint reads

\[ T \leq \tau \int_{y_i} (\omega + y_i - l_i)dF(y_i). \]

The utility-maximizing tax rate \( \hat{\tau}_i \) for individual \( i \) is thus implicitly given by

\[ \hat{\tau}_i = (y_i - \mu)\nu_i \left[ \hat{l}_i(\hat{\tau}_i) \right]. \]

By concavity of \( \nu(\cdot) \) (\( \nu''_l < 0 \)), individuals with an income below the mean favor taxation and transfers while individuals with an income above the mean oppose it. In a political equilibrium, the majority of voters supports a positive tax rate that corresponds to the value

\[ \hat{\tau}_m = (m - \mu)\nu_l \left[ \hat{l}_l(\hat{\tau}_m) \right] \]

desired by the median voter, whose income is assumed to be below the mean (which holds for most economies). The model’s prediction is that the more unequal the income distribution, i.e. the larger the gap between the mean and the median income, the higher the level of taxation and redistribution.

The empirical evidence is quite mixed. On the one hand, [23], [24], [25] find some supporting evidence. Furthermore, [4], conducting a cross-section analysis of survey data from four EU countries, shows that poorer and less educated individuals are more in favor of redistribution than richer and better educated ones. On the other hand, [26], [27], [28] fail to find supporting evidence for this model.

Based on the RRMR model, we can formulate the static Hypothesis 1 relating the demand for income redistribution to the individual’s current economic well-being, measured as personal income, level of education, or self-positioning on a social distance scale, respectively.

**Hypothesis 1:** The demand for redistribution is expected to decrease with (a) personal income, (b) educational level, (c) higher self-positioning on a social distance scale.

2.3 Social Mobility and Demand for Income Redistribution

The idea that attitudes toward public redistribution could be explained by individuals’ mobility was originally introduced by [29]. More recently, [30] considers a model of learning from income mobility experience and explains persisting differences in attitudes towards redistribution. In the long run, those who experienced upward mobility believe more in effort as a determinant of income and demand less redistribution than those lacking this experience.

This “Prospect of Upward Mobility” (POUM) hypothesis, originally suggested by [31] as the ‘tunnel effect’ and more recently reformulated by [32], extends the RRMR model by introducing individuals’ expectations, based on their observations regarding the income mobility in society. Thus, upward mobility may dampen a poor
but forward-looking voter’s enthusiasm for income redistribution. The three premises for this result are: (i) future expected income is a concave function of current income, (ii) individuals are not too risk-averse, and (iii) politicians commit to an unchanged fiscal policy. In a simplified version, the Benabou-Ok model can be illustrated by the following two-period example. Suppose that tomorrow’s income \( y_2 \) is a concave function of today’s income \( y_1 \): \( y_2 = f(y_1) \) with \( f''(y) < 0 \) for all \( y \in [0, y_{\text{max}}] \). Function \( f() \) is normalized such that the individual with the mean income \( \mu_0 \) today earns the same income tomorrow, \( \mu_0 = f(\mu_0) \). Then agents with current income below average expect a higher income tomorrow while those above average will expect a decline of income. By concavity of \( f() \), total income gains of the poor are smaller than total losses of the rich. Thus, tomorrow’s average income \( \mu_1 \) must fall short of today’s average \( \mu_0 \). Therefore, all individuals with current incomes in the interval \( f^{-1}(\mu_1), \mu_0 \) expect their future income to be higher than average \( \mu_1 \) and thus oppose redistribution. Empirical support of the POUM hypothesis is provided by [3] who, using an actual mobility matrix for the United States, show that people who expect high future income oppose redistribution. The ‘tunnel effect’ also works in the opposite direction, causing forward-looking agents with high incomes but downward mobility expectations to be in favor of redistribution. This prediction is confirmed by [33] using a data set from Russia. [34] use probabilistic expectations data to show that individuals with a sufficiently large chance of occupational upward mobility exhibit a lower demand for redistribution; conversely, those with a sufficiently large risk of occupational downward mobility opt for more redistribution. [35], testing the POUM hypothesis by means of a within-subjects experiment, find corroborating evidence under several alternative specifications. According to [4], however, individuals who subjectively experienced upward mobility over ten years tend to be more (rather than less) supportive of redistributive policies. Moreover, upward intergenerational mobility (measured as the difference in the job prestige compared to the job of the father) leads to a more positive rather than negative attitude towards redistribution. [1] review the theoretical literature, providing a framework for incorporating various effects that were previously studied in isolation. They examine the empirical evidence for the United States and briefly across countries, concluding that social mobility (if measured as the change in the occupational prestige) does decrease demand for redistribution once sociodemographic (age, gender, race) and socioeconomic characteristics (income, education) are controlled for. Based on the POUM hypothesis, we formulate the dynamic Hypothesis 2 relating the demand for redistribution to various mobility measures, viz. difference in education between individuals and their fathers, difference in the occupational prestige between individuals and their fathers (intergenerational mobility), past income mobility, expected income mobility, as well as the experienced change in the self-positioning on a social distance scale (subjective mobility).

Hypothesis 2: The demand for redistribution is expected to decrease with
(a) a higher difference between individuals and their fathers in terms of education,
(b) a higher difference between individuals and their fathers in terms of occupational prestige,
(c) higher upward income mobility in the past,
(d) higher upward income mobility in the future,
(e) larger positive change in the self-positioning on a social distance scale.

3 Discrete Choice Experiments
3.1 Theoretical Foundations
Discrete Choice Experiments (DCEs) provide a tool for measuring individuals’ preferences for characteristics of commodities, the so-called attributes. In contradistinction with classical Revealed Preference Theory, originating with [36], DCEs allow individuals to express their preferences for non-marketed as well as hypothetical products. During a DCE, respondents are repeatedly asked to compare the status quo with several hypothetical alternatives defined by their attributes including their price. By varying the levels of attributes, different product alternatives are generated. A rational individual will always choose the alternative with the highest utility level. From the observed choices, the researcher can infer the utility associated with the attributes. The proposed method, derived from the New Demand Theory of Lancaster [37], is also known as Conjoint Analysis, see [38]. The most prominent alternative to a DCE is Contingent Valuation (CV). A certain situation or product is described in detail and respondents are asked to indicate their maximum willingness to pay (WTP) for this fixed product. Only its price attribute is varied, while in Conjoint Analysis all relevant attributes are varied simultaneously, making it a multi-attribute valuation method [39]. While a DCE
describes the product in less detail than a typical CV study, it allows for analyzing many product varieties by varying the levels of relevant attributes, cf. [40], p. 344. Trade-offs among attributes can be explicitly taken into account and WTP values of attributes estimated separately (see below). Furthermore, strategic behavior of respondents is less than in CV with its exclusive emphasis on price, which facilitates strategic behavior. Finally, biases that easily occur when individuals are directly asked about their WTP are less frequently observed in a DCE [41].

A particular advantage of a DCE in the present context is that it permits to explicitly impose the budget constraint through a price attribute in the guise of the tax share of income used to finance the transfers considered. Respondents can be made to simultaneously choose this share and hence the ‘size of the pie’ and the ‘slices of the pie’ devoted to different types of recipients and uses (health, old age, etc.). Thus, trade-offs among different attributes of the redistribution plan can be calculated to assess the relative importance of the respective redistributive goals.

The econometric method used is based on the Random Utility Theory, see [42], [43], [44], [45], [46]. Individual i values alternative j. According to the utility $V_{ij}$ attained, which is given by

$$V_{ij} = v_i(a_j, p_j, y_i, s_i, e_{ij})$$

(2)

Here, $v_i(\cdot)$ denotes i’s indirect utility function, $a_j$, the amount of attributes associated with alternative j, and $p_j$, its price. The individual’s income and sociodemographic characteristics are symbolized by $y_i$ and $s_i$, respectively. Finally, $e_{ij}$ denotes the error term, which is due to the fact that the experimenter will never observe all the arguments entering $v_i$, imparting a stochastic element to observed choices. As usual, the utility function is additively split into a systematic component $w(\cdot)$ and a stochastic one,

$$V_{ij} = w_i(a_j, p_j, y_i, s_i) + e_{ij}$$

A utility-maximizing individual i will prefer alternative j to alternative l if and only if

$$w_i(a_j, p_j, y_i, s_i) + e_{ij} > w_i(a_l, p_l, y_i, s_i) + e_{il}. \quad (3)$$

Due to the presence of the stochastic term, only the probability $P_{ij}$ of individual i choosing alternative j rather than alternative l can be estimated, with

$$P_{ij} = \text{Prob}(w_i(a_j, p_j, y_i, s_i) + e_{ij} \leq w_i(a_l, p_l, y_i, s_i)) = \text{Prob}(e_{ij} \leq w_i(a_l, p_l, y_i, s_i) - w_i(a_j, p_j, y_i, s_i)). \quad (5)$$

Thus, the probability of choosing j amounts to the probability of the systematic utility difference $w_i(j) - w_i(l)$ dominating the ‘noise’, $\phi_{ij} = e_{il} - e_{ij}$. The error terms $\{e_{il}, e_{ij}\}$ can be assumed to be normally distributed with mean zero and variances $\sigma_i^2$ and $\sigma_j^2$ as well as covariance $\sigma_{ij}$.

Under these assumptions, the noise $\phi_{ij}$ is also normally distributed with mean zero and variance

$$\sigma^2 = \text{Var}[\phi_{ij}] = \sigma_i^2 + \sigma_j^2 - 2\sigma_{ij}.$$  

Thus, equation (5) can be represented as

$$P_{ij} = \Phi\left[\frac{w_i(a_j, p_j, y_i, s_i) - w_i(a_l, p_l, y_i, s_l)}{\sigma}\right]$$

(6)

where $\Phi(\cdot)$ denotes the cdf of a standard normal distribution. This model is known as the binary probit model, cf. [47], [38] provide empirical evidence that a linear specification of the function $w(\cdot)$ leads to good predictions in its middle ranges. Therefore, one posits

$$w_i(a_j, p_j, y_i, s_i) = c_i + \sum_{k=1}^{K} \beta_k a_k,$$ \quad (7)

where $c_i$ represents an individual-specific constant, $a_k$, $k = 1, \ldots, K$, are the attributes of the alternative, and $\beta_k$, $k = 1, \ldots, K$, are the parameters to be estimated. These parameters can be interpreted as the constant marginal utilities of the corresponding attributes.

The marginal rate of substitution between two attributes $m$ and $n$ is given by

$$MRS_{mn} = -\frac{\partial v}{\partial a_m} \cdot \frac{\partial a_n}{\partial p_n}. \quad (8)$$

In the case of a linear utility function, this can be estimated as the ratio of the respective slope parameters,

$$MRS_{mn} = -\frac{\beta_m}{\beta_n},$$

representing the marginal WTP for an additional unit of $a_m$ expressed in units of $a_n$. Therefore, the marginal WTP for attribute $a_m$ can be calculated by dividing the marginal utility of this attribute by the marginal utility of the price attribute (in the present context, the income tax rate, see e.g. [48], p. 56)\textsuperscript{7}:

$$\text{MWTP}(a_m) = -\frac{\partial a_m}{\partial p_j}.$$ \quad (9)

By limiting the specification to the product attributes only (simple model, cf. Section 5.1), one obtains the following expression representing the difference in utility of individual i between status quo and alternative j,

$$\Delta V_{ij} = c_i + \sum_{k=1}^{K} \beta_k a_k + \beta_p p_j + \phi_{ij}.$$ \quad (10)
where \( c_i = c_{il} - c_{ij} \) for each \( j \neq l \). This simple model suffices to estimate WTP values of an average respondent (see Section 5.1).

For econometric inference, it is important to reflect the fact that the same individual makes several choices. This is done by the two-way random-effect specification with \( \varphi_{ij} = \mu_i + \eta_{ij} \), where \( \mu_i \) denotes the component that varies only across individuals but not across the choice alternatives. The terms \( \mu_i \) and \( \eta_{ij} \) are assumed uncorrelated with the product attributes \( (a_{i1}, ..., a_{IK}) \) and between themselves. By a standard assumption in probit models, \( \sigma_\eta = 1 \).

Hence \( \text{Var}[\varphi_{ij}] = \sigma_\eta^2 + \sigma_\mu^2 = 1 + \sigma_\mu^2 \) and \( \text{Corr}[\varphi_{ij}, \varphi_{il}] = \frac{\sigma_\mu}{1 + \sigma_\mu^2} =: \rho \). The parameter \( \rho \) indicates how strongly the various responses of an individual are correlated with each other, or, equivalently, the share of the total variance that can be explained by an individual-specific error term. The random-effects specification is justified if \( \rho \) is high and significant.

This simple model can be extended by including various socioeconomic variables (e.g. income group, level of education, social mobility). These variables need to be interacted with the product attributes as well as with the constant, giving rise to the extended model specification which allows to check for preference heterogeneity and thus to test Hypotheses 1 and 2 (cf. Section 5.2). By means of a Student’s \( t \) test one can investigate whether the differences in marginal WTP values between different socioeconomic groups are statistically significant.

The variance of the marginal WTP values is computed using the delta method, cf. [49]7.

### 3.2 Experimental Design

The experiment was conducted with a representative sample of 979 respondents in the fall of 2008. Respondents were provided with full decision sets including graphical representations of the status quo and alternatives and were asked to submit their binary choices during a later telephone survey. In order to make sure that decisions were based on a homogeneous information set and made in a consistent way, they additionally received a detailed description of the attributes and their possible realizations. The Appendix shows the graphical representation of the status quo (Exhibit 1) and two selected alternatives (Exhibits 2 and 3). The data collection followed in a telephone survey a few days later; it also included a questionnaire covering a wide range of socioeconomic and behavioral characteristics of the respondents.

Prior to the telephone survey, the attributes and their levels used to define ‘income redistribution’ had been checked in two pretests for their relevance.

<table>
<thead>
<tr>
<th>Attribute</th>
<th>Label</th>
<th>Status Quo</th>
<th>Alternatives</th>
</tr>
</thead>
<tbody>
<tr>
<td>Shares of benefits to</td>
<td>W_Poor</td>
<td>10%</td>
<td>5%, 15%</td>
</tr>
<tr>
<td>Unemployed</td>
<td>UNEMP</td>
<td>15%</td>
<td>5%, 25%</td>
</tr>
<tr>
<td>Old-Age Pensioners</td>
<td>PENS</td>
<td>45%</td>
<td>55%, 55%</td>
</tr>
<tr>
<td>Families with</td>
<td>FAM</td>
<td>5%</td>
<td>10%</td>
</tr>
<tr>
<td>Children</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Ill People</td>
<td>ILL</td>
<td>25%</td>
<td>20%, 30%</td>
</tr>
<tr>
<td>Shares of benefits to</td>
<td>Swiss citizens</td>
<td>75%</td>
<td>60%, 85%</td>
</tr>
<tr>
<td>Western Europeans</td>
<td>WEU_FOR</td>
<td>10%</td>
<td>5%, 20%</td>
</tr>
<tr>
<td>Other foreigners</td>
<td>OTH_FOR</td>
<td>15%</td>
<td>10%, 20%</td>
</tr>
<tr>
<td>Total amount of redistribution</td>
<td>REDIST</td>
<td>25%</td>
<td>10%, 20%, 30%, 40%, 50%</td>
</tr>
<tr>
<td>Income tax</td>
<td>TAX</td>
<td>25%</td>
<td>(of pers. income), 10%, 15%, 40%</td>
</tr>
</tbody>
</table>

Table 1: Attributes and their levels

They form four groups (see Table Error! Reference source not found.).

1. Shares of the total redistribution budget (to be spent on five types of recipients, viz. the working poor, the unemployed, old-age pensioners, families with children, and ill people);
2. Shares of the total redistribution budget (to be spent on three groups, viz. Swiss citizens, western European foreigners, and other foreigners);
3. Total amount of redistribution, defined as a share of GDP;
4. Share of personal income tax rate to be paid by the respondent (the price attribute).

Clearly, these attributes and their levels combine to form a total number of possible scenarios that cannot be realized in an experiment. For reducing their number, let the scenarios define the \( n \) rows of the observation matrix \( X \), with associated covariance matrix \( \Omega = \sigma^2 (X'X)^{-1} \) of parameters \( \beta (K \times 1) \) to be estimated. So-called \( D \)-efficient design calls for the minimization of the geometric mean of the eigenvalues of \( \Omega \),

\[
D \text{ efficiency} = \min_\Omega \left( \frac{1}{n} \Omega^{\frac{1}{n}} \right)^{-1}
\]

where \( K \) denotes the number of parameters to estimate, cf. [50]. Using this optimization procedure and incorporating several restrictions, the number of alternatives was reduced to 35 and randomly split into five groups. One alternative was included twice in each decision set for a consistency test, resulting in 8 binary choices per respondent. In order to make sure that decisions were based on a homogeneous information set and made in a consistent way, respondents were provided with a detailed description of the attributes and their possible realizations. The Appendix shows the graphical representation of the status quo (Exhibit 1) and two selected alternatives (Exhibits 2 and 3).
4 Descriptive Statistics

4.1 Socioeconomic Characteristics

Of the 979 respondents, 70 percent resided in the German-speaking part and 30 percent in the French-speaking part of Switzerland. Some 94 percent were born in the country, 50 percent were men, 20 percent having a monthly income below CHF 2,000 and 23 percent, above CHF 6,000, reflecting the structure of the Swiss population. However, only 1.5 percent of the respondents were unemployed.

42.6 percent of the respondents agreed with the statement, ‘By increasing the income tax rates for rich families and financially supporting poor families, the government should try to reduce the income gap between rich and poor.’ while 54.6 percent disagreed. On the other hand, 36 percent stated that the current level of social benefits was too low, 9 percent stated that it was too high, and 48.7 percent found it exactly right.

The frequency distributions of current, past, and expected future incomes are shown in Table 2. Note that incomes <CHF 2000, CHF 2000-3999, and ≥CHF 6000 approximately correspond to the first, second, and fifth income quintiles whereas the bracket CHF 4000-5999 contains the third and the fourth quintiles of the Swiss income distribution. From the individual responses entered in Table 2, transition probabilities between the income quintiles can be estimated (which are not available from official Swiss statistics).

Table 3 shows the frequency distributions of the respondents’ own as well as their fathers’ educational levels. As in other countries, the share of individuals with a college education is higher than that of their fathers (13 percent compared to 11 percent in the sample).

Table 4 contains the frequency distribution of the differences between the respondents’ and fathers’ educational levels, which will be referred to as DIFF_ED, as well as the distribution of answers to the question, ‘Is there a difference in occupational prestige in the society between your job and your father’s job?’, later referred to as (DIFF_PREST). This is an indicator of subjective intergenerational mobility (INTERG_MOB_SUBJ). As was to be expected in Table 4, more respondents (20 percent) reported a higher rather than lower educational level than that of their fathers; in terms of occupational prestige, the upward balance is even more marked (35 vs. 15 percent). Table 5 exhibits the current and future expected self-positioning of respondents on a social distance scale. Upward mobility is the prevalent expectation across all nine social classes distinguished: whereas 21 percent of respondents currently assign themselves to the three lowest classes, only 14 percent expect to still be there five years hence. Conversely, the share of those who assign themselves to the three highest social classes increases from 10 to 14 percent. Using individual responses, one can determine the distribution of subjectively expected social mobility within the sampled generation.

Table 3: Respondents' and fathers' educational levels

Table 4: Difference in education and occupational prestige between respondents and fathers

Table 5: Self-positioning on a social distance scale, current and in 5 years

### Table 2: Current, past, and future expected individual incomes, per month (in CHF)

<table>
<thead>
<tr>
<th>Income classes, CHF</th>
<th>No.</th>
<th>% valid answers</th>
<th>No.</th>
<th>% valid answers</th>
<th>No.</th>
<th>% valid answers</th>
</tr>
</thead>
<tbody>
<tr>
<td>&lt;CHF 2000</td>
<td>192</td>
<td>20</td>
<td>23</td>
<td>23</td>
<td>14</td>
<td>14</td>
</tr>
<tr>
<td>CHF 2000 - 3999</td>
<td>193</td>
<td>20</td>
<td>189</td>
<td>19</td>
<td>24</td>
<td>24</td>
</tr>
<tr>
<td>CHF 4000 - 5999</td>
<td>344</td>
<td>36</td>
<td>100</td>
<td>10</td>
<td>349</td>
<td>37</td>
</tr>
<tr>
<td>≥CHF 6000</td>
<td>221</td>
<td>23</td>
<td>223</td>
<td>23</td>
<td>264</td>
<td>28</td>
</tr>
<tr>
<td>Total valid answers</td>
<td>950</td>
<td>100</td>
<td>948</td>
<td>100</td>
<td>935</td>
<td>100</td>
</tr>
<tr>
<td>Missing</td>
<td>29</td>
<td>31</td>
<td>35</td>
<td>35</td>
<td>32</td>
<td>32</td>
</tr>
<tr>
<td>Sample</td>
<td>979</td>
<td>979</td>
<td>979</td>
<td>979</td>
<td>979</td>
<td>979</td>
</tr>
</tbody>
</table>

### Table 3: Respondents' and fathers' educational levels

<table>
<thead>
<tr>
<th>Educational level</th>
<th>Respondents</th>
<th>Fathers</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>No.</td>
<td>% valid answers</td>
</tr>
<tr>
<td>Less than high school</td>
<td>654</td>
<td>67</td>
</tr>
<tr>
<td>High school</td>
<td>195</td>
<td>20</td>
</tr>
<tr>
<td>College and more</td>
<td>129</td>
<td>13</td>
</tr>
<tr>
<td>Total valid answers</td>
<td>978</td>
<td>100</td>
</tr>
<tr>
<td>Missing</td>
<td>1</td>
<td>1</td>
</tr>
<tr>
<td>Sample</td>
<td>979</td>
<td>979</td>
</tr>
</tbody>
</table>

### Table 4: Difference in education and occupational prestige

<table>
<thead>
<tr>
<th>Difference</th>
<th>Education</th>
<th>Occupational prestige</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>No.</td>
<td>% valid answers</td>
</tr>
<tr>
<td>Positive</td>
<td>194</td>
<td>20</td>
</tr>
<tr>
<td>No difference</td>
<td>600</td>
<td>62</td>
</tr>
<tr>
<td>Negative</td>
<td>172</td>
<td>18</td>
</tr>
<tr>
<td>Total valid answers</td>
<td>966</td>
<td>100</td>
</tr>
<tr>
<td>Missing</td>
<td>13</td>
<td>13</td>
</tr>
<tr>
<td>Sample</td>
<td>979</td>
<td>979</td>
</tr>
</tbody>
</table>

### Table 5: Self-positioning on a social distance scale, current and in 5 years
4.2 Respondents’ Choice Behavior

There is a total of \(979 \cdot 8 = 7,832\) decisions, of which almost 20 percent were made in favor of an alternative over the status quo. There are at least three explanations for this low percentage. First, in spite of checking in the pretests, the levels of the attributes in the experiment may not have been sufficiently dispersed to make respondents switch. Second, some attributes (e.g. benefits going to the unemployed; see Table 7), may not have been sufficiently valued to cause a switch. Finally, there may be errors in decision making because the consistency test revealed 14 percent of choices to be inconsistent. However, there may simply be marked status quo bias in the face of highly complex decision-making situations (see the large negative constant in Table 7). Nonetheless, only 21 percent of respondents never opted for an alternative (see Table 6). Conversely, almost 80 percent departed from the status quo at least once.

Table 6: Distribution of the numbers of chosen alternatives per respondent

<table>
<thead>
<tr>
<th># choices for alternative</th>
<th>No.</th>
<th>In percent</th>
</tr>
</thead>
<tbody>
<tr>
<td>0</td>
<td>209</td>
<td>21.35</td>
</tr>
<tr>
<td>1</td>
<td>309</td>
<td>31.56</td>
</tr>
<tr>
<td>2</td>
<td>226</td>
<td>23.08</td>
</tr>
<tr>
<td>3</td>
<td>131</td>
<td>13.38</td>
</tr>
<tr>
<td>4</td>
<td>87</td>
<td>8.82</td>
</tr>
<tr>
<td>5</td>
<td>16</td>
<td>1.63</td>
</tr>
<tr>
<td>6</td>
<td>10</td>
<td>1.02</td>
</tr>
<tr>
<td>7</td>
<td>0</td>
<td>0.00</td>
</tr>
<tr>
<td>8</td>
<td>5</td>
<td>0.51</td>
</tr>
<tr>
<td>Total valid answers</td>
<td>965</td>
<td>98.57</td>
</tr>
<tr>
<td>Missing</td>
<td>14</td>
<td>1.43</td>
</tr>
<tr>
<td>Sample</td>
<td>979</td>
<td>100</td>
</tr>
</tbody>
</table>

Moreover, the negative constant points to a strong status quo bias. By eq. (8), the marginal willingness to pay (MWTP) for redistribution is given by

\[
MWTP_{\text{REDIST}} = -\frac{\delta_1 + \delta_2 \text{REDIST}}{\eta}. 
\]

Thus, one obtains an estimated MWTP value of -0.25 percentage points of income share per additional percentage point of GDP devoted to redistribution in excess of the status quo. Evaluated at the mean personal income of the sample, this amounts to CHF -11.78 per month (1 CHF = 0.9 USD at 2008 exchange rates). However, this figure is dwarfed by the compensation one would have to pay respondents to depart from the status quo, amounting to an estimated 63 percent of their monthly income, or 5.27 percent of their annual income.

5 Estimation Results

5.1 Simple Model: Product Attributes Only

Estimation of eq. (10) includes REDIST\(^2\) to allow for a possible nonlinearity of the indirect utility function. Moreover, it has to take into account that uses and types of beneficiaries add up to 100 percent (see Table 7). In order to avoid possible collinearity, PENS (pensioners) and OTH_FOR (other foreigners) were dropped to obtain

\[
\Delta V = c_0 + \beta_1 \text{W_POOR} + \beta_2 \text{UNEMP} + \beta_3 \text{ILL} + \beta_4 \text{FAM} + \gamma_1 \text{SWISS} + \gamma_2 \text{WEU} + \text{REDIST} + \delta_1 \text{REDIST} + \delta_2 \text{REDIST} + \eta \text{TAX} + \varphi. \quad (11)
\]

Estimation of a few of the 53=15 specifications with alternative exclusions produced results similar to those displayed in Table 7. Specifically, they agree in that additional redistribution causes respondents to opt for the alternative with a lower probability, which is even more true of an increase in the income tax to finance it (for the influence of its composition, see [51]).
\[ \Delta V = c_0 + \ldots + c_n \text{INCOME} + \ldots + \beta_1 \text{REDIST} + \ldots + \beta_n \text{DIFF_ED} \cdot \text{INCOME} + \ldots \]

Note: R=rejected.

Table 8: Marginal WTP values for redistribution (in percent of monthly personal income and CHF) derived from the extended model with measures of economic well-being

Hypothesis 1 states that the demand for redistribution is expected to decrease with higher values of (a) income, (b) education, and (c) social status. Hypothesis 1(a), with its focus on personal income, cannot be confirmed (see Table 8). In fact, MWTP for redistribution as a percentage of income is most strongly negative in the lowest income group and consistently increases to become positive in the highest. In terms of CHF amounts, negative MWTP values reach a maximum among the middle groups No. 2 and 3. Similarly, Hypothesis 1(b) finds no empirical support, with MWTP values increasing rather than decreasing with higher levels of education. The evidence is somewhat mixed concerning Hypothesis 1(c) since resistance against redistribution seems to increase from the lowest to group No. 2 of the social self-positioning scale. However, it vanishes entirely in the highest group.

5.2.2 Social Mobility and Preferences for Redistribution

This time, the simple model is extended to include (besides the control variables respondent’s education, father’s education, respondent’s personal income and respondent’s self-positioning on a social distance scale) one of the following mobility measures: (a) intergenerational mobility in education (DIFF_ED), (b) intergenerational mobility in occupational prestige, (c) income mobility in the past, (d) expected income mobility in the future, or (e) the change in the self-positioning on a social distance scale. Therefore, in the case of the intergenerational mobility in education, eq. (11) is modified to become

\[ \Delta V = c_0 + \ldots + c_n \text{DIFF_ED} + \ldots + \beta_1 \text{REDIST} + \ldots + \beta_n \text{DIFF_ED} \cdot \text{INCOME} + \ldots \]

Note: (C)=partially confirmed, R=rejected.

Table 9: Marginal WTP values for redistribution (in percent of monthly personal income and CHF) derived from the extended model with mobility measures

Hypothesis 2 states that the demand for redistribution is expected to decrease with upward income or social mobility. In its version 2(a), it is rejected because negative MWTP is maximum among participants whose educational level is lower than their fathers’, with the differences with the other two groups being highly significant (see Table 9). Hypothesis 2(b), with its focus on mobility in occupational prestige, finds partial support in that the MWTP of respondents with downward mobility is positive, and, the others, negative. Similarly, Hypothesis 2(c) can be accepted only to the extent that citizens with downward income mobility in the past exhibit the least resistance against redistribution. As to Hypothesis 2(d), there are weak signs suggesting that citizens with downward expected income mobility in the future might have a positive MWTP, in contrast to those with no mobility expectations. But statistical significance is lacking to begin with, for two of three MWTP values amounting to partial confirmation of Hypothesis 2(d) only. Finally, Hypothesis 2(e) is merely confirmed to the extent that individuals with downward social mobility exhibit a higher MWTP than those with no social mobility, with the corresponding t value suggesting statistical significance of the difference in MWTP values.
The one consistent pattern seems to be the following. In four out of five cases (except mobility in education), citizens with no past or future expected mobility display the highest negative MWTP values both in terms of a share in their income and in absolute amount. This seems to point to risk aversion in the face of the ‘veil of ignorance’ [10]; however, this argument has been traditionally used to predict positive rather than the observed negative MWTP for income redistribution. On the other hand, risk aversion constitutes one of the main explanations of status quo bias (see Section 5.1). Therefore, this DCE seems to suggest that Swiss citizens, while markedly risk averse, do not believe income redistribution organized by the government to be an effective means of protection against the risk impinging on their economic and social status, with the one exception of education (which is predominantly public in Switzerland). Such an attitude could be justifiably called realistic for citizens of a small country whose economic fortune has depended on developments abroad for decades if not centuries.

6 Conclusion
In this paper, we elicited citizens’ willingness to pay for redistribution through a Discrete Choice experiment performed in 2008. Based on the simple model that relates choices to the attributes of redistribution only, the average Swiss citizen must be paid a compensation of CHF 11.78 (some US$ 10.60) per month (0.02 percent of annual income) for an additional percentage point of GDP devoted to public redistribution. In addition, a very marked status quo bias would have to be overcome by payment of another 5.27 percent of annual income. However, such an experiment also permits to test several hypotheses concerning the determinants of the demand for redistribution without any confounding supply-side influences. By including one of three measures of current economic well-being at a time, the extended model allows to test static Hypothesis 1, stating that demand for redistribution decreases with income. However, it is found to increase with level of education and mostly with personal income as well as higher self-positioning on a social scale.

With the inclusion of five measures of social mobility, dynamic Hypothesis 2 (POUM) could be tested as well. Except for mobility in education, citizens with no mobility at all display the highest resistance against redistribution, contrary to POUM but underscoring the importance of status quo bias.

The analysis presented in this paper is subject to several limitations. First, only purely economic explanations of demand for redistribution (income, social mobility) were tested. However, recent contributions to the field show that up to 90 percent of cross-country differences in public spending can be related to institutional and behavioral factors, see e.g. [26], [2]. Thus, future work should be devoted to an analysis of behavioral determinants of stated willingness to pay for redistribution. One first contribution to this field is done by [52] with an analysis of the impact of ideological and religious beliefs. Second, the status quo bias found in this paper calls for more detailed analysis. To the extent that it reflects risk aversion, it should induce demand for redistribution - contrary to the results presented here. Finally, the evidence only relates to a point of time and thus may be subject to transitory shocks. Still, by appealing to citizens’ stated preferences, the present contribution sheds some light on the debate between those who claim that there is excess redistribution and those who claim there is too little.

References:


1 $y_i$ can be alternatively interpreted (i) as personal income before tax, (ii) as level of education or (iii) subjective self-positioning on a social distance scale.

2 By Roy’s Identity, $x_{ij} = \frac{\partial v}{\partial p_j} \frac{\partial v}{\partial y_i}$, the (uncompensated) demand of individual $i$ for commodity $j$ corresponds to the negative ratio of partial derivatives of the indirect utility function with respect to price $p_j$ and income $y_i$. If one alternative is chosen, then the optimal quantity demanded is equal to one, i.e. $x_{ij} = 1$.

Therefore, Roy’s Identity yields $\frac{\partial v}{\partial y_i} = -\frac{\partial v}{\partial p_j}$, i.e. the marginal utility of income is equal to the negative derivative of the indirect utility function with respect to price.

3 The estimate of the variance is given by

$$\text{Var} \left[ -\frac{\hat{\beta}_k}{\hat{\beta}_p} \right] = \left[ \frac{\partial \left( -\frac{\hat{\beta}_k}{\hat{\beta}_p} \right)}{\partial \hat{\beta}_k} \right]^2 \text{Var} [\hat{\beta}_k] + \left[ \frac{\partial \left( -\frac{\hat{\beta}_k}{\hat{\beta}_p} \right)}{\partial \hat{\beta}_p} \right]^2 \text{Var} [\hat{\beta}_p] - 2 \frac{\partial \left( -\frac{\hat{\beta}_k}{\hat{\beta}_p} \right)}{\partial \hat{\beta}_k} \frac{\partial \left( -\frac{\hat{\beta}_k}{\hat{\beta}_p} \right)}{\partial \hat{\beta}_p} \text{Cov} [\hat{\beta}_k, \hat{\beta}_p]$$

$$= \frac{\hat{\beta}_k^2}{\hat{\beta}_p^2} \text{Var} [\hat{\beta}_k] + \frac{\hat{\beta}_k^2}{\hat{\beta}_p^2} \text{Var} [\hat{\beta}_p] + 2 \frac{\hat{\beta}_k^3}{\hat{\beta}_p^3} \text{Cov} [\hat{\beta}_k, \hat{\beta}_p].$$

4 The full specification is available from authors on request. The relevant results are shown in Table 8.