East and West Germans' Attitudes and Preferences Regarding the Welfare State*

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Abstract

Do citizens from former Communist countries exhibit attitudes and preferences with regard to income redistribution that differ from those in the West? This paper seeks to answer this question for reunified Germany. The analysis uses not only survey data on attitudes but also evidence on preferences from a choice task, which forces individuals to consider trade-offs and budget constraints. While we confirm results of prior studies documenting considerable differences in attitudes, we find no differences regarding preferences between East and West Germans. When facing economic restrictions, East and West Germans behave the same.

JEL Codes: D63, H23, P26

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1. Introduction

More than 25 years after the fall of the Iron Curtain, Germany remains a natural experiment on the persistence of the effects of socialization and ideology. Debate continues about whether *attitudes* and *preferences* with regard to the welfare state and its correlate, income redistribution, still differ between East and West Germans (e.g., Corneo 2004; Alesina and Fuchs-Schündeln 2007; Kuhn 2013). Most studies investigating the effects of socialization have relied on surveys of preferences for redistribution without controlling for trade-offs and budget constraints. When replicating these methods with recent data, we still find the differences observed in the past. However, we provide evidence that, after controlling for economic constraints and enforcing trade-offs, East and West Germans do not differ in their preferences for redistribution.

Our analysis of the effect of socialization on redistribution preferences is based on a unique dataset involving 1,538 representatively selected German citizens in 2012. The data collection was tailored to allow for detailed analyses of the citizens' stances. Their views were captured by a standard agreement question, reflecting *attitudes*, and by choice-task questions that account for trade-offs and budget constraints, reflecting *preferences*. We follow the common definition of an attitude as "a psychological tendency that is expressed by evaluating a particular entity with some degree of favor or disfavor" (Eagly and Chaiken 1996, 269). Kahneman, Ritov, and Schkade (1999) explain that attitudes, captured by rating scale questions or similar survey questions, differ from *preferences*, whose meaning is rooted in economic theory. Note that *attitudes* and *preferences* do not have to overlap: individuals might desire more redistribution while not being willing to equally participate in its financing.

Our contribution is threefold. First, we revisit the effects of communism on differences in attitudes toward income redistribution between East and West Germans. Second, we aim at measuring, for the first time, *preferences* for redistribution in East and West Germany using a discrete choice analysis that accounts for trade-offs and budget constraints. Third, we analyze whether attitudes and preferences overlap and the degree to which differences in attitudes may help to explain preference structures.

The remainder of the paper is structured as follows. The next section discusses the effect of communism on individuals' attitudes and preferences. Section 3 explains the conceptual framework. Section 4 provides descriptive statistics and the econometric model specification. Section 5 presents the empirical analysis, including comprehensive robustness checks. Section 6 concludes.

2. Views on the Effect of Communist Socialization

Differences in attitudes toward the welfare state between people in different countries are well documented (e.g., Alesina, Glaeser, and Sacerdote 2001; Isaksson and Lindskog 2009). Europeans, for instance, tend to support the welfare state more than U.S. citizens do. A recent literature finds that attitudes vary in particular between former socialist countries and western market economies (Alesina and Giuliano 2011; Luttmer and Singhal 2011). This literature examines the determinants of these differences, such as ideology, culture, and the effect of institutions.

Various studies also show that socialism affects attitudes. For example, citizens from former socialist countries consistently show a comparatively strong desire for redistribution (Corneo and Grüner 2002; Suhrcke 2001), and this effect has persisted for two and a half decades since the fall of the Iron Curtain (Guillaud 2013). Focusing on immigrants, Luttmer and Singhal (2011) show that attitudes toward income redistribution are mainly shaped by culture, i.e. factors such as customary beliefs and values that are passed on over generations. Their results also indicate – in line with the theoretical literature (e.g., Benabou and Tirole 2006; Alesina and Angeletos 2005; Alesina, Cozzi, and Mantovan 2012) – that culture is enduring, even 20 years after immigration.

Stipulating that former socialist countries have evolved differently, Corneo (2001) focuses on the so-called *east-west dichotomy,* exploring the differences in attitudes between U.S. citizens and East and West Germans. He finds a marked inequality aversion among East Germans, compared with West Germans and U.S. citizens, leading to a stronger desire for the state to reduce differences in income.

According to Alesina and Fuchs-Schündeln (2007), German reunification can be treated as an exogenous shock. Before World War II, no relevant systematic differences between East and West could be observed. After the division of Germany in 1949, separation was increasingly enforced, culminating in the construction of the Berlin Wall in 1961. Until the fall of the wall in 1989 – 1990, East Germans could not relocate to West Germany, regardless of their preferences; the political and economic system was, to a large extent, not chosen but imposed. Even individuals who did not identify with socialism were subject to its socialization, which likely shaped their stance on the welfare state and its correlate, income redistribution. In contrast, West Germans were influenced by a market economy and capitalism. This makes West Germans a good control group for East Germans.

The first scholar to exploit these differences was Corneo (2004), using data for 1992 and 1999. He confirmed earlier studies, finding that socialism does impact attitudes, with partial convergence between East and West during the period of observation. In their comprehensive analysis of citizens' attitudes to-

ward the welfare state, Alesina and Fuchs-Schündeln (2007) cover the years 1997 and 2002, asking whether there is a *feedback effect* of the East German regime on citizens' attitudes. They find that, even after controlling for income, the effect of socialism prevails, making East Germans more inclined to agree that the political system is responsible for individual success, while poverty is the fault of society. The authors conclude that the influence of communism does not depend on socio-demographic characteristics such as state of residence. Rainer and Siedler (2008) and Stichnoth (2012) find supporting evidence.

Kuhn (2013) uses a slightly different framing. Respondents to the survey of the International Social Survey Program of the years 1987, 1992, and 1999 were asked to estimate wages earned in several professions and to say how much people working in these professions should earn. Using the difference between these two values as a proxy for respondents' demand for redistribution, he finds this demand to be much stronger among East than West Germans. His results suggest that different inequality perceptions of East and West Germans explain some of the observed differences.

Summarizing, communist socialization seems to be a crucial and persistent determinant of individuals' attitudes.The latest data available for Germany applied in an academic study are from 2005 (Rainer and Siedler 2008). Since then, attitudes of East and West Germans may have converged, as hypothesized by Alesina and Fuchs-Schündeln (2007), who predicted the year 2009 as a lower bound for convergence. Using data from 2012, we aim to close this gap.

Our study also addresses an important methodological issue, i.e., distinguishing attitudes from preferences. Attitudes are measured by drawing on questions such as "*To what extent do you agree or disagree with the statement, 'It is the responsibility of the government to reduce the differences in income between people with high incomes and those with low incomes'?*" (e.g., Alesina and La Ferrara 2005; Corneo and Grüner 2000). Responses to questions of this type are typically labeled as *preferences* (e.g., Alesina and Giuliano 2009; Corneo and Grüner 2002; Guillaud 2013). But from a microeconomic perspective, it seems questionable that agreement with such a question reflects a true *preference* rather than a pure *attitude*. This touches the fundamentals of economic theory. As McFadden notes, the "existence of underlying preferences is a vital scientific question for economists" (2001, 363). While preferences are assumed to be stable, attitudes can change and are influenced by sometimes transient and volatile affects and motivation. Put simply, *attitudes* and *preferences* are not the same. Individuals might want more redistribution while not being willing to equally contribute to its financing.

Another common problem of methods that rely on respondents' agreement with certain statements is the tendency toward bias. For example, social desirability may likely result in excessive generosity when no budget constraint is

imposed ("yeah-saying"; Blamey, Benett, and Morrison 1999). Such results therefore may not predict actual decision-making. Misconceptions of this type may cause policymakers to devise proposals that fail politically.

The typical framing of survey questions capturing citizens' stances on redistribution is inadequate for eliciting *preferences* (e.g., Fong 2006). Yet studies reaching beyond this standard approach are rare. There are exceptions, such as work by Neustadt and Zweifel (2010; 2015), Neustadt (2011), Pfarr (2012; 2013), Pfarr and Schmid (2016), as well as Pfarr, Schmid, and Mørkbak (2016). These authors estimate *preferences* for redistribution using a discrete choice analysis, though none of them examine the effects of communism or differences between East and West Germans.

Another strand of pertinent literature that helps to overcome some methodological issues involves laboratory experiments. Ockenfels and Weimann (1999) and Brosig-Koch et al. (2011) experimentally examine differences between East and West Germany. (The latter study replicates the first one 20 years after reunification.) Their focus is on solidarity as a social norm, which may explain demand for redistribution. Their evidence indicates that East Germans show consistently less solidarity than West Germans: they are less generous toward the losers of a lottery with whom they could voluntarily share their winnings. This contrasts with the previous survey findings. Thus while they confirm the existence of differences in norms, their results present a puzzle. The results of our choice-based approach illuminate this paradox. The advantage of experiments is that they provide greater control over the decision situation and can offer real financial incentives. What's more, compared with the participants in the two prior experiments, who are university students from three different large German cities, most of them in their early twenties, our sample is representative of the German voting age population.

3. Methods

3.1 Conceptual Framework

To measure *preferences* in the economic sense, we apply a discrete choice approach, creating stated preferences data. This approach can be justified because redistribution of income is a nonmarketable good, and citizens rarely reveal their preferences for it. Absent revealed preferences, *stated preferences* may be used instead. The discrete choice analysis, developed by Louviere and Woodworth (1983) and Louviere and Hensher (1982), is rooted in decision theory and microeconomic utility theory (Lancaster 1966). Individuals derive utility not from the good per se, but from its characteristics (the so-called attributes). In the baseline version of an experimental task, participants choose repeatedly between the status quo, which remains fixed, and hypothetical alterna-

tives. These alternatives have the same attributes but vary regarding the attribute levels.[1] In our case, the individuals make a number of pairwise decisions. We define the whole redistributive system as one good with specific attributes, described below.

In general terms, a utility-maximizing person will always choose an alternative if its utility exceeds that of the status quo. Utility must be treated as a latent construct that cannot be directly observed. Building on the random utility theory (McFadden 1974, 1981; Manski 1977), the indirect utility function is split into a deterministic observable component and a stochastic component. The deterministic part consists of the price of the respective alternative and its attributes as well as the income and socio-demographic characteristics of the respective individual. The inclusion of the price attribute imposes a budget constraint. According to random utility theory, only the probability that an individual chooses a specific alternative can be estimated (Louviere and Street 2000, 53). This probability indicates individuals' decision-making and comports with their preference for a given redistributive system expressed by choosing one of the proposed options.

An important parameter reflecting the structure of preferences is the marginal rate of substitution (*MRS*). However, as indicated by microeconomic theory, the *MRS* depends on where it is evaluated along an indifference curve. For this reason, in many choice tasks, a fixed status quo is used as the baseline, ensuring that comparisons of utilities refer to the same reference point. Otherwise, the calculated welfare measures might be biased. Accordingly, a rational utility-maximizer chooses proposed alternative *B* if this alternative offers a higher utility than the status quo *S*. If the individual also chooses status quo *S* rather than alternative *A*, his or her indifference curve must be located between *A* and *B* (Vroomen and Zweifel 2011, 89). Repeated choices of this type enable estimation of the slope of the indifference curve, that is, $MRS_{n,m}$ between attributes *m* and *n* (Lacsar, Louviere, and Flynn 2007, 1741). By partially differentiating the indirect utility function, the MRS is given by

$$(3.1) \qquad MRS_n^m = -\frac{\text{Attribute parameter m}}{\text{Attribute parameter n}} = -\frac{\hat{\delta}_m}{\hat{\delta}n}$$

where δ is the estimated parameter of the respective attribute. If the denominator is specified as the price attribute, the *MRS* can be interpreted as marginal willingness to pay (MWTP),[2] that is, the MWTP for an additional unit of attri-

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[1] For example, alternatives could be characterized by the attributes income and leisure time, the according levels being 1,000 € / 1,500 € / 2,000 € per month and 2 h / 3 h / 4 h per day respectively.

[2] Using Roy's Identity, the price parameter can be interpreted as the marginal utility of income. For the formal proof, see Hanemann (1983, 544) or Telser (2002, 56).

bute *m* expressed in units of the individual's income. This measure of preferences will be applied in the empirical analysis.

3.2 Implementation and Survey Design

Because of the hypothetical nature of the choice task, its design requires special attention. Following Bateman et al. (2002, 258), the process included intensive literature reviews, expert interviews, and group discussions involving a total of 629 students as well as three independently conducted pretests with about 40 participants each. The scenarios depicted in the choice task should replicate the social and redistributive system in Germany as accurately as possible and cover the aspects most relevant to the general population. After having identified all potential sources and recipients of social spending – among others based on the analysis of the annual financial statement of the Federal Ministry of Labor and Social Affairs (BMAS 2011) – we reduced attributes to a number manageable for the participants and phrased them in terms understood by the broad public. Both goals were pursued in the aforementioned interviews, discussions and pretests, in which participants could prioritize the different potential attributes and could suggest own aspects. The framing of the technical terms was tested and repeatedly revised.

Ten attributes were found to primarily affect individuals' utility in the context of redistribution. These attributes are personal tax and social insurance contributions, the amount of redistribution as a percentage of GDP, the socio-demographic status of beneficiaries (sick persons and persons in need of care, families and children, retirees, the unemployed, the working poor) as well as the nationality of recipients (German, West European, other).[3] These categories are not mutually exclusive. For example, sick persons could also receive benefits due to being retirees.

The attributes must then be assigned meaningful levels. Pitting an increase in the level of one attribute against a decrease of another attribute forces respondents to face trade-offs (Bateman et al. 2002, 260; Telser 2002, 39). Figure 1 presents the chosen attributes and their respective levels categorized by their substitutive relationships. For example, the attribute "retirees" indicates the share of the redistributive budget that is dedicated to this group. The status quo level for this attribute is 40%, and the two alternative levels are 30% and 45%. If the higher level is chosen, this comes at the expense of one of the other four beneficiary groups.

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[3] This design enables researchers to make use of this dataset for a variety of research questions. In the case of this study, the different beneficiary groups as well as the nationality of recipients are not of primary interest and only serve as controls to avoid potential bias.
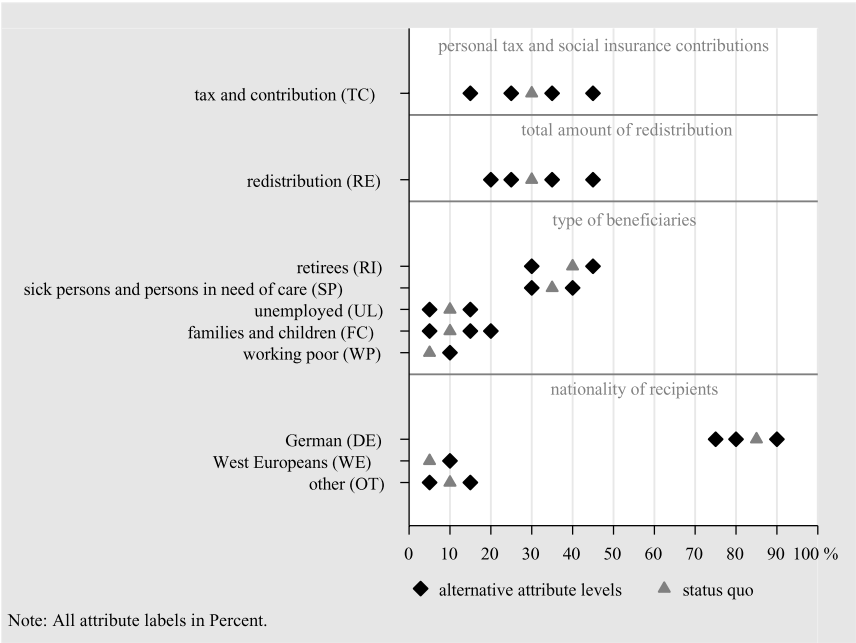
Figure 1: Attributes, Labels and Levels

The status quo levels replicate the actual status quo in Germany.[4] The attribute levels of the alternatives have to cover a sufficiently wide range to capture the individual's potential preferences as approximated through the pretests. At the same time, the number of levels must be kept to a minimum to avoid too many alternatives, which are a result of the number of levels per attribute multiplied with each other. For most attributes, this resulted in a rather balanced number of levels below and above the status quo. However, attributes with a very low value for the status quo naturally exhibit higher levels. Keeping the minimum difference between levels at five percentage points also implies that, for the working poor and West Europeans, no level lower than the status quo exists.[5] Table A.1 in the appendix summarizes the means of the choice charac-

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⁴ For econometric reasons – especially to maintain the independency of attributes and individuals – all individuals must be given the same status quo. This is critical, as individual tax rates vary due to the progressivity of the German income tax. For the status quo, we thus chose the average income tax rate. As this is a strong assumption, we test for this, for example, by controlling for income levels and find no bias.

⁵ In this particular case, this is no major concern, as the pretests showed that basically nobody wants to reduce the share dedicated to the working poor. Offering a level of zero would thus have been highly unrealistic.

teristics and shows the distribution of the attribute levels around the status quo as well as their frequencies.

To succinctly summarize the constructed redistributive systems, the attributes are displayed via four diagrams, which underline the trade-offs between them – see Figure B.1 in the appendix.

The number of all possible combinations of attributes and their levels results in a total of 129,600 combinations (alternatives). Since this number would overwhelm respondents, we make use of a mathematical algorithm (D-optimal design) to reduce the number of alternatives while keeping the resulting sample econometrically informative (Kuhfeld, Tobias, and Garratt 1994; Carson et al. 1994). The outcome is 49 alternatives, a sample that is small enough to be implemented in the field but adequately representative of the total number of alternatives. These 49 alternatives were split into seven groups with seven choice tasks each, intended to avoid an excessively high cognitive burden on participants.[6] Respondents were randomly assigned to one of these groups.[7] For checking consistency of choices, we included one alternative twice. There were thus eight choice tasks per respondent. In each choice situation (see Figure B.1 in the appendix), respondents chose between the status quo (left side) and an alternative redistributive scheme (right side) that differed in one or more attribute levels.

Participants were recruited by the market research institute GfK Nuremberg using a national quota sample[8] of the German voting-age population. To reduce the complexity of the choices and control for the decision process – for example, that respondents are not allowed to go back and forth between the choice tasks – face-to-face field interviews were conducted with computer assistance.

The interviews began with questions regarding socio-demographic characteristics and attitudes toward redistribution. To obtain unbiased estimates, respondents must have similar knowledge of the status quo. Thus, after the first part of the interview, respondents were provided with a comprehensive description

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[6] Bech, Kjær, and Lauridsen (2011) shows that the cognitive burden increases with the number of choice sets. Nevertheless, the authors also show that respondents can manage up to 17 choice sets.

[7] The shares of East Germans, East Germans living in the East, or East Germans living in the West in the seven groups of choice sets do not differ significantly from the overall share of these populations in the sample. Thus we can eliminate the possibility that the allocation of, for example, East Germans to the seven groups systematically affects the results of the empirical analysis. Descriptive statistics and t-statistics are available upon request.

[8] Quota samples are frequently applied in social science research and are an equivalent alternative to random sampling (ESOMAR 2014). The quota sample is stratified by age, gender, education, federal state, household size, location indicator, and household net income. Due to the nature of the sampling procedure, no take-up rates can be reported.

of the current structure and size of the German welfare system (see supplementary material for online publication). Much of the interview time was dedicated to this aspect. The attributes and their respective levels were introduced consecutively. The respondents were told that the alternatives represent redistribution systems that might be implemented in the future. By pitting the status quo against an alternative, respondents could then directly compare both options and check which one they preferred. At the end of the interview, more sensitive information – such as participants' income – was collected, and the interviewees' perception of the individual choices and interview was prompted. The latter information is used for the robustness checks.

On average, participants needed about 36 minutes to answer the questions and complete the choice tasks. After the interview, they received a small in-kind acknowledgement. In contrast to laboratory experiments, it is uncommon to use financial payoffs in the field. This risks respondents overstating their *true* marginal willingness to pay because they do not have to actually contribute to redistribution. However, recent literature indicates that marginal willingness to pay estimates do not depend of whether payoffs are involved (Mørkbak et al. 2012; Broadbent 2012).

4. Empirical Strategy

4.1 Data

In total, 1,538 individuals representing the German voting-age population completed the interview, including the choice task, in February 2012. Since the population is much smaller in East Germany, this area was oversampled. Descriptive statistics discussed below are weighted accordingly. Observations with missing information as well as individuals who were not yet born in 1989, the year of reunification, or were living outside Germany, were purged from the sample, resulting in the final sample, which is the basis for all further analyses. With 1,215 individuals remaining and eight decision tasks per participant, the final dataset comprises 9,720 observations. Table 1 compares some selected items from the dataset with administrative data. The presented mean values of the dataset and the official statistics are very close, resulting in insignificant t-statistics. This supports the representativeness of the underlying dataset.

Table 2 summarizes the variables and basic descriptive statistics. Of the 1,215 individuals – 385 (identified by the indicator variable *East German* = 1) had lived in the GDR under Communism, and 830 had lived in West Germany before 1989. In addition, 29 individuals (some 7 percent of the GDR subsample) had migrated to the West between 1989 and 2012. The indicator variable *East Germans living in the East* captures 356 East Germans who stayed in the East after reunification. Migration from West to East has also happened but

Table 1

Representativeness of the Dataset

	Survey sample	Final sample	Official Statistics
Female	0.52	0.52	0.51
East German	0.21	0.23	0.20
Age			
18–29	0.17	0.12	0.17
30–39	0.14	0.15	0.14
40–49	0.20	0.21	0.20
50–59	0.17	0.17	0.17
60+	0.32	0.36	0.31
Gross income from employment	2,172 €	2,032 €	2,150 € [1)]
N	1,538	1,215	ca. 81 million

Note: Weighted data of the sample. Official statistics report values for the general German population and thus must be compared to the survey sample. Removing individuals who were not yet born in 1989 or lived outside of Germany explains the small differences between the final sample and the official statistics. 1) The value is based on measures from 2005 and extrapolated to 2012 using the general wage development.

Source: Statistisches Bundesamt (2011); BMAS (2008).

only on a smaller scale: less than 3 percent of the West Germans had moved to the former GDR.

The effect of *communism* is proxied by two indicators: *East Germans* and *East Germans living in the East* (see columns of Table 2). This allows us to control for the effects of migration, discussed in more detail below.

Table 2

Descriptive Statistics

	West Germans		East Germans		East living in West		East Germans living in East	
	Mean	*SD*	*Mean*	*SD*	*Mean*	*SD*	*Mean*	*SD*
Dependent Variables								
Inequality reduction	3.23	0.76	3.40	0.72	3.27	0.75	3.42	0.72
Choice	0.33	0.47	0.35	0.48	0.36	0.48	0.34	0.47
Basis variables								
Age1 (< 1935)	0.04	0.19	0.02	0.16	–	–	0.03	0.17
Age2 (1935–1949)	0.26	0.44	0.23	0.42	0.18	0.39	0.24	0.43
Age3 (1950–1964)	0.30	0.46	0.31	0.46	0.39	0.50	0.30	0.46

Table continued next page

Table 2 continued

	West Germans		East Germans		East living in West		East Germans living in East	
Age4 (1965 – 1979)	0.25	0.43	0.26	0.44	0.26	0.45	0.26	0.44
Age5 (> 1980)	0.15	0.35	0.17	0.38	0.16	0.38	0.18	0.38
Income1[*] (< 450 €)	0.18	0.38	0.15	0.36	0.12	0.33	0.16	0.37
Income2[*] (450 – 1,200 €)	0.18	0.39	0.31	0.46	0.29	0.46	0.32	0.47
Income3[*] (1,200 – 1,800 €)	0.18	0.39	0.25	0.43	0.17	0.38	0.26	0.44
Income4[*] (1,800 – 2,800 €)	0.21	0.41	0.19	0.39	0.25	0.44	0.19	0.39
Income5[*] (> 2,800 €)	0.24	0.43	0.09	0.29	0.18	0.39	0.08	0.27
N	830		385		29		356	

Note: Data are weighted.

*) Individuals' monthly gross income is used to create the income categories (quintiles based on the full sample).

The variable *inequality reduction* captures answers to this statement in the complementary interview: "*It is the responsibility of the government to reduce the differences in income between people with high incomes and those with low incomes by collecting taxes and granting money transfers.*" The scale was 1 = *totally disagree*, 2 = *disagree*, 3 = *agree*, and 4 = *totally agree*, with *cannot say* also admissible. Fifty-two individuals who chose the last option were not included in the final sample. As shown in Table 2, East Germans exhibit a statistically significantly higher degree of agreement, but the differences in mean values are small. Yet the mean values hide considerable heterogeneity within the two subsamples, as shown by figure 2. While only 39 percent of West Germans totally agree, 52 percent of East Germans do. Thus, while both groups share the conviction that government should reduce income differences, their attitudes differ substantially in detail.

The indicator variable *choice* is the dependent variable in the analysis of the discrete choice tasks; it equals one if the respondent opted for the alternative redistributive scheme, instead of the status quo. A mean value *choice* = 0.34 is high compared to methodologically similar studies (Neustadt 2011; Becker 2006), giving rise to the expectation that the *MRS* and MWTP values of interest can be estimated with sufficient precision.

The age structure of the sample does not differ significantly when looking at the age categories (see table 2). However, the average age is moderately but significantly higher for West Germans (52) than for East Germans (50). Most notably, incomes are significantly higher in the West, amounting to a difference of almost € 543 in monthly gross income on average. Considering the relevance of age for the time spent under a communist regime and the likely influence of income on the attitudes and preferences toward redistribution, we control for both age and income effects.

Note: Data of the Sample are weighted.
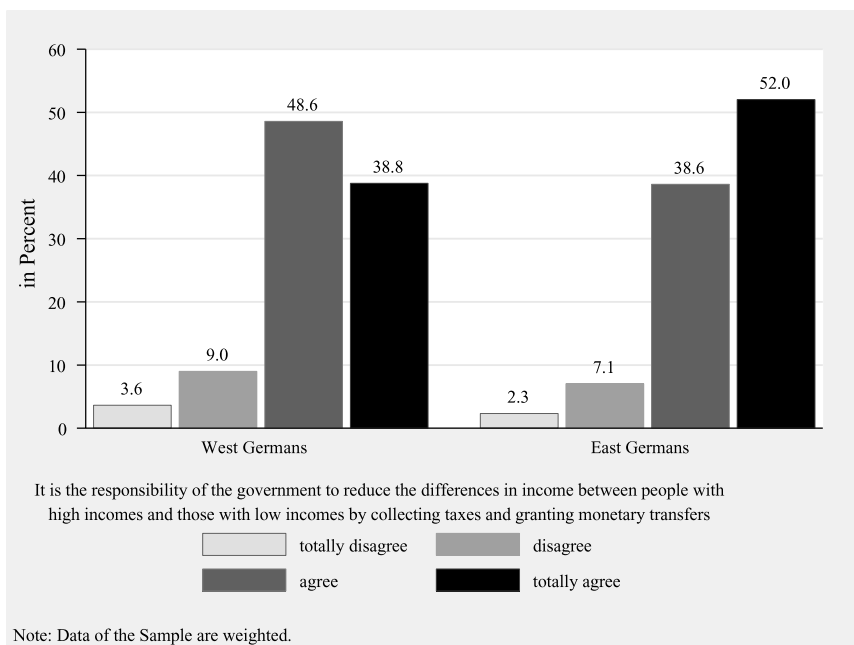
Figure 2: Attitudes Toward the Welfare State for East and West Germans

4.2 Estimation Strategy

The first part of the empirical investigation focuses on *attitudes* toward the welfare state. A simple ordered probit model is specified with the aim of analyzing the effects of communism on individuals' attitudes. The variable *inequality reduction* is a four-point categorical variable. *Communism* is proxied by the two aforementioned variables *East Germans* and *East Germans living in the East*. To allow for a later comparison with the second part on preferences, socio-economic controls are not included in the basic configuration. As described in section 5.3, the inclusion of such controls does not change the result. Also reflecting the latent variable approach, the econometric equation for the ordered response models reads (Boes and Winkelmann 2006):

(4.1) $$inequality\ reduction = \beta_1 communism_i + \varepsilon_i.$$

In the ordered probit models, it is common to assume a constant unitary variance of one, since the mean of the latent variable *inequality reduction* is not identified (Long 1997). Thus, for the purpose of identification, the constant must be set to zero. The error term is also assumed to have a variance of one (Boes and Winkelmann 2006).

In the second part, the objective is to capture *preferences* using a discrete choice analysis to estimate respondents' MWTP for redistribution. As their utility is a latent construct, only the probability of an individual choosing a specific alternative can be estimated. Assuming the error terms to be normally distributed with a mean vector of zero and covariance matrix Ω (Cameron and Trivedi 2008, 947–51; Train 2009, 97) leads to the binary probit model with a random-effects specification reflecting the fact that the same respondent makes repeated choices.

To overcome the restrictive assumptions of a constant marginal utility associated with a linear specification of the indirect utility function (Pekelman and Sen 1979; Gegax and Stanley 1997), we ran several specification procedures and tests allowing for a quadratic specification of the attributes. As there is no clear theoretical guidance on the specification of all attributes, such an exploratory approach that includes tests to avoid misspecification is preferred.[9] At the end, our analysis pointed to model [4] as the best with respect to goodness of fit (see Table 3). The model includes quadratic terms for the attributes *tax and contribution* (*TC*), *redistribution* (*RE*), and *other nationalities* (*OT*) to allow for a nonconstant *MRS*. This specification is also implemented in the estimation equation.

Table 3

Basic Model Comparison

	Choice			
	[1]	[2]	[3]	[4]
	all linear	*linear & RE sq*	*linear & RE sq, TC sq*	*linear & RE sq, TC sq, OT sq*
Log Likelihood	–5,613.01	–5,606.49	–5,568.38	–5,562.22
McFadden Adj. R^2	0.088	0.089	0.095	0.096
AIC	11,246.02	11,235.00	11,160.77	11,150.44
BIC	11,317.84	11,314.00	11,246.96	11,243.80
LR-Test		13.02***	76.22***	12.34***
MWTP	0.501***	0.589***	0.587***	0.587***
N	9,720	9,720	9,720	9,720

*p<0.1, **p<0.05, ***p<0.01

Note: Table 3 shows only a selection of the tested models, starting with a model that includes only linear terms and then focusing on the effects of adding squared terms for the pivotal attributes redistribution (RE) and tax and contribution (TC) as well as for the attribute other nationalities (OT) in the final model. AIC is the Akaike information criterion. BIC is the Bayesian information criterion. LR refers to the likelihood ratio.

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9 This includes the forward-selection and backward-elimination procedure in combination with standard likelihood ratio tests, as suggested by Hosmer and Lemeshow (2000) and Sennhauser (2010).

For the econometric specification, we must bear in mind that the groups of beneficiaries and recipients according to nationality each add up to 100%. The attributes *sick persons and persons in need of care* (SP) and *Germans* (DE) are the omitted reference categories to avoid perfect collinearity. Individuals' decision-making is only determined by the utility differences. Consequently, socio-demographic characteristics cancel out of the calculation of the MWTP, as they are constant between the decisions. Thus the variable *communism* enters the estimation equation in the guise of an interaction with the main variables of interest ΔTC, ΔTC^2, ΔRE, and ΔRE^2 to allow for a difference of MWTP between respondents with and without a communist background (Boxall and Adamowicz 2002, 421; Johnson and Desvousges 1997, 83):

(4.2)
$$
\begin{aligned}
choice = \ &\beta_0 + \beta_1 \Delta TC + \beta_2 \Delta TC^2 + \beta_3 (\Delta TC * communism_i) + \\
&\beta_4 (\Delta TC^2 * communism_i) + \beta_5 \Delta RE + \beta_6 \Delta RE^2 + \\
&\beta_7 (\Delta RE * communism_i) + \beta_8 (\Delta RE^2 * communism_i) + \\
&\beta' \sum \Delta remaining\ attributes + \Delta \varepsilon_i
\end{aligned}
$$

with β_s representing parameters to be estimated. The remaining attributes serve as controls. To simplify the interpretation, the model is specified as a difference model; that is, the value of the attributes included in the estimation reflects the deviation from the status quo.[10]

5. Results

5.1 Attitudes Regarding the Welfare State

Table 4 presents the results for the ordered probit models designed to analyze attitudes toward the welfare state for East and West Germans, with *inequality reduction* as the dependent variable.[11] Estimate [1] shows the effect of being an *East German* versus being a *West German* (reference category).

In line with the literature discussed in section 2, East Germans tend to strongly agree with the statement that the government should reduce income differences. This difference is highly significant, suggesting that, almost 22 years after reunification, the two groups of Germans still differ in their perception of the state's role vis-a-vis income redistribution, thereby confirming

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[10] For example $\Delta RE = RE_{status\ quo} - RE_{alternative}$. The quadratic terms are generated in the same way (e.g., $\Delta RE^2 = (RE_{status\ quo} - RE_{alternative})^2$) to adequately reflect the quadratic deviation from the status quo.

[11] The coefficients reported in the table are the total coefficients. We report corresponding marginal effects in the text when we are interpreting the size of the coefficient and compare it, e.g., to the results of Alesina and Fuchs-Schündeln (2007).

the results of Alesina and Fuchs-Schündeln (2007), Corneo and Grüner (2002), and Kuhn (2013). However, this finding also contradicts predictions of Alesina and Fuchs-Schündeln (2007), who hypothesize that attitudes are converging (and forecasting the year 2009 as a lower bound for convergence). We find that Eastern origin still increases the probability to voice strong agreement with the government's responsibility to reduce inequality by 10.5 percentage points. This resembles the level reported by Alesina and Fuchs-Schündeln (2007) for favoring state intervention in the year 2002.[12] Thus estimate [1] points to *attitudes* as being an enduring characteristic.

Estimate [2] of Table 4 addresses the effect of migration. West Germans continue to constitute the reference group. By contrasting *East living in West* against *East living in East,* one can see considerable differences. The first variable is defined as individuals who have migrated to the West since reunification, and the second is defined as East Germans who have stayed on the territory of the former GDR. Coefficients of *East living in East* in estimate [2] are somewhat higher than those for *East Germans* in estimate [1] of Table 4. The coefficient of the variable *East living in West* fails to reach statistical significance. Attitudes of Easterners who moved west do not seem to differ from those of their West German neighbors. Moving to a West German neighborhood since reunification could have fostered convergence compared to people who stayed in the East, but individuals who migrated to the West could also constitute a self-selected group with attitudes closer to those of the West Germans from the outset.[13] Relying on cross-sectional data, we cannot analyze this aspect. Due to the low number of individuals who have moved, the lack of significance could also been driven by the sample size. Thus, when both groups are summarized as *East Germans*, the effect of East Germans still living in the East is marginally diluted by East Germans living in the West. Due to these results, the following analysis will rely on *East living in East* as a proxy for communism and *West Germans* as the reference category.[14]

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[12] Alesina and Fuchs-Schündeln report only selected marginal effects for different subgroups of recipients. They state: "Being from the East increases the probability of favoring state intervention by between 14.5 and 17 percentage points in 1997, compared to being from the West. Between 1997 and 2002, the probability of favoring state intervention for an East German declines by between 2.3 and 6.9 percentage points" (2007, 1512).

[13] This is discussed in more detail by Alesina and Fuchs-Schündeln (2007), explaining the diverging paths of these two East German groups. Most of the convergence between East Germans and West Germans between 1997 and 2002 seems driven by the East Germans who stayed in the East. So migrants either differed from the outset or had already achieved their final level of convergence in 1997.

[14] In another estimate, West Germans who migrated to the East were excluded without any relevant effect. Results are available from the authors upon request. As the number of observations is very low for this subgroup, we refrain from further analysis of pertinent questions.

Table 4

Results of Ordered Probit Models for Inequality Reduction

	inequality reduction							
	[1]		[2]		[3]		[4]	
	Coeff.	*SE*	*Coeff.*	*SE*	*Coeff.*	*SE*	*Coeff.*	*SE*
East Germans	0.268	(0.072)***						
East living in East			0.290	(0.074)***	0.393	(0.194)**	0.319	(0.155)**
East living in West			0.015	(0.202)				
East living East								
*Age1 (highest age)					0.347	(0.419)		
*Age2					0.153	(0.246)		
*Age3					–0.303	(0.235)		
*Age4					–0.203	(0.239)		
*Income1							–0.140	(0.254)
*Income2							–0.000	(0.211)
*Income4							–0.205	(0.222)
*Income5							–0.137	(0.264)
Age1 (highest age)					–0.283	(0.228)		
Age2					0.088	(0.118)		
Age3					0.073	(0.113)		
Age4					0.051	(0.120)		
Income1							0.007	(0.127)
Income 2							0.105	(0.126)
Income 4							–0.158	(0.119)
Income 5							–0.188	(0.118)
LL	–1,257.64		–1,256.84		–1,250.72		–1,248.15	
Mc Fadden Adj. R^2	0.003		0.002		0.002		0.004	
AIC	2,523.29		2,523.69		2,525.44		2,520.30	
BIC	2,543.70		2,549.20		2,586.67		2,581.53	
N	1,215		1,215		1,215		1,215	

* $p < 0.1$, ** $p < 0.05$, *** $p < 0.01$; Results of ordered probit models with inequality reduction as dependent variable. AIC is the Akaike information criterion. BIC is the Bayesian information criterion. LL refers to the log likelihood.

The persistence of the effects from living under a communist regime can be analyzed further by introducing *age* as an intervening variable. This variable reflects the amount of time spent under the GDR regime. One would hypothesize that the longer someone was exposed to communism (i.e. the older someone is), the stronger and longer-lasting the effects on their attitudes would be. We define five age cohorts[15] using the youngest (*age5*) as the reference catego-

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[15] Following Alesina and Fuchs-Schündeln (2007), the category of the eldest participants is extreme. The goal was to capture individuals who had been socialized for a long time before the imposition of communism in the East. However, this results in very small

ry. As can be seen from Table 4 (estimation [3]), the effect of communism re-
mains significant even when accounting for age.

No statistically significant age effect can be identified for *East Germans liv-
ing in the East.*[16] Examining the interactions of *East living in the East* with the
respective age categories, even the difference between categories two and three
fails to reach significance on the ten percent level, as do all other differences.
Regarding age, our results therefore only partially confirm those of Alesina and
Fuchs-Schündeln (2007). They find that West Germans are less inclined to em-
phasize the responsibility of the government the older they are, which is the
opposite of East Germans. Their evidence suggests a strong relationship be-
tween the amount of time spent under communism and the attitude toward re-
distribution. Kuhn (2013) concludes that, across all age cohorts, East Germans
show greater support for redistribution. But the differences between the age
cohorts are small, and no levels of significance are given. Thus our results re-
semble those of Kuhn (2013) and contribute additional nuance to a heteroge-
neous literature. One could argue that the relatively long period since the end
of communism in Germany overshadows the effects that were still visible in
1997 and 2002.

Income is a second obvious factor that might influence individuals' attitudes
regarding redistribution. Following Romer (1975), Roberts (1977), and Meltzer
and Richard (1981), one could argue that low-income individuals have a strong
self-interest in favoring redistribution. Income levels may also have different
effects on individuals in the East and in the West. Thus estimation [4] of Table 4
accounts for individual gross income with the middle category as reference.
Again, the coefficient of *East living in East* remains significant, which is again
in line with the results of Alesina and Fuchs-Schündeln (2007). In contrast,
income categories do not seem to have any significant effect. While one might
see some statistically insignificant trend in the general income categories, sug-
gesting a stronger attitude in favor of redistribution by low-income individuals,
the results of the interaction terms do not suggest any pattern.

Summarizing, we do find relevant differences between East Germans who
stayed in the East and those who migrated to the West. While the latter group
does not exhibit significant differences when compared to West Germans, we
still find significant differences between East Germans who stayed in the East

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numbers in the class. We thus did the same analysis with five balanced classes and with
only three classes. The results remained unchanged.

[16] Ai and Norton (2003) point out that the full interaction effect in a nonlinear model
should be calculated using the "cross derivative of the expected value of *y* […]." How-
ever, in a nonlinear model, the expected value of *y* depends on the unobserved error
term. This renders an exact calculation almost impossible. Thus we have tested whether
the results prove robust when using a traditional OLS specification and find that the
magnitude does not change significantly.

and West Germans. This is robust when controlling for age and income and underlines the persistence of attitudes shaped under communism.

5.2 Preferences Regarding the Welfare State

As outlined above, measured attitudes are prone to misinterpretation because they do not account for trade-offs imposed by a budget constraint. Thus, as Phillips, Johnson, and Maddala (2002) argue, "… the most useful measure of the strength of preferences is the monetary payment that would leave people indifferent between having a given utility change and not having the change (i.e., willingness to pay or willingness to accept)." Therefore MWTP for redistribution is the preferred measure.

Estimating eq. [4.2] leads to coefficients that allow us to express preferences in terms of MWTP values.[17] The results show a negative coefficient for the price attribute (ΔTC), in line with microeconomic theory, suggesting diminishing utility in the case of increasing prices. As the coefficient of ΔTC^2 is also negative, the disutility increases disproportionately with the price attribute. While the estimated utility parameter for ΔRE is positive, ΔRE^2 has a negative sign. This suggests that respondents' utility from redistribution is positive, but with a decreasing marginal return. Regarding beneficiaries of redistribution, coefficients of the estimation model indicate a preference for increasing the budget for retirees and families and children while cutting the redistributive budget devoted to the unemployed and working poor. Coefficients for ΔWE and ΔOT are negative, suggesting Germans prefer a shift in the distribution toward recipients of German nationality. For the analysis of the effects of communism, the proxy *East living in East* is interacted with the linear and quadratic terms of the two attributes ΔTC (tax and contributions) and ΔRE (redistribution). However, results show no significant effects of the interaction terms.

In the context of this study, the price attribute is specified as percentage of income that is spent on tax and contributions. The higher this attribute, the higher the disutility because of the direct negative effect on net income. The MWTP can thus be interpreted as the willingness to give a certain number of percentage points of income for an additional percentage point of GDP devoted to redistribution beyond the status quo.

For the subsequent analysis, we will refer to MWTP values for the interpretation of citizens' preferences toward redistribution. MWTP values are calculated by first estimating equation [4.2]. This permits calculation of the partial derivatives with respect to the attributes ΔRE and ΔTC according to equation [3.1]. Evaluating them at the status quo values, i.e., $\Delta RE = \Delta TC = 0$, causes the quadratic terms to drop out of the equation. The calculation of the MWTP also

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[17] The full estimation results are available in the appendix, Table A.2.

includes the partial derivatives pertaining to the interaction terms, evaluated at *communism* = 1 and *communism* = 0:

$$(5.1) \quad MWTP^{RE}_{TC|\Delta TC=0;\Delta RE=0} = -\frac{\text{Attribute parameter of } \Delta RE}{\text{Attribute parameter of } \Delta TC} = -\frac{\beta_1 + \beta_3}{\beta_5 + \beta_7} = -\frac{0.0334 - 0.0005}{-0.0559 - 0.0031} = 0.558$$

East Germans living in the East therefore exhibit a MWTP of 0.558 percentage points of their monthly gross income for an increase of redistribution by one percentage point of GDP.[18] Standard errors are estimated using the delta method (Hole 2007). As for the reference category *West German,* the calculation of the MWTP reduces to $-(\beta_1/\beta_3) = 0.598$, which is higher than that of the East Germans, but again not significantly so. This result is surprising at first, as attitudes toward redistribution strongly differ between the two groups. While *attitudes* for redistribution are significantly stronger for East Germans living in the East, *preferences* for redistribution seem to be equal.

Estimates [2] and [3] control for age and income. Since incomes in the East continue to be lower than in the West, this might explain equality of MWTP values in the face of strongly divergent attitudes. However, even when accounting for age and income in such general terms, East and West Germans fail to exhibit a statistically significant difference in their MWTP for redistribution in excess of the status quo, at least in the year 2012. Contrasting these results with section 5.1, it is obvious that *attitudes* toward redistribution and *preferences* for redistribution do not coincide.

Replicating the steps of section 5.1, we make particular efforts to control for age and income. See Table A.3 for full estimation results. The MWTP values derived from these estimates and depicted in estimate [2] in Table 5 thus control for age effects, interacting age categories with the East indicator as well as with the main effect attributes ΔRE, ΔRE^2, ΔTC, and ΔTC^2. Interestingly, there are no significant differences between the MWTPs of East and West Germans within a given age group. The only somewhat larger – yet statistically insignificant – difference can be observed for the youngest age cohort, exhibiting a somewhat higher MWTP for young West Germans compared to their East German peers. However, age cohorts do differ with respect to their MWTP in both groups. For example, setting aside the very sparsely populated age group 1, across the country, age group 2 has the highest MWTP compared to all other groups. When controlling for income (see the aforementioned procedure), the

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[18] β_1 represents the parameter estimated for the attribute ΔRE (0.0334), and β_3 is the estimated parameter for ΔTC (−0.0559). Both values are taken from the estimation presented in Table A.3 in the appendix. The following MWTP values are derived in the same way, taking the estimated parameters from the estimation equations. (Full results for all MWTP estimates are presented in tables A.3, A.4, and A.5 in the appendix.)

results are very similar (estimate [3]). Within income categories, no significant differences between East and West Germans exist. Across both parts of the country, similar differences between income categories exist, but no obvious pattern emerges. In summary, when controlling for the pivotal socioeconomic characteristics age and income, no significant differences can be observed between East and West Germans.

Table 5

Marginal Willingness to Pay for Redistribution

	Choice					
	[1]		[2]		[3]	
	MWTP	*SE*	*MWTP*	*SE*	*MWTP*	*SE*
East living in East	0.558	(0.066)***				
West Germans	0.598	(0.046)***				
Age1 * East			0.060	(0.530)		
Age1 * West			0.843	(0.378)**		
Age2 * East			1.197	(0.185)***		
Age2 * West			1.102	(0.127)***		
Age3 * East			0.581	(0.114)***		
Age3 * West			0.532	(0.070)***		
Age4 * East			0.378	(0.106)***		
Age4 * West			0.435	(0.087)***		
Age5 * East			0.218	(0.165)		
Age5 * West			0.418	(0.101)***		
Income1 * East					0.448	(0.166)***
Income1 * West					0.478	(0.102)***
Income2 * East					1.028	(0.162)***
Income2 * West					0.792	(0.142)***
Income3 * East					0.431	(0.097)***
Income3 * West					0.645	(0.114)***
Income4 * East					0.230	(0.162)
Income4 * West					0.558	(0.089)***
Income5 * East					0.618	(0.194)***
Income5 * West					0.592	(0.080)***
LL	−5,559		−5,495		−5,518	
Mc Fadden Adj. R^2	0.095		0.100		0.096	
AIC	11,154		11,097		11,144	
BIC	11,283		11,485		11,532	
N	9,720		9,720		9,720	

* $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$. The dependent variable choice is a binary variable that takes the value one if the individual chooses the alternative and zero if the individual chooses the status quo. The attributes ΔSP and ΔDE were omitted to avoid perfect collinearity. All attributes are differenced reflecting deviations from the status quo. Standard errors were calculated using the delta method. AIC is the Akaike information criterion. BIC is the Bayesian information criterion. LL refers to the log likelihood. Note: see Appendix A.3 for the full estimation results.

While we treat attitudes and preferences as strictly distinctive features, in the economic sense, this does not mean that attitudes do not help explain preferences. Therefore the observed variable *inequality reduction* from section 5.1 is now added to the estimation equation, with the two categories *disagree* and *totally disagree* (which were rarely chosen by respondents, see Figure 2) merged into the variable *disagree*. This would imply that attitudes, while not equivalent to MWTP values, do matter in predicting them. In addition, the remaining three categories (*totally agree*, *agree*, and *disagree*) are interacted with *East living in East*, controlling for potential differences between East and West Germans. See Table A.4 for full estimation results.

Results in Table 6 show that, within the group strongly agreeing with inequality reduction, there is no significant difference in MWTP between East and West Germans. Furthermore, it is not surprising that this group exhibits the highest MWTP. However, when turning toward the group with a somewhat lower agreement on this issue, the MWTP of West Germans stands out. It is not statistically different from the first group, but significantly higher than the MWTP of the respective East Germans. The MWTP values of the latter are not statistically significantly different from those of the group who disagrees with inequality reduction, which again is uniform across both parts of the country. Therefore *attitudes* towards redistribution seem to be connected with *preferences* for redistribution, but West Germans with a mild level of agreement behave very differently from their eastern compatriots. Only East Germans who have a very strong attitude have a high MWTP, while, among West Germans, those who moderately favor redistribution are also willing to contribute.

This is puzzling and cannot easily be explained by the communist past. Further research may be guided by Brosig-Koch et al. (2011) and Paetzel, Sausgruber, and Traub (2014). In their laboratory experiments, the former still find differences between East and West Germans, while the latter conclude that an individual's positive marginal willingness to pay for a reduction of inequality (i.e., an increase of redistribution) is not necessarily conditional on positive payoffs for the individual. The social preference can outweigh the individual disadvantage and shape voting decisions. This goes beyond the scope of this study, but underscores the importance of behaviors such as risk aversion, altruism, and fairness and how they intermingle with psychological concepts such as attitudes – also in combination with economic self-interest as discussed in the light of insurance motives, the Meltzer-Richard model, or the POUM hypothesis.

Summarizing, there is no straightforward explanation for the result presented in Table 6. The approximation of preferences on basis of a discrete choice analysis is now well established and – in contrast to measures of attitudes – in line with economic theory. Thus these findings highlight once more that attitudes and preferences are not synonymous and that there is no evidence for a direct link between communism and preferences for redistribution.

Table 6

Marginal Willingness to Pay for Redistribution, by Attitudes

	MWTP	*SE*
East: Strongly agree with inequality reduction	0.734	(0.083)***
West: Strongly agree with inequality reduction	0.680	(0.080)***
East: Agree with inequality reduction	0.236	(0.097)**
West: Agree with inequality reduction	0.634	(0.059)***
East: Disagree with inequality reduction	0.274	(0.218)
West: Disagree with inequality reduction	0.221	(0.143)
LL	−5,542	
Mc Fadden Adj. R^2	0.096	
AIC	11,150	
BIC	11,387	
N	9,720	

* p < 0.10, ** p < 0.05, *** p < 0.01. The dependent variable choice is a binary variable that takes the value one if the individual chooses the alternative and zero if the individual chooses the status quo. The attributes ΔSP and ΔDE were omitted to avoid perfect collinearity. All attributes are differenced reflecting deviations from the status quo. Standard errors were calculated using the delta method. AIC is the Akaike information criterion. BIC is the Bayesian information criterion. LL refers to the log likelihood. Note: see Appendix A.4 for the full estimation results.

5.3 Robustness Tests

We test the validity of our results with a series of robustness checks. In the first part, we elaborate whether socio-economic controls change the results of the estimates. In the second part we look into issues pertaining to the special characteristics of the choice task, e.g., whether respondents understood the choice framework and could deal with the decision situation.

The results discussed in section 5.1 on citizens' attitudes toward redistribution might be confounded due to omitted variables. To overcome this issue and to make our results more comparable to the ones of Alesina and Fuchs-Schündeln (2007), we include a set of socio-demographic variables covering age, family status, education level, labor force status, gross income and experiences with unemployment. Thus eq. [2] in Table 4 is extended by these variables. The descriptive statistics and the results of an ordered probit model are presented in Table 7.

All statistically significant controls reduce the probability to favor government's responsibility for redistribution. These are in particular being married or having higher levels of education and a full-time job. In contrast to other studies, such as Alesina and Fuchs-Schündeln (2007), unemployment does not have any significant effect.

Table 7

Results of Ordered Probit Models for Inequality Reduction

inequality reduction				
			[1]	
	Mean	*SD*	*Coeff.*	*SE*
East living in East	0.210	0.410	0.282	(0.081)***
East living in West	0.030	0.160	0.062	(0.200)
Age	51.690	15.500	0.017	(0.016)
Age^2/100	29.120	16.260	–0.017	(0.015)
Married	0.580	0.490	–0.180	(0.106)*
Widowed	0.070	0.250	–0.088	(0.178)
Divorced	0.130	0.340	–0.074	(0.135)
Number of children	1.300	1.130	–0.006	(0.034)
Secondary school certificate	0.300	0.460	–0.183	(0.095)*
Vocational training	0.210	0.410	–0.275	(0.104)***
University entry diploma	0.120	0.320	–0.246	(0.115)**
University degree	0.150	0.350	–0.381	(0.118)***
Full time employed	0.420	0.490	–0.185	(0.094)**
Monthly gross income/1,000	1.880	1.930	0.006	(0.028)
< 6 months of unemployment	0.080	0.270	0.107	(0.116)
6 – 24 months of unemployment	0.110	0.310	0.090	(0.108)
> 24 months of unemployment	0.080	0.270	0.219	(0.143)
LL			–1.241	
Mc Fadden Adj. R^2			0.003	
AIC			2.522	
BIC			2.624	
N			1.215	

* $p < 0.1$, ** $p < 0.05$, *** $p < 0.01$; note: The reference category for the different types of schooling comprises individuals with no completed schooling or a lower-level secondary school certificate (*Hauptschulabschluss*) as the highest educational level reached. The other categories refer to a successful *Realschulabschluss*, *Ausbildung*, *Abitur*, and *Universitätsabschluss*, respectively. AIC is the Akaike information criterion. BIC is the Bayesian information criterion. LL refers to the log likelihood.

We still find a strong and positive effect of individuals with a communist past. East Germans still living in the Eastern part of Germany exhibit stronger attitudes toward redistribution, while their compatriots who migrated west do not differ significantly from their western neighbors. Comparing the magnitude of these results, we find that being from the East increases the probability of

strongly favoring redistribution by 10.8 percentage points. This is very close to 10.5 percentage points derived from the estimation without socio-demographic controls presented in section 5.1 and that strengthens our argument. Our results prove robust, regardless of whether control variables are included.

An equally straightforward control for socio-economic factors is not feasible for the analysis of preferences on the basis of a decision task. As highlighted in section 4.2, all invariant factors – i.e., all sociodemographic characteristics – must be interacted with the attributes that vary between the status quo and the alternatives. Without interaction, they cancel out. However, including a set of 15 control variables bears an excessive burden on the estimation, as each of these controls must be interacted with eight attributes[19] and the three quadratic terms increasing the number of parameters by 165.

The two critical socio-demographic controls were thus implemented and tested one by one in section 5.2. Including both controls into the same equation does not change results but increases the burden on the estimation. In addition, we have already tested for two important observable issues: age and income. Results of preferences for redistribution do not change and remain robust.

When heterogeneity due to sociodemographic characteristics cannot be ob-served, econometric models allowing for latent heterogeneity are another op-tion to test for the robustness of results (McFadden and Train 2000; Hensher and Greene 2003). One solution is mixed logit models (Train 2009). Such models extend standard models by allowing the coefficients to vary over indi-viduals following a predefined density. To test the robustness of our main find-ings and control for latent heterogeneity, we tried different specifications of random parameter models.[20] Results indicate a high level of heterogeneity across respondents with regard to the attributes that are not interacted. How-ever, the interacted terms are not compromised and – most importantly – MWTP values for East and West Germans are not affected by this heterogene-ity. Despite the first-best approach of controlling for sociodemographic controls not being feasible, we can present a strong case that our results are robust in this regard.

Turning to the particularities of the decision analysis framework, we first ex-amine participants' choice behavior. Table 8 presents descriptive statistics. About 34% of the total choices favored an alternative redistributive system, instead of the status quo. This value is relatively high compared to similar choice analyses (Becker 2006; Telser 2002). Hence the hypothetical alterna-tives seem to be adequately defined, causing respondents to deviate from the status quo. Choices can be further described by the number of alternatives cho-sen by the respondents. Fifteen percent choose exactly one alternative, whereas

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[19] This is the number of all attributes minus the number of references categories.

[20] Results are available upon request.

choosing two or three alternatives has the highest share. About 9 percent never choose an alternative. The validity of the underlying choice framework might be affected by these individuals, as they do not trade off.

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Table 8

Choices and Choice Frequency

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Choice	N	in %	times alter- native chosen	# respondents	in %
for status quo	6,418	66.03	0	112	9.22
for alternative	3,302	33.97	1	182	14.98
Total	9,720	100.00	2	256	21.07
			3	308	25.35
			4	182	14.98
			5	109	8.97
inconsistent	**N**	**in %**	6	56	4.61
=1	155	12.76	7	5	0.41
=0	1,060	87.24	8	5	0.41
Total	1,215	100.00	Total	1,215	100.00

Comparing individuals trading off and not trading off by their socioeconomic characteristics, we find significant differences regarding age and the proxy indicating exposure to communism *East living in East*: younger individuals and East Germans are less often represented among those not trading off.[21] As this could indicate a systematic bias, we test for the effects of individuals not trading off by again estimating model [1] from Table 5, now excluding respondents who never chose an alternative. Table 9 presents results. The magnitude of the calculated MWPT values for the subsample excluding individuals not trading off in estimate [2] differs only slightly from the full sample ([1], identical to est. [1] in Table 5). Accordingly, individuals not trading off do not affect our main results.

We also have included a consistency check within the analysis to test whether the respondents meet the axiom of complete preferences. The check reveals that 12 percent of respondents failed to pick the same option in two identical scenarios (see Table 8). This is a fairly low number compared to similar studies (Phillips, Maddala, and Johnson 2002), suggesting that the choice task was well explained and well understood. Often, individuals are excluded from an analysis because they behaved inconsistently. However, exclusion may lead to overestimating the accuracy of results and hence to overconfidence in forecasting actual decisions. Lancsar and Louviere (2006) argue that random

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[21] The corresponding analysis and further results are available upon request.

utility theory (i.e., the error term) is designed to accommodate for unobservable factors as well as errors in decision-making.

Comparing both groups regarding their socio-demographic status, we find that neither income nor education affects respondents' inconsistency. Thus respondents could deal with the complexity of the choice situation, and education especially did not affect the choices. However, we again check whether inconsistency affects our results for preferences for redistribution, excluding those who failed the consistency test from the estimation. Results are presented in estimate [3] in Table 9. The magnitude of the MWTP values varies only marginally and is not statistically significantly different. Accordingly, neither individuals not trading off nor inconsistent individuals affect our main results. Results prove robust against the inclusion of inconsistent responses and subjects refusing to trade off. East and West Germans do not differ significantly in their MWTP for redistribution.

Table 9

Results of wtp Estimates, by Choice Freq and Inconsist

	choice freq		inconsist	
	[1]		[2]	[3]
	All		*choice freq > 0*	*inconsist = 0*
	MWTP	*SE*	*MWTP* *SE*	*MWTP* *SE*
East living in East	0.559	(0.046)***	0.560 (0.046)***	0.557 (0.044)***
West Germans	0.598	(0.066)***	0.608 (0.067)***	0.562 (0.065)***
N	9,720		8,824	8,480
LL	−5,559		−5,229	−4,660
AIC	11,154		10,494	9,355
BIC	11,283		10,622	9,482

* p < 0.1, ** p < 0.05, *** p < 0.01; note: Full estimation results are available upon request from the authors. AIC is the Akaike information criterion. BIC is the Bayesian information criterion. LL refers to the log likelihood.

6. Discussion

One of our most striking findings is that, while *attitudes* diverge, we can identify no differences between East and West Germans' *preferences* for redistribution when budget constraints and trade-offs are imposed. In other words, facing economic constraints, East and West Germans behave the same. We have no way to tell whether this is the result of convergence or whether their preferences were similar from the outset. The latter would imply that communist socialization affects attitudes (as other studies consistently show) but not economic preferences.

As noted above, to date, most studies regarding citizens' stances on the welfare state or redistribution have relied on data obtained from voiced agreement to certain statements, but use the term *preferences* to describe their results. We argue that this creates ambiguity. Agreement questions permit conclusions about *attitudes*, but not *preferences.* If attitudes are then used as proxies for preferences, this must be done with caution. A better alternative would be to include choice tasks, such as the one described in this analysis, in large panel surveys.

An investigation of the extent to which attitudes help explain preference patterns is tricky, as it touches the blurred lines between psychological and economic theory. As McFadden (2001) points out, the fields offer distinct concepts of decision-making. Thus the analysis presented in Table 6, which assumes a causal relationship between attitudes and preferences, should be treated with caution. What we observe is a strong statistical link between attitudes and marginal willingness to pay – that is, preferences for redistribution. But we see no significant differences in this effect between East and West Germans.

A way to further analyze this relationship would be to conduct identical choice tasks in different (existing) political regimes, comparing the results regarding the derived preferences with simultaneously collected data on attitudes. Obviously, this would require further research, especially since Brosig-Koch et al. (2011) found that social norms, such as solidarity, have not converged, and East Germans tend to be more selfish than West Germans. The findings of Paetzel, Sausgruber, and Traub (2014) should inform this research, contrasting social preferences with individual benefits.

Our results may also be relevant for German policymakers. When proposing additional income redistribution, they are likely to be applauded by citizens across the country, but even more by the East Germans, as this comports with their *attitudes*. In contrast, politicians who present the costs of such reforms will still find support – but only within the limits of citizens' *preferences*, depicted by their MWTP. When the cost of redistribution is borne by taxpayers and exceeds their marginal willingness to contribute, politicians may be penalized in elections. From a more optimistic perspective, telling citizens the truth about the future may help to avoid failure by damping expectations.

Our study has potential limitations. First of all, we do not have longitudinal data, which would be preferable. However, the classic longitudinal datasets do not embrace complex choice tasks such as the one applied here. Furthermore, one might argue that the hypothetical nature of the choice task produces biased results, since respondents do not really have to bear the financial consequences of their choices, making them overestimate their true MWTP for income redistribution. However, when testing the impact of communism, the only concern is the relative difference between East and West Germans. If there were some sort of hypothetical bias, there is no reason why this should have unequally

affected East and West Germans. Thus, even in this case, our results should not change. Furthermore, there are several studies suggesting that the results derived from an experiment providing financial incentives do not differ significantly from those derived from an analysis without such incentives (e.g. Mørkbak et al. 2012; Broadbent 2012). Moreover, none of our validity checks identify significant distortions.

One must also not forget that the commonly used survey questions are hypotheticals. Thus, while mitigating and overcoming some of their weaknesses (e.g., social desirability bias and not enforcing trade-offs / budget constraints, respectively), our approach does not resolve all their limitations. Nonetheless, it is a significant step forward and may point the way for future researchers. A key implication is that results can heavily depend on what is asked and how. This is not a new insight, but, in the context of redistribution, attitudes captured through surveys are often interpreted as preferences. Future research might address whether changes in the wording of survey questions – for example, making a more explicit link to individuals' income rather than to fairly abstract general tax revenues – would change the outcomes.

In summary, our contribution is threefold. First, in 2012 – more than 22 years after German reunification – we show that the effects of communism on individuals' attitudes toward redistribution persist. Second, by making use of a choice task, our analysis captures preferences consistent with economic theory. We can calculate MWTP for redistribution and find no significant differences between the East and West Germans. Third, we find strong statistical links between *attitudes* toward the welfare state and *preferences* in terms of marginal willingness to pay.

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Appendix

A. Tables

Table A.1

Choice Characteristics, Attribute Levels and their Frequencies

	means of choice characteristics		frequencies of attribute levels in percent													
	all	**chosen**	**5**	**10**	**15**	**20**	**25**	**30**	**35**	**40**	**45**	**…**	**75**	**80**	**85**	**90**
TC	30	27			20		21	**21**	16		22					
RE	32	31				16	19	**20**	23		22					
RI	38	38						36		**36**	28					
SP	35	35						33	**37**	30						
UL	9	9	45	**27**	28											
FC	11	11	34	**32**	18	16										
WP	7	7	**53**	47												
DE	83	83											16	36	**26**	22
WE	7	7	**52**	48												
OT	10	9	35	**31**	34											
N	9,720	3,302														

Note: in the first part of this table, the first column shows the means of the choice characteristics, and the second column presents mean values of the choice characteristics from the chosen alternatives only. In the second part, frequencies of the attribute levels are given in percentages; bold values indicate the levels of the status quo.

Table A.2

Estimation Results for MWTP for Redistribution

		choice	
		[1]	
		RE Probit	
		Coeff	SE
ΔTC		−0.0559	(0.0023)***
ΔTC^2		−0.0013	(0.0002)***
ΔRE		0.0334	(0.0030)***
ΔRE^2		−0.0009	(0.0003)***
ΔRI		0.0145	(0.0043)***
ΔWP		−0.0219	(0.0077)***
ΔUL		−0.0197	(0.0047)***
ΔFC		0.0107	(0.0047)**
ΔWE		−0.0415	(0.0061)***
ΔOT		−0.0389	(0.0037)***
ΔOT^2		0.0048	(0.0014)***
_cons (status quo)		−0.3188	(0.0433)
East living in East			
× ΔTC		−0.0031	(0.0041)
× ΔTC^2		−0.0001	(0.0003)
× ΔRE		−0.0005	(0.0053)
× ΔRE^2		0.0007	(0.0005)
MWTP	East living in East	0.558	(0.066)[†]***
	West Germans	0.598	(0.046)[†]***
N		9,720	
LL		−5,559	
McFadden Adj. R^2		0.095	
AIC		11,244	
BIC		11,283	

* $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$. The dependent variable choice is a binary variable that takes the value one if the individual chooses the alternative and zero if the individual chooses the status quo. The attributes ΔSP and ΔDE were ommited to avoid perfect collinearity. All attributes are differenced reflecting deviations from the status quo. †Standard errors were calculated using the delta method. AIC is the Akaike information criterion. BIC is the Bayesian information criterion. LL refers to the log likelihood.

Table A.3

Estimation Results for MWTP for Redistribution, by Age and Income

choice			choice		
age	[1]		income	[2]	
	RE Probit			RE Probit	
	Coeff.	SE		Coeff.	SE
ΔTC	−0.0656	(0.0060) ***	ΔTC	−0.0509	(0.0051) ***
ΔTC^2	−0.0016	(0.0004) ***	ΔTC^2	−0.0009	(0.0004) **
ΔRE	0.0274	(0.0075) ***	ΔRE	0.0329	(0.0067) ***
ΔRE^2	0.0004	(0.0006)	ΔRE^2	−0.0015	(0.0006) **
ΔRI	0.0144	(0.0043) ***	ΔRI	0.0144	(0.0043) ***
ΔWP	−0.0217	(0.0078) ***	ΔWP	−0.0220	(0.0078) ***
ΔUL	−0.0196	(0.0047) ***	ΔUL	−0.0198	(0.0047) ***
ΔFC	0.0106	(0.0047) **	ΔFC	0.0106	(0.0047) **
ΔWE	−0.0416	(0.0062) ***	ΔWE	−0.0423	(0.0062) ***
ΔOT	−0.0398	(0.0038) ***	ΔOT	−0.0396	(0.0038) ***
ΔOT^2	0.0049	(0.0014) ***	ΔOT^2	0.0048	(0.0014) ***
_cons (status quo)	−0.2709	(0.0764) ***	_cons (status quo)	−0.2352	(0.0700) ***
Age1			*Income1*		
× ΔTC	0.0286	(0.0125) **	× ΔTC	−0.0079	(0.0075)
× ΔTC^2	0.0014	(0.0010)	× ΔTC^2	−0.0003	(0.0005)
×Δ RE	0.0038	(0.0174)	× ΔRE	−0.0047	(0.0095)
× ΔRE^2	−0.0018	(0.0015)	× ΔRE^2	0.0008	(0.0008)
Age2			*Income2*		
× ΔTC	0.0231	(0.0073) ***	× ΔTC	0.0090	(0.0072)
× ΔTC^2	0.0006	(0.0005)	× ΔTC^2	−0.0000	(0.0005)
× ΔRE	0.0194	(0.0095) **	× ΔRE	0.0004	(0.0095)
× ΔRE^2	−0.0025	(0.0008) ***	× ΔRE^2	−0.0001	(0.0008)
Age3			*Income4*		
× ΔTC	−0.0005	(0.0074)	× ΔTC	−0.0087	(0.0070)
× ΔTC^2	−0.0001	(0.0005)	× ΔTC^2	−0.0002	(0.0005)
× ΔRE	0.0078	(0.0092)	× ΔRE	0.0004	(0.0091)
× ΔRE^2	−0.0011	(0.0008)	× ΔRE^2	0.0009	(0.0008)
Age4			*Income5*		
× ΔTC	0.0078	(0.0074)	× ΔTC	−0.0156	(0.0071) **
× ΔTC^2	0.0002	(0.0005)	× ΔTC^2	−0.0010	(0.0005) **
× ΔRE	−0.0022	(0.0094)	× ΔRE	0.0065	(0.0091)
× ΔRE^2	−0.0010	(0.0008)	× ΔRE^2	0.0011	(0.0008)
East living in East			*East living in East*		
× ΔTC	0.0060	(0.0104)	× ΔTC	−0.0289	(0.0088) ***
× ΔTC^2	0.0005	(0.0007)	× ΔTC^2	−0.0009	(0.0006)
× ΔRE	−0.0144	(0.0130)	× ΔRE	0.0015	(0.0110)
× ΔRE^2	0.0001	(0.0010)	× ΔRE^2	0.0003	(0.0009)
× *Age1*			×*Income1*		
× ΔTC	−0.0160	(0.0277)	× ΔTC	0.0271	(0.0138) **
× ΔTC^2	0.0008	(0.0019)	× ΔTC^2	−0.0000	(0.0009)
× ΔRE	−0.0139	(0.0327)	× ΔRE	−0.0025	(0.0172)
× ΔRE^2	0.0024	(0.0026)	× ΔRE^2	0.0016	(0.0013)

choice			choice		
age	[1]		income	[2]	
	RE Probit			RE Probit	
	Coeff.	SE		Coeff.	SE
× Age2			×Income 2		
× ΔTC	–0.0103	(0.0132)	× ΔTC	0.0265	(0.0118) **
× ΔTC^2	–0.0004	(0.0009)	× ΔTC^2	0.0008	(0.0008)
× ΔRE	0.0235	(0.0173)	× ΔRE	0.0109	(0.0153)
× ΔRE^2	–0.0001	(0.0013)	× ΔRE^2	0.0006	(0.0012)
× Age3			× Income4		
× ΔTC	–0.0013	(0.0128)	× ΔTC	0.0318	(0.0126) **
× ΔTC^2	0.0001	(0.0009)	× ΔTC^2	0.0014	(0.0009)
× ΔRE	0.0149	(0.0162)	× ΔRE	–0.0217	(0.0160)
× ΔRE^2	0.0009	(0.0013)	× ΔRE^2	0.0008	(0.0013)
× Age4			× Income 5		
× ΔTC	–0.0214	(0.0134)	× ΔTC	0.0253	(0.0159)
× ΔTC^2	–0.0020	(0.0009) **	× ΔTC^2	0.0010	(0.0011)
× ΔRE	0.0170	(0.0166)	× ΔRE	0.0025	(0.0200)
× ΔRE^2	0.0006	(0.0013)	× ΔRE^2	0.0009	(0.0015)
N	9,720			9,720	
LL	–5,495			–5,518	
McFadden Adj. R^2	0.100			0.096	
AIC	11,097			11,144	
BIC	11,485			11,532	

  * p < 0.10, ** p < 0.05, *** p < 0.01. The dependent variable choice is a binary variable that takes the value one if the individual chooses the alternative and zero if the individual chooses the status quo. The attributes ΔSP and ΔDE were ommited to avoid perfect collinearity. All attributes are differenced reflecting deviations from the status quo. [†]Standard errors were calculated using the delta method. AIC is the Akaike information criterion. BIC is the Bayesian information criterion. LL refers to the log likelihood.

Table A.4

Estimation Results for MWTP for Redistribution, by Attitudes

choice		
attitudes	RE Probit	
	Coeff.	SE
ΔTC	–0.0529	(0.0064) ***
ΔTC^2	–0.0009	(0.0004) **
ΔRE	0.0117	(0.0083)
ΔRE^2	0.0001	(0.0006)
ΔRI	0.0146	(0.0043) ***
ΔWP	–0.0214	(0.0077) ***
ΔUL	–0.0196	(0.0047) ***
ΔFC	0.0109	(0.0047) **
ΔWE	–0.0421	(0.0061) ***
ΔOT	–0.0389	(0.0037) ***

Table continued next page

Table A4 continued

choice		
attitudes	RE Probit	
	Coeff.	*SE*
ΔOT^2	0.0047	(0.0014) ***
_cons (status quo)	−0.3084	(0.0398) ***
Strongly agree with inequality reduction		
× ΔTC	0.0029	(0.0073)
× ΔTC^2	−0.0005	(0.0005)
× ΔRE	0.0223	(0.0095) **
× ΔRE^2	−0.0011	(0.0007)
Agree with inequality reduction		
× ΔTC	−0.0082	(0.0071)
× ΔTC^2	−0.0004	(0.0005)
× ΔRE	0.0270	(0.0092) ***
× ΔRE^2	−0.0012	(0.0007) *
East living in East		
× ΔTC	−0.0046	(0.0124)
× ΔTC^2	−0.0005	(0.0009)
× ΔRE	0.0040	(0.0160)
× ΔRE^2	0.0012	(0.0013)
× *Strongly agree with inequality reduction*		
×Δ TC	−0.0100	(0.0138)
× ΔTC^2	0.0002	(0.0010)
× ΔRE	0.0094	(0.0178)
× ΔRE^2	−0.0007	(0.0014)
× *Agree with inequality reduction*		
× ΔTC	0.0128	(0.0139)
× ΔTC^2	0.0010	(0.0010)
× ΔRE	−0.0249	(0.0180)
× ΔRE^2	0.0001	(0.0014)
N	9,720	
LL	−5,542	
McFadden Adj. R^2	0.096	
AIC	11,150	
BIC	11,387	

     * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$. The dependent variable choice is a binary variable that takes the value one if the individual chooses the alternative and zero if the individual chooses the status quo. The attributes ΔSP and ΔDE were ommited to avoid perfect collinearity. All attributes are differenced reflecting deviations from the status quo. AIC is the Akaike information criterion, BIC is the Bayesian information criterion. LL refers to the log likelihood. [†]Standard errors were calculated using the delta method.
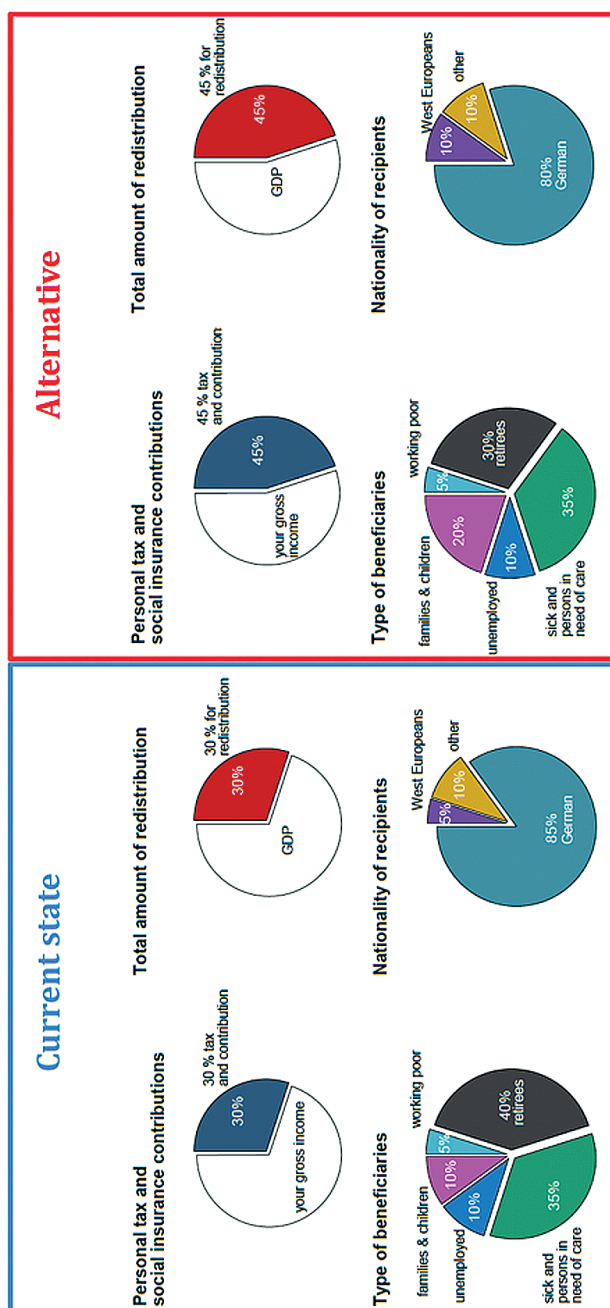
B. Figures

Figure B.1: Example of a Choice Situation