

# Trust and Reciprocity: Social Capital and Political Engagement

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## Abstract

In this paper we estimate individual-level social capital as a latent attribute using survey questions on personal attitudes by applying a modification of the econometric methodology by Spady (2006). Compared to other measures of social capital, using this technique has several advantages: It makes more efficient use of information by allowing the aggregation of information from several questions and by exploiting additional information from personal and demographic characteristics. It also allows for a multi-dimensional measure of social capital as suggested by theory, and it is free of parametric assumptions. Finally, the measure of the components of social capital that we propose is conceptually cleaner and more consistent with theory than the proxies or demographic characteristics often used in previous work.

Having estimated two components of social capital (individuals' attitudes to trust and reciprocity) using data from the European Social Survey, we analyze their personal, demographic, and regional determinants. Finally we relate these measures to individual-level political engagement.

## 1 Introduction

Recently, there has been strong interest among economists in the impact of social and cultural factors on economic or social outcomes (Knack and Keefer (1997), Guiso, Sapienza and Zingales (2004)). For instance, the concept of social capital has been used to explain several individual and group outcomes such as voting patterns, health, financial development, or economic growth. Since social capital is often associated to desirable outcomes, measuring it and understanding what social and individual characteristics are related to it seems useful and important.

In this spirit, we measure social capital and analyze its influence on democratic outputs. Although voting turnout has often been used as a proxy for social capital, there is not much robust evidence on the relationship between the components of social capital (such as trust or reciprocity) and individual's democratic attitudes and political behavior.

To study this, a well-defined definition and circumscription of the concept of social capital is needed. Following Durlauf and Fafchamps's (2004) analysis of the leading definitions of social capital,<sup>1</sup> three main underlying ideas related to the concept of social capital can be distinguished: (1) social capital generates positive externalities, (2) these externalities arise through *trust*, and *norms* and *values* of reciprocity and their consequent effects on expectations and behavior, (3) shared trust, norms and values can be influenced by individual characteristics and experiences as well as community characteristics.

From this, a measure of social capital can be based on agents' attitudes towards trust, and norms and values of reciprocity. The concept of "social capital" then embodies the intuitive notion of consistent underlying attitudes' affecting personal and community interactions. These underlying attitudes are not observable and are usually thought to matter by affecting "how people spend their resources on others, how much people invest in each other, and how people can mobilize the resources of others" (van Schaik 2002). These types of individual behavior lead to positive externalities.

Good measurement of social capital is particularly important to overcome one of the critiques directed at the social capital literature, that is that sometimes the claims done by some researchers are in excess of what is justified by the statistical exercises reported (Durlauf and Fafchamps 2004). Barro and McCleary (2002) similarly claim that although the arguments about the importance of social capital seem reasonable on an a priori basis, much of the work in this literature is impressionistic, rather than quantitative or rigorous.

Therefore, one of our goals here is to develop a new measure of the two main components of social capital as defined above: attitudes towards trust and towards norms and values of reciprocity. We argue that the opinions of individuals about trust and norms of reciprocity reflect their attitudes in these two dimensions, and that the aggregation of these attitudes is what constitutes social capital. The contribution of this paper is to use a new methodology that allows us to measure these two attitudes directly. This results in a measure of the components of social capital that is conceptually cleaner and more consistent with the theory than the distant proxies or demographic characteristics often used in previous work.

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<sup>1</sup>The main references here are Coleman (1990), Putnam (1993), Ostrom (2000), and Putnam (2000).

The methodology that we will use in this paper is the one proposed by Spady (2006), which allows us to get quantitative measures of latent attitudes, without imposing specific parametric assumptions. The only assumptions needed are that (1) the expressions of agreement and disagreement on questions about trust and norms and values of reciprocity ('item responses') reflect corresponding attitudes of the responder; (2) the 'attitudes' are enduring individual-specific attributes, given the individual's characteristics and environment. (3) We will use two different series of item responses, and we will assume that each series has been determined by a single attitude. The attitudes of individuals making up a sample population can then be given probability distributions, based on their item responses and characteristics. These probability distributions can then be used to infer the relation between attitudes and economic outcomes, be it at the individual or at the aggregate level.

Finally, performing this measurement exercise, we can analyze what are the determinants of the components of social capital and if these components have an impact on individual's democratic values, political interest, participation in voting, political involvement and political group membership in Germany.

The rest of the paper is structured as follows. In Section 2 we present the conceptual framework for social capital, and give a brief overview on measures of social capital used previously. Section 3 presents a simple theoretical model that will guide the estimation. In Section 4 we describe the methodology used to obtain the measures of the components of social capital (shared trust and norms and values of reciprocity). In Section 5 we present the data used, and we describe the questionnaire items and the personal and demographic characteristics of the respondents that play a role in the estimation of the latent attitudes. In Section 6 we analyze the results obtained and in Section 7 we study the relationship between the latent attitudes and political engagement. Finally Section 8 concludes.

## **2 Social Capital: the conceptual framework**

Apart from the empirical literature, there has also been a growing interest in the theoretical and conceptual bases of social capital. Starting from the seminal contributions of Coleman (1990), Putnam (1993), there has been a proliferation of slightly different approaches and definitions.

Durlauf and Fafchamps (2004) review this literature and extract the principal components, stressing the following three main underlying ideas: (1) social capital generates positive externalities, (2) these externalities are achieved through *trust*, and *norms* and *values* of reciprocity and their consequent effects on expectations and behavior, (3) shared trust, norms, and values arise from informal forms of organizations based on social networks and associations. We adopt (1) and (2) and generalize (3) in the sense that while Durlauf and Fafchamps refer basically to the experience of participating in informal forms of organizations based on social networks and associations, we look for a more general approach and assume that there are other characteristics and experiences that may also have an influence on the level of social capital. We will consider these three main ideas as the 'structural' aspects of the concept and we will let them be the guide of our empirical approach. Note that (2) implies that there are two dimensions to social capital.

One main problem of the literature about social capital has been its measurement. Clearly, concepts like trust, norms and values are inherently difficult to measure. There have been different approaches to this, some involving the use of proxies, that have not always been very rigorous or conceptually satisfactory. The next few paragraphs give a brief overview of these approaches and critiques to them.

To our knowledge, there are three main approaches to the study of the impact of social capital on economic outcomes. Two of them proxy social capital, using outcomes or individual characteristics, and another one uses partial measures from value surveys.

**Proxies for Social Capital: Outcomes.** There are many studies that measure social capital through "indirect" indicators. Sometimes these indicators can be related to the outcomes of social capital, instead of its components as identified by the theoretical literature. One example of this approach is the work of Putnam (1993) who uses the number of local newspaper's readers, the voter turn-out in referendums and the percentage of votes on the political elections as proxies in the analysis of the impact of social capital on economic performance. The problem with this approach is that it is not clear what effect is being identified, as the proxies themselves may be related to the outcome that is analyzed. In more recent work, Guiso et al. (2004) avoids this problem. They identify the effect of social capital on financial development by using particular,

arguably unrelated outcomes (electoral participation and blood donation) as proxies for social capital.

While this approach may allow to identify the impact of social capital on economic outcomes, it still does not allow for direct measurement of social capital. This makes it less useful for analysis of the determinants of social capital, or for comparative or policy-focussed perspectives.

**Proxies for Social Capital: Individual Characteristics.** Other papers have used the participation in social networks as a measure of social capital. A seminal contribution to this vast literature is the already cited Putnam (1993), who uses the number of voluntary organizations (sport clubs and cultural circles) in a region as a proxy for social capital. The problem with this approach is that it does not take into account the multidimensional character of social capital and that the focus on some type of network causes loss of generality, which can compromise the effectiveness of the analysis. Another problem is that there are no theoretical studies that have provided an explanation of the mechanism through which trust within groups generalizes to the entire society.

Other authors like Easterly and Levine (1997) and more recently Alesina, Devleeshauer, Easterly, Kurlat and Wacziarg (2003) study the impact of ethnic, linguistic and religious heterogeneity on the quality of institutions and growth. They believe that more demographic diversity could bring more political instability, poor quality of institutions, badly designed economic policy and disappointing economic performance. Barro and McCleary (2002) study to what extent religious participation and beliefs influence economic performance and political institutions.

In our opinion these studies jump one step in the process. We believe that the channel at work here is that the degree of fragmentation or religious participation has an effect on individual latent attitudes (shared trust, and norms and values of reciprocity), and that these attitudes affect behavior and therefore economic outcomes. Whereas demographics may provide a clue towards a society's values and attitudes, a more direct approach can be used, estimating latent attitudes.

**Partial Definitions: Survey responses.** Another approach used in this literature is to measure social capital as the percentage of people in the population that claim to trust others.

Usually these papers use the World Values Survey (WVS) or the European Values Survey (EVS) and their question: ‘Generally speaking, would you say that most people can be trusted or that you cannot be too careful in dealing with people?’ Individual responses are then aggregated to a macro measure.

Examples of this approach are found in Knack and Keefer (1997) and Zak and Knack (2001) who find that trust and civic norms have a strong impact on economic performance or in Beugelsdijk and van Schaik (2004) who also find that at the regional level, trust and voluntary work are related to economic growth. Also La Porta, Lopez-de-Silanes and Shleifer (1997) and Fukuyama (1995) follow this approach to examine the effect of trust in industrial organizations.

The scope of these studies is necessarily limited since they use only one dimension of social capital: trust. Moreover, the measurement is imperfect, since they use only the answer to one question. It is difficult to believe that these are good measures for the wider concept of social capital, which by definition is a compilation of diverse attitudes. The approach we use overcomes these limitations by incorporating more than one dimension of social capital, and by measuring each using responses to more than one question. By analyzing the individual and country-level determinants of social capital, it also addresses the critique of lack of cross-country comparability of the original trust-based measures aired by Fine (2001).

The methodology proposed in this paper to measure social capital is in line with the Markov Chain Monte Carlo simulation methods (MCMC) often used to study latent attitudes such as individual ability or attitudes toward immigration (Heckman, Stixrud and Urzua 2006). MCMC methods follow a Bayesian approach; they specify an item response model parametrically and the distribution of the latent attitude is the nuisance for which a prior is specified. This methodology allows to recover, via the posterior, how the latent attitude is distributed if the parametric model is true. In contrast, the methodology proposed by Spady (2006) and used in this paper, is based on a frequentist approach. It imposes as a normalization a latent attitude distribution, and then estimates the model without further constraints. The model preserves stochastic dominance and ‘best fits’ the data.

Our approach offers a new dimension to the study of the social capital. We develop a more

complete measure of the components of social capital, and not just proxy for it using either outcomes, demographic characteristics, or partial aspects of social capital. This new measure allows us to obtain the probability distribution of social capital for each individual. At the same time this approach takes into consideration the possible influence of individual characteristics and experiences as well as community characteristics. Measuring social capital and understanding what social characteristics lead to more social capital seems useful and important since social capital is related to positive outcomes.

As a result, an individual measure of social capital and its distribution (not just the mean) can be characterized, and the importance of its level and dispersion for economic and social outcomes can be investigated.

### 3 Theoretical Model

In this section, we set up a simple model that will allow us to estimate the latent attitudes that we identify as the components of social capital and that captures the three underlying ideas pointed out above. Figure 1 shows a diagram of the underlying process that we have in mind. We suppose that every individual has some amount of social capital, which will be a compilation of his/her attitudes on *trust* and on *norms* and *values* of reciprocity. These attitudes directly cause the responses to certain survey questions, and have an effect on the behavior of agents. This behavior may generate positive externalities for society. In this paper, we will focus on the measurement of social capital and we will relate it to political engagement, as a individual behavior affected by trust and reciprocity.

We also claim that demographic and personal characteristics may be informative about the way in which latent attitudes are distributed in a population; individual characteristics and experiences as well as community characteristics can be related to how much people trust each other or how much people share values or accept norms. We assume that these characteristics do not affect the answers directly. If they have an effect it is through their effect on the attitudes we are measuring here.

In the Data section we will discuss the variables we use to construct these two scales and we will give a theoretical justification of the personal and demographic characteristics used in our

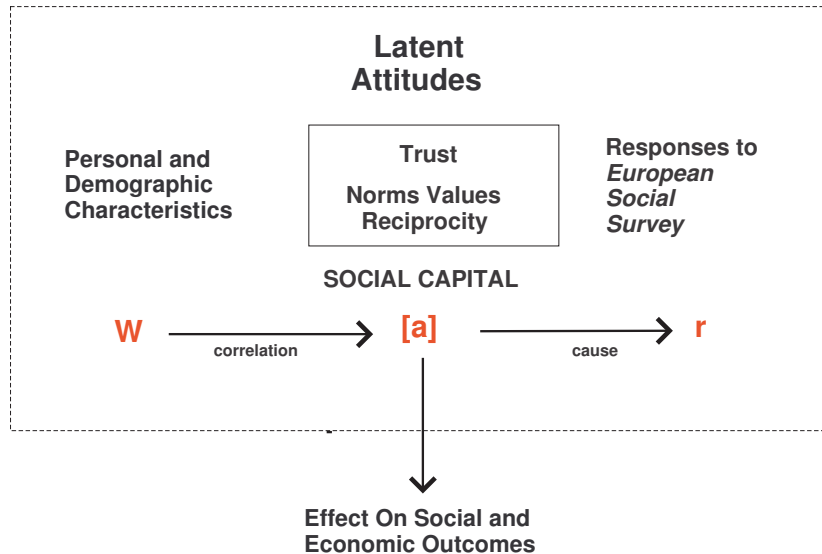


Figure 1: Diagram of the underlying process.

estimation.

## 4 Methodology

Given the restrictions implied by the theoretical model, we can apply the estimation methodology developed by Spady (2006).

We would like to obtain a measure of the underlying attitudes that constitute social capital. We have information about the demographic and personal characteristics of the individuals that we think may be informative of these latent attitudes. We have the responses to some questions (items) that we assume to be driven by these latent attitudes. The responses to these questions are coded 1 to 3, with higher values reflecting a higher level of shared trust or acceptance of norms and values of reciprocity. We would like to use all this information in computing the measures of the attitudes.

Given the model we have in mind, we would like our measure (1) to conform to the notion that there are two dimensions to social capital, (2) to reproduce a given set of cell means or probabilities (relative frequencies of the items used) and (3) to be able to take into account the information embodied into the demographic and personal characteristics. The next subsections



detail how this can be achieved, following Spady's (2006) approach.

#### 4.1 Trust, Norms and Values of Reciprocity, and Item Responses

To estimate the two main components of social capital at the individual level we assume that we can find a collection of questions and the corresponding responses (called 'items') that depend solely on the individual's attitude on trust. We can find another collection of 'items' that depend solely on the individual's attitude towards norms and values of reciprocity. The attitude in each dimension will be inferred from answers to these collections of items. We believe that the probability distribution of the responses is determined solely by an individual's value on each attitude scale. Therefore individuals with the same value for the attitude have the same probability distribution of responses for the items that solely reflect that attitude. This means that we expect individuals that have more trust in others (to focus on one scale, for the sake of concreteness) to answer, on average, higher values on the items defining the 'trust' scale (by convention, higher values indicate more trust in others). Given a collection of responses, the mapping from attitudes to responses can be inverted, resulting in probability distributions over attitudes, conditional on the responses. Probability distributions over attitudes  $a$  for responses indicating more trust then *stochastically dominate* the distribution for responses indicating less trust.<sup>2</sup> A final point to note is that since item responses are categorical, the 'scaling' of  $a$  is arbitrary.<sup>3</sup>

#### 4.2 Reproducing Relative Frequencies of the Item Responses

The second desired property of our measure is that it should reproduce a given set of cell means or probabilities (relative frequencies of the items used). This is the goodness-of-fit criterion of the estimator employed here.

For concreteness, focus again on the trust scale. For that scale, we will use a collection of 8 items, each of them with 3 categorical responses, therefore there are  $3^8 = 6561$  possible combinations of responses. Each of these combinations occurs with some relative frequency. We

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<sup>2</sup>A formal exposition of how this stochastic dominance structure across items determines a *monotonic scale representation* is contained in Spady (2006).

<sup>3</sup>Spady (2007) shows that the 'scaling' of  $a$  is arbitrary, in the sense that if a figure such as Figure 2 exists for a particular scheme of assigning numbers to  $a$ , then there will be figures with the required properties for any strictly monotonically increasing transformation of  $a$ .

Table 1: Table with relative frequencies for a 2 item example.

		$r_1$		
		1	2	3
$r_2$	1	0.16	0.12	0.05
	2	0.11	0.18	0.10
	3	0.03	0.11	0.14

call these relative frequencies ‘cells.’<sup>4</sup> For a particular value of the attitude on trust, say  $a$ , there is a probability distribution of item responses, and therefore a probability distribution over these 6.561 ‘cells’ that depends solely on the individual attitude on trust. The probability distribution generated by our measure should match the relative frequencies observed in the sample.

As an example consider a hypothetical case with only two item responses with 3 categorical responses each, and 100 individuals. Table 1 represents the table with the relative frequencies for these two items. In that case we have  $3^2 = 9$  cells or possible combinations. Concerning the ordering of the responses, since we assume that higher values indicate more trust in others, we could order the combination of responses as a function of the level of trust that they represent. Then  $(r_1 = 1 \text{ and } r_2 = 1) < (r_1 = 3 \text{ and } r_2 = 3)$ .

In the example we believe that the two items are determined by the individual’s attitude on trust  $a$ . The probability of a particular response pattern (or cell) conditional on  $a$  is simply the product of the constituent item probabilities.<sup>5</sup> That is, we assume (for  $m$  items),

$$p(r_1, r_2, \dots, r_m|a) = p(r_1|a)p(r_2|a)\dots p(r_m|a). \tag{1}$$

We can represent the results in Figure 2. The first box shows the probability of answering 1, 2 or 3 in item 1 as a function of an individual’s attitude  $a$ , where the lowest line represents the probability of answering 1, the difference between the second and the lowest one the probability of answering 2, and the difference between 1 and the second line the probability of answering 3. The second box shows the same for item 2.

The model will have a better fit when the estimated probabilities represented in Figure 2

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<sup>4</sup>For the case of norms and values of reciprocity, we use 6 items, each one with 3 categorical responses. In that case we have  $3^6 = 729$  ‘cells’

<sup>5</sup>We assume independence across the item responses.

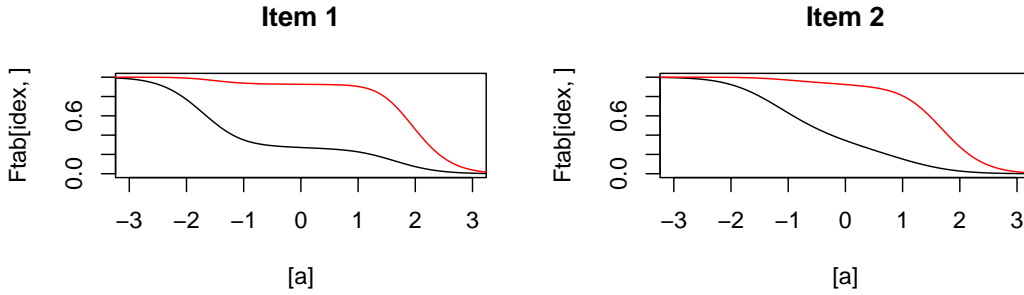


Figure 2: Probability Distributions of answering 1, 2 or 3 in the two items considered as example

have a good match with table 1. The requirement that the responses of those with more trust in others stochastically dominate those with less trust in others is precisely that the lines in Figure 2 have to be weakly decreasing, and they must not cross.

### 4.3 Including Demographic Characteristics in the Estimation

The latent attitudes that we are estimating are not observable. What we can actually observe are the item responses and observable individual characteristics (such as age, education, income, etc.). We now assume that individual  $i$  has certain characteristics  $W_i$ , and that the distribution  $f(\cdot)$  of the latent attitudes can be influenced by these characteristics  $W_i$ , that means  $f(a|W_i)$ . Concretely, as the theoretical model implies, suppose that  $W$  gives rise to social experiences, and consequently attitudes may change; the attitudes are then reflected in item responses. So we have:

$$p(r_1, r_2, \dots, r_m|W) = \int p(r_1, r_2, \dots, r_m|a)f(a|W)da \quad (2)$$

$$= \int p(r_1|a)p(r_2|a)\dots p(r_m|a)f(a|W)da \quad (3)$$

Equation 3 is used to estimate simultaneously how  $W$  affects  $a$  and how  $a$  affects item responses. We specify that  $f(a|W)$  is represented by a  $N(\mu(W), \sigma(W))$ , where

$$\mu(W) = W\beta \quad (4)$$

$$\log(\sigma(W)) = W\gamma \quad (5)$$

That means that  $a$  is normal with a mean that is a linear function of the  $W$  variables and a standard deviation whose logarithm is linear in the same  $W$  variables. Equations 4 and 5 imply that  $f(a|W)$  is a  $N(0, 1)$  for the 'standardized respondent' and that the different groups of the population, characterized by different  $W$ , are also normally distributed with possibly different values of location  $\mu$  and scale  $\sigma$ .<sup>6</sup>

#### 4.4 Estimation

We will estimate the item response models by maximum likelihood, subject to the constraint that the distribution functions (the lines that indicate the probability of answering  $j$  in item  $k$ ) be downward sloping and not crossing.

The probability densities of the item responses as a function of the attitude are approximated using exponential tilting of second degree. Exponential tilting of degree  $n$  involves approximating a density function using the product of the normal *pdf* and a polynomial of degree  $n$ . Subtracting the cumulative distributions corresponding to these densities from 1, we obtain downward sloping lines. To ensure that they do not cross, the lines of the boxes are constructed as products of the first lines.

The probability of a particular outcome for individual  $i$  then is given by  $p(r_1, r_2, \dots, r_m|W) = \int p(r_1|a)p(r_2|a)\dots p(r_m|a)f(a|W)da$ . This integration has been carried out using a gaussian quadrature at 200 grid points. To ensure that we can collect even the distributions with small variances, the gaussian quadrature has been applied to 5 different segments of the grid, with the one in the middle having more points.

The parameters obtained are the ones describing the distribution functions as well as the parameters associated to the personal characteristics (2 per characteristic, indicating effect on location and scale). Since we use exponential tilting of second degree, we estimate two parameters per line and box for the distribution functions.

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<sup>6</sup>The 'standardized respondent' will be a single man who lives in a town or city, is 46.68 years old, has primary education, has an intensity of religion of 3.8, a value of 4.48 on a left-right scale of self-proclaimed political attitude, and who does not belong to a discriminated group. (This is not the average person but the reference person.)

## 5 Data and Descriptive Statistics

To estimate social capital we use the second wave of the European Social Survey (ESS). The ESS is a recent data set covering 25 European Countries in 2004/05. In this first draft of the paper we use the information related to Germany. The ESS provides rich information on several aspects of interest to social scientists. In this round, the questionnaire includes, for the first time, a module on Economic morality: Trust and interactions between producers and consumers. This module is designed to investigate the normative and moral culture of markets and consumption in European countries and is useful for us because it has some questions about the level of trust and confidence in business and state/government institutions, and solicits general normative statement from individuals. In addition, the ESS also contains information about some demographic variables. Corresponding to the theoretical model, some of these (described below) will also be used in the estimation.

To measure the two components of social capital, shared trust, and norms and values of reciprocity, we choose questions/items related to them. The original wording of the questions/items we use to estimate the individual's latent attitudes towards trust are the following:

- Generally speaking, would you say that most people can be trusted, or that you can't be too careful in dealing with people?<sup>7</sup> (Score of 0 to 10, where 0 means you can't be too careful and 10 means most people can be trusted.)
- Do you think that most people would try to take advantage of you if they got the chance, or would they try to be fair?<sup>8</sup> (Score of 0 to 10, where 0 means most people would try to take advantage of me and 10 means most people would try to be fair.)
- Would you say that most of the time people try to be helpful or that they are mostly looking out for themselves?<sup>9</sup> (Score of 0 to 10, where 0 means people mostly look out for themselves and 10 means people mostly try to be helpful.)
- Please tell me how much you personally trust each of the institutions I read out. (Score

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<sup>7</sup>Cant be too careful: need to be wary or always somewhat suspicious.

<sup>8</sup>Take advantage: exploit or cheat; fair: in the sense of treat appropriately and straightforwardly.

<sup>9</sup>The intended contrast is between self-interest and altruistic helpfulness.

of 0 to 10, where 0 means you do not trust an institution at all, and 10 means you have complete trust.)

- the legal system
- politicians
- How much would you trust the following groups to deal honestly with people like you? (Score of 1 to 5, where 1 means you distrust and 5 means you trust a lot.)
  - plumbers, builders, car mechanics and other repair people<sup>10</sup>
  - financial companies such as banks or insurers.
  - public officials<sup>11</sup>

Items used to estimate the individuals' attitudes on norms and values of reciprocity:

- How much do you agree or disagree with this statement: Citizens should spend at least some of their free time helping others. (Score of 1 to 5, where 1 means agree strongly and 5 means disagree strongly.)
- How wrong, if at all, do you consider the following ways of behaving to be? (Score of 1 to 4, where 1 means not wrong at all and 4 means seriously wrong.)
  - Someone making an exaggerated or false insurance claim.
  - A public official asking someone for a favor or bribe in return for their services.
- How much do you agree or disagree with these statements about how people see rules and norms?
  - If you want to make money you can't always act honestly.
  - Occasionally, it is alright to ignore the law and do what you want to do.

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<sup>10</sup>Builders include all kinds of tradespeople who work on building sites.

<sup>11</sup>Public officials refers to both government officials, such as custom officers and to local officials, such as housing/building regulators etc.

Table 2: Descriptive Statistics of the questions used from the ESS.

Variable	Obs	Mean	Std. Dev.	Min	Max
<b>Shared Trust</b>					
Most People Can be Trust	1880	1.889	0.808	1	3
Most People are Fair	1880	2.194	0.784	1	3
Most People are helpful	1880	1.791	0.769	1	3
Trust Legal System	1880	2.105	0.835	1	3
Trust Politicians	1880	1.354	0.597	1	3
Trust Repair People	1880	2.059	0.848	1	3
Trust Banks	1880	1.853	0.825	1	3
Trust Public Officials	1880	2.218	0.762	1	3
<b>Reciprocity</b>					
Better More Time Helping Others	1880	1.851	0.583	1	3
Better Not Cheat Taxes	1880	1.863	0.653	1	3
Bad Not Give Recipe	1880	1.439	0.610	1	3
Bad Make False Insurance	1880	2.080	0.632	1	3
Bad Public Official Bribe	1880	2.708	0.515	1	3
Possible Make Money Honesty	1880	2.353	0.600	1	3
Obey Law Always	1880	2.218	0.762	1	3

Summary statistics of the responses to the considered items are presented in table 2. Scales are recoded such that each item has three possible answers (1-3 scale).<sup>12</sup> The low (high) score corresponds to a lower (higher) level of trust or norms of reciprocity. Even inside each scale the answering behavior varies over these items. Considering for instance the question "Most People would try to be fair" and the question "Can politicians be trusted?", the means range from 2.19 to 1.35. This indicates that different items carry information on respondents' attitudes to a varying degree. Thus, by focussing on just one or on a narrow subset of these items, valuable information might be lost. Table 3 show the pairwise correlation coefficients for the items used to build the two scales.

<sup>12</sup>The recodification does not matter for our estimation.

*Theoretical justification of the personal and demographic characteristics.*

Table 4 contains summary statistics of the personal and demographic characteristics that we expect to be related to an individual's level of social capital. The reasons why we would expect these factors to be related and to give us extra information about the latent attitudes are given in the following. Whether these relationships hold in the data is an empirical question on which our analysis can shed some light.

**Intensity of religion.** Barro and McCleary (2002) study to what extent religious participation and beliefs influence economic performance and political institutions. It seems plausible that possible effects of religion on economic outcomes are via social capital. The concept of religion is linked to the concept of community and presupposes immaterial links between members of the community. So it could be argued that more religious people will tend to have a higher level of shared trust and will share more norms and values of reciprocity. Empirical evidence also suggests this idea: Luigi Guiso and Zingales (2003) find that religious affiliation and participation is positively correlated with attitudes that are more favorable to cooperation and economic growth. Moreover, survey evidence shows that religious participation is associated with charitable giving and volunteering (Brooks (2003) and Brooks (2005)). The question we use from the EES is: "Regardless of whether you belong to a particular religion, how religious would you say you are?" (Scale from 0 to 10.)

**Age.** Since attitudes might change over the life cycle due to personal experience but also due to national and global developments, we think that the age of respondents can be informative. In addition, there may be cohort effects. Since our data set is only a cross section, it is unfortunately impossible to disentangle life cycle and cohort effects.

**Approximate degree or political orientation (left vs right).** We believe that the information about the political orientation can be informative of the attitudes of the person. On the one hand we could think that more conservative people attach more importance to traditions and have a stronger feeling of belonging to a community. That could increase the level of trust in others, and increase the level of social capital associated to these people. On the other hand,



left-wing parties define themselves by their concern for the wellbeing of others, and therefore may have stronger attitudes towards reciprocity. The question we will use from the EES is: "In politics people sometimes talk of "left" and "right". Where would you place yourself on this scale, where 0 means the left and 10 means the right?"

**Living in a village.** As argued e.g. by La Porta et al. (1997), repeated interaction and small size of a local community can enhance trust and the sharing of norms and values of reciprocity. In particular, this could be the case for people living in villages.

**Income.** Since most determinants of income are also included as controls, the income coefficient should mainly reflect luck. Here it seems reasonable that people that faced more negative shocks have lower levels of trust and possibly also of reciprocity.

**Belonging to a group that historically felt discriminated.** Members of a group that has felt discriminated will probably not expect to be treated fairly in the future and therefore will trust less. The question we will use from the EES is: "Would you describe yourself as being a member of a group that is discriminated against in this country? (yes/no)"

We also control for gender, education, marital status and region of residence as they can influence the experiences faced during life.

## 6 Estimates of the Trust Scale and the Scale on Norms and Values of Reciprocity

Figure 3 shows the resulting item response models estimated using equations 3-5 for the items representing the Trust scale. Table 5 shows the effect of  $W$  on the location ( $\mu$ ) and scale ( $\sigma$ ) of  $a$ .

The effects are additive, which means that statements such as 'females have more trust in others' must be understood in a 'ceteris paribus' sense Spady (2006). The effect of Age <sup>13</sup>, Intensity of Religion and the left-right scale are shown in Figure 4:

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<sup>13</sup>Notice that the variables presented in the tables are

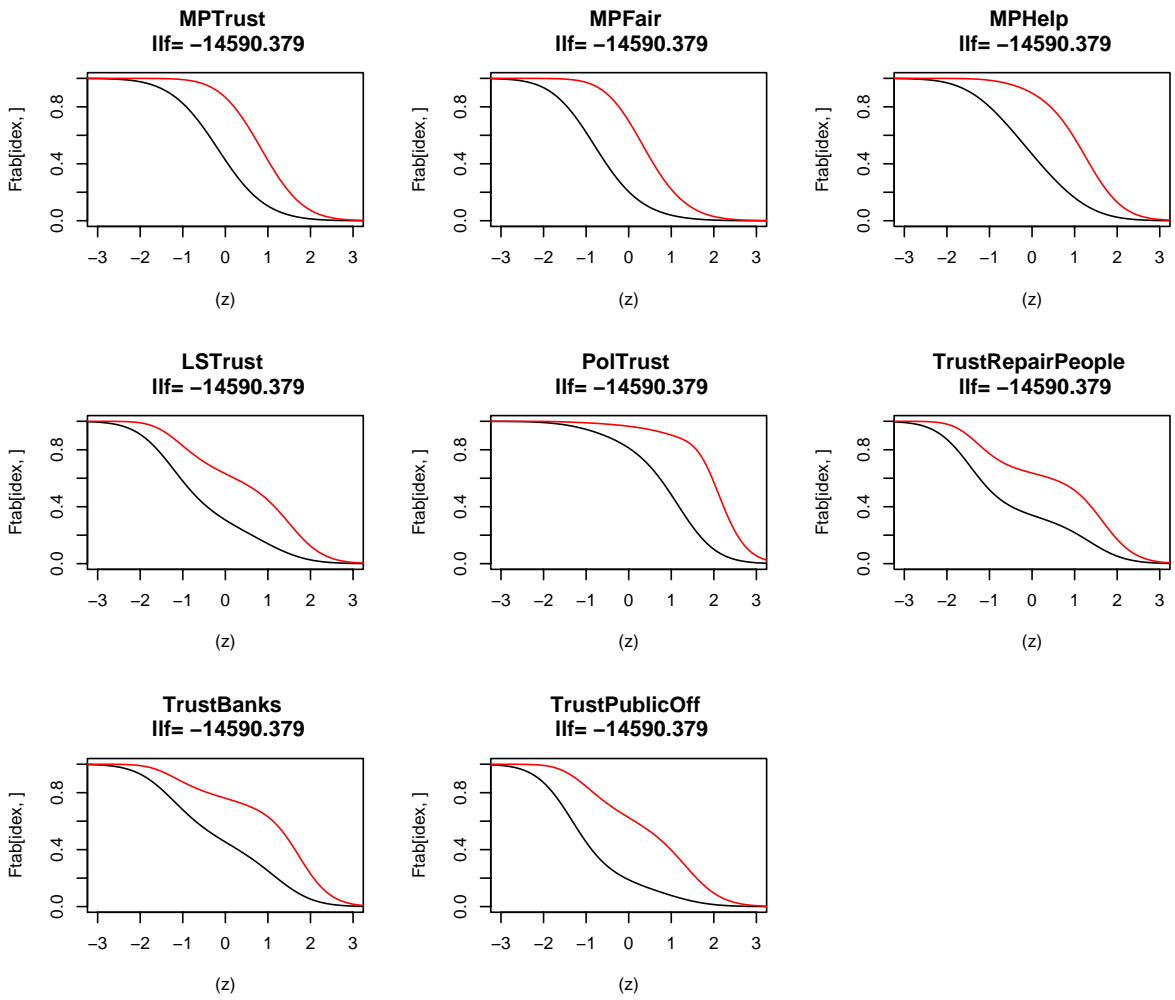


Figure 3: Estimates of the item response model for the items constituting a scale on shared trust.

1. The hierarchy (in decreasing order of influence) among social concepts in determining the attitudes on trust is as follows: belonging to a discriminated group, education, group of income and gender.
2. The signs of the coefficients are close to what we would expect: belonging to a discriminated group has an important negative effect on trust.
3. Education is important, more education affects positively the level of trust.
4. Women have a tendency to have more trust in others.
5. People with higher income levels also tend to trust more others.
6. Age has an effect on trust. The young and the old have more trust than the middle-aged.
7. The intensity of religion has the expected effect, more religious people tend to trust others more.
8. As to political orientation, people that identify with more extreme values have less trust in others. The level of trust decreases particularly rapidly for those that identify with the far-right. This effect is stronger than that of belonging to a discriminated group. The highest value is reached in the center-left.

The second part of table 5 gives the estimates of the demographic and personal variables on the variability or heterogeneity ( $\sigma$ ) of the attitude trust. The main points of interest are the following:

1. Being female reduces heterogeneity.
2. Older people are more homogeneous.

Table 6 shows the estimated effects of demographic and personal variables on norms and values of reciprocity. Though many signs are similar to the ones obtained for the attitude on trust, a few are different, and the hierarchy of these effects is not the same. As before, the effect of the three continuous variables are shown in Figure 6. We highlight the following points:

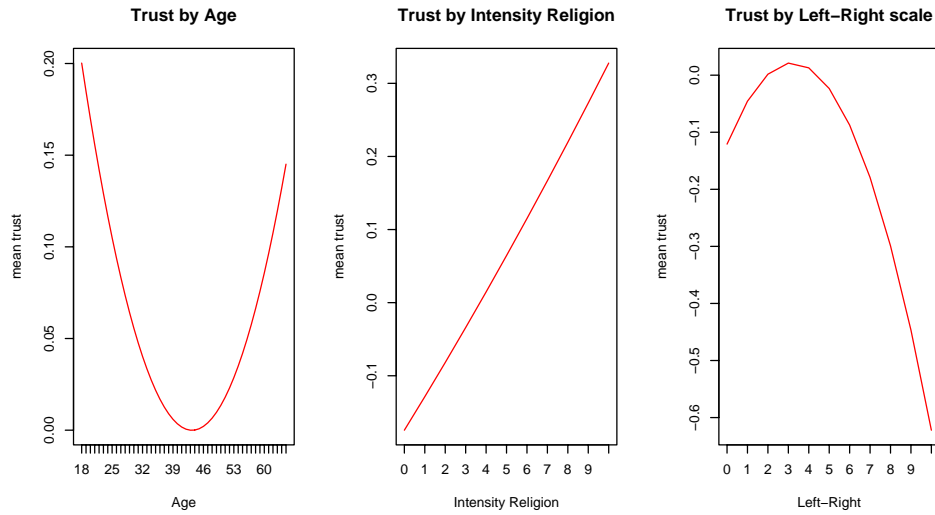


Figure 4: The effect of the three continuous demographic variables: Age, Intensity of Religion, Left-Right Scale

1. In determining the attitudes on norms and values of reciprocity, the hierarchy among personal and demographic concepts is as follows: the most important effect is due to the fact of belonging to a discriminated group, then the level of education, then gender, being married and income.
2. Belonging to a discriminated group reduces the disposition to accept norms and values of reciprocity.
3. Education is an important determinant, more education has a strong positive effect.
4. Women have a significantly higher respect of norms and higher values of reciprocity.
5. Low income respondents are less disposed to follow norms of reciprocity.
6. About Age, we see that the curve takes a very different shape than for trust. Here, the shape is much more linear, indicating that older people (but not the young) tend to believe that rules and norms of reciprocity are more important.

7. The effect of religion does not change much; more religious people tend to have higher values of norms and values of reciprocity.
8. The effect of political orientation is similar to trust; right-wing people have lower values of norms and values of reciprocity. Being extreme left-wing is also negatively related to norms and values of reciprocity. Again the highest value is reached in the center-left. Moreover, being left-wing is positively correlated with the level of education, reinforcing this effect even more.

The second part of Table 6 shows the heterogeneity of the different social groups on their attitude on reciprocity. The main points are the following:

1. Female, and married people are more homogenous among their groups.
2. Older people are also more homogenous.

## 6.1 Social Groups and Attitudes towards Trust and Reciprocity

The coefficients of Tables 5 and 6 show how the location and scale of the distribution of attitudes depend on covariates. Using the estimated coefficients shown in these tables we can calculate the estimated distribution of the attitudes for different demographic groups. Therefore, the question that can be answered with Figures 7 and 8 is: *What is the effect on the distribution of attitudes of changing the reference group's characteristics in one dimension?*

These Figures show the estimated attitude distribution of the reference group (black line), and the estimated attitude distribution of other groups that have the same characteristics except for the one under analysis (blue and red lines). For the panels with three lines; the panel that refers to different levels of income, the blue line represent households with a low income and the red line households with high income. In the panel that refers to different levels of education, the blue line represents the individuals with secondary education, the red line individuals with tertiary education.

From all these figures we can infer the distribution of trust and reciprocity for some “ideal types,” shown in Figure 9. The figure at the left corresponds to a young single, low-education,

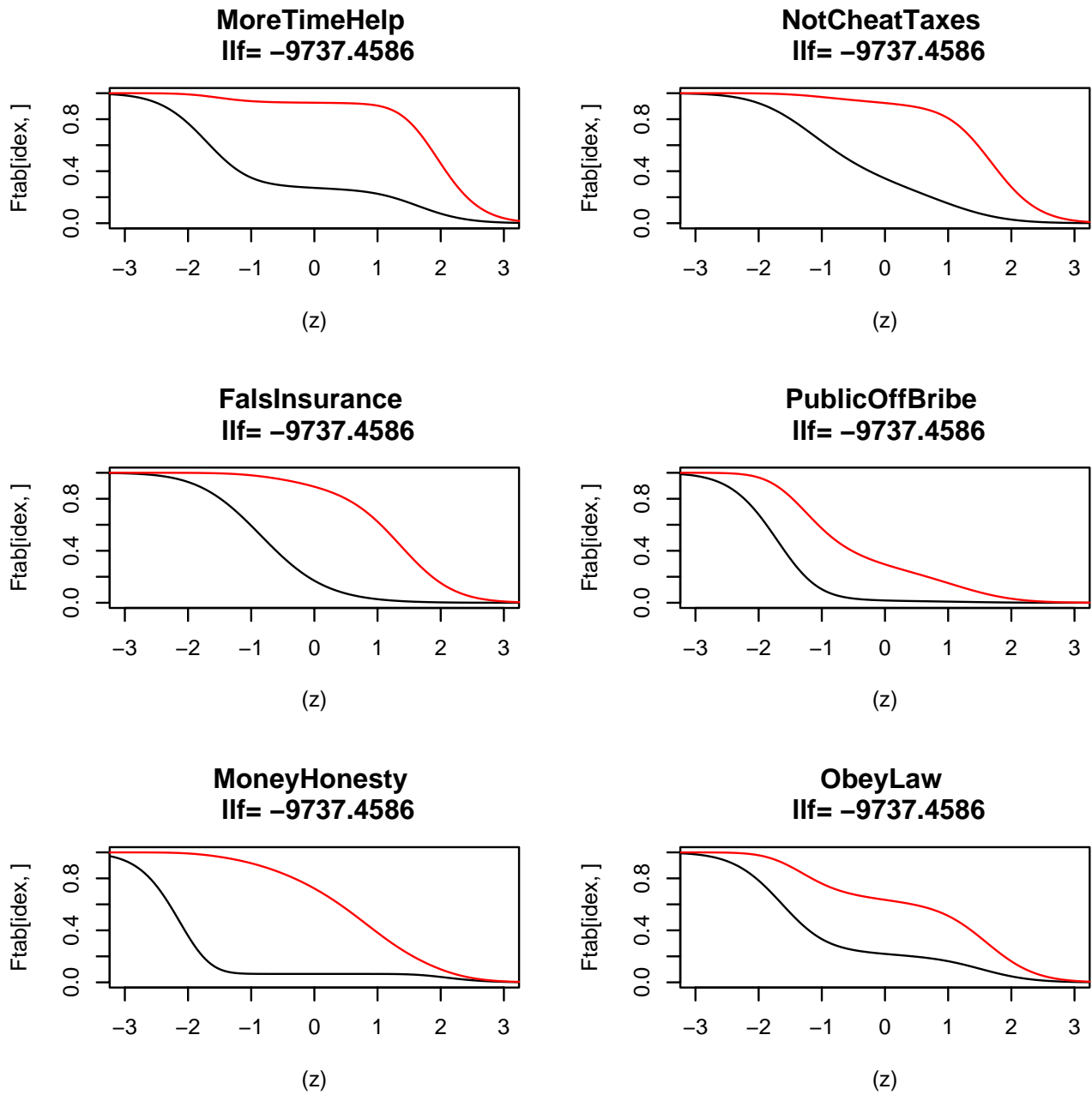


Figure 5: Estimates of the item response model for the items constituting a scale on norms and values of reciprocity.

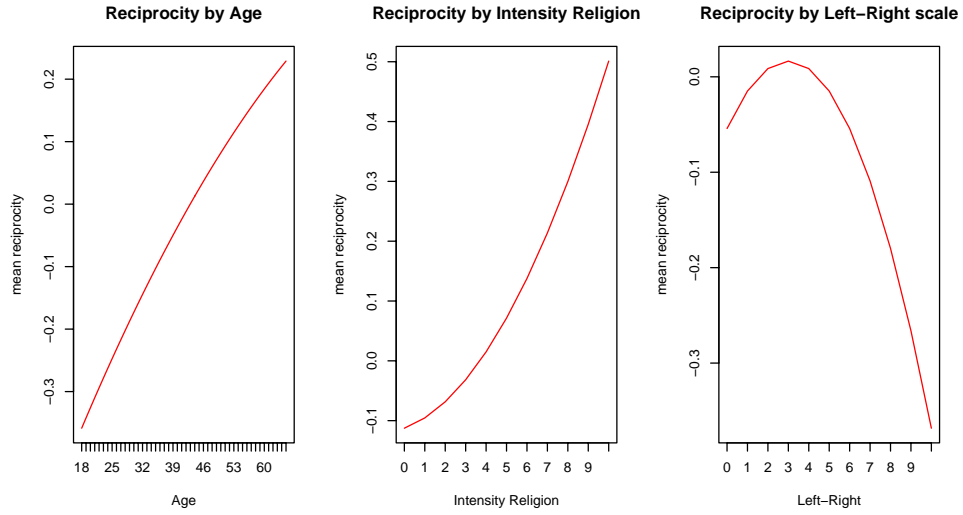


Figure 6: The effect of the three continuous demographic variables: Age, Intensity of Religion, Left-Right Scale

low-income, non-religious, right-wing male who lives in Berlin. The figure in the middle corresponds to an old married female with secondary education, average income, right-wing political attitudes, who is intensively religious and lives in a Bavarian village. The third one corresponds to a married middle age man, highly educated and with high income, politically in the center, moderately religious, living in a metropolitan area of Nordrhein-Westfalen. Without considering their answers, Figure 9 shows the distribution we would infer for those types of people.

## 6.2 How to get the Scale Position of a Respondent

Up to now we have considered the distribution of attitudes among the members of specific demographic groups, but one of the advantages of the methodology that we are using is that we can get the distribution of both estimated scale positions for each individual. Applying Bayes' Law, the distribution of the attitude  $a$  for an individual person, given his answers and personal characteristics is

$$f(a|W, r) = \frac{f(a, r|W)}{p(r|W)} = \frac{p(r|a, W)f(a|W)}{p(r|W)} = \frac{p(r|a)f(a|W)}{p(r|W)} \quad (6)$$

The elements of this expression have all been estimated previously;  $p(r|W)$  is given as

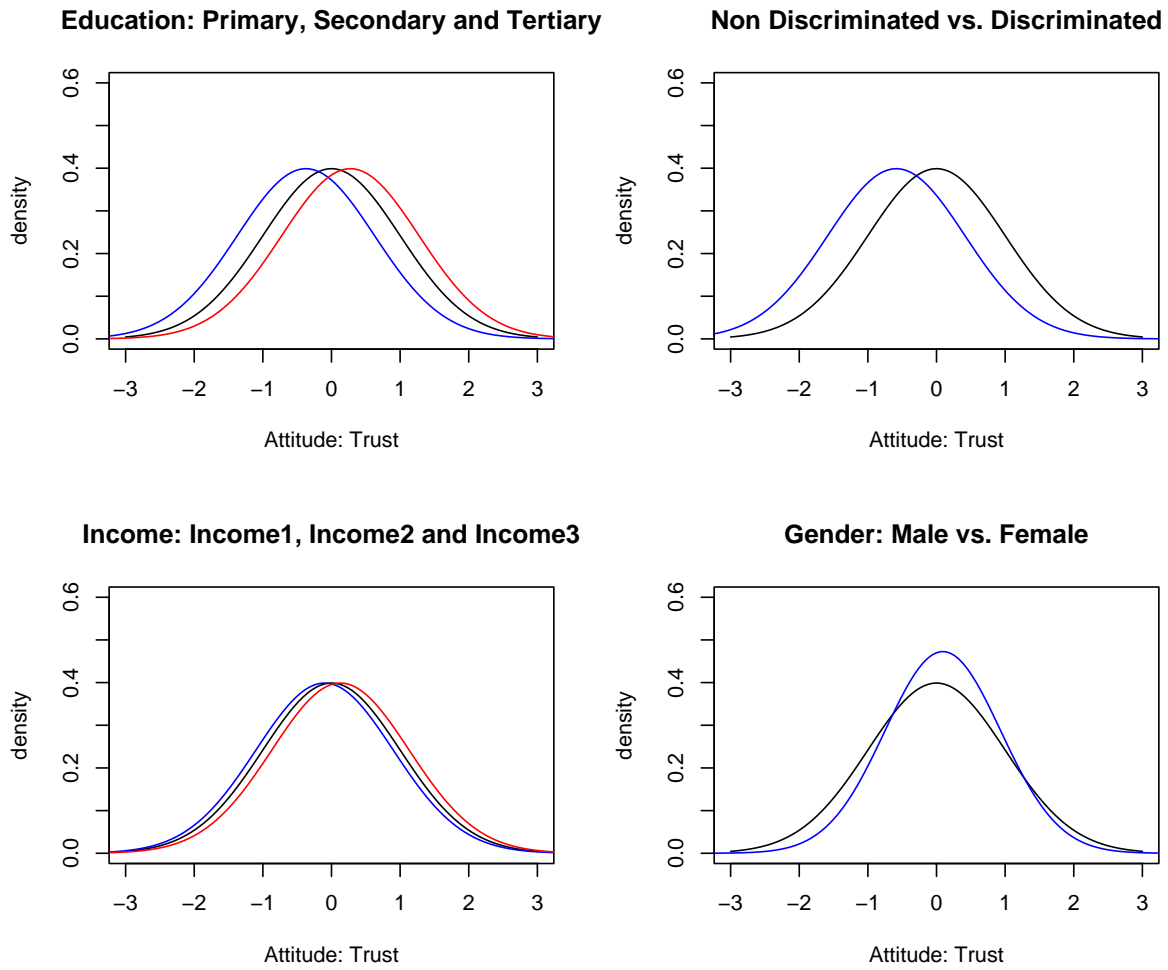


Figure 7: Effects of demographics on the attitudes on Trust



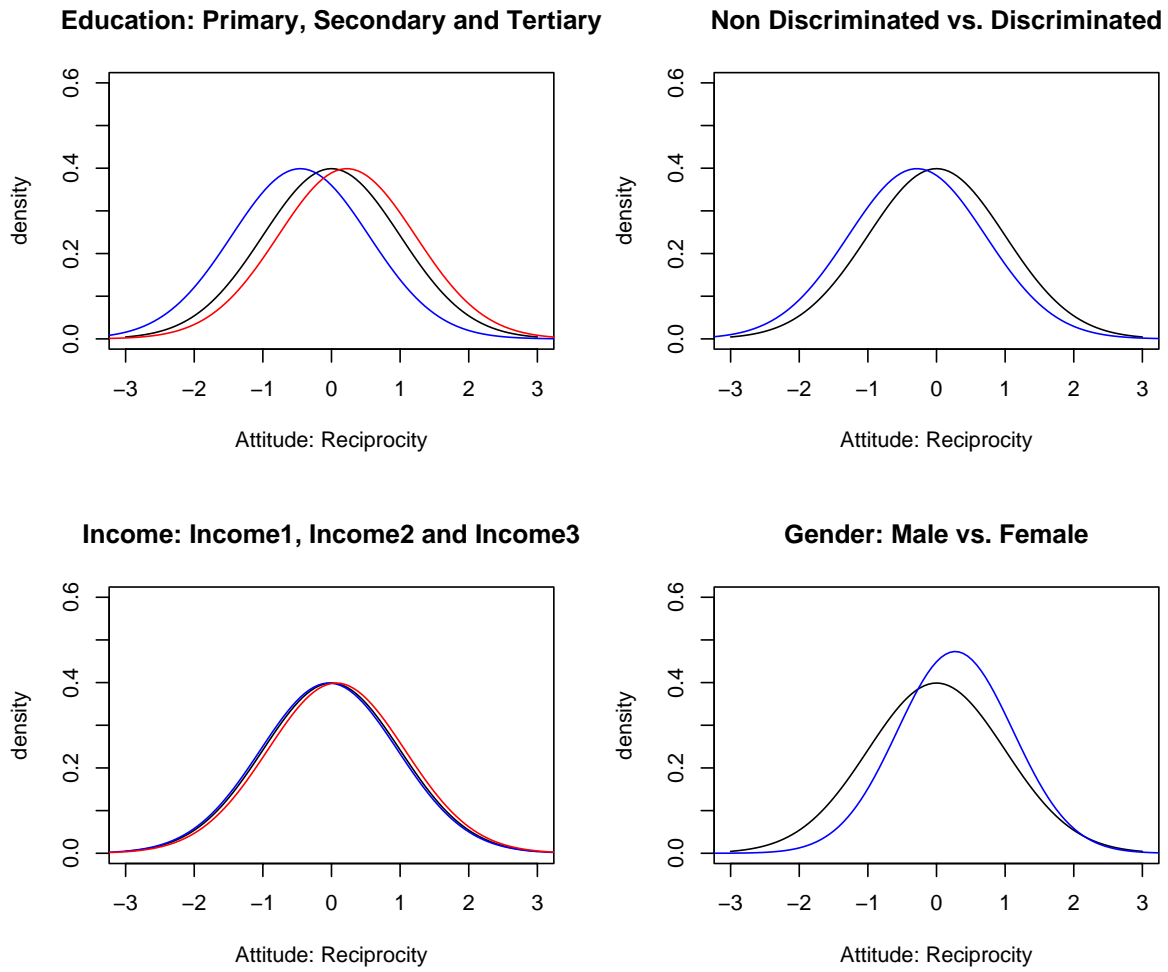


Figure 8: Effects of demographics on the attitudes on Norms and Values of Reciprocity

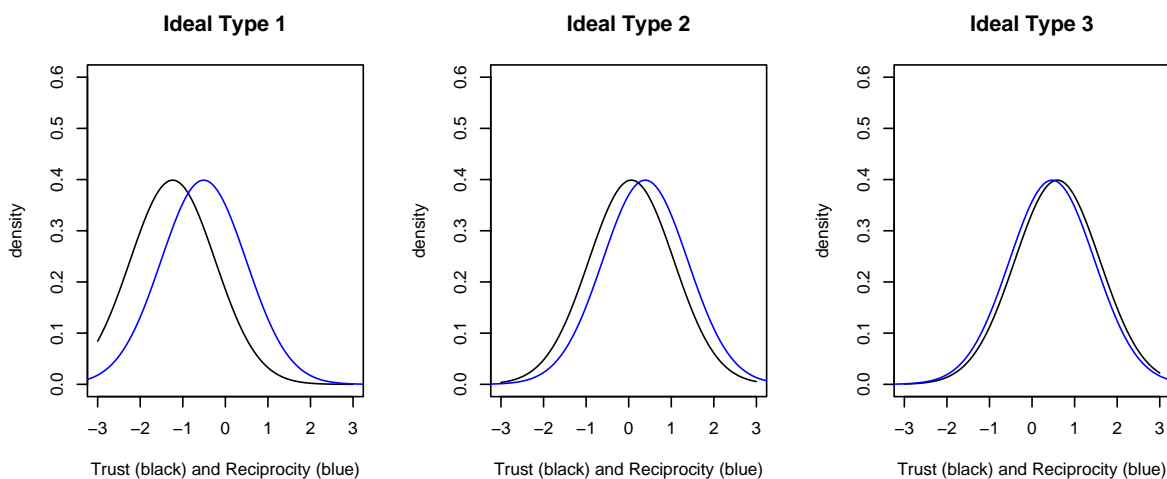


Figure 9: Distribution of Trust and Reciprocity for some individual ideal types

$\int p(r|a)f(a|W)da$  in equation 3.

It is interesting to notice that in estimating  $f(a|W, r)$  we use all the information we have; the personal characteristics and the item responses. One could think that thanks to the exercise performed up to now, it would be sufficient to use only the personal characteristics to know the distribution of  $a$  for each respondent. In that case we would be saying that it is enough to compute  $f(a|W)$ . The problem is that if someone gives surprising answers, then it might be that  $f(a|W, r)$  will have higher dispersion than  $f(a|W)$  and also its estimated location can be moved. Therefore it seems reasonable to think that  $f(a|W, r)$  will be the most informative measure we can get.

Consider an example. Respondent 21 is a married woman, is 53 years old, has high income, tertiary studies, lives in a city or town and does not belong to a discriminated group. On the intensity of religion scale (0-10) she situates herself at level 9 and on the left-right scale she situates herself as 3. Respondent 115 is a single woman, she is 35 years old, has a high income, tertiary education, lives in a city or town and does not belong to a discriminated group. In the intensity of religion scale she situates herself at level 0 and in the left-right scale she situates herself at 5. The vector of responses for trust and reciprocity scales are  $[2, 1, 1, 1, 2, 1, 1, 2]$  and  $[2, 2, 2, 3, 2, 2]$  respectively for respondent 21 and  $[3, 3, 2, 3, 3, 2, 2, 2]$  and  $[1, 2, 2, 2, 2, 2]$  for

respondent 115.

Figure 10 clearly shows the importance of using two different dimensions of social capital: While respondent 21 has a higher level of reciprocity compared to trust, this is the opposite for respondent 115. Hence, using only one dimension can be misleading. This confirms the commonly accepted idea that social capital is a multidimensional concept and that using only partial measures is not sufficient for obtaining a general characterization of an individual's level of social capital (Wuthnow, 1997)

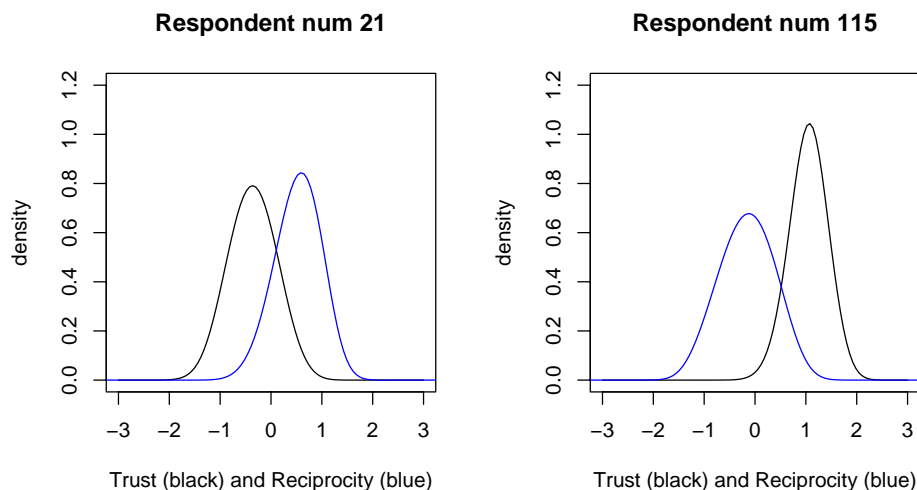


Figure 10: Probability density distribution of the latent attitudes for two respondents.

### 6.3 How to get a scale position of a region

To study how the distribution of trust and reciprocity varies across Germany, it is not enough to look at the coefficients reported in tables 5 and 6. These coefficients represent the fixed effect of each region, so they could reflect e.g. differences in institutions, in labor market conditions, or in income and ethnical inequalities. But it is clear that the level of trust and reciprocity of each region will also depend on the characteristics of its inhabitants. In figure ?? we show the pattern of region fixed effects (figures at the left), and the pattern of levels of trust and reciprocity across regions (figures at the right).

It is clear that differences due to regional specificities are not so important. The regions

colored in grey are the ones for which the coefficient is not significantly different from the reference region, Bavaria. The coefficient is significantly higher for regions colored in black, and significantly lower for those colored light grey.

When using the individual measures of the attitudes,<sup>14</sup> different patterns emerge. The Eastern regions exhibit a lot of heterogeneity that is difficult to synthesize. There is more of a pattern for the regions in the West. For trust we observe that there is a division west-east (within the West), for reciprocity the division is more north-south. As a conjecture and for future work, this pattern might come from differences in religion. If the intensity of religion does not affect reciprocity in the same way for the different type of religions, then it is possible that this pattern reflects the differences between catholics and protestants.

## 7 The effects of Social Capital in Political Engagement

The theoretical literature has argued that social capital generates positive externalities. The spillovers of social capital have been considered as important factors to explain economic outcomes. For example, social capital is always thought to increase the probability that an individual will engage in political participation, taking part in the decisions on policy issues that affect the economic and social outcomes. The idea is that social capital may increase civic participation, for example increasing voting turn-out. This increase in civic participation can improve the decision making and the quality of political decisions if we think that will be done in a less selfish way. By this process, social capital creates an externality that may benefit all citizens.

There are good reasons to think that people who trust others more and who share more norms and values of reciprocity will tend to participate more, and to have more interest in politics (van Deth 2000). One reason could be that individuals who trust others more have lower transactions costs when collaborating with others, making it easier for them to spend time and resources on political activities. The idea is that people who trust more others will have lower costs and higher benefits of participating in politics. Another reason could be that people who think that others act helpfully and in a decent way, find the need to participate and invest time in producing collective goods, as a matter of ethics. It is also possible that people whose

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<sup>14</sup>Mean levels of Trust: white (<0), light grey (0-0.1), grey (0.1-0.2) and black (+0.2). Mean levels of Reciprocity: light grey (0-0.2), grey (0.2-0.4) and black (+0.4)



(a) Trust-Coefficients



(b) Trust-Total



(c) Reciprocity-Coefficients



(d) Reciprocity-Total

Figure 11: Level of Trust and Reciprocity for each region from grey (less scale) to black (more scale)

acceptance of norms and values of reciprocity is higher may see participation in politics as a duty.

For this exercise we compute the mean of the estimated individual probability distribution of trust and reciprocity. Then we use these estimates to explain individual civic participation. We define two different ways of civic participation; formal participation and informal participation. For the formal participation we use as indicators the following questions:

- How interested would you say you are in politics? (scale from 1 to 4)
- Did you vote in the last national election in [month/year]? (Yes/No)
- Are you a member of any political party? (Yes/No)
- Using this card, please say to what extent you agree or disagree with the following statement: Political parties that wish to overthrow democracy should be banned (scale from 1 (agree) to 5 (disagree))

For the informal participation, we use the following question: "There are different ways of trying to improve things in [country] or help prevent things from going wrong. During the last 12 months, have you done any of the following? 1) signed a petition? 2) taken part in a lawful public demonstration?"

Tables 7 and 9 present the findings for the relationship between trust and reciprocity and the political outcomes. These tables show a positive association between the components of social capital and the political engagement variables. They also show that trust and reciprocity can explain part of the effect often attributed to human capital or income. The table also shows that the different components of social capital can have a different effect on the different forms of participation. We find that people with more trust in others, and in the institutions, choose more institutional ways of participating. People with high levels of reciprocity will also tend to participate more, but if the levels of trust are not so high, they may choose a more informal way of doing it. It is also interesting to note that for being a member of a political party, trust seems to matter while reciprocity becomes not statistically significant. For the regions in the East, the low participation in elections can be explained by a lower level of trust.

## 8 Conclusions

In this paper we have applied a new methodology to measure the components of social capital: trust and reciprocity. This methodology is conceptually cleaner than previously used methods since it allows estimating social capital directly (and not a proxy) as a latent attitude, using a simple theoretical model, and without imposing parametric assumptions. In line with the theoretical literature on social capital, the model allows social capital to be multi-dimensional (using trust and reciprocity as its dimensions), avoiding problems of other papers that use more partial measures.

In measuring the components of social capital, we exploit information on agents' attitudes contained in survey responses, and information from personal and demographic characteristics. This allows to see the probability distribution of the latent attitudes, conditional on these characteristics. In particular, education, gender, age, income, intensity of religion, political orientation, and being from a discriminated group can explain part of the distribution of trust and reciprocity. Regional characteristics, on the other hand, do not explain much about these attitudes in Germany.

There is a growing literature on the impact of social capital on social and economic outcomes. In this paper, we have focussed on its impact on political engagement, finding that trust and reciprocity have different effects on different forms of political participation. People with more trust in others, and in the institutions, choose more institutional ways of participating. People with high levels of reciprocity also tend to participate more, but if their levels of trust are not so high, they may choose a more informal way of doing so. It is also interesting to note that for being a member of a political party, trust seems to matter while reciprocity is not statistically significant. For the regions in the East, the low participation in elections can be explained by a lower level of trust.

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Table 3: Pairwise Correlation Coefficients for the items used to build the two scales.

<b>Shared Trust</b>	MPTrust	MPFair	MPHelp	TLS	TPol	TRepair	TBanks	TPublicOff
MPTrust	1.000							
MPFair	0.450	1.000						
MPHelp	0.376	0.427	1.000					
TLS	0.221	0.214	0.171	1.000				
TPol	0.278	0.224	0.226	0.326	1.000			
TRepair	0.140	0.169	0.155	0.076	0.090	1.000		
TBanks	0.158	0.165	0.150	0.165	0.161	0.344	1.000	
TPublicOff	0.204	0.185	0.193	0.245	0.228	0.254	0.383	1.000
<b>Reciprocity</b>	MoreHelp	NotCheatTax	NotRecipe	NotFalsInsur	NotBribe	MoneyHonesty	ObeyLaw	
MoreHelp	1.000							
NotCheatTax	0.124	1.000						
NotRecipe	0.092	0.358	1.000					
NotFalsInsur	0.125	0.278	0.376	1.000				
NotBribe	0.071	0.108	0.117	0.289	1.000			
MoneyHonesty	0.066	0.196	0.177	0.191	0.092	1.000		
ObeyLaw	0.011	0.133	0.062	0.107	0.069	0.204	1.000	

Table 4: Descriptive Statistics for the Personal and Demographic Characteristics.

Variable	Mean	Std. Dev.	Min	Max
Female	0.482	0.500	0	1
Married	0.568	0.496	0	1
Age	42.961	13.269	18	65
Low Income	0.110	0.312	0	1
Medium Income	0.484	0.500	0	1
High Income	0.221	0.415	0	1
Primary Degree	0.091	0.288	0	1
Secondary Degree	0.659	0.474	0	1
Higher Degree	0.248	0.432	0	1
Village	0.280	0.449	0	1
Intensity Religion	3.702	2.923	0	10
Discriminated Group	0.040	0.197	0	1
Left-Right	4.449	1.792	0	10

Table 5: Estimated Coefficients for the Personal and Demographic Characteristics. Trust Scale.

Mean	Standard Errors			
	Coefficient	Outer Product	Hessian	White Robust
Married	-0.0360	0.0538	0.0531	0.0572
Female	0.0924	0.0452	0.0430	0.0444
Age	-0.0003	0.0018	0.0018	0.0019
Agesq.01	0.0311	0.0124	0.0119	0.0122
Income1	-0.1006	0.0673	0.0728	0.0824
Income3	0.1306	0.0584	0.0536	0.0512
PrimaryDegree	-0.3727	0.1940	0.2226	0.2638
HigherDegree	0.2748	0.0532	0.0501	0.0496
Village	0.0374	0.0520	0.0498	0.0500
IntensityReligion	0.0489	0.0090	0.0090	0.0094
IntRelig.01	0.0490	0.2936	0.2777	0.2749
DiscriminatedGroup	-0.5853	0.1166	0.1150	0.1175
LeftRight	-0.0348	0.0126	0.0124	0.0129
LeftRight.01	-1.3923	0.4078	0.4208	0.4556
SchleswigHolstein	0.0626	0.1461	0.1432	0.1460
Hamburg	-0.0614	0.2539	0.1776	0.1338
Niedersachsen	0.0785	0.0933	0.0922	0.0961
Bremen	-0.2093	0.3457	0.2885	0.2501
NordrheinWestfalen	0.1838	0.0731	0.0746	0.0803
Hessen	-0.0032	0.1006	0.1035	0.1107
RheinlandPfalz	0.2387	0.1201	0.1257	0.1381
BadenWuerttemberg	0.1050	0.0868	0.0876	0.0919
Saarland	0.3032	0.2501	0.2241	0.2070
Berlin	-0.1931	0.1040	0.1027	0.1065
Brandenburg	0.0247	0.1048	0.1142	0.1333
MecklenburgVorpommern	0.3119	0.1245	0.1186	0.1166
Sachsen	0.0541	0.0967	0.0929	0.0954
SachsenAnhalt	0.0327	0.1011	0.1014	0.1069
Thuringen	0.0774	0.1169	0.1058	0.1023
Variance	Coefficient	Outer Product	Hessian	White Robust
Married	-0.1925	0.0559	0.0514	0.0507
Female	-0.1563	0.0542	0.0492	0.0489
Age	0.0068	0.0022	0.0021	0.0021
Agesq.01	-0.0606	0.0157	0.0140	0.0136

Table 6: Estimated Coefficients for the Personal and Demographic Characteristics. Norms and Values of Reciprocity Scale.

Mean	Standard Errors			
	Coefficient	Outer Product	Hessian	White Robust
Married	0.1152	0.0604	0.0573	0.0594
Female	0.2726	0.0505	0.0497	0.0556
Age	0.0123	0.0022	0.0021	0.0021
Agesq.01	-0.0085	0.0133	0.0134	0.0156
Income1	-0.0365	0.0865	0.0789	0.0749
Income3	0.0707	0.0597	0.0577	0.0598
PrimaryDegree	-0.4546	0.2423	0.2428	0.2504
HigherDegree	0.2236	0.0556	0.0530	0.0536
Village	-0.0210	0.0558	0.0538	0.0545
IntensityReligion	0.0486	0.0095	0.0095	0.0102
IntRelig.01	0.4914	0.2899	0.2865	0.2978
DiscriminatedGroup	-0.2847	0.1408	0.1247	0.1194
LeftRight	-0.0228	0.0131	0.0132	0.0141
LeftRight.01	-0.7852	0.4295	0.4471	0.5004
SchleswigHolstein	0.1503	0.1716	0.1513	0.1380
Hamburg	0.4867	0.1810	0.1860	0.2006
Niedersachsen	0.1882	0.1121	0.0998	0.0937
Bremen	0.2589	0.2784	0.3031	0.3453
NordrheinWestfalen	0.0391	0.0803	0.0807	0.0859
Hessen	-0.0240	0.1210	0.1112	0.1078
RheinlandPfalz	-0.0721	0.1391	0.1393	0.1442
BadenWuerttemberg	0.0282	0.0953	0.0945	0.0982
Saarland	0.4291	0.2214	0.2434	0.2720
Berlin	-0.0394	0.1126	0.1106	0.1137
Brandenburg	-0.1876	0.1197	0.1211	0.1292
MecklenburgVorpommern	0.6073	0.1445	0.1259	0.1189
Sachsen	0.3692	0.1007	0.0972	0.0976
SachsenAnhalt	0.0237	0.1112	0.1092	0.1134
Thuringen	0.2026	0.1135	0.1098	0.1110
Variance	Coefficient	Outer Product	Hessian	White Robust
Married	-0.2103	0.0689	0.0582	0.0528
Female	-0.2133	0.0672	0.0570	0.0520
Age	-0.0035	0.0030	0.0027	0.0027
Agesq.01	-0.0662	0.0182	0.0165	0.0161

Table 7: Correlation between individual characteristics and political participation (I).

	Interested in Politics				Voted Last Elections			
	(1)	(2)	(3)	(4)	(1)	(2)	(3)	(4)
Trust		0.126 (0.036)**		0.088 (0.038)*		0.247 (0.050)**		0.222 (0.052)**
Reciprocity			0.192 (0.045)**	0.160 (0.047)**			0.186 (0.060)**	0.110 (0.063)+
Age	0.016 (0.002)**	0.016 (0.002)**	0.013 (0.002)**	0.013 (0.002)**	0.022 (0.003)**	0.023 (0.003)**	0.019 (0.003)**	0.021 (0.003)**
Income1	-0.273 (0.083)**	-0.259 (0.083)**	-0.256 (0.083)**	-0.250 (0.083)**	-0.299 (0.102)**	-0.280 (0.103)**	-0.286 (0.103)**	-0.275 (0.103)**
Income3	0.250 (0.064)**	0.231 (0.064)**	0.233 (0.064)**	0.223 (0.064)**	0.369 (0.099)**	0.330 (0.100)**	0.351 (0.100)**	0.323 (0.100)**
PrimaryDegree	-0.473 (0.091)**	-0.468 (0.091)**	-0.456 (0.091)**	-0.456 (0.091)**	-0.856 (0.110)**	-0.853 (0.110)**	-0.842 (0.110)**	-0.845 (0.110)**
HigherDegree	0.358 (0.062)**	0.330 (0.063)**	0.320 (0.063)**	0.307 (0.063)**	0.339 (0.095)**	0.280 (0.096)**	0.301 (0.096)**	0.264 (0.097)**
Female	-0.228 (0.051)**	-0.251 (0.051)**	-0.293 (0.053)**	-0.298 (0.053)**	-0.029 (0.070)	-0.079 (0.071)	-0.095 (0.073)	-0.113 (0.074)
City	0.131 (0.054)*	0.140 (0.054)**	0.136 (0.054)*	0.142 (0.054)**	0.050 (0.075)	0.063 (0.075)	0.048 (0.075)	0.061 (0.075)
East	-0.010 (-0.053)	0.008 (-0.053)	-0.006 (-0.053)	0.006 (-0.053)	-0.147 (0.072)*	-0.116 (0.073)	-0.144 (0.072)*	-0.118 (0.073)
Constant					-0.066 (0.127)	-0.104 (0.128)	0.033 (0.131)	-0.042 (0.133)
Observations	1880	1880	1880	1880	1880	1880	1880	1880

Table 8: Correlation between individual characteristics and political participation (II).

	Member Political Party			Banned non democratic parties				
	(1)	(2)	(3)	(4)	(1)	(2)	(3)	(4)
Trust		0.239 (0.081)**		0.202 (0.086)*			0.093 (0.042)*	0.044 (0.044)
Reciprocity			0.227 (0.101)*			0.228 (0.054)**		0.212 (0.056)**
Age	0.009 (0.005)*	0.010 (0.005)*	0.007 (0.005)	0.008 (0.005)	-0.002 (0.002)	-0.002 (0.002)*	-0.002 (0.002)	-0.005 (0.002)*
Income1	0.006 (0.204)	0.042 (0.205)	0.057 (0.203)	0.070 (0.205)	0.117 (0.097)	0.141 (0.098)	0.128 (0.098)	0.145 (0.098)
Income3	0.350 (0.129)**	0.321 (0.130)*	0.333 (0.130)*	0.316 (0.130)*	0.11 (0.074)	0.091 (0.075)	0.095 (0.075)	0.085 (0.075)
PrimaryDegree	0.008 (0.224)	0.022 (0.227)	0.026 (0.227)	0.031 (0.229)	-0.299 (0.110)**	-0.281 (0.111)*	-0.293 (0.110)**	-0.279 (0.111)*
HigherDegree	0.050 (0.132)	0.004 (0.133)	0.004 (0.134)	-0.019 (0.135)	0.236 (0.072)**	0.19 (0.073)**	0.215 (0.073)**	0.183 (0.073)*
Female	-0.185 (0.116)	-0.231 (0.118)+	-0.249 (0.120)*	-0.264 (0.121)*	-0.019 (0.060)	-0.093 (0.062)	-0.035 (0.060)	-0.094 (0.062)
City	-0.132 (0.125)	-0.133 (0.127)	-0.136 (0.126)	-0.134 (0.128)	0.142 (0.063)*	0.147 (0.064)*	0.149 (0.064)*	0.15 (0.064)*
East	-0.007 (0.119)	0.031 (0.121)	-0.008 (0.120)	0.026 (0.122)	-0.258 (0.062)**	-0.257 (0.063)**	-0.245 (0.063)**	-0.251 (0.063)**
Constant	-2.231 (0.235)**	-2.286 (0.238)**	-2.165 (0.240)**	-2.236 (0.243)**	-0.201 (0.115)+	-0.09 (0.118)	-0.217 (0.115)+	-0.105 (0.119)
Observations	1880	1880	1880	1880	1880	1880	1880	1880

Table 9: Correlation between individual characteristics and political participation (III).

	Participation Demonstration				Sign Petition			
	(1)	(2)	(3)	(4)	(1)	(2)	(3)	(4)
Trust		-0.041 (0.056)		-0.035 (0.059)		-0.018 (0.042)		-0.050 (0.045)
Reciprocity			-0.036 (0.069)				0.119 (0.054)*	0.138 (0.056)*
Age	-0.015 (0.003)**	-0.015 (0.003)**	-0.014 (0.003)**	-0.014 (0.003)**	-0.001 (0.002)	-0.001 (0.002)	-0.003 (0.002)	-0.003 (0.002)
Income1	0.425 (0.114)**	0.42 (0.114)**	0.421 (0.114)**	0.418 -0.110 (0.114)**	-0.112 (0.099)	-0.098 (0.099)	-0.102 (0.099)	-0.102 (0.099)
Income3	0.053 (0.102)	0.06 (0.103)	0.056 (0.103)	0.06 (0.103)	0.030 (0.075)	0.033 (0.075)	0.020 (0.075)	0.026 (0.075)
PrimaryDegree	-0.226 (0.153)	-0.227 (0.153)	-0.23 (0.153)	-0.229 (0.153)	-0.180 (0.110)	-0.181 (0.110)+	-0.168 (0.110)	-0.168 (0.110)
HigherDegree	0.202 (0.095)*	0.211 (0.096)*	0.209 (0.096)*	0.215 (0.096)*	0.309 (0.072)**	0.313 (0.073)**	0.285 (0.073)**	0.293 (0.073)**
Female	-0.116 (0.080)	-0.108 (0.081)	-0.105 (0.083)	-0.102 (0.083)	0.149 (0.060)*	0.152 (0.060)*	0.111 (0.062)+	0.114 (0.062)+
City	0.32 (0.081)**	0.319 (0.081)**	0.32 (0.081)**	0.319 (0.081)**	0.179 (0.064)**	0.178 (0.064)**	0.182 (0.064)**	0.179 (0.064)**
East	0.343 (0.081)**	0.337 (0.081)**	0.342 (0.081)**	0.337 (0.081)**	0.061 (0.062)	0.058 (0.063)	0.063 (0.062)	0.056 (0.063)
Constant	-0.932 (0.149)**	-0.923 (0.150)**	-0.949 (0.153)**	-0.935 (0.154)**	-0.500 (0.116)**	-0.498 (0.116)**	-0.444 (0.119)**	-0.428 (0.119)**
Observations	1880	1880	1880	1880	1880	1880	1880	1880