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WAS BANFIELD RIGHT? NEW INSIGHTS FROM A NATIONWIDE LABORATORY EXPERIMENT

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Was Banfield right?
New insights from a nationwide laboratory experiment

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Abstract

The north-south gap in Italian social capital has been considered by international scholars as an example of how cultural diversity within a country can generate different developmental outcomes. Most studies, however, suffer from limited external validity and measurement-error problems. This paper exploits a new and representative online lab-experiment to assess social capital patterns in Italy. Our study only partially confirms previous findings: northerners perform better in trustworthiness, but they are statistically similar to southerners in many other economic preferences such as cooperation, trust, expected trustworthiness, altruism, and risk tolerance. A novelty of this study is that the gap in trustworthiness stems from the lower reciprocity of southerners in response to large transfers from trustors, and it is characterized by the intergenerational transmission of norms. Effective convergence policies should target, within social capital, reciprocity, while looking to other, and perhaps more compelling gaps.

Keywords — Trust, cooperation, social capital, culture, lab-experiments, regional convergence, Italy, Trustlab

JEL codes — C72, C93, Z13

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1 Introduction

Trust is recognized as a key predictor of financial and economic success (e.g. Knack and Keefer, 1997; Guiso et al., 2004; Algan and Cahuc, 2010). European surveys suggest that trust is highest in Scandinavian countries, while Mediterranean countries like Italy and Spain lag a long way behind (calculations from European Value Study, 2008). Recently, representative survey-data from 80,000 people in 76 countries has revealed that most of the variation in economic preferences stems from within- rather than between-country characteristics (Falk et al., 2018). Indeed, when considering regional disaggregation, Italy proves to be an emblematic case of within-country differences; differences which, it is argued, determine distinct economic paths for the various parts of the country. According to EVS data, in 2008, Sicily was among the least-trusting regions in Europe, while regions in the north-west of Italy ranked among the top scorers in Europe, with levels of trust close to those of Danish regions. Standard economic indicators follow a similar pattern.

The north-south divide in Italian social capital has attracted a good deal of attention. Over the last sixty years, economic and sociological studies have documented low social capital in the south (e.g. Banfield, 1958; Putnam et al., 1994; Bigoni et al., 2016; Bigoni et al., 2017), with trust, cooperation and civic engagement appearing lower compared to the north. These results achieved international significance as they were linked to the worse economic and institutional performance of the south, following on from Italian unification in 1861 (Helliwell and Putnam, 1995; Guiso et al., 2004; De Blasio and Nuzzo, 2010; Nannicini et al., 2013). Indeed, the systematic gap between the north and the south in unemployment rate (6.5% vs. 16.5%, source: Istat 2018), *per capita* GDP (€33,700 vs. €18,600, source: Eurostat 2016) and added value *per* worker (38.1 vs. 28.1, source: Istat 2017) clearly suggest that the problems of the south are still real issues.

The aforementioned literature on the north-south divide in social capital gave rise to the conundrum of wide differences in pro-social attitudes among regions that share the same religion, language and formal institutions. Influential studies have identified the roots of the Italian dualism in the cultural flaws of southerners, who, for historical reasons, it is claimed, ended up with low levels of civicness. This literature, in particular, argues that institutional arrangements in the Middle Ages persistently affected the formation of self-efficacy beliefs and entrepreneurial spirit, which are at the base of a culture of coop-

eration and, hence, economic growth (e.g. Banfield, 1958; Putnam et al., 1994; De Blasio and Nuzzo, 2010; Guiso et al., 2008; Guiso et al., 2016). Other experimental studies have estimated the north-south gap in social capital by means of money-incentivized games conducted in the field (Bigoni et al., 2016) or in the lab (Bigoni et al., 2017). In experiments in the field carried out in four Italian cities, lower trust and cooperation were found in the south; meanwhile, no differences in behaviour, but only in beliefs about southerners' cooperation emerged in lab experiments carried out with college students.

However, the circumscribed or non-nationally representative population in some studies (e.g. Banfield, 1958; Bigoni et al., 2016; Bigoni et al., 2017), and the non-incentivized measures of social or civic capital in others (e.g. Putnam et al., 1994; Guiso et al., 2004) raise obvious doubts. Can we really rely on the external validity of the estimated social-capital gap and on the type of preferences that, keeping incentives constant, differ through Italy?

These kinds of methodological limitations leave three crucial questions unanswered. Does a north-south gap in social capital actually exist? Does it reflect a 'national syndrome'? And, which social-capital dimensions vary significantly in different parts of Italy? This paper answers these questions through a nationwide laboratory experiment involving a nationally representative sample, from which both self-reported and behavioural measures of social capital are elicited and compared across the five Italian macroareas.

To the best of our knowledge, this paper is the first in carrying out a nation-wide lab-experiment on social capital in Italy[1]. The Italian sample comes from the Trustlab project which was started in 2016 by OECD with the aim of acquiring internationally comparable and nationally representative data on social preferences through survey and experimental games (Murtin et al., 2018). The Italian sample of Trustlab also contains measures of the Big Five personality traits. This allows us to check whether personality differences (along with other socio-demographic and economic characteristics) explain the geographical variation in social preferences. Finally, in a follow-up survey, we retrieve information on residential history, the strength of family ties and betrayal aversion, and assess the role of these factors in the north-south social preferences gap.

[1] See Fehr et al., 2003 for a similar experiment in Germany.

We provide three novel results. First, a gap between the south and the rest of Italy emerges *only* in experimental trustworthiness, while no systematic differences are found in the vast majority of the other social-capital dimensions that we test: namely, engagement in voluntary work activities; unconditional and conditional cooperation in group-interactions; expectations about others' trustworthiness; altruism; and risk aversion. Second, the north-south gap in trustworthiness widens when the amount at stake is high, i.e. when the temptation to defect (the trustor's transfer) increases southerners reciprocate less than northerners. While such inferior reciprocity is well anticipated by south-Italian trustors, in the non-southern areas trust is, on average, below the optimal level as computed on the basis of the empirical distribution of trustworthiness. Third, the observed gap in trustworthiness is not accounted for by the self-selection of respondents who migrated from the south or by differences in betrayal aversion and in the strength of family ties. Our data show, instead, that it is inherited from parents: regardless of current residence, having a parent from the south is associated with lower trustworthiness, though moderated by residing in the north. Since respondents' migration does not play a significant role, the moderating effect of living in the north might be due to the learning (and transmission) of high-reciprocity norms by parents who emigrated to a high-trust environment before the respondents' birth.

Overall, our evidence provides rather limited support for previous studies, which have found a resilient north-south divide in social capital. Italians living in different macroareas do not seem to react in a systematically different way to the same incentives. If anything, they show a different behaviour *only* in one specific dimension of social capital, namely reciprocity, and *only* under specific circumstances, that is when the uncooperative strategy becomes more tempting. In addition, the reciprocity gap does not depend on personality, beliefs or other preferences, but, we will argue, on the intergenerational transmission of a norm that hinders southerners from rewarding highly pro-social acts.

These results offer new insights into the historical debate about the existence and the economic effects of social-capital differences across the Italian regions. It might also prove paradigmatic for other European countries facing economic disparities across their macroareas. Effective policies aimed at equalizing regional outcomes should perhaps target a specific component of social capital, namely reciprocity, while perhaps also address-

ing more compelling gaps elsewhere such as human-capital differentials.

The remainder of the paper is organized as follows: In the next section we review relevant studies, and in Section 3 we discuss the Trustlab experiments. Then, descriptive results are presented. In Section 5 we report our econometric results, and in Section 6 we give in-depth descriptions of the trustees' behaviour. In Section 7 we assess additional explanations for the north-south gap in trustworthiness. Then, in the final section we summarize our findings and offer conclusions.

2 Background

The literature on the Italian north-south gap in social capital dates back to *'The Moral Basis of a Backward Society'* by Banfield (1958), who made the first theoretical and empirical connection between culture and economic outcomes. On the basis of direct observations and interviews in a single southern Italian town (which he gave the fictional name of 'Montegrano'), Banfield concluded that a possible root of underdevelopment of the (entire) south could be explained by a cultural trait of Southerners, i.e. the inability to cooperate with (and trust) non-family members. This inability would result from 'amoral familism', a social norm prescribing that societal welfare is subordinated to the interests of the individual and to those of the nuclear family. While certainly pioneering for that time, the research design obviously makes it difficult to generalize his findings.

Still, Banfield's study sparked considerable interest. Putnam et al., 1994 extended Banfield's analysis to the entire peninsula showing that regional differences in association density – a proxy for social capital – predict the north-south gap in government functioning. Later, Guiso et al., 2004 show that self-reported trust, political participation, and blood donation – which are typically higher in the northern regions of Italy – can lead to larger investments in stocks, broader access to institutional credit, and less reliance on informal credit. Similarly, Nannicini et al., 2013 documented that the regions in Italy where social capital is scarce and cooperation is undervalued tend to be affected by poor institutional performance. In those regions, the authors argued, candidates are elected on the basis of citizens' personal interest rather than social welfare.

Most of these studies measure social capital directly, through non-incentivized trust

questions, or indirectly, through data on socio-political participation (e.g. blood donation and voting turnout). However, the question of what type of preferences and beliefs underlie the chosen measures of social capital, and how they are distributed geographically, remain open issues (Glaeser et al., 2000; Bowles and Gintis; Delhey et al., 2011).

A noteworthy contribution to the debate on this Italian dualism was recently made by Bigoni et al., 2016, who examine, through a lab-in-the field experiment, the north-south gap in social preferences. Their results document that, when given the same incentives, Italians display different in-group preferences: respondents from the north are more trusting and willing to cooperate with participants from their own province than respondents from the south. In a later experiment, they show that this gap in cooperation is not due to underlying differences in pro-social preferences. Rather, it originates from southerners' higher levels of aversion to social risk, and from their pessimistic expectations about others' cooperativeness (Bigoni et al., 2017). These two studies rely on money-incentivized measures, yet their samples are not representative at the national level: again, the study's generalizability is problematic.

The first study carried out in-field experimental games on a representative sample, though only in four Italian cities (two in the north and two in the south), where subjects are primed about the geographical origin of their counterparts[2]. Unless one assumes that social preferences in these cities represent those of *all* the other residents in southern or northern cities, the authors' inferences about the non-sampled areas remain questionable. External validity represents a more serious concern in the second study, where the experiments are conducted with university students in Bologna. As the authors acknowledge, this sample is not representative, and results might be affected by self-selection due to the south-north migration of students.

Moreover, even when lab-in-the-field experiments were performed on a representative population at the county level as in Bigoni et al., 2016, anonymity was not fully satisfied. Indeed, participants could infer their counterpart's characteristics by chatting in the waiting room before the experiment; and they were, in any case, told about the geographical origin of the counterpart in the instructions (Bigoni et al., 2016; Bigoni et al., 2017). In

[2]The experimental instructions clearly state that all participants in the session were born in the province or in the region where the experiment was conducted.

these cases, rather than preferences for trust in and cooperation with an unknown, generalized other, the observed behaviour can be interpreted as *in-group* trust and cooperation, which leads to the development of a 'bonding' type of social capital.

3 Trustlab

In contrast to the studies reviewed above, we use a new representative sample of the general population in terms of age, gender and income. The sample counts over 1,000 participants distributed across the Italian macroareas in proportion to the actual distribution of population. Participants take part in the study on an online platform articulated in two main sections, namely an experimental part and a survey part (experimental instructions and the questionnaire are reported in Supplementary Materials inAppendix C)[3]. The Italian sample is part of a collaborative effort with the OECD and several other universities under what is known as the Trustlab project (Murtin et al., 2018)[4]. The main aim of Trustlab is to analyse social and institutional trust through cutting-edge methodological approaches.

3.1 *The trust game*

In the first section, people take part in a series of experimental games. In the trust game (TG) each respondent is given €10. They, then, play both the role of 'sender' and 'receiver' (Figure A1 in Appendix A). First, the sender decides whether to transfer money from his or her endowment to another participant s/he is randomly coupled with. Transferred money is, next, tripled and added to the receiver's endowment, who will finally decide whether to transfer money back to the sender. Hence, in the role of sender each respondent chooses whether and to what extent to trust an unknown person, whereas as receiver each respondent reveals his or her degree of trustworthiness and reciprocity by transferring back money for each hypothetical transfer of the trustor (strategy method). In other words, when playing as receivers, respondents report how much they would transfer back for each possible amount the trustor could send (from €0 to €10)[5].

[3]Concerns related to endogenous selection into the on-line Trustlab platform are dealt with in Section 5 and Appendix B.

[4]France, Italy, the United Kingdom, Germany, Slovenia, the United States and South Korea are the countries currently involved in the project.

[5]While the strategy method is supposed to reduce the degree to which trustees feel responsible towards their matched trustors, Johnson and Mislin, 2011 find no significant effect either in terms of trust or of trustworthiness.

Moreover, in a hypothetical scenario participants state how much they expect a trustor sending €5 will be reciprocated by a random partner who receives €15 (first order beliefs).

As in Bigoni et al., 2018, the TG is characterized by the reversal of roles in a sequential order. Each participant acts first as trustor and then as trustee[6]. However, we can confidently exclude carry-over effects. Feedback is provided to Trustlab participants only at the end of the survey. Respondents are informed that the experimental task to compute their final payment and the partner(s) they are matched with are determined randomly within 48 hours of the completion of the survey.

3.2 *The public goods game*

The public goods game (PGG) provides a framework for assessing people's level of unconditional and conditional cooperation in group-interactions (Figure A2 in Appendix A). Participants are randomly sorted into groups of four and decide whether to devote any part of their own endowment (€10) to a common project. Contributions by all group members go into a common pool of resources and get multiplied by a factor of 1.6. The resources 'generated' through the common project are split equally among the four group members, irrespective of their contributions. A participant's payoff is equal to the part of her endowment not offered to the project, supplemented by a quarter of total contributions collected within his or her group.

In the first version of the game, Trustlab participants decide first how much to contribute to the common project at the same time as other group members, thus revealing 'unconditional cooperation'. In a second version of this game, they are also told what the average contribution of members is; this allows for an understanding of whether (and in what direction) they condition their own contribution to that of the others ('conditional cooperation').

[6]Burks et al., 2003 show that prior knowledge of playing in both TG roles leads players both to send and return lower amounts (lower trust and trustworthiness), most likely because of 'reduced responsibility': i.e. the two-role players perceive their responsibility in determining the counterpart's payoff as halved. In a meta-analysis of more than 130 trust games, Johnson and Mislin, 2011 find that playing both roles reduces trustworthiness significantly. If the same mechanism is at work in our study, the figures we find could be considered the lower bounds to 'real' trust and trustworthiness. Moreover, there are no *ex-ante* arguments predicting that 'reduced responsibility' should differ between southerners and northerners; even if we expect that southerners in two-role TGs perceive less responsibility than northerners, we should have found a significant north-south gap both in trust and trustworthiness. Our results show that this is not the case.

3.3 *The dictator game and the risky decision game*

Participants are also paired in the dictator game (DG). Each respondent (sender) decides whether to transfer any part of his/her endowment of €10 to his/her partner (receiver), knowing that there is not going to be a second step (i.e. the receivers do nothing). The money transfer is intended to measure participants' unconditional altruism.

The behavioural section in Trustlab ends with a lottery choice to assess attitudes towards risk. Participants choose one out of six possible lotteries, distinguished by an increasing differential in payoffs in the case of success and failure (occurring with equal odds). The higher the payoffs differential, the more pronounced the participants' risk-taking (see experimental instructions in the Supplementary Materials in Appendix C).

3.4 *Behavioural measures for the present study*

Trustlab collects several experimental measures of trust-related concepts and other social preferences. To operationalize such concepts we consider in this study: (i) the amount sent by the sender in the first step of the TG as a measure of trust (*trust*); (ii) the amount sent back by the receiver in the TG – averaged over the eleven hypothetical transfers of the sender – as a measure of trustworthiness (*trustworthiness*); (iii) the amount expected back from the receiver in the case of a €5 transfer as a measure of expected trustworthiness (*beliefs*); (iv) the amount contributed to the common project in the PGG as a measure of cooperation (*cooperation*); (v) an index of conditional contributions as a measure of reciprocity in the PGG (*conditional cooperation*)[7]; (vi) the amount sent in the DG as a measure of altruism (*altruism*); and (vii) the lottery chosen as a measure of experimental risk attitudes (*risk propensity*), with later lotteries implying high-risk tolerance[8].

[7]The respondent is asked how much she is willing to contribute to the common project, would the other three group members, j, have contributed on average by €0 up to €10. The average conditional contribution, $\bar{c}_i$, is computed as a simple average of the eleven conditional contributions by respondent i. The measure of reciprocity in the PGG is an average of eleven deviations of conditional contributions from the average conditional contribution, $c_{i,j} - \bar{c}_i$, with weights ranging from -5 to $+5$ attached, respectively, to the first up to the last deviation, dividing all by 110 (the maximum sum of individual contributions across all eleven cases). The first (last) deviation is the difference between the conditional contribution in the case of a €0 (€10) average contribution by other group members and the average conditional contribution. The resulting variable varies between -1.36 (inverse reciprocity) and $+1.36$ (direct reciprocity). The exact formula is:

$$Cond.\ cooperation_i = \frac{\sum_{j=0}^{10}(c_{i,j} - \bar{c}_i)(-5+j)}{10 \cdot N_j}$$

where:

$$\bar{c}_i = \frac{\sum_{j=0}^{10} c_{i,j}}{N_j} \qquad N_j = 11 \qquad c_{i,j} = \{0, ..., 10\} \qquad i = \{1, ..., N\}$$

[8]The lotteries in the risk ladder proposed to the respondent give the following payoffs in the case of success (s) and failure (f), both occurring with probability 0.5, listed by increasing risk: first lottery 8 (f) - 8 (s), second lottery 7 (f) - 10 (s), third lottery 6 (f) - 12 (s), fourth lottery 5 (f) - 14 (s), fifth lottery 4 (f) - 16 (s), sixth lottery 1 (f) - 19 (s).

Notice that, unlike previous experiments (e.g. Bigoni et al., 2016; Bigoni et al., 2017), in our study a random sample of Italians were playing money-incentivized games in front of a computer. Thus, they could not physically see their counterparts. Moreover, no information about the counterparts' geographical origin were provided. This approach allows us to capture Italians' preferences for *out-group* trust and cooperation, which, by creating larger networks, increases 'bridging' social capital. Since the latter type of social capital is mostly associated with a well-functioning society (Putnam, 2000), our experimental results would fit better into the debate about the cultural roots of underdevelopment than results from earlier experiments.

3.5 *The survey*

The second section of Trustlab is a standard survey with numerous modules. Respondents self-report their level of trust in other people (Generalized Trust Question, *GTQ*) and institutions as well as other attitudes. They also provide information on their own socio-demographic and economic characteristics. The survey records geographical information down to the municipality level. But the geographical level of interest for assessing the existence of a north-south divide is that of macroareas: NUTS-1 in the Eurostat nomenclature. Italy has, as Figure 1 shows, five different macroareas.

A distinctive feature of the Italian Trustlab sample is a battery of questions investigating respondents' personality traits. The survey includes a reduced fifteen-item version of the original Big Five Inventory (BFI) by John et al. (1991), already used in well-known surveys such as the GSOEP, the BHPS, the UKHLS and the HILDA. Trustlab is, to the best of our knowledge, the first survey where this short BFI is administered on a representative Italian sample: questions have been translated from English, with adjustments to an Italian translation provided in Ubbiali et al. (2013).

Factorial analyses have been conducted on the personality data to check the internal consistency of the short Italian BFI, the validity of which is also assessed through convergent and discriminant analyses with comparable BFIs from other surveys (Aassve et al., 2018). In order to be included in the empirical analysis, each personality trait (agreeableness, conscientiousness, neuroticism, extraversion and openness) is determined

by averaging the answers to the three items capturing the respective personality dimension. These are appropriately recoded whenever the questions were negatively-worded to reduce acquiescence bias.

4 Descriptive statistics

The Trustlab sample is representative of the Italian population in terms of gender, age, income and geographical distribution. Table 1a summarizes the composition of the sample by main socio-demographic and economic characteristics. A third of the sample completed tertiary education, while slightly more than half the sample holds a high school or a lower level diploma as their highest educational attainment. The remaining 17 percent of the sample is composed of university dropouts or people with a non-tertiary diploma. Concerning the education of respondents' parents, fathers are moderately more educated than mothers. One out of five respondents is out of the labour force; a little less than a fifth of those who are in the labour force are unemployed, while working people are divided between employed and self-employed with a ratio of 5:1. Looking at marital status, the majority of the sample is married, while 36.5 percent is not and the residual tenth is widowed, divorced or separated. 14 percent of respondents live in a rural area, three percentage points more than those who live in large metropolitan areas; almost two thirds of the sample live in towns or villages, whereas the remaining 14.5 percent lives in small to medium densely populated residential areas. The mean yearly income in the sample is as high as €16,000 but a standard deviation of more than €20,000 suggests the existence of a great deal of heterogeneity. In particular, there are a number of outliers in the upper part of the income distribution, as the density is heavily skewed to the right. On average, the households of respondents in Trustlab include two other people.

Comparison of the distribution of respondents by socio-demographic and economic characteristics and by NUTS level between the Trustlab sample and the actual Italian population as of 2017 suggests that the sample is close to representative. Table 1b shows the share of Italian population by macroareas and by the main socio-demographic characteristics retrieved from official national statistics as of 2017 or the closest period (Istat, Bank of Italy), and the same shares occurring in the Trustlab sample employed for estimations. While the Trustlab sample reflects most characteristics of the Italian population including income, it over-represents highly educated citizens from all macroareas and em-

ployed citizens from the south. This could be due to the nature of the on-line experiment, which requires a computer/tablet with internet connection for participation. Hence a certain degree of self-selection into the experiment is expected, an issue that we deal with in Section 5 and Appendix B.

Table 2a reports the descriptive statistics of the aforementioned experimental outcomes and of the main survey measures used in this paper. Experimental and self-reported trust have approximately the same mean, though experimental trust appears to be more dispersed around the mean. On average, trustworthiness is slightly below expected trustworthiness, with similar distributions in terms of variability, too. Whereas respondents expect on average that the amount returned by trustees is 39.6% of the endowment, the actual trustworthiness they show as trustees amounts to some 35.5%. The average respondent is highly altruistic since s/he tends to split his/her endowment equally with an unknown Italian. Also, Italian respondents show a preference for cooperation since they contribute an average of three fifths of their endowments to public goods; they also appear to be conditional reciprocators, meaning that they are willing to contribute more if people around them contribute at the same levels. There is a general prevalence of risk aversion, as showed by preference for safe rather than risky lotteries, although the dispersion around the mean suggests a great deal of heterogeneity. Self-reported measures of social capital suggest that Italian respondents are only rarely involved in voluntary activities, while they get together with friends quite often during the week.

Regarding personality, the average Italian respondent in Trustlab shows high degrees of agreeableness and conscientiousness, as shown in Table 2b. Medium to high openness also characterizes most respondents, while they appear to be extraverted and neurotic to a lower extent, although the distributions of the latter personality traits are more dispersed.

Figure 2 shows the average levels of self-reported and experimental trust, expected trustworthiness and trustworthiness across the five Italian macroareas. While there are non-dramatic differences in self-reported and experimental trust, the south ranks the lowest in trustworthiness, while insular Italy (Sardinia and Sicily) scores remarkably high in expected trustworthiness.

When looking at the within-country distribution for other preferences, we find no evidence of an inferior level of cooperation (conditional or unconditional) and altruism in the south, nor, indeed, significant differences in risk propensity (Figure 3). In addition, the south does not rank lower than the north in terms of voluntary work and social interactions, which can be considered as other proxies for social capital. Interestingly, the share of respondents who are not involved in social interactions and voluntary work is lower in the south than in the north (Figure A3 in Appendix A).

Other significant differences are found in terms of personality. Each personality trait is computed as a simple mean of the three respective items asked in the survey, with harmonized answer ranges. We exclude from estimation respondents with missing information on all of the three personality items measuring each trait[9]. Figure A4 in Appendix A plots the coefficients of the macroarea dummies (the north-west being the reference category) from a regression of personality traits on socio-demographic characteristics. Interestingly, the south scores higher in agreeableness, openness and conscientiousness. While the first two are shown to be positively correlated with trust (Dohmen et al., 2008; Freitag and Bauer, 2016; McCarthy et al., 2017), there is less consensus about whether conscientiousness spurs (Freitag and Bauer, 2016; McCarthy et al., 2017) or hampers (Dohmen et al., 2008) trust.

Summarizing this descriptive analysis, we do not observe a significant gap in social capital between the south of Italy and the other Italian macroareas. Apart from lower levels of trustworthiness, southerners display on average similar (or in some cases higher) pro-social preferences than northerners.

5 Econometric findings

In order to control for potential confounders, as well as to check for the mediating role of the Big Five personality traits and other preferences, we run OLS regressions. Our main estimating equation is expressed as follows:

$$Y_{ij} = a_j + \sum_k \beta_k X_{ij,k} + \epsilon_{ij} \tag{1}$$

[9]This leads to the exclusion of 17 respondents from our sample. Results are not dramatically affected if we include them in the analysis.

where Y_{ij} is the experimental or survey measure of the social capital of individual i living in the macroarea j, and a_j are four macroarea dummies, i.e. South, Insular, Central and North-east (the reference category is the North-west). In an alternative specification we replace macroarea dummies with a single dummy variable (*South*) equal to one for respondents living in the South (the omitted category being the rest of Italy). We control for a set of k socio-demographic variables ($X_{ij,k}$) including age and education categories, household size, income, marital status, job status and the size of residential area (rural, urban, small or middle area, large metropolitan area; the village is the omitted category), which would capture differences in the size (and the type of) social networks. Since parents' level of education has been shown to predict children's prosociality (e.g. Dohmen et al., 2011; Pishghadam and Zabihi, 2011; Lundborg et al., 2014), we control as well for the level of education of the respondent's mother and father. Some specifications also include the Big Five personality traits.

In Table 3a we report estimation results with survey trust, trust, trustworthiness, and expected trustworthiness as dependent variables. Results show that southerners display lower levels of self-reported trust (columns 1-2) and trustworthiness (columns 5-6), while no significant differences are found in the average amount sent (columns 3-4) or expected in the *TG* (columns 7-8). The inclusion of personality traits does not change the main findings, thereby suggesting that the differences in personality shown in Figure 5 do not explain the north-south gap in terms of the generalized trust and trustworthiness we observe in the data. These results are confirmed when moving to a more parsimonious model in which the four macroareas dummies are replaced by the south indicator (Table 3b), though the results remain statistically significant only for trustworthiness.

With respect to the other preferences, we do not find any significant difference across macroareas (Table 4a) or between the south and the rest of Italy (Table 4b) in terms of altruism (columns 1-2), cooperation (3-4), conditional cooperation (5-6), and risk propensity (7-8).

Neither of these results stems from the online nature of the experimental and survey setting adopted in Trustlab. Although both an internet connection and a device enabling online access are needed in order to take part in Trustlab, we find no evidence that this

selection brings about systematic trends in the experimental outcomes. In fact, the north-south gap in trustworthiness (and within-country similarity with respect to other social preferences) is confirmed under Heckman's correction for selection into internet access (Heckman, 1976; Heckman, 1979)[10].

In Table 5 we check for within-country differences in social engagement through an ordered logit regression of the frequency of voluntary work (columns 1-2 and 5-6) and of encounters with friends (columns 3-4 and 7-8). Also in this case, we do not find evidence of lower levels of social engagement in the south. Conversely, southerners tend to have more frequent social contacts (Table 5, columns 3-4 and 7-8). However, these results do not imply that they are in general more given to cooperation. Since frequency of social contacts in our data includes friends, this variable is closer to the 'bonding' rather than to the 'bridging' feature of social capital (Putnam, 2000; Uslaner, 2002), with mainly the latter capturing trust in (and cooperation with) *unknown* persons and being associated with better economic performance.

In order to understand whether the findings on trust and trustworthiness conceal north-south differences in other preferences, we re-estimate the previous models of Table 3b (column 4 and 6) controlling for respondent's behaviour in other games. Similar to previous studies (Ashraf et al., 2006; Chaudhuri and Gangadharan, 2007; Sapienza et al.), the respondent's choices in the role of trustor seem motivated by unconditional kindness and cooperation (Table 6). Since the receiver's behaviour is also positive and significant whereas expected trustworthiness is not, it is likely that trustors formed expectations of reciprocity by extrapolating the expected behaviour of their opponents from their own (Sapienza et al.)[11]. However, after controlling for these preferences, there are no significant differences in experimental trust between the north and the south of Italy.

Conversely, the north-south gap in trustworthiness is confirmed (and is even larger) when we control for player's behaviour in other games (Table 7). With the exception of risk propensity, the additional variables are all statistically significant. This evidence is

[10] Following Heckman's two-step selection model, we adjust our estimates with the probability of participating in Trustlab. This probability is estimated controlling for frequency of internet access and, in an additional model, for the quality of the broadband internet infrastructure. See the Appendix B for further details.

[11] The data provide support for this hypothesis since the subject's beliefs about the opponent's trustworthiness and his or her own level of trustworthiness are highly correlated ($\rho = 0.50$). A positive correlation between trust and trustworthiness is also found in previous studies in which, as in our experiment, subjects play both roles in the TG (Glaeser et al., 2000; Chaudhuri and Gangadharan, 2007; Altmann et al., 2008; Kovacs and Willinger, 2013).

consistent with previous studies showing that trustworthiness can be motivated by other-regarding conditional and unconditional preferences (Cox, 2004; Ashraf et al., 2006). Importantly, the inclusion of these preferences leads to a remarkable increase in the goodness of fit. This suggests that a significant portion of the variation in trust and trustworthiness is explained by respondents' behaviour in other games rather than their observed (and likely unobserved) individual characteristics. These findings also suggest that subjects' decisions are consistent across games, which might be interpreted as a signal that respondents understood the instructions and the incentive structure of the experiments.

The lack of a significant north-south divide in trust and in expected trustworthiness also suggests that southern-Italian trustors fail to anticipate the lower reciprocity levels in their macroarea. This result is confirmed when calculating the payoff-maximizing transfer on the basis of the empirical distribution of return choices in the trustor's macroarea. More specifically, we computed the median amount returned by the trustee for each hypothetical transfer and in each macroarea. We then calculated the corresponding theoretical payoffs of the trustor. These payoffs appear to be lower in the south than in the northern macroareas, especially for higher transfers (Figure A5 in Appendix A). While we further discuss this finding in the next section, it is important to note here that in most Italian macroareas there is only one profit-maximizing transfer (i.e. €10), whereas in the south trustors would equally maximize profits by sending €5, €9 or €10. However, the presence of unique vs. multiple maximizing transfers does not translate into real differences in trustor's choices, which appear to be distributed in a similar (bimodal) way across macroareas (Figure A6 in Appendix A)[12].

This last result suggests that the non-result for the north-south gap in trust could be driven by non-southern trustors sending less than what would be optimal according to the trustworthiness levels in their macroarea. Their transfers, instead, appear more consistent with the trustworthiness patterns we observe in the south.

Overall these findings suggest that there is no evidence of a systematic gap in trust and cooperation between north and south as shown in previous studies. In addition, the lack of north-south differences in beliefs in our data contrasts with the evidence from

[12]Furthermore, the percentage of trustors sending €5, €9 or €10 is statistically indistinguishable between the south and the rest of Italy ($z = 0.216$; $p = 0.8292$).

non-representative data in Bigoni et al. (2017), who show that the cooperation gap they found in their previous study (Bigoni et al., 2016) is due to the pessimistic beliefs southerners have about their own cooperativeness. Our countrywide lab-experiment suggests, instead, that the north-south gap in social capital is preference- and not belief-based, and lies only in *one* particular dimension, i.e. reciprocity.

Apart from differences in sample representativeness, another possible explanation for our divergent results is that the beliefs-elicitation method in Bigoni et al. (2017) rests on an explicit priming of the 'north' vs. 'south' categories, which could lead to an overestimation of otherwise less-stereotyped beliefs about southerners' level of cooperation. The elicitation of the subject's beliefs in our experiment is, instead, not conditional on the geographical origins of the counterpart, and it might therefore, be interpreted as a more conservative estimate of expected reciprocity.

6 Understanding the north-south gap in trustworthiness

In this section we analyse trustee's reciprocity by exploiting the strategy method, which allows us to understand how receivers condition their choices on the basis of their opponent's hypothetical choices. With this information, we also test whether the north-south gap is driven by differences in conditional reciprocity when expected profits from the dominant strategy ('do not reciprocate') increase.

Figure 4 plots the trustee's response choices as a function of the eleven hypothetical transfers. As in previous studies (Schotter and Sopher, 2006; Ashraf et al., 2006; Bellemare and Kröger, 2007; Bornhorst et al., 2010), the upward sloping curve confirms that reciprocity is the driving force of trustworthiness. With respect to the north-south gap, both southerners and northerners are 'conditional reciprocators', since the amount they return on average increases in proportion to the amount that they receive. However, southerners tend to reciprocate less than northerners when transfers are larger than 40 percent of the trustor's endowment.

We check for the significance of this difference through an OLS regression controlling for individual-level characteristics and by looking at behaviour in other games. More specifically, we treat the trustee's choices in the response vector as separate rounds of a

trust game, and regress the amount returned on the hypothetical transfer by estimating the following equation:

$$Y_{ijt} = a_j + \sum_k \beta_k X_{ijt,k} + \gamma Send_t + \epsilon_{ijt} \tag{2}$$

where Y_{ijt} is the amount the respondent i living in macroarea j decides to return conditional on the hypothetical transfer t of the trustor ($t = \{0, \ldots, 10\}$), and $Send$ is a variable capturing the increase in the transfer. All other controls are the same as in Table 7 (column 7). We consider the south dummy instead of the four dummies for the macroareas (results are similar in both specifications[13]). The coefficient γ is the slope of the return-send function plotted in Figure 4 and can be interpreted as a measure of conditional reciprocity, i.e. how much receiver's decisions depend on the size of the senders' transfer. Since we have eleven data points *per* respondent (for a total of 10,769 observations), we clustered standard errors at the individual level.

Results in Table 8 confirm the diverging path in conditional reciprocity as highlighted in Figure 4. Trustees are, on average, conditional reciprocators since their return choices significantly depend on the amount sent by the trustor (column 1). As expected, southerners return, on average, less than northerners, confirming the previous results. However, the interaction between the trustor's transfer and the south dummy is negative and significant, suggesting that the north-south gap in reciprocity widens as the transfer increases (column 2). The same effect is also found when allowing for a non-linear relationship between trustees' decisions and trustor's transfers (columns 3 and 4).

We also analyse conditional reciprocity by classifying subjects according to the amount they return for each possible transfer. In our sample, we classify 11 percent of the trustee's choices as 'selfish', 14 percent as 'no return' and 74 percent as 'reciprocal' when they are, respectively, below, equal to or above the hypothetical transfer. In other words, selfish choices provide trustors with negative returns on investment, while no return and reciprocal choices imply, respectively, zero or positive returns. Figure 5A shows how the number of selfish (reciprocal) choices starts increasing (decreasing) for transfers larger than 40 percent of the trustors' endowment (e.g. €4). This pattern is stronger in the south than in the rest of Italy (Figure 5B).

[13] Available upon request.

We then estimate the determinants of the probability of playing each strategy. Results are reported in Table A1 in Appendix A[14], and show that the likelihood of selfish (reciprocal) choices increases (decreases) when the amount at stake gets larger. However, southern regions are significantly different from the others only in reciprocal choices, which are less likely in the case of southerners (column 5). Consistent with results in Table 6, the north-south gap in reciprocity widens when transfers increase (Table A1 in Appendix A, column 6), with southerners rewarding trustors less often than northerners, as doing so generates larger profits.

These results highlight a new dimension underlying the north-south gap in social capital that has not been analysed in previous studies. The higher the temptation to defect, that is the larger the amount at stake, the more likely are southerners (as opposed to northerners) to sacrifice societal welfare to maximize their own benefits.

In order to check whether this behaviour is also there in other scenarios replicating a social-dilemma, we analyse contributions in the *PGG* conditional on the average amount contributed by group members. If the north-south differences are driven by a decrease in southerners' reciprocity when the selfish strategy is more profitable, we should observe the same pattern for conditional cooperation when group contributions increase. Figure A7 in Appendix A shows that when group contributions are above 60 percent of the endowment both southerners and northerners contribute less than 60 percent, but contributions are lower in the south than in the north.

Similarly, regression results for the *PGG* in Table A2 in Appendix A mirror those for the *TG* in Table 6, showing that subjects tend to condition their contribution on the behaviour of their group members, though non linearly (column 3). However, while *on average* there is no significant north-south gap in cooperation, an increase in the expected payoffs from free-riding leads southerners to contribute less than northerners (column 4).

Summarizing, these findings suggest that as long as there is little to lose, southerners and northerners cooperate and reciprocate in the same manner. However, when the amount at stake increases, preferences for reciprocity and cooperation start diverging,

[14] We exclude zero transfers from these regressions.

with southerners defecting more often than northerners. The fact that this behaviour is consistent both in the TG and PGG suggests that southerners obey a social norm that prevents them from rewarding highly pro-social acts.

7 Other explanations for the trustworthiness gap

In order to assess whether the trustworthiness gap can be explained by north-south differences in the 'Putnamian' dimensions of social capital, we add to the main trustworthiness regression the individual-level measures of civic and social engagement: e.g. voluntary work, connectedness with neighbours, and participation in the last political elections. Results reported in Table A3 in Appendix A show that these facets of social capital cannot account for the north-south gap in trustworthiness. In the following subsections, we explore other potential explanations for the trustworthiness gap: betrayal aversion, strength of family ties and migration.

7.1 *The Italian Trustlab follow-up*

In May and June 2018, additional survey modules were administered on the original Italian Trustlab sample with the purpose of measuring other preferences and characteristics of respondents that have been shown to be important explanations for the north-south gap. The follow-up survey collected information primarily aimed at: (i) disentangling aversion to social risk from aversion to natural risk (betrayal aversion); (ii) assessing the extent to which people in the sample respond to 'familistic' norms (strength of family ties); (iii) reconstructing the residential history of respondents; and (iv) finding patterns of intergenerational norms transmission.

Because of an attrition rate of about 25% of the sample in our main estimates, we include, in the following analysis, a supplementary sample, which enables us to increase statistical power for testing the new hypotheses[15]. Since the analyses in the following sections rely on the largest set of respondents (those in the extended sample who also participated in the follow-up), we restore representativeness by creating weights to adjust the demographic composition of the extended sample (in terms of gender and age)

[15]The full sample of Trustlab Italy oversamples female respondents between 18 and 45 years of age in order to study specific issues related to fertility behaviour and family demography. These additional respondents have been excluded from all the estimates carried out in order to fully exploit the national representativeness of the data. The follow-up survey, containing additional measures of betrayal aversion, strength of family ties and migration, has been delivered on the extended sample in order to maximize response rate.

to that of the Italian population as it was in 2017. Moreover, we control for the residual heterogeneity of the supplementary sample by augmenting our models with a dummy variable, taking value one for respondents who were not part of the representative sample. Importantly, the inclusion of the extended sample does not alter the results shown in the previous tables, thereby underlining the validity of the estimates[16].

7.2 *Betrayal aversion*

In comparison with northern Italians, Italians in the south have been shown to be more averse to betrayal: that is they dislike risk when risk relates to human behaviour rather than to nature (Bigoni et al., 2017). Since the literature has shown that betrayal aversion is mainly associated with trust (and not trustworthiness), we could, in principle, rule out aversion to betrayal as a possible explanation for the observed south-north gap in reciprocity.

However, our results could be due to unobserved differences in the way in which trustees *internalize* the potential cost of betrayal when it comes to trust. Such internalization may emerge more clearly when individuals play both roles in a trust game (as the participants in Trustlab do). Taking betrayal aversion into account, we would expect higher reciprocity in the south, provided that southerners are systematically more betrayal-averse *and* systematically more likely to internalize the trustor's disutility from expected betrayal than non-southerners.

Our evidence showing lower reciprocity in the south suggests that this is not the case. This is probably because the internalization of trustor's aversion to betrayal is less likely to occur in the south, or because betrayal aversion is not systematically different across Italian macroareas. In order to shed light on the role of betrayal aversion, we nonetheless check whether the north-south gap in reciprocity mirrors an underlying gap in aversion to betrayal, and whether the former narrows when controlling for the latter.

To derive a measure of betrayal aversion, in the follow-up study, we performed a survey-

[16] In Table A4a and Table A4b in Appendix A we check the consistency of some of the main results presented so far by re-estimating models on a sample inclusive of the supplement. Statistical significance of the main variables' coefficients is, if different from previous models, higher. In general, the magnitude of re-estimated coefficients is slightly larger, while the control variable marking the supplementary respondents is always far from approaching significance. Notice also that re-estimation of all the models in previous tables provides almost equal results (available upon request).

based task to measure whether respondents are more willing to take on risk when such risk derives from nature rather than from another person's actions[17]. More specifically, we adopt the vignette-based approach as in Cubitt et al. (2017), who rely on a hypothetical scenario where people need to take a taxi from the airport to the city centre, and they have to choose between two taxi companies: one charging a fixed fee and the other using the taximeter. While the first company charges the same amount (€12) however long the journey (*safe company*), the price charged by the second company (*risky company*) is uncertain: 1/5 probability of €16, and 4/5 probability of €8. The two vignettes differ in terms of the risk faced by the respondents when making their choice between the safe and the risky company: in one case the risk stems from weather conditions (*natural risk*), while in the other case the risk relates to human behaviour, i.e. the taxi driver (*social risk*)[18].

We use the same parametrization as in Cubitt et al. (2017) so that, with an expected cost of €9.60, a risk neutral, profit-maximising agent would always choose the risky company. Risk-averse respondents might choose the safe company in the natural risk vignette, even though it is more expensive. Thus, betrayal aversion would make respondents more likely to choose the safe company in the social-risk vignette than in the natural-risk vignette (the text of the two vignettes is in Figure A8 in Appendix A)[19].

Consistent with Bigoni et al. (2017), we find an overall prevalence of betrayal aversion in Italy. As in Cubitt et al. (2017), the share of respondents who chose the safe option in the first vignette is significantly higher when the vignette depicts social rather than natural risk. The difference is at least as great as 7.7 percentage points and significant

[17]To measure aversion to betrayal, Bigoni et al. (2017) implement the experimental procedure developed by Bohnet et al. (2008) on a sample of students at the University of Bologna, who were recruited so as to cover the south and the north of Italy (excluding the center). They exploit a between-subjects design where individuals take part in a trust game and risky dictator game aimed at disentangling the behavioural response to risk originating from social interaction as opposed to nature. The authors find larger MAPs (Minimum Acceptable Probabilities of finding reciprocating trustees) among participants in the trust game compared to participants in the risky dictator game. The larger the MAP, the more the trustor is considered as averse to risk taking. These results are interpreted as evidence of overall betrayal aversion, which appears to be systematically high and statistically significant only among trustors from the south. We could not measure betrayal aversion experimentally in Trustlab because of the high number of experimental tasks and survey questions to which respondents were already exposed. Moreover, the calculation of MAPs might have been a difficult task for a population composed not only of students, and therefore the Bohnet et al. (2008)'s experimental procedure would have likely produced noisy and unreliable data.

[18]The vignette-based approach addresses the potential shortcomings of the experimental tasks in Bohnet et al. (2008) that stem from the complex incentive structure. However, Cubitt et al. (2017) find significantly higher proportions of people choosing either higher MAPs (in the experimental setting) or safe options (in the vignettes) when facing social risk. Hence, both approaches consistently measure similar patterns of betrayal aversion.

[19]Unlike Cubitt et al. (2017) who use a between-subject design, we carry out a within-subjects design, i.e. each respondent chooses between the risky and the safe company in *both* the social- and the natural-risk vignettes. However, the order of vignettes is randomized, and the names of companies differ across vignettes in order to mitigate potential order effects and response biases.

in each macroarea, reaching a peak in North-eastern Italy (Table A5 in Appendix A). To test if betrayal aversion significantly differs across macroareas, we regress an indicator variable for the safe option (*Safe choice*) on the south dummy, a dummy variable equal to one for the social-risk scenario (SR) and their interaction[20]. Regression results (Table A6 in Appendix A) show that there is no significant gap in betrayal aversion between the south and other macroareas.

The combination of answers in both vignettes allows us to categorize four different types of individuals. The 'risk averse' types are those choosing the safe option in both vignettes; at the other extreme we have what we have termed 'risk lovers', i.e. the respondents with a preference for risk irrespective of the situation they face. In the middle, there are the 'principled trustful' (Fetchenhauer and Dunning, 2012), respondents who tend to accept risk only insofar as such risk stems from social interactions, but who avoid it when it comes from nature. Lastly, we categorize respondents as 'betrayal averse' if they opt for the safe option when exposed to social risk, but they choose the risky option when facing natural risk[21]. None of these types show statistically significant correlations with trustworthiness (Table A7 in Appendix A). Betrayal averse and (to a lesser extent) risk averse individuals appear, on average, to be more trustworthy than risk lovers and principled trustful ones, probably because the risk averse subjects, when playing as trustors, are more likely to internalize the social risk embedded in the decision to trust[22].

Overall this evidence suggests that betrayal aversion does not explain the north-south gap in reciprocity.

7.3 *Family ties*

A potential explanation for the trustworthiness gap hinges on the geographical differences in the strength of family ties. In collectivistic societies, most socio-economic transactions rely on mutual obligations among known individuals, where the risk of being cheated is mitigated by informal commitment-devices such as monitoring and sanctioning (see

[20] In an additional specification we also control for the order in which the two scenarios are presented. Standard errors are clustered at the individual level to adjust for the doubling of sample size induced by our within-subject design.

[21] In our sample, most individuals are risk averse (about 60%), while only about 20% are betrayal averse; risk lovers and principled trustful individuals are rather few, respectively about 17% and 15% (Figure A9 in Appendix A). Consistent with results in Table A6 in Appendix A, the distribution of types does not vary significantly by macroareas (Figure A10 in Appendix A).

[22] The distribution of types does not significantly correlate with trust either, yet the sign of the correlation is as expected: risk lovers and principled trustful individuals show higher trust, whereas lower trust can be found among risk averse and (even lower) betrayal averse individuals.

Yamagishi and Yamagishi, 1994; Yamagishi et al., 1998)[23]. Trust in unknown persons is, therefore, endangered as strong and stable relations, by decreasing social risk, provide an 'assurance' of mutual cooperation (Yamagishi and Yamagishi, 1994). Sanctioning and monitoring are, of course, more efficiently carried out among small groups of known persons. Therefore, lower trustworthiness should emerge more easily when dealing with strangers, as deviations from the socially-optimal equilibrium are less promptly discovered (and punished) in these kinds of transactions. Thus, strong family ties should negatively affect both trust and trustworthiness in anonymous transactions, like those mimicked by the TG. Consistent with this hypothesis, Alesina and Giuliano (2014) find a negative relationship between strong family ties (measured through survey questions) and generalized trust. Similarly, Ermisch and Gambetta (2010), in an experimental setting, find that strong family ties – measured through the self-reported frequency of contacts with relatives – predict significantly lower trust.

As in Bertrand and Schoar (2006), Alesina and Giuliano (2010) and Alesina and Giuliano (2014), in the follow-up study we measure the respondents' family ties by relying on three questions on the importance of family, as asked in the European Value Study (EVS). The first question asks respondents how important is family in their life (answers range from '1–Not at all important' to '4–Very important'). Then, respondents state their agreement with one of two statements about the parent-child relationship and their responsibilities to each other, i.e. '1–there's no duty to respect and love parents who misbehave' or '2–parents should be loved and respected in any circumstances'. The last question is about responsibilities of parents towards children, i.e. '1–parents should not pursue children's well-being if this implies giving up their own's', or '2–children deserve the best irrespective of sacrifices in which parents might incur'. We aggregate answers to these questions through a principal component analysis and consider the first extracted component as a proxy for the strength of family ties[24].

Family ties appear stronger in southern Italy and in the islands (Sicily and Sardinia), while they are weaker in the northern regions of Italy (Figure A11 in Appendix A)[25].

[23] A further qualification of this theory is provided by Ermisch and Gambetta (2010), who posit that in societies where family ties are less stringent, people feel more motivated to deal with unknown persons to fulfill socio-economic transactions and to face more opportunities (not ultimately because interacting more with strangers increases learning), thereby fostering higher trust in strangers. Furthermore, Enke (2017) provides cross-country evidence of a positive relationship between ancestral kinship tightness and ingroup bias in present levels of trust and cooperation.

[24] The geographical distribution of family ties in our sample is consistent with that obtained using the same proxy for family ties built through EVS data for Italy (available upon request).

[25] A chi-squared test rejects at the 1% level the hypothesis that the distribution of family ties is equal across macroareas

The north-south gap in family ties is also confirmed when regressing family ties (*family ties (PCA)*) on the south dummy and other controls (Table A8 in Appendix A). To test whether the north-south difference in family ties accounts for the north-south gap in reciprocity we add family ties to the regressions of trustworthiness on the south dummy and controls. While, as expected, strong ties negatively predict reciprocity, the south dummy remains negative and significant, thereby suggesting that the strength of family ties is not the main explanation for the north-south divide in trustworthiness (Table A9 and Table A10 in Appendix A).

7.4 *Migration*

Another possible explanation for the trustworthiness gap is the self-selection of emigrants. If southerners moving to northern regions have on average lower level of trustworthiness, the estimated north-south gap in reciprocity would be a lower bound of the real gap. A major concern arises, instead, if southerners with greater civic and human capital move to the north, for instance because they are attracted by better job perspectives or because they feel uncomfortable with the uncooperative social norms in the region of origin. Self-selection of emigrants implies that, when the most prosocial south-Italian citizens emigrate, the regions of origin are left with low-cooperative individuals and hence experience a 'civicness drain'[26].

To assess the role of migration, we collect information about respondents' residential history, i.e. where they were born, where they spent most of their life until age 16, and the province of origin of their parents. In this way, we are able to identify respondents who emigrated to the region in which they currently live and, also, the stage of life in which migration occurred. Descriptive statistics show that 14% of respondents migrated to the current macroarea, with most of them moving from the south (46%); the most frequent migration route is from the south to the north, especially to the north-west of Italy (Figure A12 in Appendix A). Among respondents born in the south, trustworthiness tends to be higher in respondents who currently live in northern regions, than for those who live in other regions or remained in the south (Figure A13 in Appendix A); yet these

($\chi^2(52) = 78.4$, $p = .01$). Non-parametric tests confirm that the family ties are significantly stronger in the south than in the north ($z - score = -3.87$, $p =< 0.001$; $\chi^2(13) = 33.7$, $p = 0.001$).

[26] Presentation of Moti Michaeli at 2017 Florence-Constance joint Workshop on Behavioural and Experimental Social Sciences, November 3, 2017: 'Civicness drain: Emigrants' self-selection and social norms in the place of origin' (joint work with Marco Casari, Andrea Ichino, Maria de Paola, Vincenzo Scoppa, Ginevra Marandola). See: `http://www.beelab.unifi.it/workshop2017/files/BookOfAbstract.pdf` .

differences fell only marginally short of significance.

We also re-estimate our preferred trustworthiness regression including two dummy variables for individuals who moved from the south to the north and for other migration patterns (the omitted category is composed of non-emigrants). In alternative specifications we consider, too, migration at different stages of life, and include indicators for specific migration routes across macroareas and periods of life (before or after age 16). Results show that emigrants are not statistically different in trustworthiness from non-emigrants, while the north-south gap in trustworthiness remains statistically significant in all specifications (Table A11 in Appendix A). Thus, self-selection of emigrants or learning of social norms do not seem to account for low reciprocity in the south.

7.5 *Intergenerational transmission*

The observed gap in trustworthiness could also be driven by the intergenerational transmission of social norms and values, with parents from the south passing on to their children norms of behaviour based on low reciprocity. If social norms are inherited from parents in childhood and change only slowly thereafter (Bisin and Verdier, 2001; Dohmen et al., 2011; Guiso et al., 2008; Giulietti et al., 2016), respondents with a southern Italian parent should display lower trustworthiness than those with a parent from a different macroarea, regardless of their current residence.

To test this hypothesis, we re-estimate the trustworthiness regression replacing the south dummy with an indicator for respondents living in the north. We also add a dummy variable for respondents having at the least one parent from the south, who represent 39.8% of our sample. To adjust for residential history, in additional specifications we control for migration from south to north and other migration patterns (at any age). Regression results (Table A12 in Appendix A) document that living in the north is associated with higher trustworthiness (column 1); this positive effect is, however, absorbed by the southern origins of parents, which pulls the data in the opposite direction (column 2). Interestingly, living in the north slightly counterbalances the negative effect of parental origins for trustworthiness (column 3), regardless of respondents' migration decisions, which – as previously shown – do not play a significant role (column 4)[27].

[27] The fraction of respondents living in the north with at least one parent from the south is 12.2%.

Overall this evidence suggests that the lower trustworthiness of non-northerners could be a result of the intergenerational transmission of norms, prescribing low reciprocity. This might, then, be moderated by a prolonged exposure to the highly reciprocal contexts of northern Italian regions. Such moderation occurs independently of respondents' migration patterns, thereby suggesting that it is parental attitudes to a high-trustworthiness environment, rather than the exposure of their children to these contexts, that offsets the intergenerational transmission of low-trustworthiness norms.

8 Conclusions

Contrary to previous results, we find that southern Italians are *not* statistically different from citizens residing in other macroareas with respect to generalized trust, beliefs about other's trustworthiness, cooperation, altruism and risk preferences. Furthermore, no robust differences in survey-measured trust, civicness and social participation are found. The only statistically-significant gap emerges in reciprocity: average trustworthiness is about 10 percentage points lower in the south than in the rest of Italy. While both northerners and southerners are conditional reciprocators, the latter tend to return less than the former when the temptation to deviate from the socially-optimal equilibrium increases (i.e. the trustor's transfer gets larger). Higher trustworthiness in non-southern regions is, nevertheless, not anticipated by trustors, who – by transferring an amount below the profit-maximizing one – fail to reap the benefits of the high reciprocity of their area.

Through the follow-up data, we also show that the gap in trustworthiness is not due to participants' differences in betrayal aversion or to the strength of family ties, while the self-selection of emigrants does not seem to drive our findings. Finally, none of our socio-demographic and economic controls, including personality traits, play a mediating role. Our evidence, instead, documents that – independently of current residence – the north-south gap in trustworthiness originates from the southern origin of respondents' parents. This effect is partly compensated for by living in the north, but it is not explained by migration choices (at any age) of the respondents. This last finding reveals that the learning of high-reciprocity norms is a long-term process. It might take more than one generation to be accomplished.

Overall our findings suggest that perhaps too much emphasis has been put on the *cul-*

tural roots of the economic disparities plaguing Italy since unification in the 1860s. This study provides experimental and survey-based evidence suggesting that, in most social-capital dimensions, the preferences for trust in (and cooperation with) unknown persons on the part of southern Italians are statistically indistinguishable from those of Italians living in other areas. Policies, therefore, would not be particularly effective in achieving economic convergence if their primary aim was that of stimulating cooperation or promoting optimistic beliefs in others' trustworthiness. Our results suggest that policies need to be specific and should target generalized reciprocity.

Statistics on other factors related to growth reveal that national or international policy-makers need also to guard against other gaps than those ebing of cultural nature. In spite of higher public spending on education in the south than in the north (respectively 6% vs. 2.7% of GDP), educational attainments are still dramatically different across Italian macroareas[28]. Many studies have, as we have seen, concluded that the 'questione meridionale' (the southern problem) is just a cultural issue. This kind of a gap in human capital – along with our results – suggest, instead, that narrowing differentials in social capital (to the extent that these exist) would not be sufficient to bring about change were educational outcomes not also equalized.

[28]The northwest scored on average 511 (515) points in 2009 (2012), while the south 466 and 469 in national standardized tests 'INVALSI' (Felice 2018); 4% (2.5%) of fifteen-year-old students in the south as opposed to 15.4% (8.1%) for students in the same age group in the north obtained higher scores than 4 on a 6-point scale in math (reading) in the 2015 PISA assessments (Istat - CapitaleUmano.Stat).

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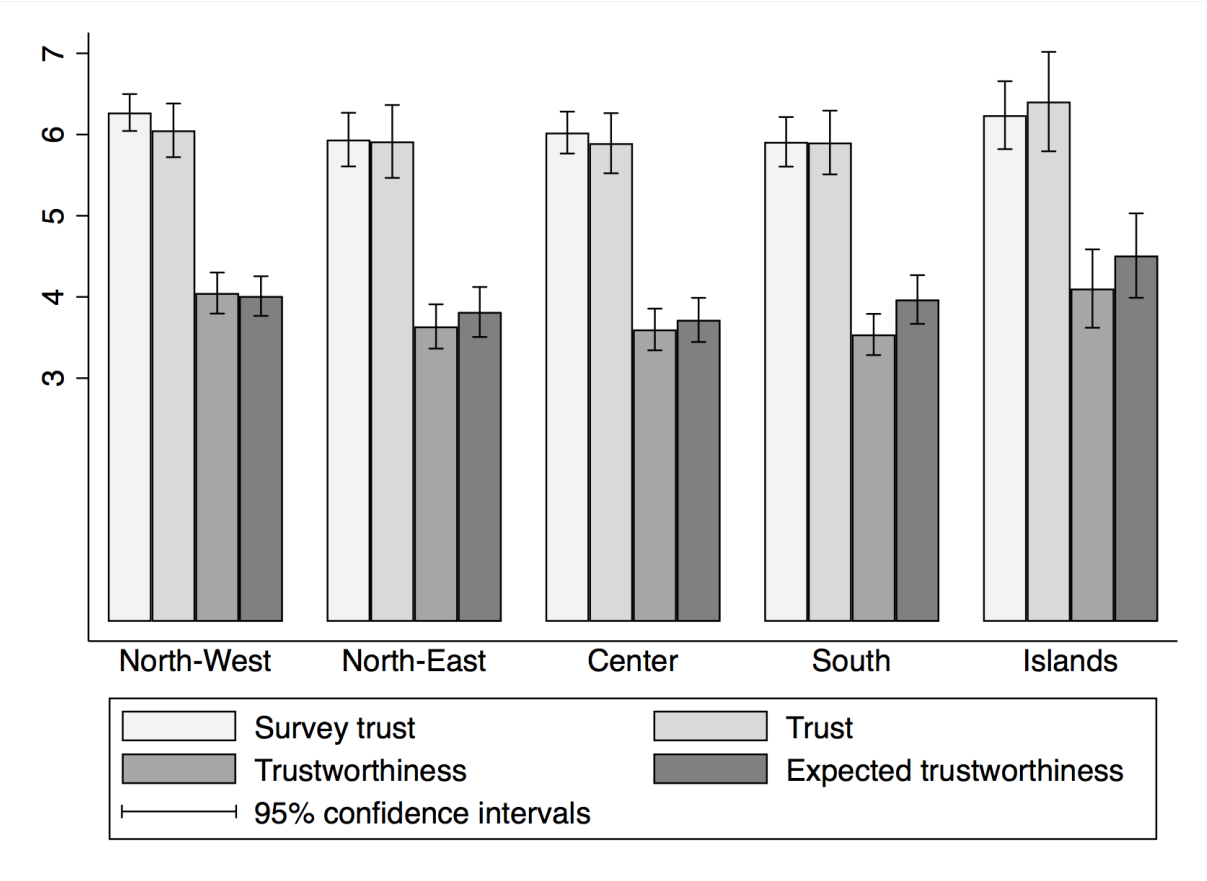
Figure 1. The Italian macroareas

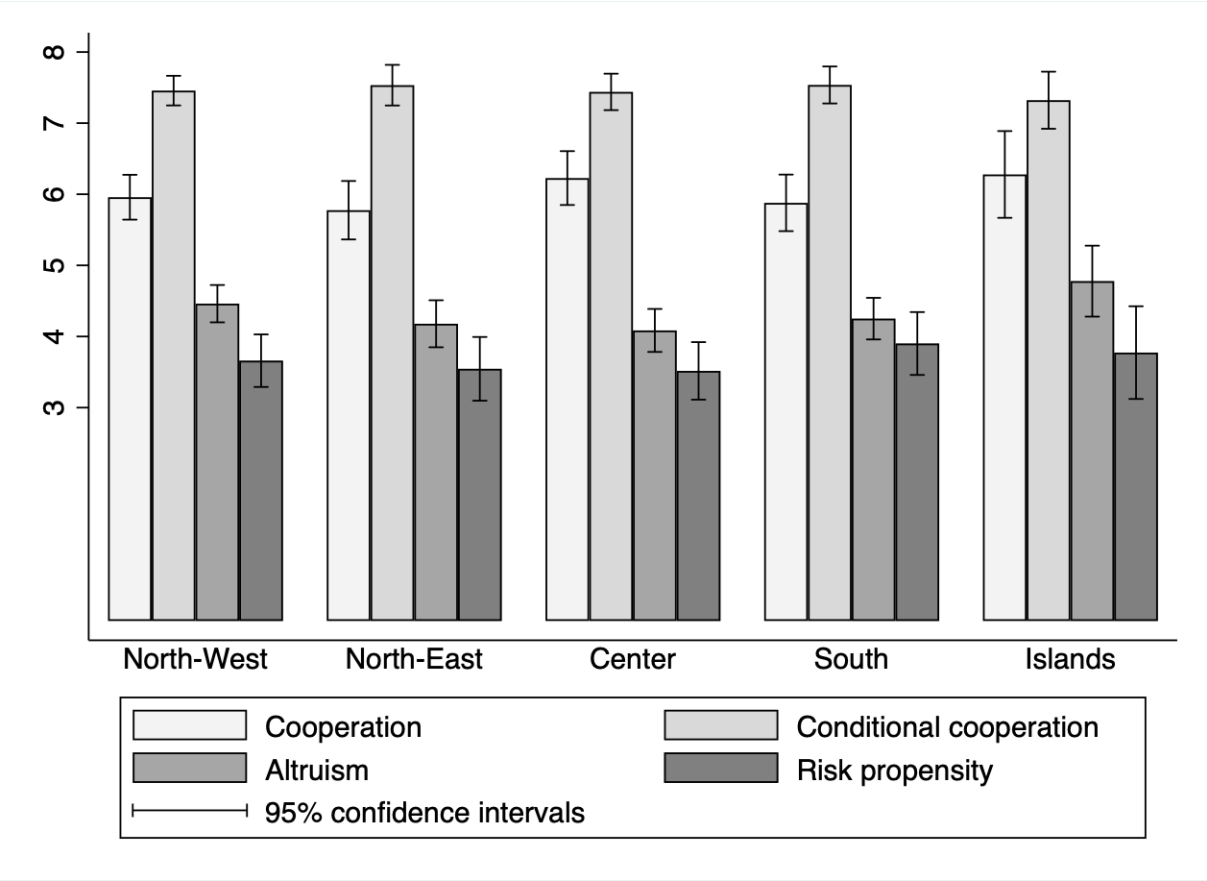
Notes: NUTS-1 classification of Italian territorial units according to EUROSTAT.

Figure 2. Self-reported trust and trust games, outcomes across the Italian macroareas



Notes: variables' means and 95% confidence intervals by Italian macroareas. Variation range of all variables rescaled to vary between 0 and 10. The *generalised trust question* (GTQ) asks respondents 'In general, how much do you trust most people?'. *Trust* is the amount of money sent by trustors to trustees in the trust game. *Trustworthiness* is the amount of money returned by trustees to trustors in the trust game. *Expected trustworthiness* is the amount of money trustors expect to be returned by trustees in the trust game.

Figure 3. Cooperation, conditional cooperation, altruism and risk propensity across the Italian macroareas



Notes: variables' means and 95% confidence intervals by Italian macroareas. Variation range of all variables rescaled to vary between 0 and 10. *Cooperation* is the amount of money contributed by participants to the common project in the public goods game, unconditional on other participants' contributions. *Conditional cooperation* is the amount of money contributed by participants to the common project in the public goods game, conditional on other participants' contributions. *Altruism* is the amount of money sent by dictators to receivers in the dictator game. *Risk propensity* is the lottery chosen by participants in the risk game (the stronger risk aversion, the lower the measure).

Figure 4. The north-south gap in conditional reciprocity (trust game)

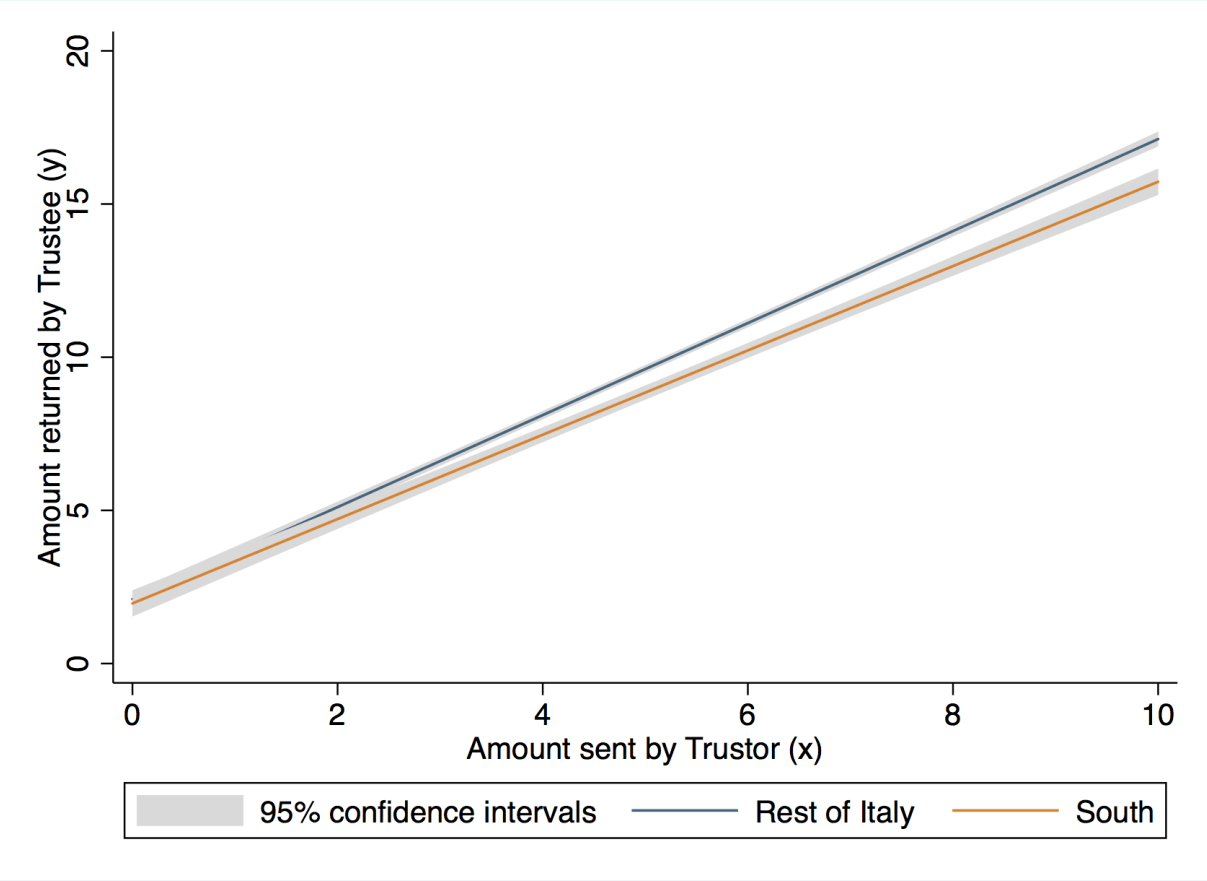


Figure 5. The evolution of reciprocal strategies over the amount transferred

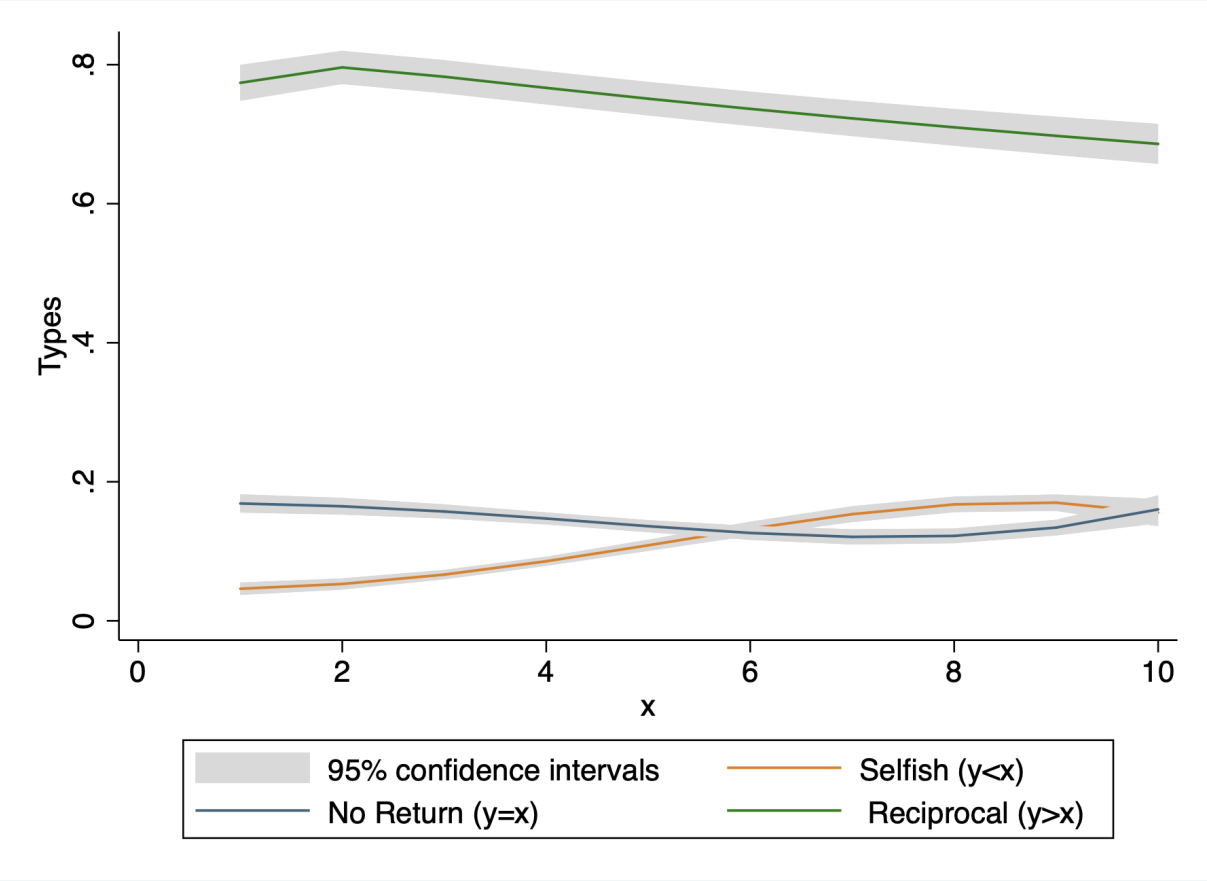


Figure 6. The evolution of reciprocal strategies over the amount transferred

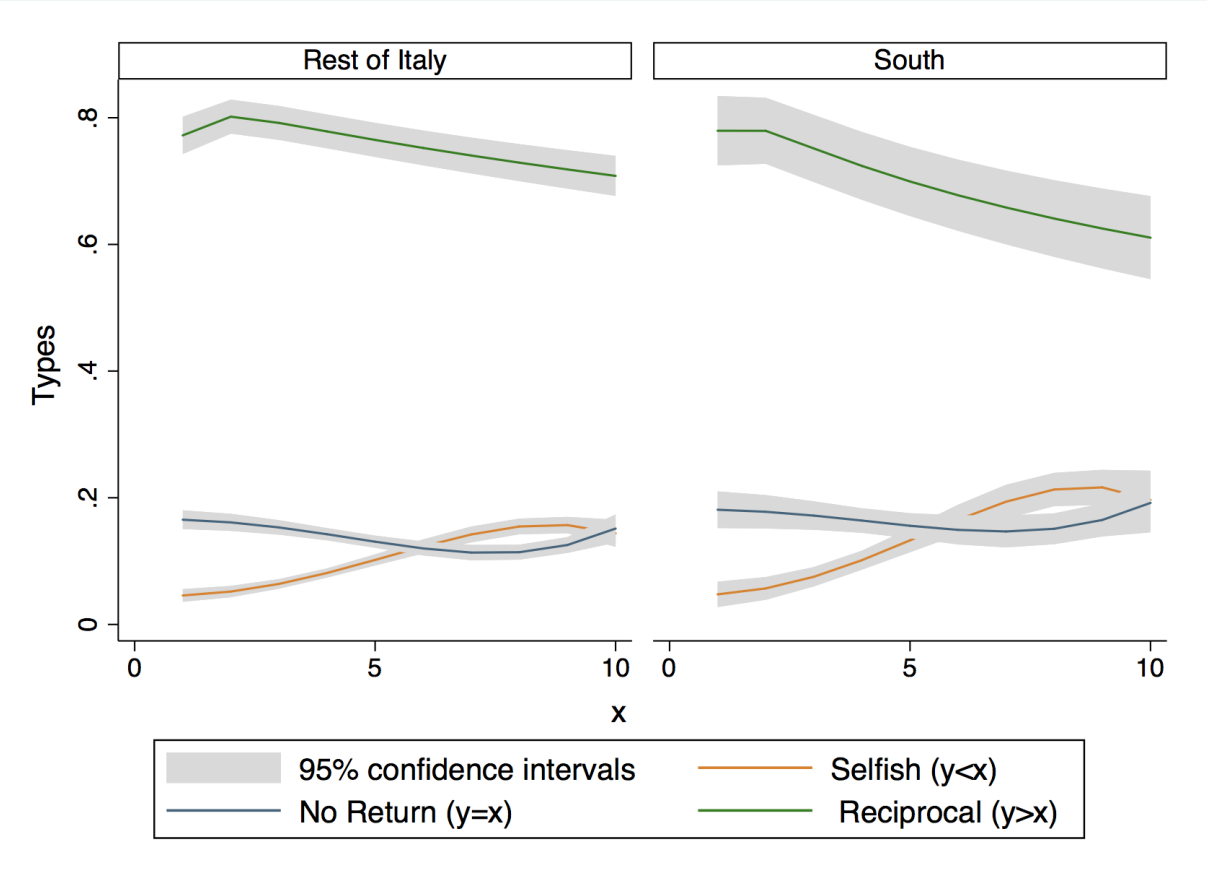


Table 1a. Socio-demographic composition of the sample

	Variable	Observations	Share
Place of residence	North-West	299	29.5%
	North-East	176	17.3%
	Center	211	20.8%
	South	223	22.0%
	Islands	106	10.4%
Gender	Male	500	49.3%
	Female	515	50.7%
Age	18-24	119	11.7%
	25-34	199	19.6%
	35-44	236	23.3%
	45-54	264	26.0%
	55-64	197	19.4%
Education	High school or less	516	50.8%
	Some college or other non-tertiary	173	17.0%
	Tertiary diploma	326	32.1%
People in household	One	115	11.3%
	Two	223	22.0%
	Three	282	27.8%
	Four	309	30.4%
	Five or more	86	8.5%
Income	0 to 350	248	24.4%
	400 to 7,000	158	15.6%
	7,600 to 20,000	241	23.7%
	20,500 to 28,000	172	16.9%
	29,000 to 350,000,000	196	19.3%
Employment status	Employed	565	55.7%
	Self-employed	112	11.0%
	Unemployed	134	13.2%
	Inactive	204	20.1%
Marital status	Single	370	36.5%
	Married	551	54.3%
	Other	94	9.3%
Urbanization of residence area	Rural area	146	14.4%
	Village	375	36.9%
	Town	229	22.6%
	Small/medium metropolitan area	147	14.5%
	Large metropolitan area	118	11.6%
Mother's education	Less than secondary	545	53.7%
	Secondary or tertiary	470	46.3%
Father's education	Less than secondary	592	58.3%
	Secondary or tertiary	423	41.7%

Table 1b. Sample representativeness

	Variable	Official statistics						Trustlab sample					
		Italy	North		Center	South and Islands		Italy	North		Center	South and Islands	
			North-West	North-East		South	Islands		North-West	North-East		South	Islands
Gender	Male	48.7	48.7	48.7	48.3	48.8	48.8	49.3	47.2	47.7	49.8	53.8	47.2
	Female	51.3	51.3	51.3	51.7	51.2	51.2	50.7	52.8	52.3	50.2	46.2	52.8
Age	18-24	11.2	10.6	10.7	10.5	12.6	12.1	11.7	10.7	13.6	9	15.3	9.4
	25-34	17.9	17.1	16.9	17.4	19.5	19.2	19.6	19.4	22.2	18	19.3	19.8
	35-44	22.6	22.8	22.8	23.2	22	22.1	23.3	23.1	20.5	24.6	23.8	24.5
	45-54	26.4	27.5	27.5	27	24.7	24.8	26	27.1	26.1	27.5	20.6	31.1
	55-64	21.8	22.1	22.1	22	21.2	21.8	19.4	19.7	17.6	20.9	21.1	15.1
Education	Less than high school	41.2	39	36.7	35.3	48.7		9.4	8.7	15.3	5.7	9.1	
	High school diploma	42.3	43.3	46	44.5	38.2		58.5	60.5	55.1	56.4	59.9	
	Tertiary diploma	16.5	17.7	17.3	20.3	13.1		32.1	30.8	29.6	37.9	31	
Employment status	Employed and Self-emp.	58	66.2	67.4	62.8	44		66.7	67.9	72.2	69.2	61.1	
	Unemployed	7.5	5.4	4.6	7.1	10.8		13.2	11.4	12.5	10.9	16.7	
	Inactive	34.6	28.3	28	30.1	45.2		20.1	20.7	15.3	19.9	22.2	
Household income	First quintile	20	20.4		15	22.6		20.3	13.9		20.9	29.2	
	Second quintile	20	17.2		17	26		20	17.1		18	25.5	
	Third quintile	20	17.5		20.6	23.4		21.2	22.7		23.2	17.6	
	Fourth quintile	20	20.6		22.9	17.3		18.7	21.7		19	14.3	
	Fifth quintile	20	24.3		24.4	10.6		19.8	24.6		19	13.4	

Notes: official statistics on the Italian population's gender, age, education and employment status retrieved from Istat data warehouse (as of 2017 or closest date available); on household income from Bank of Italy's *Survey on Household Income and Wealth* (2016).

Table 2a. Descriptive statistics of main dependent variables

Variable	Obs	Mean	Std. Dev.	Min	Max
Trust	1015	6.00	2.93	0	10
Trustworthiness	1015	9.44	5.18	0	25
Expected trustworthiness	1015	9.89	5.51	0	25
Altruism	1015	4.32	2.29	0	10
Cooperation	1015	6.00	2.87	0	10
Conditional cooperation	1015	0.63	0.42	-1	1.18
Risk propensity	1015	2.84	1.59	1	6
Generalized trust question	1010	6.08	2.11	0	10
Frequency of voluntary works	1015	0.75	0.90	0	4
Frequency of encounters with friends	1015	2.14	0.93	0	4

Table 2b. Descriptive statistics of personality traits

Personality trait	Obs	Mean	Std. Dev.	Min	Max
Openness	1001	3.62	0.76	1	5
Conscientiousness	1001	3.81	0.76	1	5
Extraversion	1011	2.94	0.80	1	5
Agreeableness	1003	3.90	0.68	1.33	5
Neuroticism	1012	3.08	0.84	1	5

Table 3a. Macroareas differences in trust, trustworthiness and expected trustworthiness

	GTQ		Trust		Trustworthiness		Expected trustworthiness	
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
North-east	-0.330	-0.276	-0.190	-0.211	-1.058**	-1.135**	-0.522	-0.483
	(0.205)	(0.194)	(0.284)	(0.288)	(0.484)	(0.489)	(0.514)	(0.520)
Center	-0.296	-0.264	-0.135	-0.192	-1.154**	-1.133**	-0.591	-0.596
	(0.181)	(0.175)	(0.267)	(0.273)	(0.484)	(0.492)	(0.487)	(0.499)
South	-0.375*	-0.394**	-0.124	-0.0706	-1.276***	-1.407***	0.0577	-0.123
	(0.202)	(0.199)	(0.266)	(0.271)	(0.468)	(0.469)	(0.506)	(0.509)
Islands	0.0433	-0.0268	0.404	0.510	0.234	0.418	1.349*	1.303*
	(0.242)	(0.236)	(0.353)	(0.351)	(0.696)	(0.713)	(0.733)	(0.732)
Openness		-0.0823		-0.212		-0.389		-0.437*
		(0.0950)		(0.133)		(0.239)		(0.250)
Conscientiousness		-0.211*		-0.0661		-0.174		-0.0581
		(0.114)		(0.156)		(0.286)		(0.301)
Extraversion		0.480***		-0.159		-0.0281		0.615***
		(0.0891)		(0.127)		(0.205)		(0.213)
Agreeableness		0.241**		0.123		0.330		0.332
		(0.117)		(0.151)		(0.282)		(0.297)
Neuroticism		-0.447***		-0.243**		-0.216		-0.0860
		(0.0866)		(0.115)		(0.198)		(0.212)
Female	-0.0551	-0.0160	-0.611***	-0.455**	-0.416	-0.303	0.0386	-0.0877
	(0.146)	(0.146)	(0.196)	(0.205)	(0.346)	(0.365)	(0.361)	(0.377)
Age 25-34	0.0130	-0.0884	0.361	0.396	0.691	0.474	1.146	1.147
	(0.271)	(0.277)	(0.381)	(0.396)	(0.694)	(0.717)	(0.698)	(0.717)
Age 35-44	0.266	0.192	-0.0722	-0.110	-0.160	-0.447	0.915	0.817
	(0.289)	(0.296)	(0.411)	(0.425)	(0.695)	(0.721)	(0.743)	(0.765)
Age 45-54	0.0852	0.0521	-0.206	-0.264	-0.0212	-0.150	0.969	1.034
	(0.289)	(0.298)	(0.411)	(0.423)	(0.719)	(0.753)	(0.762)	(0.780)
Age 55-64	0.244	0.267	-0.344	-0.376	-0.0192	-0.130	1.736**	1.805**
	(0.305)	(0.314)	(0.427)	(0.437)	(0.736)	(0.770)	(0.781)	(0.799)
People in household	0.0688	0.0713	-0.0785	-0.0643	0.0475	0.0485	0.0224	0.0520
	(0.0614)	(0.0599)	(0.0858)	(0.0866)	(0.151)	(0.155)	(0.168)	(0.174)
Some college/non tertiary	-0.0815	-0.00720	0.370	0.457*	0.0714	0.0500	-0.671	-0.650
	(0.203)	(0.195)	(0.265)	(0.268)	(0.441)	(0.433)	(0.490)	(0.478)
Tertiary education	0.0622	0.120	0.00929	0.0278	0.158	0.261	-0.633	-0.516
	(0.164)	(0.161)	(0.218)	(0.223)	(0.400)	(0.411)	(0.431)	(0.445)
Personal income (log)	0.0456	0.0236	0.0792**	0.0608	0.0649	0.0144	0.0387	0.0232
	(0.0303)	(0.0289)	(0.0380)	(0.0394)	(0.0686)	(0.0690)	(0.0749)	(0.0770)
Self-employed	-0.472**	-0.455**	0.412	0.390	-0.544	-0.409	-0.889	-0.772
	(0.226)	(0.213)	(0.319)	(0.319)	(0.468)	(0.476)	(0.558)	(0.556)
Unemployed	-0.107	-0.165	0.216	0.127	-0.134	-0.463	-0.885	-0.962
	(0.223)	(0.221)	(0.344)	(0.356)	(0.617)	(0.627)	(0.608)	(0.628)
Inactive	-0.231	-0.328	0.145	-0.0422	-0.207	-0.657	-0.806	-0.921
	(0.239)	(0.235)	(0.326)	(0.338)	(0.591)	(0.599)	(0.617)	(0.637)
Married	0.433**	0.300*	0.0730	-0.0379	-0.567	-0.632	-0.471	-0.701
	(0.178)	(0.175)	(0.256)	(0.261)	(0.452)	(0.470)	(0.506)	(0.519)
Other	0.0150	-0.318	-0.128	-0.392	-0.353	-0.581	-1.080	-1.285*
	(0.284)	(0.287)	(0.372)	(0.379)	(0.656)	(0.679)	(0.702)	(0.738)
Rural area	0.442**	0.336*	0.316	0.293	-0.213	-0.182	0.474	0.444
	(0.200)	(0.196)	(0.293)	(0.300)	(0.496)	(0.506)	(0.540)	(0.543)
Town	0.292	0.263	0.310	0.345	-0.0413	0.0503	0.0421	0.142
	(0.178)	(0.178)	(0.248)	(0.251)	(0.433)	(0.441)	(0.477)	(0.484)
Small/medium metro. area	-0.0923	-0.0427	0.250	0.0968	-0.0244	-0.0368	0.466	0.157
	(0.219)	(0.205)	(0.292)	(0.296)	(0.525)	(0.527)	(0.568)	(0.568)
Large metropolitan area	0.311	0.221	0.220	0.253	0.0855	0.210	0.0361	0.00883
	(0.232)	(0.221)	(0.327)	(0.333)	(0.654)	(0.670)	(0.621)	(0.639)
Educated father	-0.0409	-0.0578	-0.214	-0.211	-0.201	-0.119	-0.186	-0.236
	(0.162)	(0.156)	(0.226)	(0.229)	(0.384)	(0.389)	(0.407)	(0.406)
Educated mother	-0.0383	-0.0121	0.00467	-0.0809	0.392	0.362	0.143	0.343
	(0.166)	(0.162)	(0.234)	(0.237)	(0.394)	(0.403)	(0.433)	(0.437)
Observations	1,010	975	1,015	979	1,015	979	1,015	979
R-squared	0.045	0.122	0.034	0.047	0.030	0.040	0.031	0.043

Notes: Robust standard errors in parentheses. *** p<0.01, ** p<0.05, * p<0.1.

Table 3b. Trust, trustworthiness and expected trustworthiness (south vs. rest of Italy)

	GTQ		Trust		Trustworthiness		Expected trustworthiness	
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
South	-0.230	-0.260	-0.107	-0.0501	-0.776**	-0.924**	0.126	-0.0571
	(0.178)	(0.177)	(0.232)	(0.238)	(0.391)	(0.394)	(0.448)	(0.453)
Openness		-0.0819		-0.210		-0.385		-0.428*
		(0.0949)		(0.133)		(0.242)		(0.252)
Conscientiousness		-0.211*		-0.0585		-0.169		-0.0417
		(0.113)		(0.155)		(0.288)		(0.304)
Extraversion		0.487***		-0.154		0.00200		0.630***
		(0.0892)		(0.127)		(0.207)		(0.215)
Agreeableness		0.232**		0.113		0.291		0.308
		(0.118)		(0.152)		(0.283)		(0.300)
Neuroticism		-0.451***		-0.261**		-0.246		-0.131
		(0.0863)		(0.114)		(0.196)		(0.210)
Controls	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Observations	1,010	975	1,015	979	1,015	979	1,015	979
R-squared	0.040	0.119	0.031	0.043	0.020	0.029	0.021	0.034

Notes: Robust standard errors in parentheses. *** p<0.01, ** p<0.05, * p<0.1.

Table 4a. Differences in altruism, cooperation and risk propensity by macroarea

	Altruism		Cooperation		Cond. cooperation		Risk propensity	
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
North-east	-0.247	-0.282	-0.246	-0.250	-0.000117	-0.0180	-0.0559	-0.107
	(0.215)	(0.213)	(0.268)	(0.269)	(0.0390)	(0.0397)	(0.150)	(0.151)
Center	-0.395*	-0.343	0.341	0.279	0.00601	0.0156	-0.0868	-0.0836
	(0.217)	(0.220)	(0.261)	(0.264)	(0.0380)	(0.0384)	(0.148)	(0.151)
South	-0.110	-0.0984	-0.0428	-0.0613	-0.00652	-0.0146	0.132	0.123
	(0.208)	(0.214)	(0.263)	(0.268)	(0.0370)	(0.0376)	(0.151)	(0.155)
Islands	0.359	0.408	0.362	0.355	-0.0130	-0.000382	0.0818	0.0320
	(0.290)	(0.291)	(0.343)	(0.347)	(0.0494)	(0.0496)	(0.192)	(0.193)
Openness		0.0561		0.0905		0.0147		0.0906
		(0.104)		(0.126)		(0.0178)		(0.0742)
Conscientiousness		-0.205*		0.219		-0.00347		-0.0925
		(0.122)		(0.153)		(0.0235)		(0.0856)
Extraversion		0.151		-0.127		-0.0197		0.0678
		(0.0972)		(0.127)		(0.0168)		(0.0690)
Agreeableness		-0.111		0.0301		0.0291		0.0930
		(0.115)		(0.146)		(0.0206)		(0.0861)
Neuroticism		-0.0270		-0.129		-0.0275*		-0.0267
		(0.0906)		(0.113)		(0.0161)		(0.0641)
Controls	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Observations	1,015	979	1,015	979	1,015	979	1,015	979
R-squared	0.033	0.039	0.047	0.059	0.067	0.075	0.027	0.035

Notes: Robust standard errors in parentheses. *** p<0.01, ** p<0.05, * p<0.1.

Table 4b. Altruism, cooperation and risk tolerance (south vs. rest of Italy)

	Altruism		Cooperation		Cond. cooperation		Risk propensity	
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
South	-0.00621	-0.00821	-0.128	-0.129	-0.00610	-0.0144	0.155	0.164
	(0.178)	(0.185)	(0.228)	(0.234)	(0.0327)	(0.0335)	(0.129)	(0.132)
Openness		0.0596		0.0833		0.0141		0.0906
		(0.105)		(0.125)		(0.0178)		(0.0740)
Conscientiousness		-0.201		0.235		-0.00284		-0.0917
		(0.122)		(0.153)		(0.0235)		(0.0858)
Extraversion		0.160		-0.130		-0.0198		0.0702
		(0.0978)		(0.126)		(0.0168)		(0.0687)
Agreeableness		-0.123		0.0208		0.0286		0.0895
		(0.116)		(0.146)		(0.0207)		(0.0859)
Neuroticism		-0.0429		-0.149		-0.0281*		-0.0295
		(0.0909)		(0.114)		(0.0159)		(0.0638)
Controls	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Observations	1,015	979	1,015	979	1,015	979	1,015	979
R-squared	0.025	0.031	0.043	0.055	0.067	0.075	0.026	0.034

Notes: Robust standard errors in parentheses. *** p<0.01, ** p<0.05, * p<0.1.

Table 5. Differences in social engagement by macroarea

	Frequency of							
	voluntary work		encounters with friends		voluntary work		encounters with friends	
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
North-east	0.195	0.162	-0.0999	-0.0790				
	(0.189)	(0.191)	(0.180)	(0.181)				
Center	-0.320*	-0.294	0.0984	0.0574				
	(0.188)	(0.197)	(0.172)	(0.174)				
South	0.0635	-0.0647	0.651***	0.624***	0.0262	-0.0806	0.553***	0.550***
	(0.176)	(0.178)	(0.165)	(0.173)	(0.149)	(0.154)	(0.145)	(0.153)
Islands	0.487**	0.342	0.622***	0.500**				
	(0.219)	(0.226)	(0.227)	(0.228)				
Openness		0.322***		0.208**		0.331***		0.208**
		(0.0949)		(0.0891)		(0.0941)		(0.0894)
Conscientiousness		0.118		0.0474		0.119		0.0560
		(0.108)		(0.108)		(0.108)		(0.108)
Extraversion		0.291***		0.422***		0.298***		0.419***
		(0.0855)		(0.0845)		(0.0855)		(0.0845)
Agreeableness		0.102		0.0549		0.0998		0.0541
		(0.110)		(0.103)		(0.108)		(0.102)
Neuroticism		-0.0370		-0.265***		-0.0403		-0.281***
		(0.0842)		(0.0800)		(0.0836)		(0.0799)
Controls	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Observations	1,015	979	1,015	979	1,015	979	1,015	979

Notes: Ordered logit estimates. Robust standard errors in parentheses. *** p<0.01, ** p<0.05, * p<0.1.

Table 6. The rationales of trust

	Trust							
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
South	0.135	-0.0416	-0.0463	0.00559	-0.0538	-0.0683	0.0871	0.0644
	(0.228)	(0.230)	(0.225)	(0.220)	(0.239)	(0.240)	(0.211)	(0.221)
Trustworthiness	0.200***						0.102***	0.127***
	(0.0172)						(0.0207)	(0.0214)
Expected trustworthiness		0.149***					0.0327	0.0365*
		(0.0177)					(0.0209)	(0.0213)
Altruism			0.472***				0.227***	0.335***
			(0.0388)				(0.0462)	(0.0453)
Cooperation				0.433***			0.306***	
				(0.0322)			(0.0349)	
Cond. cooperation					-0.253			-0.0823
					(0.250)			(0.219)
Risk propensity						0.111*	0.00221	0.0377
						(0.0649)	(0.0542)	(0.0568)
Controls	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
PTs	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Observations	979	979	979	979	979	979	979	979
R-squared	0.164	0.118	0.175	0.213	0.044	0.046	0.305	0.233

Notes: Robust standard errors in parentheses. *** p<0.01, ** p<0.05, * p<0.1.

Table 7. The rationales of trustworthiness

	Trustworthiness							
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
South	-0.892**	-0.896***	-0.917**	-0.862**	-0.922**	-0.944**	-0.854***	-0.861***
	(0.375)	(0.341)	(0.371)	(0.383)	(0.394)	(0.396)	(0.327)	(0.328)
Trust	0.632***						0.297***	0.333***
	(0.0615)						(0.0603)	(0.0559)
Expected trustworthiness		0.486***					0.388***	0.393***
		(0.0398)					(0.0396)	(0.0398)
Altruism			0.810***				0.294***	0.331***
			(0.0915)				(0.0856)	(0.0875)
Cooperation				0.479***			0.114**	
				(0.0631)			(0.0560)	
Cond. cooperation					0.130			0.706*
					(0.478)			(0.371)
Risk propensity						0.121	-0.0928	-0.0658
						(0.118)	(0.0920)	(0.0929)
Controls	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
PTs	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Observations	979	979	979	979	979	979	979	979
R-squared	0.152	0.287	0.153	0.096	0.029	0.030	0.353	0.353

Notes: Robust standard errors in parentheses. *** p<0.01, ** p<0.05, * p<0.1.

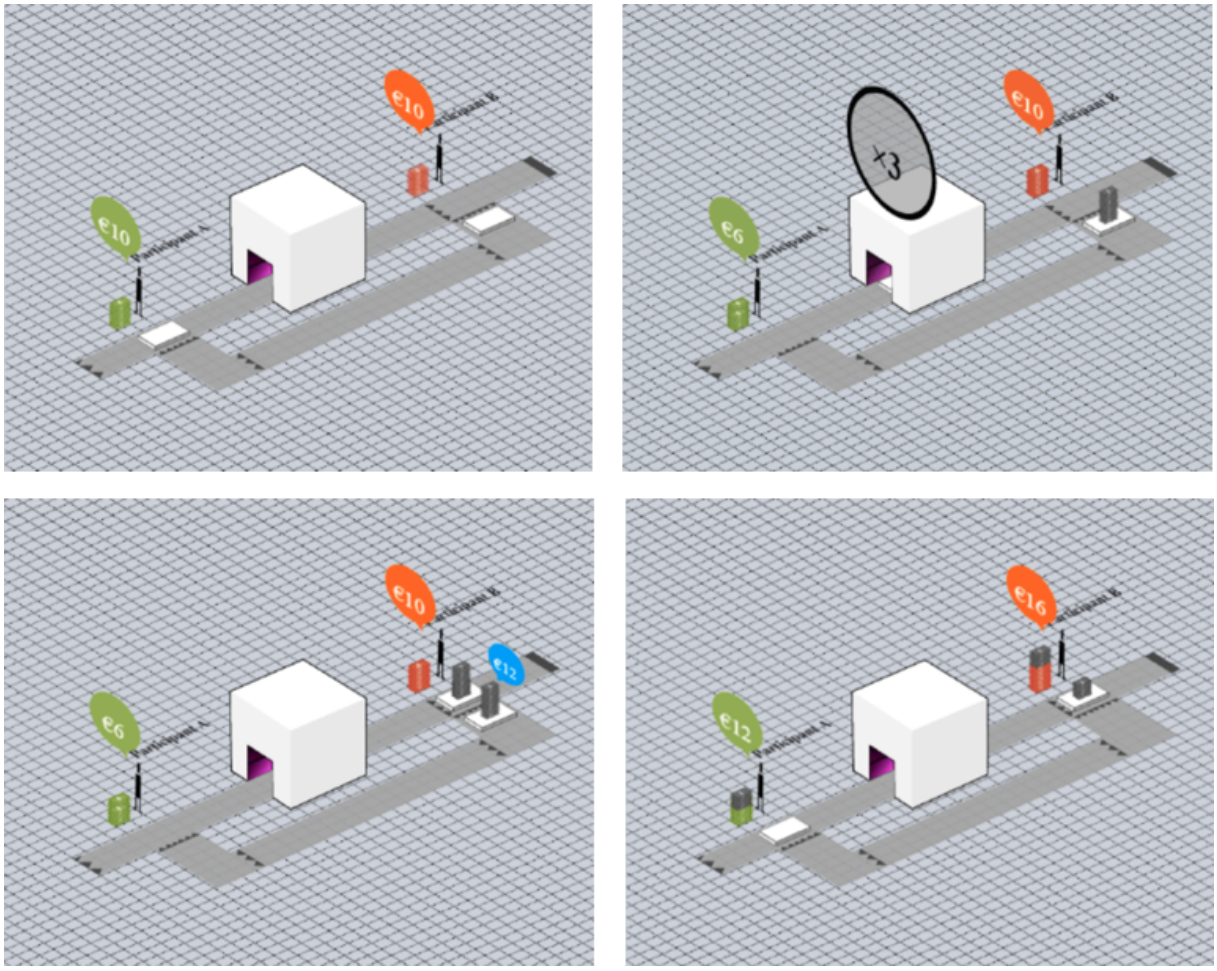
Table 8. The north-south divide in conditional reciprocity (trust game)

	Reciprocity			
	(1)	(2)	(3)	(4)
South	-0.854***	-0.0579	-0.854***	-0.212
	(0.322)	(0.275)	(0.322)	(0.274)
Send	1.475***	1.510***	1.450***	1.462***
	(0.0274)	(0.0302)	(0.0344)	(0.0388)
Send * South		-0.159**		-0.0568
		(0.0702)		(0.0842)
Send squared			0.00254	0.00475
			(0.00254)	(0.00296)
Send squared * South				-0.0102*
				(0.00562)
Trust	0.297***	0.297***	0.297***	0.297***
	(0.0594)	(0.0594)	(0.0594)	(0.0594)
Cooperation	0.114**	0.114**	0.114**	0.114**
	(0.0551)	(0.0552)	(0.0552)	(0.0552)
Expected trustworthiness	0.388***	0.388***	0.388***	0.388***
	(0.0390)	(0.0390)	(0.0390)	(0.0390)
Altruism	0.294***	0.294***	0.294***	0.294***
	(0.0844)	(0.0844)	(0.0844)	(0.0844)
Risk propensity	-0.0928	-0.0928	-0.0928	-0.0928
	(0.0907)	(0.0907)	(0.0907)	(0.0907)
Controls	Yes	Yes	Yes	Yes
PTs	Yes	Yes	Yes	Yes
Observations	10,769	10,769	10,769	10,769
R-squared	0.543	0.544	0.543	0.544

Notes: Robust standard errors in parentheses, clustered at individual level. *** p<0.01, ** p<0.05, * p<0.1.

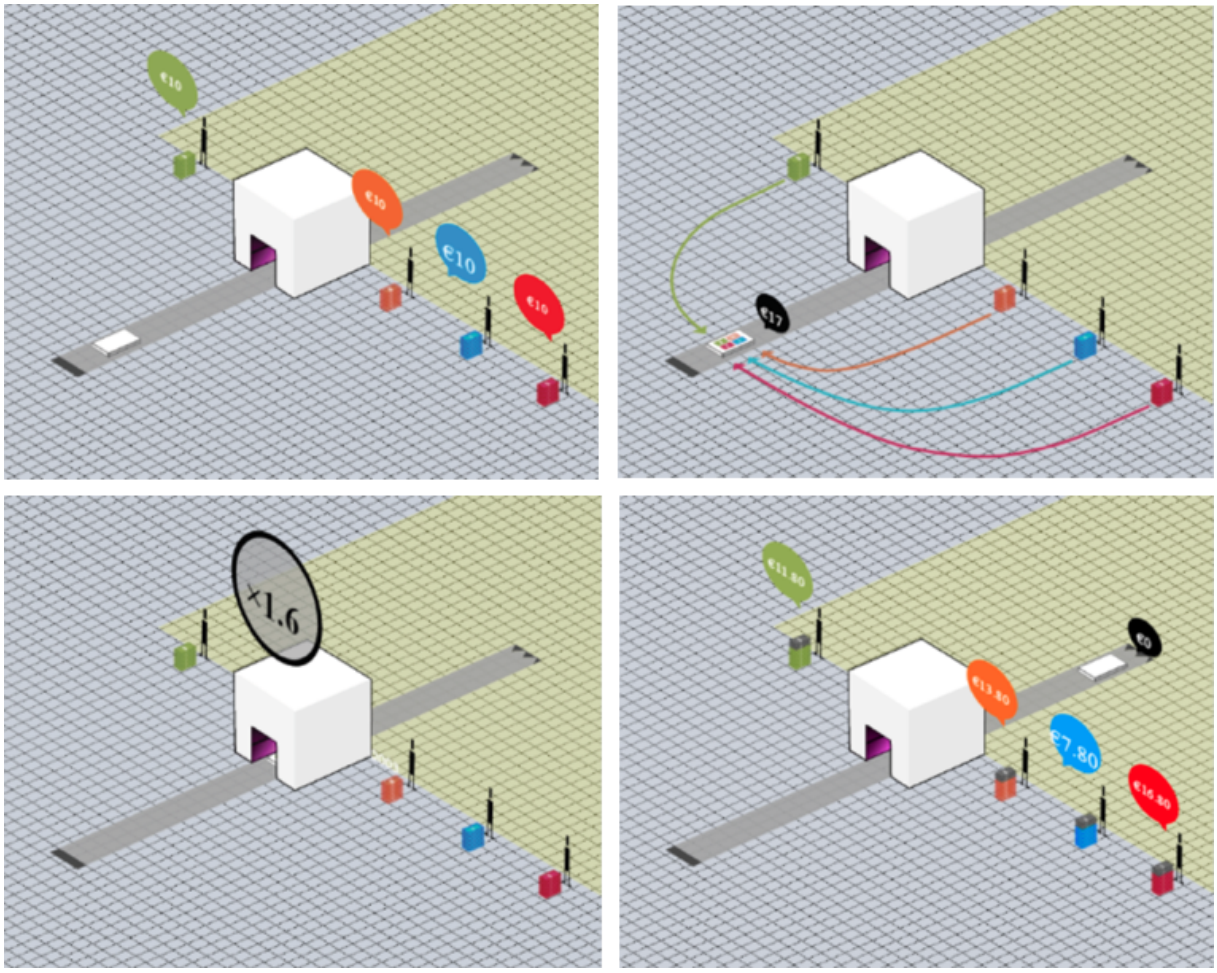
Appendix A

Figure A1. Trust game in the Trustlab on-line platform



Notes: the screens show how respondents interact with the platform while playing the game. Player A chooses how much to transfer to player B (top left), then the amount is tripled (top right) and received by Player B (bottom left), who finally decides how much to return to player A.

Figure A2. Public goods game in the Trustlab on-line platform



Notes: the screens show how respondents interact with the platform while playing the game. Each player chooses how much to contribute to the common project (top left), then the resources are collected into a common pool (top right) and multiplied by a factor of 1.6 (bottom left). The resulting new pool of resources is split equally among the four players (bottom right).

Figure 3. Social engagement and voluntary across the Italian macroareas

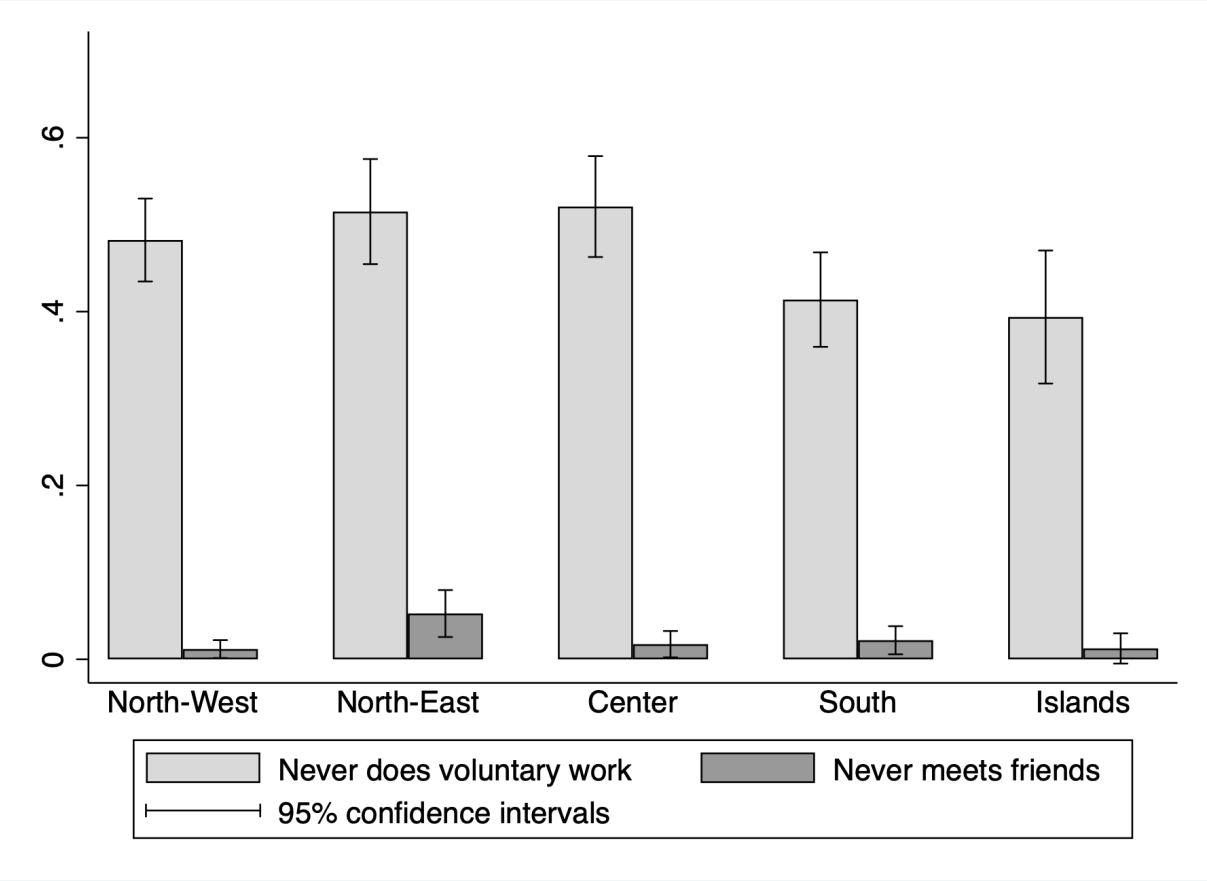
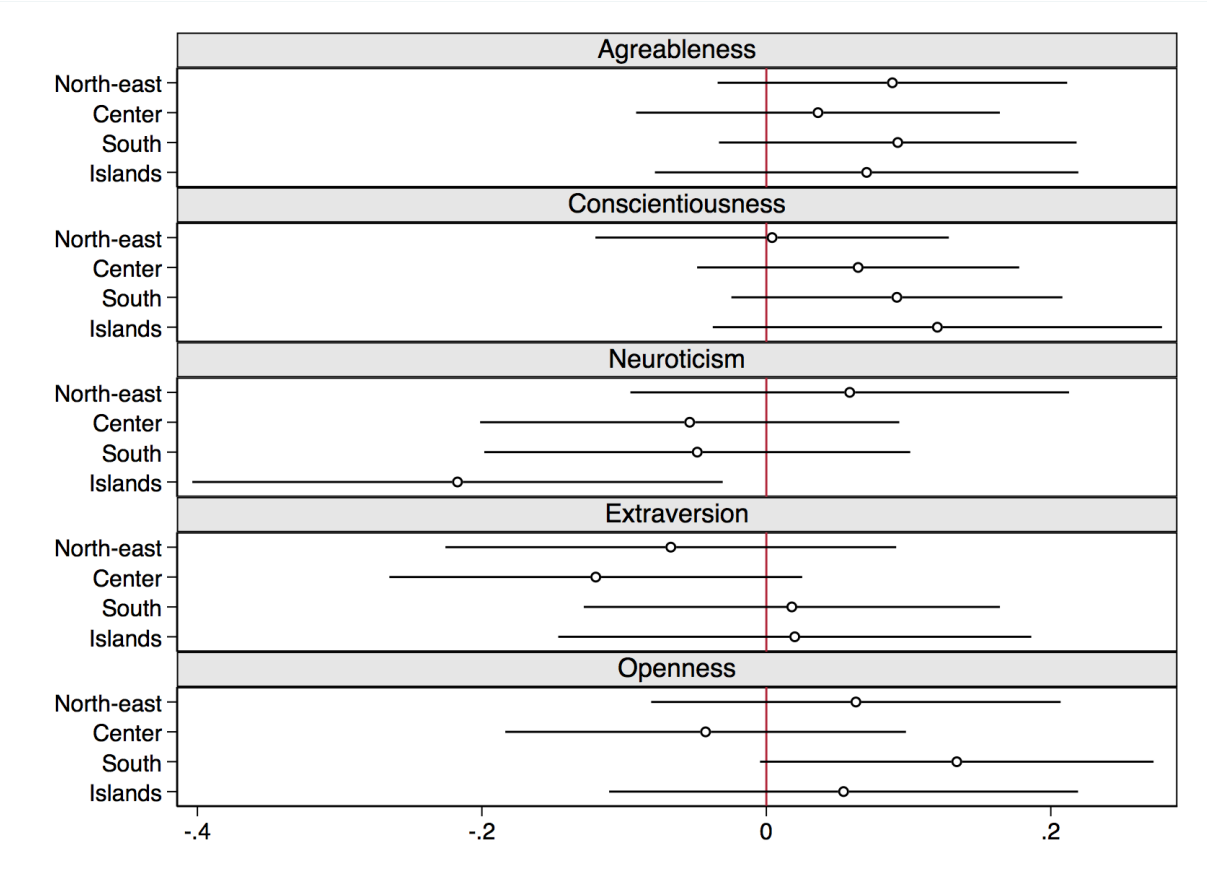


Figure A4. Personality differences across the Italian macroareas



Notes: plot of coefficients of the Italian macroareas and their confidence intervals at the 95% level, from regressions of personality traits on socio-demographic characteristics of Trustlab respondents (the reference macroarea is North-West).

Figure A5. Theoretical trustor's payoffs based on empirical distribution of reciprocity

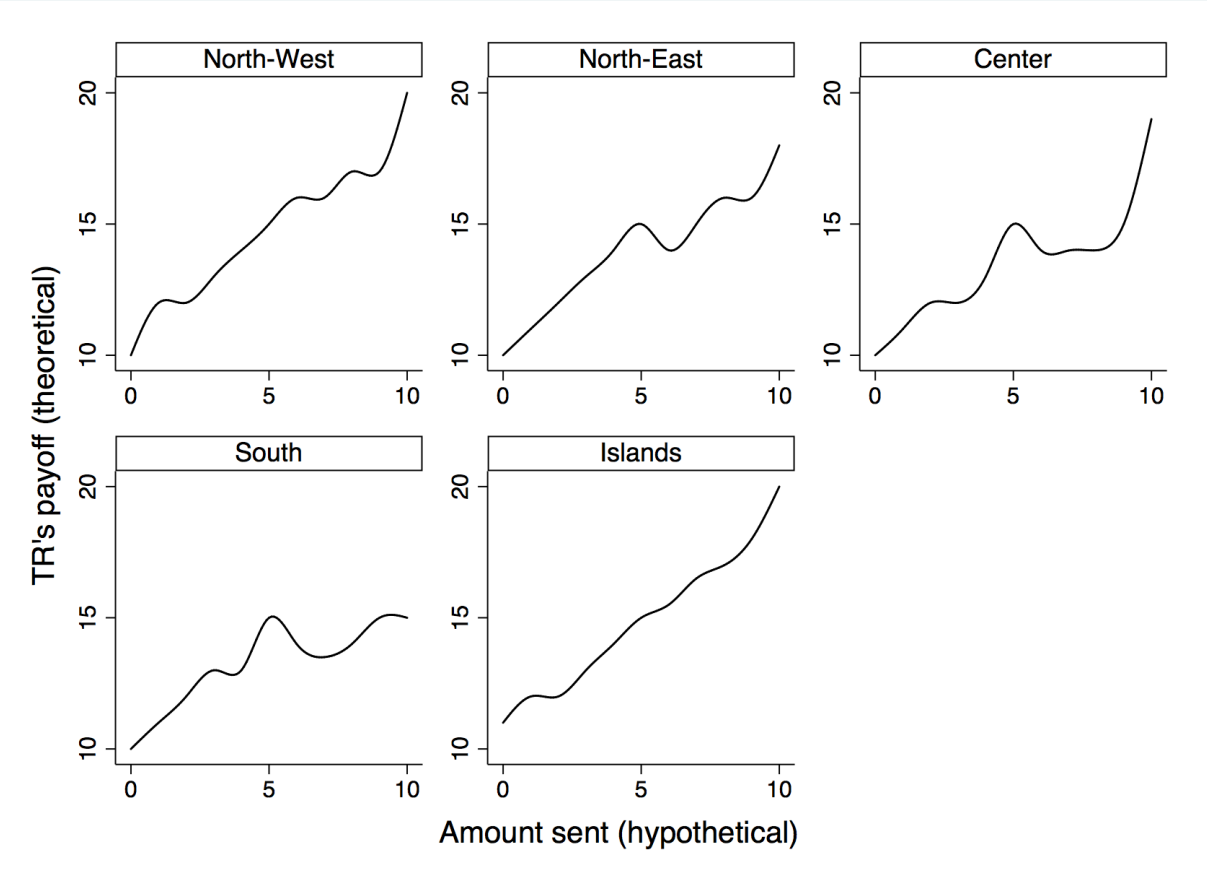


Figure A6. Distribution of trustor's offer

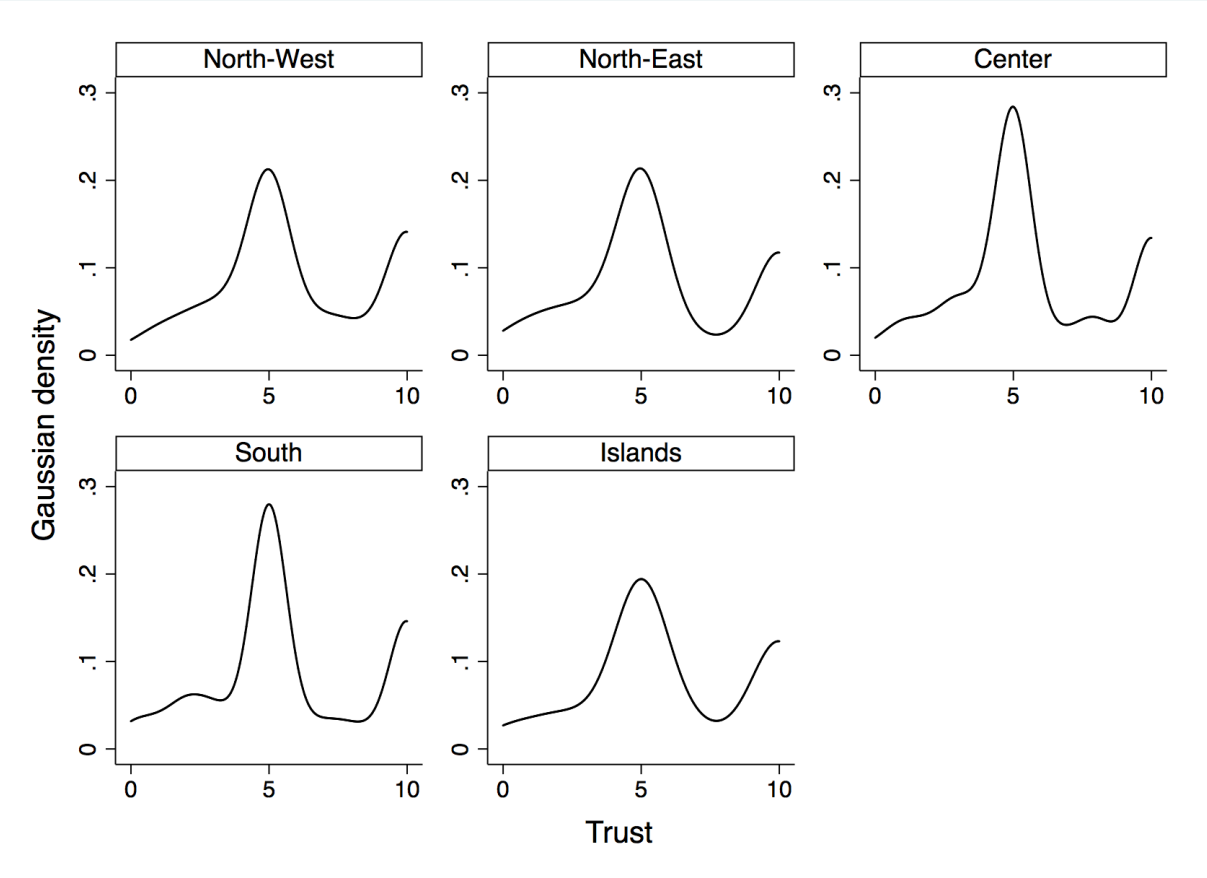


Figure A7. The north-south gap in conditional cooperation (public goods game)

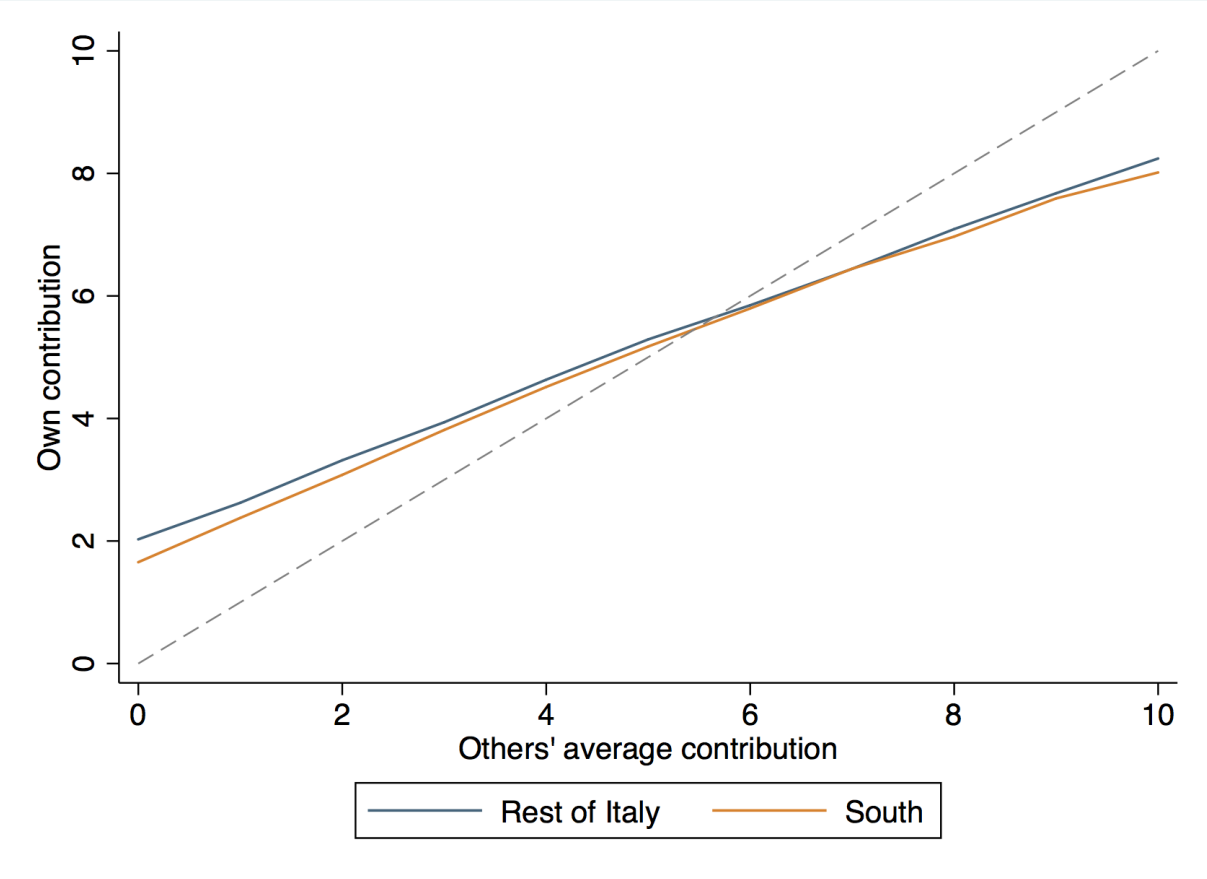
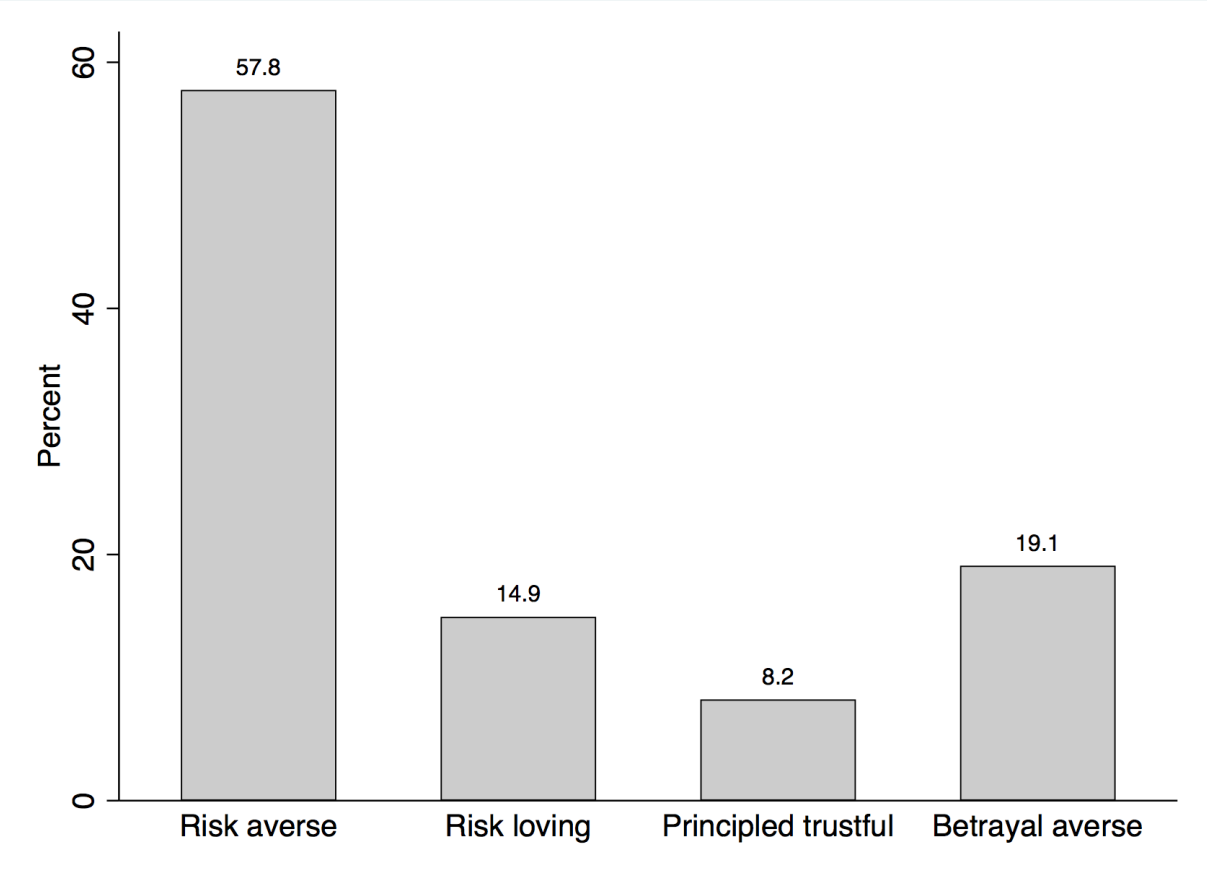


Figure A8. Hypothetical scenarios to assess betrayal aversion

Social risk
For personal reasons, you have to travel to a big city. From the airport you can choose between two taxi companies to reach your final destination for which you don't know the exact route. Company A charges you a fixed price of €12. Company B charges you according to the taxi-meter. If the driver takes the direct route, it costs you €8. However, 1 out of 5 drivers take detours to make more money and the fare is then €16. Which company would you choose?

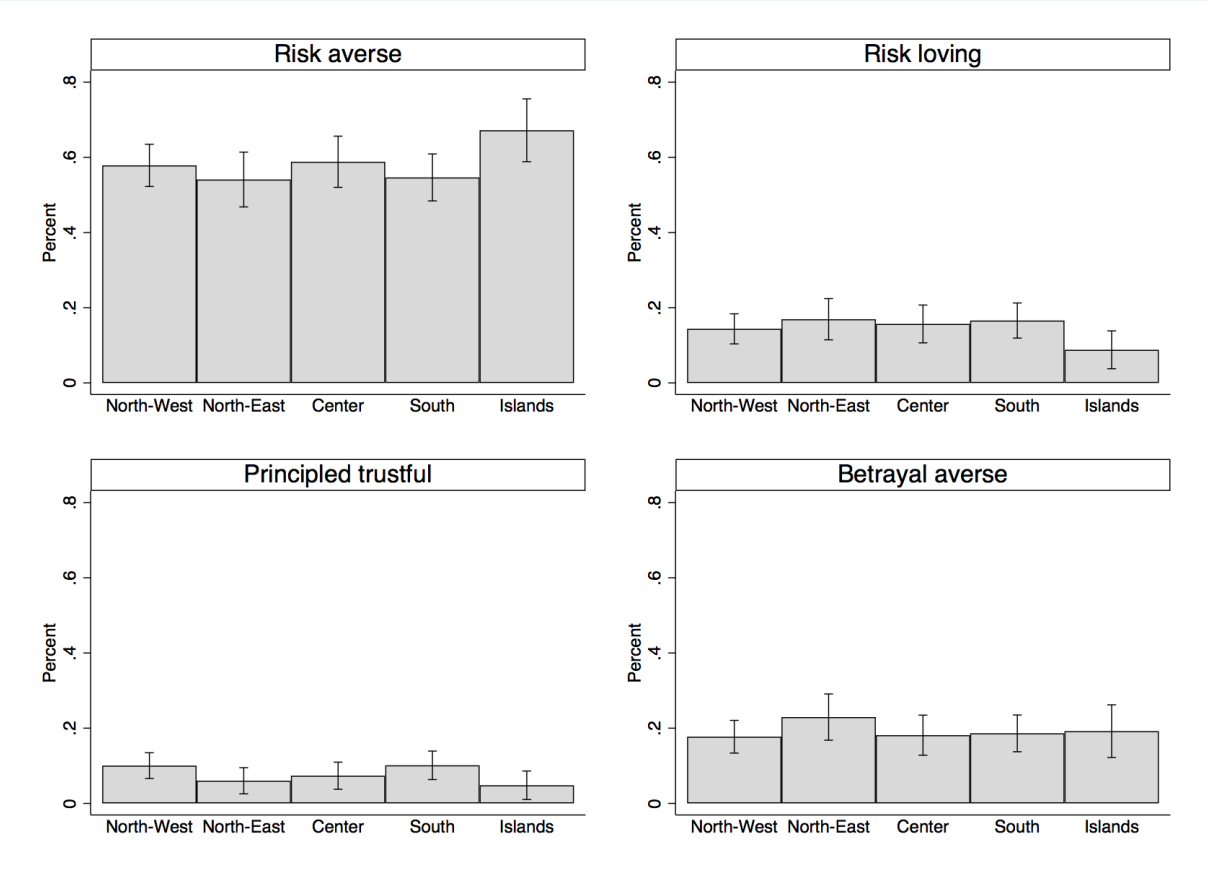
Natural risk
For personal reasons, you have to travel to a big city. From the airport you can choose between two taxi companies to reach your final destination for which you don't know the exact route. Company C charges you a fixed price of €12. Company D charges you according to the taxi meter. If the weather is fine, it costs you €8. However, 1 out of 5 times, due to bad weather conditions the ride takes longer and the fare is then €16. Which company would you choose?

Figure A9. Distribution of risk-propensity types



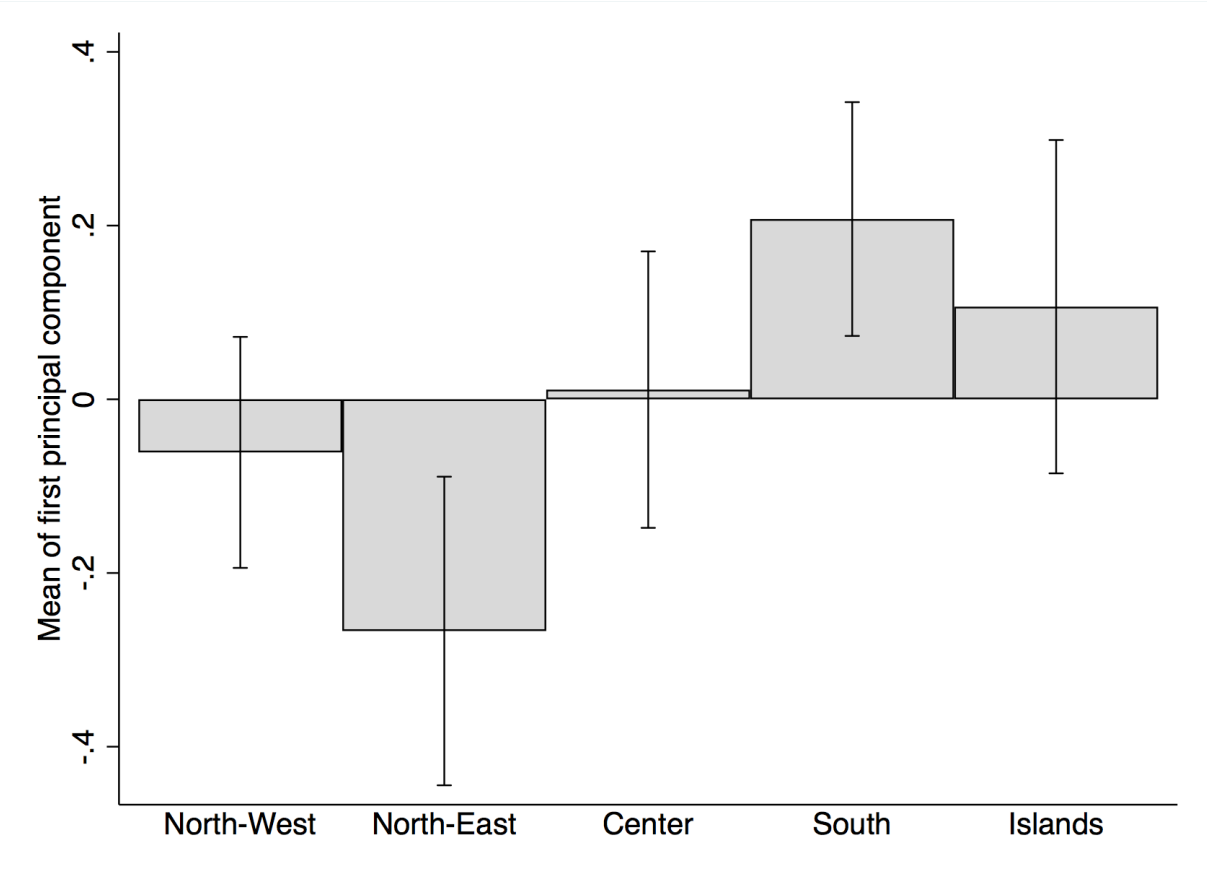
Notes: risk propensity types defined according to the choices taken in the social risk vignette (1) and in the natural risk vignette (2); risk loving types chose the risky option in both (1) and (2), risk averse types chose the safe option in both (1) and (2), principled trustful types chose the risky option in (1) and the safe option in (2), betrayal averse types chose the safe option in (1) and the risky option in (2).

Figure A10. Risk propensity types by macroareas



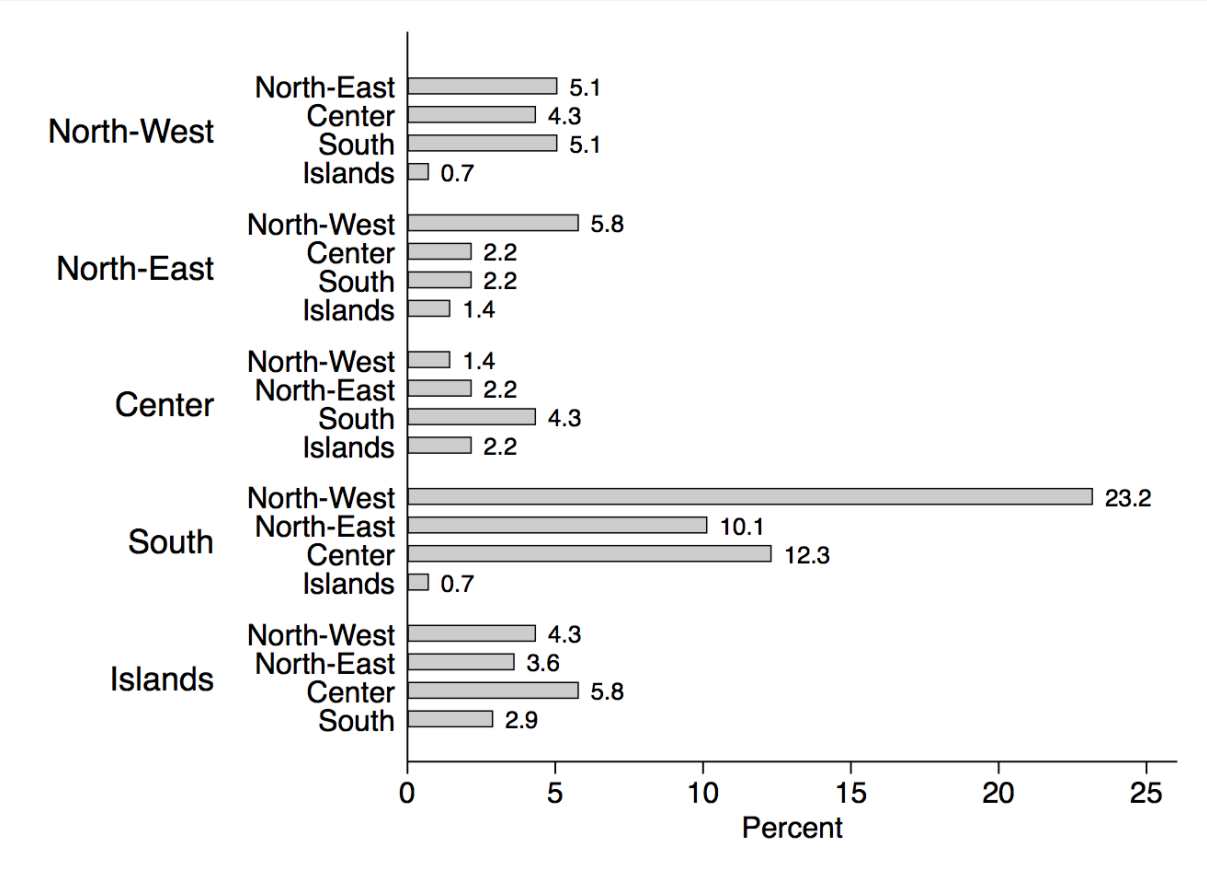
Notes: risk propensity types defined according to the choices taken in the social risk vignette (1) and in the natural risk vignette (2); risk loving types chose the risky option in both (1) and (2), risk averse types chose the safe option in both (1) and (2), principled trustful types chose the risky option in (1) and the safe option in (2), betrayal averse types chose the safe option in (1) and the risky option in (2).

Figure A11. Strength of family ties across Italian macroareas



Notes: family ties measured as first principal component of three questions on the importance of the family, on the children's responsibilities towards parents' responsibilities towards children.

Figure A12. Migration patterns across Italian macroareas



Notes: each bar shows the number of migrants from a macroarea of birth (outer categories) to a macroarea of residence (inner categories) as a percentage of total migrants in the sample.

Figure A13. Experimental trustworthiness by macroarea of residence (only respondents born in the South)

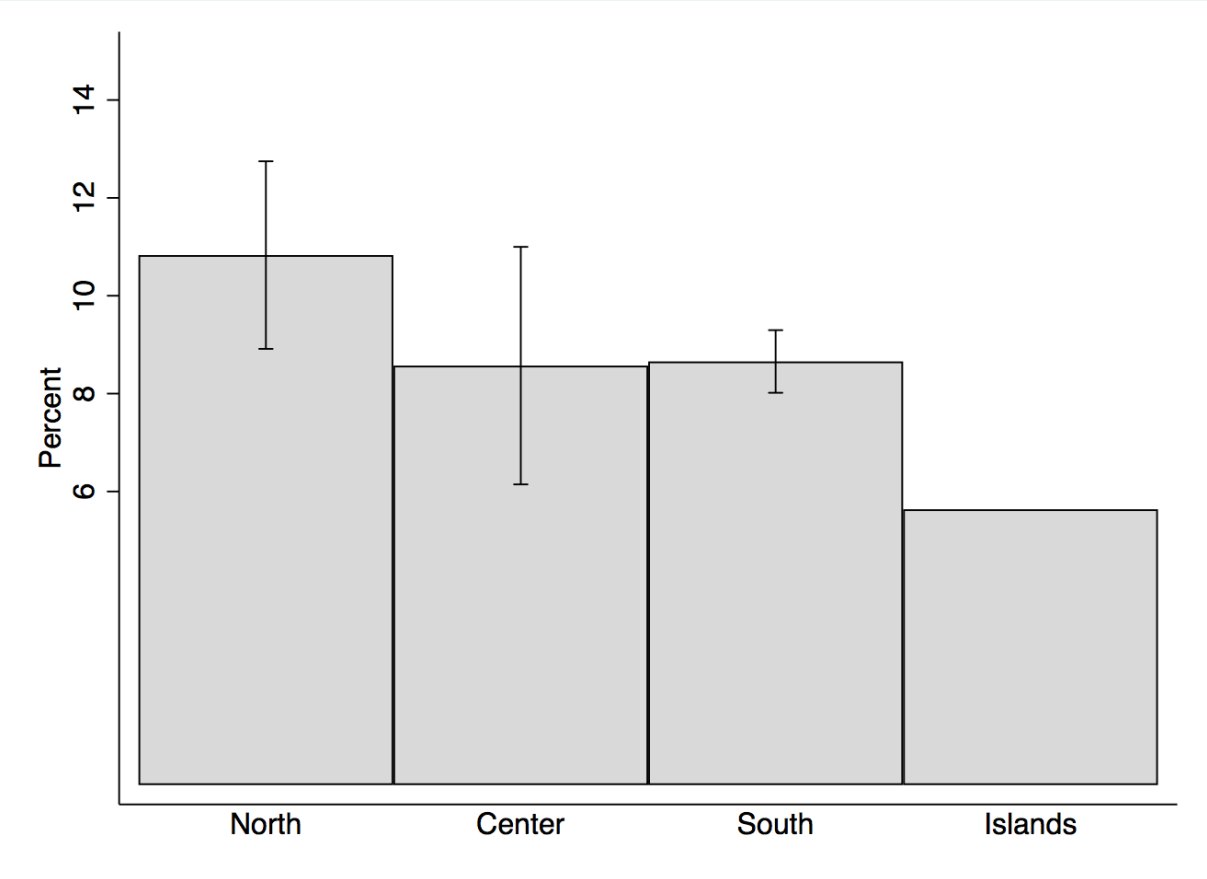


Table A1. Determinants of reciprocal strategies (trust game)

	Selfish		Equal return		Reciprocal	
	(1)	(2)	(3)	(4)	(5)	(6)
South	0.0228	0.00344	0.0330	0.00896	-0.0674**	-0.00818
	(0.0162)	(0.0215)	(0.0229)	(0.0255)	(0.0305)	(0.0358)
Send	0.0131***	0.0124***	-0.00299***	-0.00396***	-0.0125***	-0.0102***
	(0.00128)	(0.00135)	(0.00105)	(0.00114)	(0.00158)	(0.00170)
Send * South		0.00291		0.00416		-0.0100**
		(0.00248)		(0.00278)		(0.00398)
Trust	-0.0109***	-0.0109***	-0.00889**	-0.00890**	0.0226***	0.0226***
	(0.00264)	(0.00264)	(0.00387)	(0.00387)	(0.00505)	(0.00506)
Expected trustworthiness	-0.00428***	-0.00429***	-0.00516**	-0.00517**	0.0104***	0.0105***
	(0.00157)	(0.00157)	(0.00217)	(0.00217)	(0.00294)	(0.00294)
Altruism	-0.00602*	-0.00601*	0.000290	0.000313	0.00631	0.00628
	(0.00361)	(0.00361)	(0.00559)	(0.00559)	(0.00731)	(0.00731)
Cooperation	-0.00962***	-0.00963***	-0.00238	-0.00237	0.0136***	0.0136***
	(0.00279)	(0.00279)	(0.00375)	(0.00375)	(0.00504)	(0.00505)
Risk propensity	0.00913**	0.00914**	-0.00981	-0.00981	0.000089	0.000075
	(0.00412)	(0.00413)	(0.00618)	(0.00618)	(0.00819)	(0.00819)
Controls	Yes	Yes	Yes	Yes	Yes	Yes
PTs	Yes	Yes	Yes	Yes	Yes	Yes
Observations	9,790	9,790	9,790	9,790	9,790	9,790

Notes: Robust standard errors in parentheses, clustered at the individual level. *** p<0.01, ** p<0.05, * p<0.1.

Table A2. The north-south divide in conditional cooperation (public goods game)

	Conditional cooperation			
	(1)	(2)	(3)	(4)
South	-0.0330	-0.0763	-0.0330	-0.202
	(0.135)	(0.214)	(0.135)	(0.221)
Send	0.633***	0.631***	0.700***	0.680***
	(0.0134)	(0.0149)	(0.0219)	(0.0248)
Send * South		0.00866		0.0922*
		(0.0333)		(0.0531)
Send squared			-0.00669***	-0.00489**
			(0.00167)	(0.00190)
Send Squared * South				-0.00835**
				(0.00400)
Trust	0.0876***	0.0876***	0.0876***	0.0876***
	(0.0229)	(0.0229)	(0.0229)	(0.0229)
Trustworthiness	0.107***	0.107***	0.107***	0.107***
	(0.0157)	(0.0157)	(0.0157)	(0.0157)
Expected trustworthiness	-0.0241*	-0.0241*	-0.0241*	-0.0241*
	(0.0140)	(0.0140)	(0.0140)	(0.0140)
Altruism	0.0987***	0.0987***	0.0987***	0.0987***
	(0.0316)	(0.0316)	(0.0316)	(0.0316)
Risk propensity	0.0612	0.0612	0.0612	0.0612
	(0.0379)	(0.0379)	(0.0379)	(0.0379)
Controls	Yes	Yes	Yes	Yes
PTs	Yes	Yes	Yes	Yes
Observations	10,769	10,769	10,769	10,769
R-squared	0.478	0.478	0.479	0.479

Notes: Robust standard errors in parentheses, clustered at the individual level. *** p<0.01, ** p<0.05, * p<0.1.

Table A3. The north-south gap in trustworthiness: the role of social capital

	Trustworthiness			
	(1)	(2)	(3)	(4)
South	-0.879***	-0.856***	-0.838**	-0.855**
	(0.329)	(0.327)	(0.333)	(0.335)
Voted in last election	-0.106			-0.114
	(0.475)			(0.488)
Never volunteers		-0.161		-0.292
		(0.280)		(0.299)
Connectedness with neighbours			-0.0562	-0.0606
			(0.0593)	(0.0625)
Trust	0.284***	0.297***	0.294***	0.281***
	(0.0609)	(0.0603)	(0.0613)	(0.0619)
Expected trustworthiness	0.398***	0.387***	0.392***	0.400***
	(0.0402)	(0.0396)	(0.0401)	(0.0407)
Altruism	0.292***	0.293***	0.305***	0.300***
	(0.0875)	(0.0856)	(0.0865)	(0.0883)
Cooperation	0.100*	0.115**	0.113**	0.101*
	(0.0563)	(0.0560)	(0.0568)	(0.0571)
Risk propensity	-0.108	-0.0911	-0.0900	-0.104
	(0.0934)	(0.0920)	(0.0932)	(0.0946)
Controls	Yes	Yes	Yes	Yes
PTs	Yes	Yes	Yes	Yes
Observations	956	979	965	943
R-squared	0.355	0.353	0.353	0.356

Notes: Robust standard errors in parentheses. *** p<0.01, ** p<0.05, * p<0.1.

Table A4a. Original sample vs. extended sample with population weights

	Trustworthiness			
	(1)	(2)	(3)	(4)
South	-0.854***	-0.861***	-0.980***	-0.986***
	(0.327)	(0.328)	(0.306)	(0.305)
Trust	0.297***	0.333***	0.308***	0.349***
	(0.0603)	(0.0559)	(0.0603)	(0.0555)
Expected trustworthiness	0.388***	0.393***	0.359***	0.363***
	(0.0396)	(0.0398)	(0.0372)	(0.0374)
Altruism	0.294***	0.331***	0.289***	0.333***
	(0.0856)	(0.0875)	(0.0837)	(0.0861)
Cooperation	0.114**		0.122**	
	(0.0560)		(0.0521)	
Cond. cooperation		0.706*		0.841**
		(0.371)		(0.351)
Risk propensity	-0.0928	-0.0658	-0.114	-0.0854
	(0.0920)	(0.0929)	(0.0877)	(0.0877)
Extended sample			-0.146	-0.0903
			(0.351)	(0.353)
Controls	Yes	Yes	Yes	Yes
PTs	Yes	Yes	Yes	Yes
Observations	979	979	1,406	1,406
R-squared	0.353	0.353	0.328	0.329

Notes: Robust standard errors in parentheses. Columns 3 and 4 include population weights adjusting the sample composition to the gender and age-group structure of Italian population as of 2017 by macroarea of residence. *** p<0.01, ** p<0.05, * p<0.1.

Table A4b. Original sample vs. extended sample with population weights

	Reciprocity			
	(1)	(2)	(3)	(4)
South	-0.854***	-0.0579	-0.980***	-0.114
	(0.322)	(0.275)	(0.302)	(0.248)
Send	1.475***	1.510***	1.439***	1.480***
	(0.0274)	(0.0302)	(0.0264)	(0.0296)
Send * South		-0.159**		-0.173***
		(0.0702)		(0.0646)
Trust	0.297***	0.297***	0.308***	0.308***
	(0.0594)	(0.0594)	(0.0597)	(0.0597)
Expected trustworthiness	0.388***	0.388***	0.359***	0.359***
	(0.0390)	(0.0390)	(0.0368)	(0.0368)
Altruism	0.294***	0.294***	0.289***	0.289***
	(0.0844)	(0.0844)	(0.0828)	(0.0828)
Cooperation	0.114**	0.114**	0.122**	0.122**
	(0.0551)	(0.0552)	(0.0515)	(0.0515)
Risk propensity	-0.0928	-0.0928	-0.114	-0.114
	(0.0907)	(0.0907)	(0.0868)	(0.0868)
Extended sample			-0.146	-0.146
Controls	Yes	Yes	Yes	Yes
PTs	Yes	Yes	Yes	Yes
			(0.347)	(0.347)
Observations	10,769	10,769	15,466	15,466
R-squared	0.543	0.544	0.523	0.524

Notes: Robust standard errors in parentheses. Columns 3 and 4 include population weights adjusting the sample composition to the gender and age-group structure of Italian population as of 2017 by macroarea of residence. *** p<0.01, ** p<0.05, * p<0.1.

Table A5. Share of safe choices across vignettes

	Social risk		Natural risk		Difference	Z stat.	p-value
All macroareas	76.84	[42.20]	66.01	[47.39]	10.84	-5.52	0
North-West	75.59	[43.03]	67.89	[46.77]	7.69	-2.09	0.037
North-East	77.05	[42.17]	60.33	[49.06]	16.72	-3.45	0.001
Center	76.96	[42.21]	66.18	[47.43]	10.78	-2.41	0.016
South	73.28	[44.34]	64.78	[47.86]	8.50	-2.04	0.041
Islands	86.40	[34.42]	72.00	[45.08]	14.40	-2.80	0.005

Notes: p-values based on Mann-Whitney U tests.

Table A6. Betrayal aversion in Italy

	Safe choice							
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Social risk treatment	0.0930***	0.0930***	0.0937***	0.0979***	0.0930***	0.0930***	0.0936***	0.0979***
	(0.0170)	(0.0170)	(0.0191)	(0.0198)	(0.0170)	(0.0170)	(0.0191)	(0.0198)
South		-0.0435	-0.0423	-0.0400		-0.0417	-0.0404	-0.0371
		(0.0298)	(0.0379)	(0.0384)		(0.0297)	(0.0377)	(0.0382)
Social risk treatment * South			-0.00256	-0.0119			-0.00255	-0.0119
			(0.0410)	(0.0421)			(0.0410)	(0.0421)
Extended sample	-0.0567**	-0.0561**	-0.0561**	-0.0603*	-0.0568**	-0.0562**	-0.0562**	-0.0599*
	(0.0259)	(0.0259)	(0.0259)	(0.0342)	(0.0259)	(0.0259)	(0.0259)	(0.0342)
Order of vignettes					-0.0485*	-0.0472*	-0.0472*	-0.0540**
(natural risk first)					(0.0252)	(0.0252)	(0.0252)	(0.0245)
Controls	No	No	No	Yes	No	No	No	Yes
PTs	No	No	No	Yes	No	No	No	Yes
Observations	2,117	2,117	2,117	2,035	2,117	2,117	2,117	2,035
R-squared	0.013	0.015	0.015	0.071	0.016	0.018	0.018	0.075

Notes: Robust standard errors in parentheses clustered at individual level. All columns include population weights adjusting the sample composition to the gender and age-group structure of Italian population as of 2017 by macroarea of residence. *** p<0.01, ** p<0.05, * p<0.1.

Table A7. Trustworthiness by type of risk propensity, adjusting for other social preferences

	Trustworthiness				
	(1)	(2)	(3)	(4)	(5)
South	-0.796**	-0.788**	-0.797**	-0.796**	-0.789**
	(0.354)	(0.354)	(0.353)	(0.354)	(0.354)
Risk averse	0.00641				
	(0.312)				
Risk lover		-0.264			-0.229
		(0.385)			(0.410)
Betrayal averse			0.215		0.168
			(0.380)		(0.403)
Principled trustful				-0.0401	-0.0446
				(0.539)	(0.556)
Trust	0.335***	0.337***	0.337***	0.336***	0.338***
	(0.0666)	(0.0665)	(0.0662)	(0.0666)	(0.0666)
Expected trustworthiness	0.331***	0.330***	0.331***	0.331***	0.330***
	(0.0429)	(0.0429)	(0.0429)	(0.0430)	(0.0430)
Altruism	0.256***	0.254***	0.257***	0.256***	0.254***
	(0.0902)	(0.0898)	(0.0900)	(0.0900)	(0.0900)
Cooperation	0.108*	0.108*	0.107*	0.108*	0.108*
	(0.0590)	(0.0590)	(0.0590)	(0.0590)	(0.0591)
Risk propensity	-0.0831	-0.0826	-0.0856	-0.0828	-0.0841
	(0.110)	(0.110)	(0.110)	(0.110)	(0.110)
Extended sample	-0.0362	-0.0250	-0.0317	-0.0345	-0.0203
	(0.426)	(0.427)	(0.427)	(0.427)	(0.427)
Controls	Yes	Yes	Yes	Yes	Yes
PTs	Yes	Yes	Yes	Yes	Yes
Observations	1,017	1,017	1,017	1,017	1,017
R-squared	0.306	0.306	0.306	0.306	0.307

Notes: Robust standard errors in parentheses. Risk propensity types are defined as follows: *risk averse* types made a safe choice in both vignettes; *risk lover* types made a risky choice in both vignettes; *betrayal averse* types chose the risky option in the natural risk vignette and the safe option in the social risk vignette; *principled trustful* types chose the safe option in the natural risk vignette and the risky option in the social risk vignette. All columns include population weights adjusting the sample composition to the gender and age-group structure of Italian population as of 2017 by macroarea of residence. *** p<0.01, ** p<0.05, * p<0.1.

Table A8. The north-south divide in strength of family ties

	Family ties
South	0.235***
	(0.0853)
Extended sample	-0.0360
	(0.103)
Controls	Yes
PTs	Yes
Observations	1,016
R-squared	0.163

Notes: Robust standard errors in parentheses. The dependent variable is the first principal component extracted from three survey questions on family importance and responsibilities of family members. Included population weights adjusting the sample composition to the gender and age-group structure of Italian population as of 2017 by macroarea of residence. *** p<0.01, ** p<0.05, * p<0.1.

Table A9. The north-south divide in trustworthiness accounting for family ties

	Trustworthiness	
	(1)	(2)
South	-0.732**	-0.725**
	(0.355)	(0.353)
Family ties	-0.279*	-0.253*
	(0.143)	(0.143)
Trust	0.341***	0.374***
	(0.0667)	(0.0613)
Expected trustworthiness	0.331***	0.338***
	(0.0426)	(0.0427)
Altruism	0.256***	0.293***
	(0.0899)	(0.0922)
Cooperation	0.110*	
	(0.0588)	
Cond. cooperation		0.888**
		(0.419)
Risk propensity	-0.0938	-0.0485
	(0.110)	(0.109)
Extended sample	-0.0570	-0.0382
	(0.427)	(0.428)
Controls	Yes	Yes
PTs	Yes	Yes
Observations	1,016	1,016
R-squared	0.310	0.312

Notes: Robust standard errors in parentheses. Both columns include population weights adjusting the sample composition to the gender and age-group structure of Italian population as of 2017 by macroarea of residence. *** p<0.01, ** p<0.05, * p<0.1.

Table A10. The north-south divide in reciprocity accounting for family ties

	Reciprocity	
	(1)	(2)
South	-0.732**	0.107
	(0.349)	(0.296)
Send	1.421***	1.464***
	(0.0306)	(0.0350)
Send * South		-0.168**
		(0.0708)
Family ties	-0.279**	-0.279**
	(0.141)	(0.141)
Trust	0.341***	0.341***
	(0.0657)	(0.0657)
Expected trustworthiness	0.331***	0.331***
	(0.0420)	(0.0420)
Altruism	0.256***	0.256***
	(0.0886)	(0.0886)
Cooperation	0.110*	0.110*
	(0.0579)	(0.0579)
Risk propensity	-0.0938	-0.0938
	(0.108)	(0.108)
Extended sample	-0.0570	-0.0570
	(0.420)	(0.420)
Controls	Yes	Yes
PTs	Yes	Yes
Observations	11,176	11,176
R-squared	0.512	0.513

Notes: Robust standard errors in parentheses, clustered at the individual level. Both columns include population weights adjusting the sample composition to the gender and age-group structure of Italian population as of 2017 by macroarea of residence. *** p<0.01, ** p<0.05, * p<0.1.

Table A11. The north-south divide in trustworthiness accounting for internal migration patterns

	Trustworthiness					
	(1)	(2)	(3)	(4)	(5)	(6)
South (current residence)	-0.817**	-0.802**	-0.829**	-0.814**	-0.781**	-0.781**
	(0.359)	(0.356)	(0.361)	(0.359)	(0.388)	(0.384)
South to North migration (birth)			1.962	1.910		
			(2.192)	(2.222)		
South to North migration (child)			-1.322	-1.238		
			(2.435)	(2.455)		
Migrated from macroarea of birth			0.434	0.481		
			(0.626)	(0.649)		
Migrated from macroarea of childhood			-0.701	-0.715		
			(0.803)	(0.816)		
South to North migration (any age)	0.963	0.988				
	(1.041)	(1.036)				
Migrated at any age	-0.186	-0.160				
	(0.509)	(0.512)				
Trust	0.326***	0.358***	0.322***	0.355***	0.325***	0.357***
	(0.0669)	(0.0616)	(0.0669)	(0.0618)	(0.0693)	(0.0639)
Expected trustworthiness	0.322***	0.329***	0.320***	0.328***	0.333***	0.341***
	(0.0433)	(0.0433)	(0.0435)	(0.0435)	(0.0440)	(0.0439)
Altruism	0.273***	0.308***	0.274***	0.311***	0.285***	0.323***
	(0.0903)	(0.0926)	(0.0906)	(0.0929)	(0.0931)	(0.0953)
Cooperation	0.106*		0.108*		0.108*	
	(0.0597)		(0.0600)		(0.0629)	
Cond. cooperation		0.888**		0.886**		1.000**
		(0.431)		(0.433)		(0.446)
Risk propensity	-0.0970	-0.0517	-0.0899	-0.0443	-0.108	-0.0561
	(0.112)	(0.111)	(0.111)	(0.111)	(0.111)	(0.111)
Extended sample	-0.0510	-0.0416	-0.0845	-0.0761	-0.184	-0.155
	(0.430)	(0.431)	(0.434)	(0.436)	(0.443)	(0.444)
Birth to current residence migration patterns (20 groups)	No	No	No	No	Yes	Yes
Childhood to current residence migration patterns (20 groups)	No	No	No	No	Yes	Yes
Controls	Yes	Yes	Yes	Yes	Yes	Yes
PTs	Yes	Yes	Yes	Yes	Yes	Yes
Observations	992	992	984	984	984	984
R-squared	0.306	0.308	0.306	0.308	0.342	0.345

Notes: Robust standard errors in parentheses. All columns include population weights adjusting the sample composition to the gender and age-group structure of Italian population as of 2017 by macroarea of residence. *** p<0.01, ** p<0.05, * p<0.1.

Table A12. The north-south divide in trustworthiness accounting for intergenerational transmission of preferences and migration

	Trustworthiness			
	(1)	(2)	(3)	(4)
North (residence)	0.599**	0.343	-0.127	-0.0830
	(0.270)	(0.342)	(0.433)	(0.437)
Parents from South		-0.617*	-1.075**	-1.065**
		(0.338)	(0.426)	(0.432)
Parents from South * North (residence)			1.238*	1.161*
			(0.695)	(0.695)
Migrated at any age				0.112
				(0.468)
Trust	0.306***	0.329***	0.327***	0.327***
	(0.0607)	(0.0675)	(0.0672)	(0.0675)
Expected trustworthiness	0.361***	0.329***	0.327***	0.322***
	(0.0374)	(0.0433)	(0.0429)	(0.0431)
Altruism	0.284***	0.261***	0.268***	0.277***
	(0.0841)	(0.0915)	(0.0910)	(0.0912)
Cooperation	0.127**	0.111*	0.105*	0.110*
	(0.0526)	(0.0601)	(0.0597)	(0.0601)
Risk propensity	-0.121	-0.0996	-0.0921	-0.0936
	(0.0880)	(0.112)	(0.111)	(0.112)
Extended sample	-0.155	-0.0745	-0.0659	-0.0743
	(0.351)	(0.436)	(0.436)	(0.435)
Controls	Yes	Yes	Yes	Yes
PTs	Yes	Yes	Yes	Yes
Observations	1,406	993	993	985
R-squared	0.325	0.305	0.308	0.309

Notes: Robust standard errors in parentheses. All columns include population weights adjusting the sample composition to the gender and age-group structure of Italian population as of 2017 by macroarea of residence. *** p<0.01, ** p<0.05, * p<0.1.

Appendix B

Trustlab is a platform developed online to measure trust and its determinants through behavioural games and survey questions in large samples representative of population in each country. The data collection was conducted by OECD through a polling company responsible for the sampling design. All Trustlab participants are required to have access to the Internet through any device capable of loading the platform[29]. Thus, Trustlab features by constructing a non-random sampling design which addresses only people with Internet access.

The reliability and external validity of results from online surveys are often questioned. Estimation results will be biased as a consequence of scarce representation of population groups without Internet access (Bethlehem, 2010; Tourangeau et al., 2013). Indeed, as shown in Table B1, use of the Internet is heterogeneous with respect to different strata of the Italian population in 2017. Overall, use of the Internet follows a North-South gradient, is more widespread among males, decreases with age while raising with education level, on top of being an increasing function of municipalities' population sizes; employed and self-employed Italians use the Internet more than unemployed and markedly more than inactive people (including housewives, students, retired and those seeking first job).

The heterogeneity highlighted justifies concerns of selection into the Trustlab sample via Internet use. In order to restrict the scope for selection bias, we re-estimate our regression models applying a two-step correction (Heckman, 1976; Heckman, 1979).

We supplement the Trustlab sample with a sample representative of the population, which allows us to discriminate between Internet users and non-users. The supplement sample comes from the eighth round of the European Social Survey (ESS) administered in Italy in November 2017. The ESS conducts Computer Assisted Personal Interviews (CAPI) and collects measures of people's attitudes, beliefs and behaviour patterns. It samples persons aged older than fifteen years irrespective of the possession of a device or an internet connection. In order to check whether the ESS sample consists of people with or without an internet connection, we exploit a variable assessing the frequency of

[29] Specifically, over 90% of the Italian sample used a computer to participate (either desktop or laptop) while 7% used a tablet.

Internet use[30]. Respondents who never use the Internet are 8.7%, while those who use it only occasionally are 7.3% of the sample in the age range of Trustlab participants (18-64). The variables in ESS, which suggest selection into Internet use and that are used as control in the baseline models, have been harmonised so as to be consistent with the ranges adopted in Trustlab[31].

In the first step of the estimation, the probability of being selected for individual i living in region j' is regressed over the set of individual socio-demographic characteristics, X[32]:

$$P^*_{i,j'} = b_0 + \sum_k b_k X_{i,j',k} + Z_{j'} + e_{i,j'} \qquad i = \{i_{Trustlab}, i_{ESS}\} \tag{B.1}$$

where Z is an exogenous regional variable affecting the probability of selection, excluded from the baseline regression in the second step. The dependent variable in the probit model draws a distinction between Internet users and non-users, thus taking value one for Trustlab respondents and zero for the ESS respondents who never or only occasionally used the Internet. The Italian Communications Regulatory Authority (AGCOM) disseminates data on the supply of Internet access within the country. We diversify among the excluded variables chosen to assess the robustness of estimates, and select shares of households not served by wireline network, shares of households (and individuals) served by high-speed broadband connection (in the range of 100 to 1000 Mbps), and shares of households served by ADSL technology.

The OLS regression in the second step mimics the baseline regression and is run on the Trustlab sample only[33]:

$$Y_{i_{Trustlab},j} = a_0 + \sum_k a_k X_{i_{Trustlab},j,k} + H_{i_{Trustlab},j} + u_{i_{Trustlab},j} \tag{B.2}$$

It includes the non-selection hazard H (inverse Mills ratio) estimated from the first step, thus correcting regression estimates from the inconsistency stemming from selection bias.

[30]Respondents can answer they use the Internet never, only occasionally, a few times a week, most days, every day.

[31]In particular, gender, age, education, employment status, marital status, parents' education and macroarea of residence. The size of residence area in the ESS is of more difficult matching, because it lacks population threshold among the answer options as in Trustlab.

[32]The ESS records the residence region of respondents, allowing us to exploit regional variation for non-individual variables.

[33]Those respondents for which $P^*_{ij'} > 0$.

Table B2 shows results from different first-step specifications. While in Column A there is no variable later excluded from the second-step, the other columns augment the selection equation with exogenous determinants of Internet use. Share of inhabitants served by high-speed broadband Internet, share of households served by high-speed broadband Internet, share of households not served by wireline network, share of households served by ADSL technology are included, respectively, in Column B, Column C, Column D and Column E. Across all columns these region-level variables significantly affect the probability of using the Internet in the supplemented sample in the expected direction, thereby providing an exogenous source of variation, conditional on satisfying the exclusion restriction, to the estimates in the second-step of the models.

Across the specifications, females appear as more likely to use Internet. The effect of age dummies is as expected: compared to people aged 18-24, the older have a lower probability of using the Internet. Having achieved an education level higher than secondary is also significantly related to the probability of using the Internet. The same holds when looking at the effect of parental education: having more educated parents (especially fathers) significantly increases the probability of using the Internet for respondents. Self-employed, unemployed and inactive are significantly less likely to use the Internet compared to employed people. A differential emerges across macroareas in that respondents from Southern and North-eastern Italy have a lower probability of Internet use compared to their North-western counterparts. Surprisingly, the coefficients on the size of residence area show different signs than expected: compared to people in villages, those in small/medium metropolitan areas and those in large metropolitan areas are significantly less likely to use the Internet than respondents in rural areas (it has to be noted that the matching of this variable to Trustlab's is suspicious). Size of the household is not an important determinant of Internet use.

The panels in Table B3 shows the results of the second-step equations resulting from the first-step highlighted above. This allows us to assess the severity of sample selection and the consequences this induces on the estimated correlations between the social preferences measured in Trustlab and the residence place of Trustlab respondents, conditional on personality traits and baseline control variables. Importantly, selection does not emerge as a severe concern. The Inverse Mills Ratio never gets close to significance

in any of the specifications, with the exception of Column 6 in Panel D, while the results highlighted in the baseline regressions are robust to selection: southerners are significantly less trustworthy than respondents from the rest of Italy, but show no difference in terms of other social preferences.

Table B1. Use and frequency of Internet use in Italy by socio-demographic characteristics

Variable		Use of Internet		Frequency of Internet Use			
		Yes	No	Every day	Few times a week	Few times a month	Few times a year
Place of residence	North-West	69.1	29.8	50	15.7	2.5	0.9
	North-East	68	31.1	50.2	15.3	1.8	0.7
	Center	67.8	31.5	50.5	14.8	1.7	0.8
	South	59.1	40	41.7	14.6	2.1	0.7
	Islands	59.6	39	44.1	13	1.8	0.8
Gender	Male	69.5	29.6	50.8	15.6	2.1	0.9
	Female	61.3	37.7	44.5	14.2	1.9	0.7
Age	18-24	92.6	6	81.5	9.9	1.1	0.1
	25-34	89.8	8.7	72.9	15	1.5	0.4
	35-44	85.7	13.5	65.6	17.5	1.8	0.7
	45-54	77.6	21.6	55.6	18.4	2.5	1.1
	55-64	62.1	37.1	41.1	17.8	2.2	1.1
Education	Lower secondary school	63.9	35	42.7	17.7	2.4	1.1
	Higher secondary school	84.5	14.6	65.1	16.7	2.1	0.7
	Under/Post-graduate	91.6	7.4	79.8	10.8	0.7	0.3
Employment status	Employed	88.8	10.6	71.7	14.9	1.5	0.6
	Self-employed	78	20.9	56.8	17.8	2.3	1
	Unemployed	74.6	24	51.1	19.6	2.9	1.1
	Inactive	56	42.5	42.6	11.1	1.7	0.7
Size of residence municipality (number of citizens)	Up to 2,000	55.3	43.7	38.7	13.4	2.2	1
	From 2,001 to 10,000	63	36	44.8	14.7	2.7	0.8
	From 10,001 to 50,000	63.9	35.2	46.5	15	1.7	0.8
	From 50,001	65.9	33.2	48.7	14.7	1.7	0.8

Notes: statistics retrieved from the Istat data wharehouse, extracted from the *Multipurpose survey on households: aspects of daily life* (2017).

Table B2. Probability of Internet use across population strata, without and with variables excluded from the selection equation

	Use the Internet				
	(1)	(2)	(3)	(4)	(5)
Share of inhabitants served with speed in range 100–1000 Mbps		2.590***			
		(0.763)			
Share of households served with speed in range 100–1000 Mbps			2.943***		
			(0.778)		
Share of households not served by wireline network				-10.37***	
				(2.358)	
Share of households served by ADSL technology					10.08**
					(4.031)
Female respondent	0.235**	0.260**	0.262**	0.237**	0.244**
	(0.112)	(0.113)	(0.113)	(0.113)	(0.112)
Age 25-34	-0.690**	-0.703**	-0.699**	-0.628*	-0.648*
	(0.350)	(0.353)	(0.353)	(0.356)	(0.351)
Age 35-44	-0.806**	-0.860***	-0.863***	-0.813**	-0.795**
	(0.326)	(0.327)	(0.327)	(0.329)	(0.325)
Age 45-54	-0.920***	-0.960***	-0.962***	-0.901***	-0.883***
	(0.312)	(0.313)	(0.314)	(0.316)	(0.312)
Age 55-64	-1.187***	-1.198***	-1.197***	-1.153***	-1.148***
	(0.312)	(0.313)	(0.314)	(0.316)	(0.312)
People in household	0.0595	0.0600	0.0604	0.0644	0.0598
	(0.0455)	(0.0459)	(0.0460)	(0.0461)	(0.0457)
Some college/non tertiary	1.636***	1.604***	1.605***	1.686***	1.634***
	(0.317)	(0.310)	(0.310)	(0.321)	(0.318)
Tertiary education	1.404***	1.457***	1.464***	1.465***	1.398***
	(0.228)	(0.234)	(0.236)	(0.236)	(0.230)
Self-employed	-0.487***	-0.512***	-0.513***	-0.487***	-0.492***
	(0.169)	(0.170)	(0.170)	(0.170)	(0.169)
Unemployed	-0.345**	-0.346**	-0.346**	-0.351**	-0.339**
	(0.160)	(0.162)	(0.162)	(0.162)	(0.161)
Inactive	-0.681***	-0.740***	-0.747***	-0.712***	-0.692***
	(0.136)	(0.138)	(0.138)	(0.138)	(0.136)
Rural area	0.645***	0.700***	0.709***	0.724***	0.667***
	(0.189)	(0.190)	(0.191)	(0.195)	(0.191)
Small/medium metro. area	-0.649***	-0.713***	-0.718***	-0.688***	-0.655***
	(0.128)	(0.131)	(0.131)	(0.129)	(0.128)
Large metropolitan area	-0.491***	-0.605***	-0.627***	-0.594***	-0.547***
	(0.172)	(0.177)	(0.178)	(0.176)	(0.174)
Educated father	0.873***	0.864***	0.865***	0.899***	0.889***
	(0.178)	(0.180)	(0.180)	(0.183)	(0.180)
Educated father	0.717***	0.708***	0.709***	0.730***	0.718***
	(0.210)	(0.211)	(0.212)	(0.216)	(0.212)
North-East	-0.350**	-0.200	-0.175	-0.127	-0.191
	(0.156)	(0.164)	(0.165)	(0.166)	(0.170)
Center	0.00238	-0.0278	-0.00736	0.275	0.0266
	(0.160)	(0.161)	(0.161)	(0.173)	(0.161)
South	-0.501***	-0.551***	-0.505***	-0.265*	-0.496***
	(0.144)	(0.146)	(0.146)	(0.156)	(0.145)
Islands	-0.00658	-0.237	-0.205	0.131	-0.0692
	(0.190)	(0.201)	(0.197)	(0.194)	(0.192)
Observations	1,246	1,246	1,246	1,246	1,246
Pseudo R^2	0.388	0.397	0.399	0.403	0.393

Table B3. Second-step equations from first-step equations without and with excluded variables

	GTQ	Trust	Trustworthiness	Expected trustworthiness	Altruism	Cooperation	Conditional cooperation	Risk propensity
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
A. Excluded variable: *None*								
South	-0.200	-0.0896	-0.973**	-0.143	-0.0386	-0.0506	-0.0132	0.202
	(0.166)	(0.242)	(0.430)	(0.456)	(0.190)	(0.236)	(0.0339)	(0.132)
Inverse Mills ratio	-0.523	0.344	0.432	0.749	0.265	-0.681	-0.0102	-0.329
	(0.404)	(0.590)	(1.049)	(1.111)	(0.464)	(0.574)	(0.0826)	(0.321)
B. Excluded variable: *Share of inhabitants served with speed in range 100–1000 Mbps*								
South	-0.228	-0.107	-0.975**	-0.179	-0.0211	-0.0382	-0.0106	0.197
	(0.165)	(0.241)	(0.428)	(0.454)	(0.189)	(0.235)	(0.0337)	(0.131)
Inverse Mills ratio	-0.298	0.528	0.479	1.138	0.120	-0.840	-0.0352	-0.307
	(0.393)	(0.574)	(1.020)	(1.080)	(0.451)	(0.558)	(0.0803)	(0.312)
C. Excluded variable: *Share of households served with speed in range 100–1000 Mbps*								
South	-0.232	-0.108	-0.972**	-0.187	-0.0202	-0.0355	-0.0107	0.197
	(0.165)	(0.241)	(0.427)	(0.454)	(0.189)	(0.235)	(0.0336)	(0.131)
Inverse Mills ratio	-0.265	0.540	0.454	1.225	0.113	-0.875	-0.0349	-0.310
	(0.391)	(0.570)	(1.013)	(1.073)	(0.448)	(0.554)	(0.0798)	(0.310)
D. Excluded variable: *Share of households not served by wireline network*								
South	-0.247	-0.114	-0.952**	-0.207	-0.0405	-0.0282	-0.0112	0.199
	(0.164)	(0.240)	(0.426)	(0.453)	(0.189)	(0.235)	(0.0336)	(0.131)
Inverse Mills ratio	-0.121	0.593	0.263	1.395	0.300	-0.932*	-0.0300	-0.324
	(0.375)	(0.547)	(0.973)	(1.029)	(0.430)	(0.531)	(0.0766)	(0.297)
E. Excluded variable: *Share of households served by ADSL technology*								
South	-0.215	-0.115	-0.971**	-0.147	-0.0458	-0.0357	-0.0134	0.201
	(0.166)	(0.242)	(0.429)	(0.455)	(0.190)	(0.236)	(0.0338)	(0.132)
Inverse Mills ratio	-0.388	0.560	0.414	0.783	0.325	-0.805	-0.00868	-0.326
	(0.389)	(0.567)	(1.008)	(1.068)	(0.446)	(0.552)	(0.0794)	(0.308)
Controls	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
PTs	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Obs. selected	975	979	979	979	979	979	979	979

Notes: Heckman's efficient standard errors in parentheses. *** p<0.01, ** p<0.05, * p<0.1.

Appendix C

Supplementary Materials

C.1 Experimental instructions

Welcome!

Our research team[*] invites you to participate in a quick online study on decision-making.

Study information

The aim of this study is to learn more about how we as human beings behave – how do we make decisions? How do we interact with one another when faced with different choices? How do we feel about the people and institutions around us?

To find this out, you will be participating in different tasks. In the first part, you will participate in four simple tasks, in anonymous interaction with one or more other people. In the second part, you are going to sort different sets of words. In the third part, we ask you to answer a few questions about yourself and your opinions.

The whole study should take you about 30 minutes. Note that you should complete this study in one sitting, without any extensive period of inactivity. For best results, minimize distractions and close other programs.

You can participate in the study via your laptop computer or tablet (we support recent iPads). If you are having trouble accessing the platform, we advise you to switch to Google Chrome. If problems persist, please contact GMI, specifying your device model and browser.

Payment

By participating in the study's tasks, you can earn up to €40.

This amount will depend on the decisions you make together with the other participants during the study's tasks. At the end of the study, one of the several tasks you have completed will be randomly selected. **The amount of money you will receive will correspond to your earnings in this selected task. Your decisions will also affect the earnings that other people will receive!**

You will receive your money at the end of the study via Paypal. Your payment will be

[*] including researchers from Sciences Po Paris, Brown University and Kiel University

processed after your decisions and those of other participants are collected. Because other participants may not be online at the same time as you, the calculation of your earnings may take up to 48 hours.

Data protection

The data gathered in this study is subject to national privacy protocols. We will use it for research purposes only.

Section One: Tasks

We will start by giving you four tasks. Note that each task may include several different decisions. This is the part of the study that will allow you to earn additional money. Each of these decisions may determine your final payments.

At the beginning of each task, you may be grouped with other study participants. **All participants in this study are from Italy like you**.

In each task, the other participants you are grouped with will be different: the same person will never be in your group more than once.

How will your earnings be calculated?

Your earnings in each task will depend on your and the other participants' decisions.

At the end of the study, one of the four tasks you have completed will be randomly selected. The amount of money you will receive will correspond to your earnings in one of the decisions in this selected task.

In short, each task may determine your final payoff!

C.1.1 Trust game

Task One: Introduction

In the first task, **two people participate**: Participant A and Participant B. As mentioned before, this other participant also lives in **Italy**. **These are the rules of the task**:

- At the beginning of the task, both participants receive €10.
- Participant A has the option to transfer none, part or all of his or her €10 to Participant B.
- Whatever amount Participant A sends is **multiplied by 3**.
- Participant B, after receiving the transfer of Participant A, has to decide how much money, if any, he or she wants to send back to Participant A.

You are asked to make decisions in both role A and B. Which role you will be assigned to for payment will be determined randomly.
In either case, your interaction will be with a person who gets randomly assigned to the other role.

Task One: Test Simulation

This is not the real task yet, but a simulation to help you understand the rules better.
You can use the test screen below to experiment with the different choices of the two participants. Between each test, click the *'reset to zero'* button below to reset the calculator.
Whenever you are ready to proceed to the real task, click *'Next'*.

Task One: Real Task (Participant A)

Now the real task 1 starts. Once you have made your decision and clicked the *'Next'* button, you cannot return to this screen.
Suppose you are selected to be in the role of **Participant A**.
You have €10 in your possession. **How much (if any) do you want to send to Participant B**?
Please enter a number from 0 to 10.

Task One: Real Task (Participant B)

Now, suppose you are selected to be in the role of **Participant B**.
On this screen you will make the decisions that will count if you are selected for that role.
Once you have made your decision and clicked the "Next" button, you cannot return to

this screen. As always, your initial endowment is €10.

Remember that Participant A also starts with an endowment of €10.

If Participant A sends you any of the amounts listed in the table below, **how much money (if any) do you want to send back to Participant A**?

All of your choices below can impact how much money you and the other participant will receive at the end of the study.

1. If Participant A sends you €0, your total endowment is now €10. How much will you send back to Participant A.
2. If Participant A sends you €1, your total endowment is now €13. How much will you send back to Participant A.
3. If Participant A sends you €2, your total endowment is now €16. How much will you send back to Participant A.
4. If Participant A sends you €3, your total endowment is now €19. How much will you send back to Participant A.
5. If Participant A sends you €4, your total endowment is now €22. How much will you send back to Participant A.
6. If Participant A sends you €5, your total endowment is now €25. How much will you send back to Participant A.
7. If Participant A sends you €6, your total endowment is now €28. How much will you send back to Participant A.
8. If Participant A sends you €7, your total endowment is now €31. How much will you send back to Participant A.
9. If Participant A sends you €8, your total endowment is now €34. How much will you send back to Participant A.
10. If Participant A sends you €9, your total endowment is now €37. How much will you send back to Participant A.
11. If Participant A sends you €10, your total endowment is now €40. How much will you send back to Participant A.

Task One: Expectations

You have just had made decisions as Participant A and Participant B. The following question is about your expectations of other people's decisions. You are not actually deciding as Participant A or Participant B, and this decision will not affect your earnings. We want you to imagine the following scenario:

Imagine you sent €5, so Participant B receives €15, making his or her total budget €25. Participant B has no information about your identity. What amount would you expect Participant B to return to you?

Please enter a number from 0 to 25.

Thank you very much for entering your choice.

We have recorded your decision. Now, please proceed to the second task.

C.1.2 Public goods game

Task Two: Introduction

In the second task, there are groups of **4 participants** (yourself and 3 other people). Remember, the participants in this group are different from the person you interacted with in the previous task. However, they all live in Italy.

These are the rules:

- At the beginning, each group member has €10.
- Every group member has to choose how much of this €10 he or she wants to keep and how much he or she wants to transfer into a **joint project**.
- The total amount transferred to the joint project is **multiplied by 1.6**.
- At the end, the money in the joint project will be re-divided and **split equally between all 4 group members** (including yourself).

Task Two: Test Simulation This is not the real task yet, but a simulation to help you understand the rules better. You can use the test screen below to experiment with the different choices of the four participants.

Whenever you are ready to proceed to the real task, click *'Next'*.

Task Two: Real Task

Now the real task starts. Once you have made your decision and clicked the *'Next'* button, you cannot return to this screen.

You have €10 in your possession. You may choose to keep this money, or choose to invest some (or all) of it in the joint project.

How much (if any) do you want to transfer to the project?

Task Two: Real Task (continued)

Now imagine that this time, you find out how much money the other three members of your group are investing in the joint project.

All of your choices below can impact how much money you will receive at the end of the study.

Please indicate how much (if any) you would like to transfer to the joint project:

1. if on average, each of the other group members contributes €0.
2. if on average, each of the other group members contributes €1.
3. if on average, each of the other group members contributes €2.
4. if on average, each of the other group members contributes €3.
5. if on average, each of the other group members contributes €4.
6. if on average, each of the other group members contributes €5.
7. if on average, each of the other group members contributes €6.
8. if on average, each of the other group members contributes €7.
9. if on average, each of the other group members contributes €8.
10. if on average, each of the other group members contributes €9.
11. if on average, each of the other group members contributes €10.

Thank you very much for entering your choice.

We have recorded your decision. Again, your payoff will depend on the actions of the other participants. Now, please proceed to the third task.

C.1.3 Dictator game

Task Three: Introduction The third task involves **two participants** -– Participant A and Participant B.

Remember, the other participant is different from the ones you interacted with in the previous two tasks. However, he or she also lives in Italy.

These are the rules:

- At the beginning, Participant A receives €10.
- Participant B does not receive any money — he or she has €0.
- Participant A must now decide if he or she wants to transfer any of his or her €10 to Participant B.
- This transfer is not multiplied by any number and Participant B cannot transfer any amount back to Participant A.

Your role (Participant A or Participant B) will be determined later. We ask you to make a choice as A in case this is your role. B has no decision to make. Remember that someone will be assigned to role B and that person's payment will be affected by your decision as A.

Because this task is simple, there will be no simulator to test out different choices.

Task Three: Real Decision

This is the real third task. Once you have made your decision and clicked the "Next" button, you cannot return to this screen.

Suppose that you are selected to be in the role of Participant A.

You have €10 in your possession. **How much (if any) do you want to transfer to Participant B**?

Thank you very much for entering your choice.

We have recorded your decision. Now, please proceed to the fourth task.

C.1.4 Lottery choice

Task Four: Introduction

In this task you have the option to choose from six different gambles. In each gamble, you can win one out of two amounts.

You must select **one and only one** of these gambles.

Each gamble has two possible outcomes: outcome A and outcome B. Only one of these outcomes will occur.

The gamble works as a random draw, comparable to a coin toss. As in a coin toss, each possible outcome has a 50% chance of occurring.

Your compensation for this part of the study will be determined by:

1. **Which of the six gambles you select**. This is your choice.
2. **Which of the two possible outcomes occur**. This is determined by chance. The random draw is conducted by our computer. Either outcome has the same probability of occurring.

The gamble selection table below shows your possible options. You will be asked to choose one of these gambles.

Gamble	Outcome	Payoff	Probabilities	Choice
1	A	8	50%	
	B	8	50%	
2	A	7	50%	
	B	10	50%	
3	A	6	50%	
	B	12	50%	
4	A	5	50%	
	B	14	50%	
5	A	4	50%	
	B	16	50%	
6	A	1	50%	
	B	19	50%	

Examples: For instance, if you choose Gamble 2, you will earn **€ 7** if outcome A occurs, or **€ 10** if outcome B occurs.

If you choose Gamble 5, you will earn **€4** if outcome A occurs, or **€16** if outcome B occurs.

If you choose Gamble 1, you will earn **€8**, regardless of which outcome occurs.

Task Four: Real Task Now the real task four starts. Once you have made your decision and clicked the "Next" button, you cannot return to this screen.

These are the six gambles from which you can choose. If this task is chosen for payment, then your earnings will depend on the gamble you choose and the outcome of the gamble. Please select the gamble of your choice.

Gamble	Outcome	Payoff	Probabilities	Choice
1	A	8	50%	
	B	8	50%	
2	A	7	50%	
	B	10	50%	
3	A	6	50%	
	B	12	50%	
4	A	5	50%	
	B	14	50%	
5	A	4	50%	
	B	16	50%	
6	A	1	50%	
	B	19	50%	

Thank you very much for your participation in this study! We have recorded your decisions. Your final earnings will depend on the decisions of the other participants that you interact with in this study.

Because the other participants may not be online at the same moment, your earnings will be calculated once you are matched with another participant or a group of participants. It may take up to 48 hours to calculate your earnings.

You will be able to check your final earnings using the following link*:

[LINK]

Please store this link somewhere on your computer. Once you click *'Next'*, you will not

*The access link to view your earnings will be available for up to 5 days after you close this screen. If you do not navigate to the payoff screen, your earnings will be transferred to you automatically.

be able to return to this screen.

C.2 Questionnaire (extract)

Original questionnaire

We will now ask you questions about your personal situation. Remember, all data is anonymous and will not be shared with a third party.

Gender

What is your gender?

- Male
- Female
- Other

Age

What is your date of birth?

Household size

How many people live in your household (including yourself?)

- 1 adults and children
- ...
- 10 adults and children
- more than 10 adults and children

Education

What is the highest level of education you have completed?

- Less than high school
- High school
- Some college
- Diploma, trades certificate or other post school qualification other than university
- Undergraduate degree (e.g. BA, BS)
- Post-graduate degree

Mother's education

What is the highest level of education that your mother completed?

- Less than high school
- High school
- Some college
- Diploma, trades certificate or other post school qualification other than university
- Undergraduate degree (e.g. BA, BS)
- Post-graduate degree

Father's education

What is the highest level of education that your father completed?

- Less than high school
- High school
- Some college
- Diploma, trades certificate or other post school qualification other than university
- Undergraduate degree (e.g. BA, BS)
- Post-graduate degree

Income

In the last 12 months, what was your total income, the income that you received as an individual, before taxes have been deducted? (Income can come from salaries and wages, profit from self-employment, interest, rent, pension, social insurance payments and other benefits, among others)

Employment status

Which of these best describes your situation?

- Employee
- Employer / self-employed
- Unemployed
- Outside the labour force (e.g. homemaker, student, retired, unable to work)

Marital status

What is your marital status at present?

- Single

- Married cohabitating with spouse
- Married non-cohabitating with spouse (actually separated)
- Legally separated
- Divorced
- Widowed

Size of area of residence

Do you live in a?

- Rural area
- Village (less than 50,000 inhabitants)
- Town (50,000 to 200,000 inhabitants)
- Small metropolitan area (200,000 to 500,000 inhabitants)
- Medium-sized metropolitan area (500,000 to 1.5 million inhabitants)
- Large metropolitan area (more than 1.5 million inhabitants)

Personality traits — 15-item Big Five Inventory (adapted from Ubbiali et al., 2013)

To what extent do you agree with the following statements?

1. I see myself as someone who is sometimes somewhat rude to others.
2. I see myself as someone who has a forgiving nature.
3. I see myself as someone who is considerate and kind to others.
4. I see myself as someone who tends to be lazy.
5. I see myself as someone who does a thorough job.
6. I see myself as someone who does things effectively and efficiently.
7. I see myself as someone who is relaxed, handles stress well.
8. I see myself as someone who gets nervous easily.
9. I see myself as someone who worries a lot.
10. I see myself as someone who is reserved.
11. I see myself as someone who is outgoing, sociable.
12. I see myself as someone who is communicative, talkative.
13. I see myself as someone who values artistic experiences.
14. I see myself as someone who has an active imagination.
15. I see myself as someone who is original, comes up with new ideas.

- Disagree strongly

- Disagree a little
- Neither agree nor disagree
- Agree a little
- Agree strongly

Municipality of residence

In what municipality do you currently live?

Generalized trust question

On a scale from zero to ten, where zero is not at all and ten is completely, in general how much do you trust most people?

- Not at all
- ...
- Completely

Frequency of voluntary works

How often do you participate in voluntary activities to help people other than your direct relatives, friends or colleagues?

- Daily
- Several days a week
- Once a week
- Less than once a week
- Never

Frequency of encounters with friends

How often do you get together with friends?

- Daily
- Several days a week
- Once a week
- Less than once a week
- Never

Connectedness with neighbours

How strongly do you feel connected to other people in your neighborhood?

- Not at all
- ...
- Very connected

Voted in elections

Did you vote in the last general elections?

- Yes
- No
- I couldn't vote

Follow-up questionnaire

Municipality of birth

In what municipality were you born?

Municipality of childhood

Where did you spend most of your childhood until age 16?

- Municipality of birth
- Current municipality of residence
- Other municipality. Which?

Mother's place of birth

In which province was your mother born?

Father's place of birth

In which province was your father born?

Importance of family

Indicate how important is family in your life. Would you say it is:

- Not at all important
- Not very important

- Rather important
- Very important

Children's responsibilities towards parents

With which of these two statements do you tend to agree?

A. One does not have the duty to respect and love parents who have not earned it by their behavior and attitudes.
B. Regardless of what the qualities and faults of one's parents are, one must always love and respect them.

Parents' responsibilities towards children Which of the following statements best describes your views about parents' responsibilities to their children?

A. Parents have a life of their own and should not be asked to sacrifice their own well-being for the sake of their children.
B. A Parent's duty is to do their best for his or her children even at the expense of their own well-being.

Social risk vignette

For personal reasons, you have to travel to a big city. From the airport you can choose between two taxi companies to reach your final destination for which you don't know the exact route. Company A charges you a fixed price of $12. Company B charges you according to the taxi-meter. If the driver takes the direct route, it costs you $8. However, 1 out of 5 drivers take detours to make more money and the fare is then $16. Which company would you choose?

- Company A
- Company B

Natural risk vignette

For personal reasons, you have to travel to a big city. From the airport you can choose between two taxi companies to reach your final destination for which you don't know the exact route. Company C charges you a fixed price of $12. Company D charges you according to the taxi meter. If the weather is fine, it costs you $8. However, 1 out of 5 times, due to bad weather conditions the ride takes longer and the fare is then $16.

Which company would you choose?

- Company C
- Company D