

Amoral Familism, Social Capital, or Trust? The Behavioral Foundations of the Italian North-South Divide

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Abstract

We present the first lab-in-the field experimental study of the North-South divide in Italy. Using a representative sample of the population, we measure whether regional differences in the ability to cooperate emerge even when ruling out confounding factors due to geography, institutions, and criminal intrusion. We find that people in the North achieve higher levels of cooperation than in the South, and show that this behavioral gap cannot be accounted for by tolerance for risk, proxies of social capital, and ‘amoral familism.’ Northern and Southern citizens react differently to the same incentives. This evidence suggests that equalizing the structure of incentives would not completely eliminate the North-South disparities, as they derive at least in part from differences in social norms, which are slow to change.

Keywords: Trust, social norms, experiments, Italy.

JEL codes: C72, C93, Z13

1 Introduction

The divide between the Northern and the Southern Italian regions embodies a paradigmatic puzzle of within-country differences. Since the Country’s Unification in 1861, Italians have been sharing the same institutions, language and dominant religion, yet the differences have

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persisted, manifesting themselves through every available socio-economic measure (Putnam et al., 1993; Felice, 2014). The puzzle intensified after WW II, for while the North steadily developed turning this part of the peninsula into an advanced industrial society on a par with the rest of Western Europe, the South remained tenaciously behind, the gap getting even wider.

Despite the relentless institutional effort and the vast economic resources which were spent trying to promote their development, the Southern regions remain Italy's major economic burden. In comparison with the North, the South has a lower per-capita GDP (13,704 vs. 23,837 Euros), a higher unemployment rate (12.6% vs. 5.3%), more homicides (1.95 vs. 0.75 out of 100,000), a higher child mortality rate (0.41% vs. 0.29%), and a lower rate of waste collection sorted for recycling (24% vs. 51%).¹ Much scholarly attention has been devoted, for well over a century, to what in Italy is known as *La Questione Meridionale* (Jacini, 1884; Salvemini, 1955). A core issue traversing the Questione has been whether disparities in performance across regions originate from differences in *incentives* or from differences in how people *react to similar incentives*.

Traditional explanations have focused on incentives, which are affected by geographical and structural problems (e.g., distance from Northern Europe, lack of proper roads), inefficient land property institutions (e.g., latifundia; see Franchetti and Sonnino, 1877), rent-seeking informal institutions (e.g., political patronage, the mafia), and by counterproductive economic policies, which destroyed the motivations to work hard, invest and innovate. In contrast, other approaches have stressed that people can react differently to similar incentives, because of different preferences, expectations, and norms (Ichino and Maggi, 2000). Two influential contributions along this line have been proposed by Edward Banfield's *The moral basis of a backward society*, and by Robert Putnam's *Making democracy work*, and have inspired countless studies. Although they stress different mechanisms, both scholars share the view that the ability to cooperate is at the basis of socio-economic development. Edward Banfield claimed that the origin of the North-South gap in Italy lies in moral flaws of Southerners, whose only concern would be with their personal welfare and that of their families with utter disregard for anyone else (Banfield and Fasano, 1958). Putnam instead called into question collective dispositions towards cooperation and good government. He posited that these dispositions would originate in the regionally varying levels of social capital, which in turn would relate to varying historical experiences (Putnam et al., 1993). The enduring gap in development of the Southern regions was also the question which propelled the notion of trust to gain systematic attention and attain the central role it has now achieved in the social sciences (Gambetta, 1987). Amoral familism, social capital and trust, notions that

¹The data source is the National Bureau of Statistics (Istat). The regions of the North are Piemonte, Valle d'Aosta, Lombardia, Trentino-Alto Adige, Veneto, Friuli-Venezia Giulia, Liguria, Emilia-Romagna. The regions of the center are: Toscana, Umbria, Marche, Lazio. The regions of the South are Abruzzo, Molise, Campania, Puglia, Calabria, Sicilia, and Sardegna. Central regions are excluded from this comparison. GDP: year 2009, (<http://sitis.istat.it/sitis/html/indexEng.htm>); unemployment: 2009; culpable homicides per 100,000 inhabitants, 2007; mortality measures the number of deaths before 1 year out of those children born alive, 2006; waste collection, 2011, <http://www.istat.it/en/archive/30344>

have now entered the social sciences debates well beyond Italy’s borders, were “born in the South.”²

Here we employ, for the first time, an experimental approach to study these conjectures, and test whether a North-South differential in the ability to cooperate emerges even if incentives are held constant. We believe that this approach can usefully complement the range of evidence scholars have used so far in several ways. First, relying merely on field data one cannot be sure that, if incentives were equalized, people reaction to identical incentives would continue to be different. Banfield’s work, for all its inspiring claims, was based on an ethnography carried out in a single village in the South of Italy (Basilicata region). He could obviously not have observed how the same villagers would have responded under more favorable economic opportunities. Second, scholars who stress the role of social capital rely on indirect measures – such as blood donations, voting turnout, and association density (Putnam, 2000; Cartocci, 2007; Guiso et al., 2004; Buonanno et al., 2009) – whose link with cooperative dispositions is of a strength which cannot be establish (Durlauf, 2002; Bowles and Gintis, 2002). Finally, measures of trust derived from surveys, such as the Eurobarometer or the World Value Survey, elicit opinions rather than actual behavior, and people have no incentives to carefully understand the question or to tell the truth. For instance, they would hardly state to be untrustworthy.³ Moreover, available data from surveys rely on rather vague questions, whose interpretation depends on the external context. For example, stating in a questionnaire that you “generally trust people” can reflect a preference for – or a norm to – trust. However, trust can also depend on the level of legal enforcement: indeed, given the same preferences and norms, if trust on average pays off more, then people’ opinion will be more favorable toward trust. It is furthermore impossible to establish which reference group respondents have in mind when considering the ‘people’ in the question, they could be kin, neighbors, compatriots and so on. Despite their scholarly success we do not know whether the feet of these explanations for the North-South divide are made of iron or clay.

In this paper we present the results of a lab-in-the-field experiment aimed to uncover differences in preferences, expectations, and social norms across Italian regions through clean behavioral measures of cooperation. Should no regional disparities emerge in response to otherwise identical experimental conditions, the implication would be that the root of the North-South divide lies in differences in incentives. Instead, should regional disparities in behavior emerge, the implication would be that preferences, expectations, and social norms play a role. We define cooperation as a joint effort which benefits the group at some cost to the individual, and measure it through a Trust Game (Sutter and Kocher, 2007) and a Public Good Game (Henrich et al., 2001; Herrmann et al., 2008). Having two measures serves as a robustness check as it allows us to study whether regional differences in cooperation levels

²Banfield’s book has 3,677 citations, Putnam’s book 27,668, and Gambetta’s book has 2,355 (Google Scholar on April 10, 2014).

³More generally, in cross-cultural comparisons of trust and trustworthiness, the interpretation of survey answers relies on the assumption that the degrees of attention and aversion to lying do not correlate with the variable of interest. If lying correlates with the variables of interest, the comparison is troublesome.

emerge within different games, played by different people. In addition, we study both Banfield’s amoral familism conjecture by measuring self-interest levels through a set of dictator games, and social capital, in particular considering – both at city and individual level – the proxies which are typically used to measure it. We relate all these measures to the behavioral measures of trust and contributions to the public good in our experiment.

We run the experiment in two cities in the North and two in the South. We chose medium-size cities, large enough to study cooperation among individuals beyond the immediate family circle, but small enough to face a stable community, in which dispositions should be shared and deep-rooted.⁴

A typical limitation of experiments has been the difficulty to run them on a representative sample, which is extremely valuable when the aim is to obtain a measure of the preferences and norms of a society.⁵

There is indeed evidence that results obtained with college students cannot be readily extended to a general sample (Bortolotti et al., 2013), and that age matters for sustaining cooperative norms (Sutter and Kocher, 2007; Egas and Riedl, 2008). Cross-cultural experiments with representative samples are rare (Buchan et al., 2009; Cappelen et al., 2010); the present study is one of them. In each location, we recruited a sample balanced in terms of age, sex, and occupation to reflect the composition of the national population.⁶ Having a representative sample increases the comparability across locations and boosts the external validity of the results. It further allows us to rule out that differences emerging across locations depend on different socio-demographic characteristics of the samples, and improves the generalizability of our findings.

The remainder of the paper is organized as follows. Section 2 describes the procedures used to select the sample and the experimental locations and Section 3 details the experimental design. Section 4 presents the main findings and Section 5 compares them with other existing measures of the North-South gap. Section 6 discusses possible interpretations of our results.

⁴Our study relates to the literature on cross-cultural experiments. While most previous experiments were run across different countries (Henrich et al., 2001; Herrmann et al., 2008; Buchan et al., 2009; Henrich et al., 2010), this paper is a within-country study. Another notable exception is Lamba and Mace (2011), which studies whether the natural environment can affect the level of cooperation in small scale societies in central India. Previous experiments based on cross-country evidence have shown that cooperation co-varies with factors shared at society level, such as market integration, production technology, religion, the quality of the rule of law, and the degree of globalization. Here we focus on regional differences in cooperation that emerge when holding these factors constant.

⁵While several experimental studies employ a wide variety of specific subject pools beyond college students – ranging from employees (Bandiera et al., 2011; Bigoni et al., 2012) to public affair officials (Potters and Van Winden, 2000) and prisoners (Block and Gerety, 1995) – the use of a stratified sample to encompass a whole society remains an exception in the literature (see Bortolotti et al., 2013 for a discussion). As the adoption of norms of cooperation is an emergent property and can depend on the composition of the population, civic norms cannot be reduced to the sum of the behavior of specific sub-samples. Thus recruiting a representative sample is extremely valuable given the objectives of our study.

⁶This stratification strategy and the sample size in our study are similar to the one used in the World Value Survey for Italy.

2 Participants in the study

The main aim of our experiment is to obtain a measure of deep-seated social norms of cooperation among strangers, in different parts of Italy. The pursue of such a goal determined our choices in terms of three crucial design features: the selection of the participant pool, of the locations where to run the experiment, and of the type of tasks that participant faced. This section will discuss the selection of participants and locations. The next section will illustrate the experimental tasks.

Participant pools. A total of 618 participants were recruited among the general population. The sample was representative of the Italian population in respect to age, sex, and employment status, since these demographic characteristics could be important to identify social norms in the society at large. It was stratified according to three categories of age (18-39, 40-59, 60 and older), two of sex (male and female), and three of employment status (employed; housewives and retired; others, including students and unemployed). For the composition of the target sample, we referred to the 2009 statistics on the Italian population.⁷ Two professional companies – Metis-Ricerche and Demoskopea – were hired for the recruitment of subjects.⁸ Table A-2 in Appendix summarizes the socio-demographic characteristics of the actual sample.

To ensure that subjects shared the local norms or had at least a profound knowledge of them, we added four additional restrictions. To be eligible for the study, subjects had to: *(i)* be at least 18 years old; *(ii)* be born in the county; *(iii)* be resident in the county; *(iv)* have a good knowledge of spoken and written Italian. These restrictions were explained during the recruitment process and the experimenters double checked conditions *(i)* to *(iii)* by looking at each participant’s ID before the experimental sessions. At the beginning of each session, the experimenter made it public that all subjects in the room were born and resident in the county (or at least in the region) in order to make this information common knowledge. Among the 581 subjects who completed our questionnaire, about 92.7% of the participants turned out to be at least second generation natives of the county, based on the reported birthplace of their mother and father (i.e., at least one of their parents was born in the county).⁹

A trade-off emerged between the number of participants per location, and the number of locations involved in the study. The need to recruit a large and representative sample of the population, in each of the locations where the experiment would have taken place, induced us

⁷Inhabitants at 1st of January 2009. Age range: 18-39 years, 34.8%; 40-59 years, 34.6%; 60 and more, 31.6%. Sex: male, 48%; female 52%. Employment status: employed, 42%; housewives and retired, 37%; others 21%. Source: <http://demo.istat.it/pop2009/index1.html>

⁸ See the Appendix for further details on the recruitment process.

⁹Due to technical problems, we lack personal information for 37 persons in the sample (24 from the first PGG session in Faenza and 13 from two PGG sessions, May 25 and 28 in Ragusa).

to favor the former element over the latter and focus only on four Italian counties (*Province*’ in Italian),¹⁰ the choice of these counties, therefore, gained even more importance.

Experimental locations. We selected the experimental locations following rigorous criteria and with three goals in mind: *(i)* to cover Italian counties both in the North and in the South macro-areas; *(ii)* to maximize the difference relative to social capital within each macro-area; and *(iii)* to have medium-size cities. First, in order to cover both macro-areas, we included two counties in the North and two in the South of Italy.¹¹

The second selection criterion aimed at increasing the likelihood of sampling counties that would differ in terms of trusting and cooperative behavior. To achieve this goal, we picked the two counties in the North, and the two in the South, presenting the most extreme levels of social capital. The literature on social capital widely adopts three proxies for Italy (e.g. Putnam, 2000; Cartocci, 2007; Guiso et al., 2004; Buonanno et al., 2009): association density, electoral participation, and blood donations.¹² To aggregate these multiple measures of social capital into a single index, we adopted the following procedure. First, we separately ranked all Italian counties according to each of the three dimensions, assigning position 1 to the county with the highest value. To pick the county with the highest level of social capital we adopted a minimax criterion: for each county we computed a “score” equal to the maximum among the three rankings, than we selected the county with the lowest score. By contrast, to pick the county with the lowest level of social capital we adopted a maximin criterion: for each county we computed a “score” equal to the minimum among the three rankings, than we selected the county with the highest score. The procedure was performed including all Italian counties, divided into two groups: North and South. The Central counties are placed in one of the two clusters.¹³ The county with the highest (lowest) social capital in the North was Ravenna (Cuneo), while the county with the highest (lowest) social capital in the South was Ragusa (Crotone).¹⁴

Finally, we considered the size of the city where the experiment would take place. Although participants were recruited from the whole county, we aimed at cities that could be compared in terms of size (between 50,000-100,000 inhabitants). Consider that the average size of an Italian county capital is 160,428 inhabitants, a value that lowers to 94,824 when excluding the five largest Italian cities (Roma, Milano, Torino, Palermo, Napoli). The corresponding median populations are 82,367 and 72,329, respectively. The average municipality in Italy is much smaller: 7,492 inhabitants.¹⁵ We avoided on purpose both extremely small

¹⁰As of December 2000, there were 103 counties in Italy; other 7 counties were introduced by the Italian Government between 2001 and 2011, which we did not include due to lack of data for one or more of the adopted selection criteria.

¹¹We excluded the Island of Sardegna because of its geographical and historical peculiarities. North and South are defined according to the official classification of the National Bureau of Statistics, Istat, see <http://www.istat.it/it/archivio/6789>.

¹²More details on these measures can be found in Section 5.

¹³Marche, Umbria and Toscana to the Northern group and Lazio to the Southern group, with latitude as the yardstick for the assignment.

¹⁴The procedure is robust to excluding the counties of Central Italy.

¹⁵Source: Istat, <http://demo.istat.it/pop2010/index.html>

towns and large metropolitan cities. As we aimed at studying interactions among non-kins, very small cities could make difficult to achieve the required anonymity among participants. On the other hand, in large cities the population is more diverse and it has higher mobility, which would hinder the elicitation norms and preferences that are strictly specific to a geographical area. After identifying the counties of interest, we focused on medium-size cities. All the cities are provincial capitals except for Faenza. In particular, Faenza (56,992 inhabitants) was selected instead of Ravenna as the latter has more than 100,000 inhabitants (155,997 at 2009).¹⁶ Thus, the four cities selected are: Cuneo, Faenza, Crotone, and Ragusa.¹⁷

3 Experimental design

The study included two types of sessions: roughly half of the subjects participated in the Public Good Game (PGG) session and half in the Trust Game (TG) session. In each session, every participant faced a sequence of individual and group tasks (Table 1). Individual tasks included a choice over lotteries – played in all sessions – and three modified Dictator Games (DG) – played in TG sessions only. Group tasks included either a Public Good Game or a Trust Game with the goal of measuring cooperation levels, in the form of voluntary contributions to a group project or of trusting behavior. Below we will first present the group tasks and then the individual tasks, although in the sessions the order was reversed.

Table 1: Sequence of tasks in each type of session

	PGG sessions	TG sessions
INDIVIDUAL TASKS		
Choice over Lotteries	Risk preferences	Risk preferences
Three Dictator Games	–	Concerns for equality and efficiency
GROUP TASKS		
Public Good Game	Cooperation (i.e., contributions)	–
Trust Game	–	Cooperation (i.e., trusting behavior)

Notes: PGG sessions included three variants of the Public Good Game: Standard, Punishment and Threshold (in this order). TG sessions included two versions of the Trust Game: Baseline and Coordination (more details on the games in Bigoni et al., 2013). Due to space constraints, only the Standard version of the PGG and the Baseline version of the TG are included in this paper.

¹⁶Source. Istat, <http://demo.istat.it/pop2010/index.html>

¹⁷The four Italian cities chosen as experimental locations are geographically distant both in terms of kilometers and traveling times. Consider traveling by car from the northernmost town of Cuneo to the southernmost town of Ragusa. According to Google maps, it takes 4 hours and 25 minutes to drive from Cuneo to Faenza (458 km), and then an additional 9 hours and 46 minutes to reach Crotone (919 km). From Crotone it takes 6 hours and 13 minutes to arrive in Ragusa (425 km). For further information on the four selected counties, see Table A-1 in Appendix.

Group tasks. In the PGG, subjects faced 8 rounds of a voluntary contribution mechanism. Subjects were randomly assigned to groups of $N = 4$, which were randomly changed in every round according to a strangers matching protocol. In every round, a participant received an endowment of $w = 20$ Monetary Units (MUs) and everybody had to simultaneously decide how much of their endowment to invest in a group account, $x_i \in \{0, 6, 14, 20\}$, and how much to keep in their private account ($w - x_i$). Every MU invested in the group account was doubled and shared equally among group members and individual earnings were determined as follows:

$$\pi_i^1 = w - x_i + a \sum_{j=1}^N x_j$$

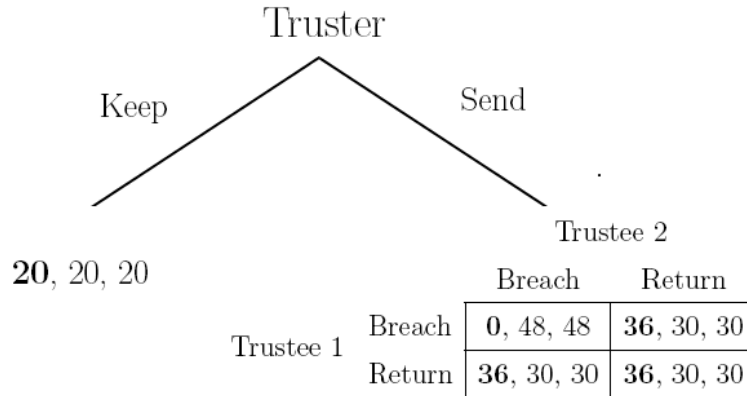
The marginal per capita return (MPCR) of the public good was $a = 0.5$. As the MPCR is above $1/N$ and below 1, free-riding is a dominant strategy for rational self-interested subjects, while group efficiency is maximized when everyone contributes the whole endowment. After each round, subjects could observe their contributions, the contributions of the other group members, and individual earnings in their own group. Earnings cumulated from one period to the next.

In the TG, subjects were divided into groups of three – one truster and two trustees – and played 10 rounds of a modified investment game (Figure 1). We moved away from the standard dyadic trust game and employed a game where trust is not a simple one-to-one relationship, in order to better capture norms of generalized trust (Bigoni et al., 2013). The truster decided first and could either trust or not. If the truster did not trust (Keep), everyone in the group earned 20 MUs and the trustees had no choice to make. If the truster trusted (Send) and at least one trustee reciprocated (Return), the truster earned 36 MUs, and each trustee earned 30 MUs. When no trustee reciprocated (Breach, Breach), the truster earned 0 MUs and each trustee earned 48 MUs. This three-player trust game has two equilibria in pure strategies: (Send, Return, Return) and (Keep, Breach, Breach), but only the latter survives the elimination of weakly dominated strategies. At the end of each round, roles were randomly re-assigned and new groups were formed according to a strangers protocol.¹⁸ Changing roles should facilitate learning and help spreading norms within the population.

Individual tasks. A choice over lotteries was used to elicit subjects' risk preferences (Eckel and Grossman, 2008). Subjects had to select one from a list of six lotteries; each lottery had two possible outcomes (low or high) that occurred with equal probability. The first lottery was the safest and yielded 17.5 Euros for sure, while the last lottery was the riskiest and yielded 44.0 Euros with probability 1/2 and 1.0 Euro with probability 1/2 (see Figure A-3 in the Appendix). Only two randomly selected subjects per session received a payment for this

¹⁸In each TG session there were two matching groups; participants in one matching group never met a participant from another matching group.

Figure 1: Trust Game



task. To avoid any possible carry over effect, lotteries earnings and winners were determined only at the end of the session, by a manual draw of a colored ball out of a bag.

In the Dictator Games (DGs) each subject had to choose how to allocate amounts of MUs among himself and the other two group members: the six alternative allocations available to the subjects are presented in Table 2. In each game - DG1, DG2, and DG3 - a subject had to choose how to allocate amounts of MUs among himself and the other two group members. We now describe each dictator game.

In DG1 the dictator (red) always earned 160 MUs and faced choices between equality and group wealth. While allocation 1 ensured equal earnings to all three members of the group (E), allocation 6 delivered the highest sum of earnings for the group (W). Allocations 2, 3, 4, and 5 provided intermediate situations between E and W. A merely self-interested dictator would be indifferent among all the available allocations, while the choice of a dictator who cares for others' welfare would reveal his relative preferences for equality over group wealth. In DG2 the dictator faced a tradeoff between self-interest and group wealth. The main difference between DG1 and DG2 resided in the earnings of the dictators; while dictator's earnings are constant in the former situation, they vary from 160 to 190 MUs in the latter. DG1 and DG2 shared two features: first, allocation 6 (W) was identical in both games, second, for each allocations $k=1, \dots, 6$, group wealth was identical across DG1 and DG2 (Table 2). Moreover, in DG2, allocations 1 through 6 were designed to have the same level of inequality as measured according to Fehr and Schmidt (1999)'s model, under the assumption of equal weights for disadvantageous and advantageous inequality.¹⁹ Hence, in DG2 a purely self-interested dictator would always choose allocation 1 (S) over all other allocations. In contrast, in DG3 group wealth is kept constant (480 MUs) in all six allocations and the dictator faces a tradeoff between self-interest and equality. Allocation 1 (S) yields the highest earnings to the dictator but the distribution is highly unequal, whereas allocation 6 (E) presents equality of earnings and yields the lowest earnings for the dictator. A self-interested

¹⁹The difference in inequality measured according to Bolton and Ockenfels (2000)'s model is also minimal in these allocations.

Table 2: Dictator Games

DG1: Equality vs. Efficiency						
Allocations						
	1 (E)	2	3	4	5	6 (W)
You (red)	160	160	160	160	160	160
Other participant (black)	160	154	148	142	136	130
Other participant (white)	160	196	232	268	304	340
<i>Efficiency</i>	<i>480</i>	<i>510</i>	<i>540</i>	<i>570</i>	<i>600</i>	<i>630</i>

DG2: Self-Interest vs. Efficiency						
Allocations						
	1 (S)	2	3	4	5	6 (W)
You (red)	190	184	178	172	166	160
Other participant (black)	40	58	76	94	112	130
Other participant (white)	250	268	286	304	322	340
<i>Efficiency</i>	<i>480</i>	<i>510</i>	<i>540</i>	<i>570</i>	<i>600</i>	<i>630</i>

DG3: Self-Interest vs. Equality						
Allocations						
	1 (S)	2	3	4	5	6 (E)
You (red)	190	184	178	172	166	160
Other participant (black)	40	64	88	112	136	160
Other participant (white)	250	232	214	196	178	160
<i>Efficiency</i>	<i>480</i>	<i>480</i>	<i>480</i>	<i>480</i>	<i>480</i>	<i>480</i>

dictator will choose allocation 1 and earn 190 MUs, while a dictator concerned with inequality may choose allocation 6 and earn 160 MUs.

Each subject was asked to play as the dictator (red player) in DG1, DG2, and DG3; at the end of the session, only one of the games was selected at random for payment. Importantly, roles in the game were then randomly assigned to determine earnings.

Experimental procedures. All sessions were held in hotel conference rooms or educational centers located near to the city center and each location was devoid of any political or religious connotation. Venues were easy to reach for the participants, i.e. accessible by car and by public transport, and near or at well-known locations. The experiment was conducted using the mobile Bologna Laboratory for Experiments in Social Sciences (BLESS), which was moved from Bologna to the locations of the experiment by van. The laboratory hardware and set-up were identical across all cities – 32 laptop computers connected through a wireless network to a laptop server. Upon arrival, subjects were seated at a desk; visual contact among participants was not possible, and no form of communication was allowed during the experiment. All participants signed a consent form and a data release form. At the beginning of each task, the relevant instructions were handed out and read aloud. The experimenter who read the instructions was the same in all sessions and in all cities. Before each task, subjects had to answer a computerized quiz to ensure correct understanding of the game before each task, with the exception of the lottery. Our subject pool included a rather large number of elderly and uneducated people: this called for a user friendly interface and

simplified tasks. We largely relied on graphical elements to make the task more intuitive;²⁰ choices were made by simply touching the screen. Indeed, there was no need to type on the keyboard or use the mouse. In an effort to reduce the complexity of the decision tasks, we limited the number of available options in each decision.

The study was conducted between March and October 2011. The number of participants in a session ranged between 24 and 32, and everyone participated in only one session. Sessions were run in the evening or on a Saturday in order to favor a wider participation. The experiment was programmed with z-Tree (Fischbacher, 2007). At the end of the sessions, we administered a computerized questionnaire with measures of social capital, socio-demographic characteristics, and other information. A PGG session lasted on average about 2 hours and a TG session about 1 hour and 30 minutes. Subjects received 30 Euros gasoline vouchers for showing up on time, plus a cash payment corresponding to the sum of their earnings in each part. Payments were made privately right after the end of the experiment; average per-capita earnings were 16.5 (17.5) Euros in cash in PGG (TG) sessions plus 30 Euros in gasoline vouchers.²¹

4 A resilient cooperation divide

In this Section we document how patterns of cooperation differ within Italy. We report that a North-South gap in behavior emerges also when holding incentives constant (Result 1). This evidence suggests that people differ systematically in their interaction with fellow citizens, and that the reasons of the Italian divide transcend the mere presence of differences in institutions, returns from cooperation, or mafia intrusion.

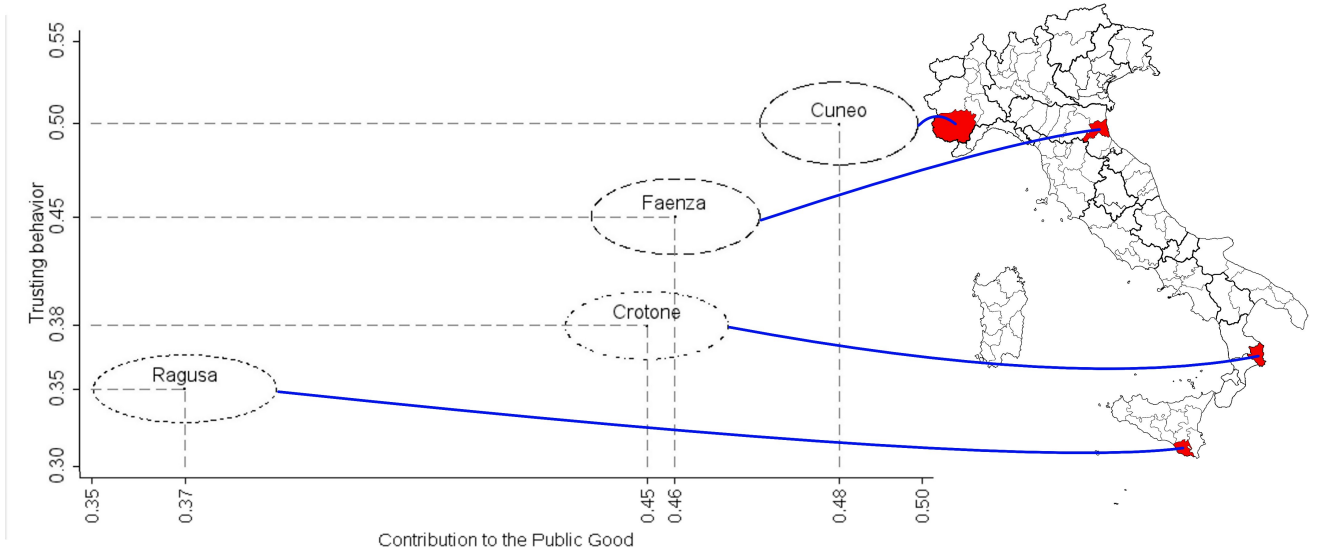
Result 1 *There exists a North-South gap in cooperative behavior.*

We find that in the North cooperation levels are higher than in the South. Support for Result 1 is provided by Figure 2 and by a series of linear regressions in Tables 3 and 4. Figure 2 reports county-average contributions in the PGG (Public Good Game) as a fraction of the endowment, and county-average trust frequencies in the TG (Trust Game) across all rounds and individuals. On both tasks, the most cooperative county is Cuneo (0.502 in TG and 0.485 in PGG), and the least cooperative is Ragusa (0.346 in TG and 0.365 in PGG). The dashed ellipses are drawn at a 95% confidence level after a bootstrapping procedure: for every county, we randomly draw, with repetition, 10,000 pairs of observations from our sample.

²⁰see Figure A-2 in Appendix. In programming our interfaces, we took inspiration from the first wave of experiments conducted at the Internet Laboratory for Experimental Economics, iLEE (for further details see: <http://www.econ.ku.dk/cee/ilee/description/ilee1/>). Instead, Figure A-1 in the Appendix shows the appearance of the lab room.

²¹Reported payments comprise earnings from all tasks, including tasks not reported in this paper.

Figure 2: Cooperation levels across Italy



The regression models employ as dependent variable either the individual frequency of trust in the TG (Table 3) or the average individual contribution level in the PGG (Table 4). The dummy *Northern Italy* is the main regressor of interest and takes value 1 for Northern regions and 0 otherwise; the positive and significant coefficients suggest that participants from the North cooperate significantly more than those from the South (Tables 3 and 4, Model 1). All regressions in this Section account for possible session effects by modelling standard errors with robust estimators clustered at the session level.²²

The divide in cooperation remains significant after controlling for task comprehension, socio-demographic characteristics, and other individual traits. Elderly or uneducated people could have had difficulties understanding the experimental tasks. To control whether comprehension’s problem affected our results, we included the dummy *Task comprehension*, which takes value 1 for participants that had troubles answering a battery of control questions.²³ Measuring and controlling for participants’ task comprehension is a key stress test for lab-in-the-field experiments with a population of ordinary citizens. One obstacle when venturing beyond a pool of college students is the reliability of the elicited responses. In addition, we control for a series of socio-demographic characteristics based on self-reported questionnaire data, which include dummy variables for gender, age (18-39, 40-59, 60 and above), occupational status (*Housewife or retired*, *Employed*, and *Student or unemployed*),

²²For the TG sessions, errors are clustered at the matching-group level.

²³The experiment did not proceed until everyone correctly answered all the control questions. To account both for participants that were particularly slow in answering the control questions, and for those who made several mistakes, we labeled their task comprehension as “low” if they were in the last decile according either to their total answering time, or to their total number of mistakes. This measure is built at the county level and separating the TG and PGG treatments.

and proxies for family wealth (*House of property* and *Own 2 or more cars*).²⁴

Result 1 is remarkable also because it persists after controlling for a series of additional dimensions of individual preferences, which are elicited in the experiment. We control for preferences toward risk, by including two additional dummy variables based on the lottery task. The first variable takes value 1 for participants who selected the two safest options and 0 otherwise (*Strongly risk averse*); the second takes value 1 for those selecting one of the two riskiest options (*Risk neutral or risk loving*). When adding this controls for risk preferences, the North-South gap remains large and significant (Model 3, Tables 3 and 4).²⁵

In addition, we also control for individual concerns for efficiency and equality, as elicited by means of the Dictator Games (Table 3, Model 4). We classify the participants into three types according to their choices in the DGs (Table 2). A participant expresses a *Strong concern for efficiency* when she favors total surplus in the group over equality of earnings in the costless choice DG1 and over self-interest in DG2. By contrast, a participant expresses a *Strong concern for equality* when she favors equality of earnings over total surplus in the costless choice DG1 and over self-interest in DG3. The third category is residual and includes those participants that we call self-interested. Regression results show that individual cooperation levels in terms of trust exhibit a significant North-South gap also after including controls for individual concerns for efficiency and equality.

When considering the averages at the county level, one can also notice an empirical alignment between latitude and cooperation level. This fact is illustrated in Figure 2 and confirmed by non-parametric tests as well as regression models (Model 5 in Table 3 and Model 4 in Table 4). Locations are ordered along a North-South continuum, both in terms of trust in the TG (Jonckheere-Terpstra test: p-value=0.009, z=- 2.61, n=18, two-sided),²⁶ and in terms of contributions to the PGG (Jonckheere-Terpstra test: p-value= 0.037, z=2.09, n=13, two-sided).

To sum up, our evidence – based on over 600 participants – confirms the presence of a systematic cooperation gap, which emerges even when external factors are held constant. Our evidence is robust to variations in the type of the cooperative tasks – TG or PGG – and persists after controlling for socio-demographic characteristics, risk preferences, and concerns for equality and efficiency.

We now consider the link between contributions to the public good and trust. These two measures of cooperation have often been associated in the literature. Although their experimental investigation has been widespread, there is little if no evidence on the link

²⁴Due to technical problems, we lack personal information for 37 persons in the sample (see footnote 9). An additional dummy *Missing questionnaire* takes value one for these 37 participants, and zero otherwise.

²⁵Risk preferences appear to have no significant effect on the choice to trust (Table 3) and a counter-intuitive effect in the contributions to the PGG (Table 4).

²⁶We use a Jonckheere-Terpstra test, a non-parametric test for more than two independent samples, designed to test for ordered differences between treatments (Hollander and Wolfe, 1999). For this test, we take as single observation the average contribution at the session level, and the frequency of trustful choices at the matching group level (hence we have two independent observations per session).

Table 3: Individual trust level

<i>Dep.var.: Individual trust frequency</i>					
	Model 1	Model 2	Model 3	Model 4	Model 5
Northern Italy	0.111** (0.033)	0.103** (0.035)	0.109** (0.038)	0.106** (0.038)	
Latitude					0.017** (0.005)
Individual choices over lotteries					
Strongly risk averse			-0.046 (0.060)	-0.040 (0.054)	-0.037 (0.055)
Risk neutral/Risk loving			-0.002 (0.061)	-0.012 (0.067)	-0.015 (0.065)
Individual concerns for equality and efficiency					
Strong concern for equality				-0.038 (0.066)	-0.039 (0.066)
Strong concern for efficiency				0.024 (0.066)	0.024 (0.066)
Task comprehension (1=low)		-0.024 (0.049)	-0.023 (0.049)	-0.026 (0.049)	-0.028 (0.049)
Socio-demographic characteristics	No	Yes	Yes	Yes	Yes
N.obs. (individuals)	242	242	242	242	242
R-squared	0.026	0.049	0.052	0.057	0.059

Notes: OLS regression with standard errors robust for clustering at the matching-group level (in parentheses). The dependent variable is the frequency of one participant trusting over all rounds of the TG when she was a trustor. The default categories are: moderately risk averse, weak or no concern for efficiency, weak or no concern of equality. Socio-demographic characteristics are listed in the main text. Symbols ***, **, and * indicate significance at the 1%, 5% and 10% level, respectively.

Table 4: Individual contribution to the public good

<i>Dep.var.: Individual Contribution to the PGG</i>				
	Model 1	Model 2	Model 3	Model 4
Northern Italy	1.213* (0.580)	1.161** (0.432)	1.066** (0.429)	
Latitude				0.195*** (0.057)
Individual choices over lotteries				
Strongly risk averse			0.806 (0.572)	0.806 (0.569)
Risk neutral/Risk loving			-0.921* (0.445)	-0.895* (0.450)
Task comprehension (1=low)		0.757 (0.739)	0.819 (0.731)	0.822 (0.725)
Socio-demographic characteristics	No	Yes	Yes	Yes
N.obs. (individuals)	372	372	372	372
R-squared	0.015	0.085	0.101	0.106

Notes: OLS regression with standard errors robust for clustering at the session level (in parentheses). The dependent variable is the contribution of one participant averaged over all rounds of the PGG. The default category for risk preference is: moderately risk averse. Socio-demographic characteristics are listed in the main text. Symbols ***, **, and * indicate significance at the 1%, 5% and 10% level, respectively.

between contributions in the PGG and trust in the TG across cultures. Here we provide data of the correlation between these two measures.

Result 2 *Our two independent measures of cooperative behavior – contributions to the public good and trust – move in unison.*

Support for Result 2 comes from Figure 2 and Table 5. We report that the ranking of counties according to trust is identical to the ranking based on contributions. The higher is trust in the TG, the higher are the levels of voluntary contribution in the PGG. TG and PGG involved different participants – which makes the two measures fully independent of each other – and tasks with different parameters and types of strategic interaction. Yet, results are agreeing, which indicates the presence of a robust behavioral trait. This novel evidence that trust and contributions vary in unison across locations suggests that these phenomena share a common root, which we identify as the collective ability to cooperate.

Support for Result 2 is provided by linear regression analyses (Table 5). The dependent variable is the contribution of each participant as averaged over all rounds of the PGG. The independent variables are the county-average frequency of trust alone or with controls for demographic characteristics. Results indicate that an increase by 10 percentage points in the frequency of trust corresponds to a highly significant increase of the average contribution by about 1.5 points (Model 1). In this study, the relation between trust and individual contributions in the PGG remains positive and significant also after controlling for socio-demographic characteristics and task comprehension (Model 2).²⁷

Table 5: Individual contributions to the public good vs. trust.

<i>Dep.var.: Individual Contribution to the PGG</i>		
	Model 1	Model 2
County-average trust frequency	15.320*** (3.421)	14.507*** (2.913)
Task comprehension (1=low)		0.759 (0.719)
Socio-demographic characteristics	No	Yes
N.obs. (individuals)	372	372
R-squared	0.027	0.096

Notes: OLS regression with standard errors robust for clustering at the session level (in parentheses). Demographic characteristics are listed in the main text. The trust frequency comes from sessions run in the same county but with a distinct set of individuals. Socio-demographic characteristics are listed in the main text. Symbols ***, **, and * indicate significance at the 1%, 5% and 10% level, respectively.

Finally, we report some findings on trustworthiness. One could interpret trust levels as a response to trustworthiness levels: trustworthiness can influence trust because trust pays off when a high fraction of the population is trustworthy. Being trustworthy also follows a North-South ordering: the individual frequencies of trustworthy choices in the TG are

²⁷ These effects persist also in a regression where the dependent variable is the individual frequency of trust and the dependent variable is the county-level contribution to the PGG (robustness check in Appendix, see Table A-3).

34% in Cuneo, 33% in Faenza, 32% in Crotone, and 25% in Ragusa (Jonckheere-Terpstra test: p -value=0.049, z =-1.97, n =18, two-sided). However, trustworthiness is not significantly different from North to South according to an OLS regression (see Table 6). In Model 1, we include the dummy *Northern Italy* as a regressor, and in Model 2 we add controls for the same socio-demographic characteristics considered in Table 3. In Model 3, we also add controls for participants' preferences over risk, and in Model 4 we introduce controls for concerns for equality and efficiency. The average frequency of reciprocal actions is indeed higher in the North, but the correlation does not seem to be significant.

Table 6: Individual trustworthiness level

<i>Dep.var.: Individual trustworthiness frequency</i>					
	Model 1	Model 2	Model 3	Model 4	Model 5
Northern Italy	0.048 (0.048)	0.045 (0.044)	0.048 (0.047)	0.048 (0.048)	
Latitude					0.008 (0.007)
Individual choices over lotteries					
Strongly risk averse			0.032 (0.071)	0.033 (0.074)	0.034 (0.074)
Risk neutral/Risk loving			0.039 (0.078)	0.038 (0.081)	0.037 (0.081)
Individual concerns for equality and efficiency					
Strong concern for equality				0.001 (0.055)	0.000 (0.054)
Strong concern for efficiency				0.002 (0.058)	0.002 (0.058)
Task comprehension (1=low)		0.032 (0.065)	0.029 (0.070)	0.029 (0.070)	0.029 (0.070)
Socio-demographic characteristics	No	Yes	Yes	Yes	Yes
N.obs. (individuals)	238	238	238	238	238
R-squared	0.004	0.033	0.036	0.036	0.037

Notes: OLS regression with standard errors robust for clustering at the matching-group level (in parentheses). The dependent variable is the frequency of one participant trustworthiness over all rounds of the TG when she was a trustee. The default categories are: moderately risk averse, weak or no concern for efficiency, weak or no concern of equality. Socio-demographic characteristics are listed in the main text. Symbols ***, **, and * indicate significance at the 1%, 5% and 10% level, respectively.

5 Amoral familism and social capital

We reported a substantial gap in behavior between societies in Northern and Southern Italy in terms of their ability to achieve and sustain cooperative behaviors. We devoted great attention to place all participants in front of identical situations, using the experimental method to isolate subjects from confounding factors that influence the payoff structure. In such a highly controlled context, institutions, geographical factors, mafia extractions, degree of corruption and the efficiency of the public administration do not vary across locations. Our evidence hence suggests that the North-South gap in the ability to cooperate depends also on how differently people respond to the same incentives.

Here we consider two highly prominent interpretations of the economic and social divide in Italy. One interpretation was proposed by Banfield and Fasano (1958), who posited that people in the South were incapable of transcending their own immediate, material interest, or the one of their closest kins. Banfield famously named this disposition, “amoral familism.” The other interpretation was discussed by Putnam et al. (1993), who ascribed the gap to disparities in terms of social capital, which could arise from different historical experiences.

Amoral familism. The discussion of Banfield’s core conjecture relies on the behavioral measures collected in our lab-in-the-field experiment. Banfield describes Southerners to be more “self-interested” than Northerners, and proposes it as an explanation for the economic backwardness of the South. His interpretation emerged from ethnographic observations in the field and in-depth interviews mostly conducted in a single village of Southern Italy, which he fictionally dubbed *Montegrano*. In his own words:

The hypothesis is that the Montegranesi act as if they were following this rule: Maximize the material, short-run advantage of the nuclear family; assume that all others will do likewise. One whose behavior is consistent with this rule will be called an “amoral familist.” [...] In a society of amoral familists, no one will further the interest of the group or community except as it is to his private advantage to do so (p 85).

Experimental data collected in different locations can provide a rigorous test of Banfield’s core conjecture.²⁸ In the DG, our participants had to decide how to allocate an amount of money between themselves and two others. The potential beneficiaries were fellow-citizens from the same county, who were neither family members nor in a position to return the favor after the experiment, because their identity was not disclosed. This methodology presents several advantages over surveys and interviews: the mechanism to elicit individual preferences is incentive compatible, data are easily comparable across locations, and the strict protocol we followed ensures the replicability of the study. In addition, we can couple our measures of the intensity of “self-interest” with individual measures of trust (Result 3).

Result 3 *Preferences for self-interest do not vary systematically between North and South. In addition, variations in self-interest cannot explain the North-South gap in cooperative behavior.*

To measure the intensity of “self-interest”, we focus on individual concerns for equality and efficiency. We classify a person as caring about equality if she is willing to pay a personal cost to increase the level of equality of earnings in her group; similarly, a person cares

²⁸One could conceive other empirical tests for the implications of Banfield’s conjecture, for instance about the level of honesty. Here we test one aspect, which we label his “core conjecture.”

about efficiency if she is willing to pay a cost in order to increase the total earnings in her group.²⁹ Both preferences can be viewed as departures from self-interest and serve as useful measurements to compare behavior in different locations. We report similar preferences for self-interest in the North and the in the South of Italy. In particular, about 26 percent of participants can be classified as being self-interested or having weak concerns for others, both in the North and in the South. When looking at county-averages, concerns for equality and efficiency, unlike cooperation levels, are not aligned along a North-South continuum.³⁰

Support for Result 3 comes from Tables 3 and 7. The available evidence suggests that cooperation does not critically depend on concerns for equality and efficiency: for instance, residents of Cuneo display the weakest concerns for efficiency and yet they are the most cooperative in our sample (Table 2). More precisely, individual trust levels do not significantly correlate with individual concerns for equality and efficiency, and the North-South gap persists even after controlling for levels of self-interest (Model 4 in Table 3). Furthermore, an Oaxaca decomposition shows that the North-South difference in trust is not explained by differences in individual concerns for equality and efficiency (Table 7).³¹ Results indicate that the difference in average trusting behavior between Southern and Northern residents is equal to -0.111 (Prediction South minus Prediction North), and is statistically significant at the 5% level. We can estimate how much of this difference can be attributed to concerns for equality and efficiency (Table 7, Model 1). Overall, the two dummy variables *Strong concern for equality* and *Strong concern for efficiency* explain less than 1% of the North-South difference. Concerns for equality and efficiency cannot significantly explain the observed gap in terms of trusting behavior. In sum, this evidence leads to both a lack of corroboration of Banfield’s core conjecture and a refinement of the main result regarding the differences between the North and the South of Italy in how people respond to the same incentives.

Before moving to the discussion about social capital, we comment on the possible role of risk preferences. Cooperative tasks such as the PGG and TG expose subjects to the risk of being cheated and exploited by others, which is absent in DGs, where the allocation of money among group members only depends on the unilateral choice of the dictator. The choices of dictators reflect individual preferences toward the well-being of others, but present no elements of strategic interaction. One possible interpretation for the North-South gap in the ability to cooperate is that Southern people are generally less willing to take risks. Such an interpretation does not find support in our data. The evidence is articulated into

²⁹ These measures should capture well the traits characterising Southerners according to Banfield, who writes that: “The amoral familist will value gains accruing to the community only insofar as he and his are likely to share them. In fact, he will vote against measures which will help the community without helping him because, even though his position is unchanged in absolute terms, he considers himself worse off if his neighbors’ position changes for the better. Thus it may happen that measures which are of decided general benefit will provoke a protest vote from those who feel that they have not shared in them or have not shared in them sufficiently.” (Banfield and Fasano, 1958, pg. 101)

³⁰ See Table A-5 in Appendix.

³¹ The Oaxaca decomposition (Blinder, 1973; Oaxaca, 1973) is an econometric technique used to decompose a differential between two groups with respect to a variable of interest: in our case, trust in Northern and Southern Italy. This technique allows to single out what fraction of this differential can be explained by the available control variable, and what fraction instead remains unexplained.

Table 7: Variations in self-interest: an Oaxaca decomposition of the North-South gap in trust.

<i>Dependent Variable: Individual trust in the TG</i>		
	Model 1	Model 2
Prediction South	0.364*** (0.029)	0.364*** (0.029)
Prediction North	0.475*** (0.032)	0.4750*** (0.032)
Difference	-0.111** (0.043)	-0.111** (0.043)
Explained part		
Strong concern for equality	-0.001 (0.003)	- 0.001 (0.003)
Strong concern for efficiency	-0.000 (0.001)	-0.000 (0.001)
Strongly risk averse		0.006 (0.009)
Risk neutral/Risk loving		-0.003 (0.008)
Total explained	-0.001 (0.003)	0.002 (0.011)
Unexplained part		
Total unexplained	-0.110** (0.037)	-0.113** (0.045)
N.obs. (individuals)	242	242

Notes: The dependent variable is the frequency of one participant trusting over all rounds of the TG when she was a trustor. Symbols ***, **, and * indicate significance at the 1%, 5% and 10% level, respectively.

three points. First – unlike cooperation – risk preferences do not exhibit a North-South ordering.³² Second, trust in TG and contributions in PGG are significantly explained by the dummy *Northern Italy* also after controlling for individual risk preferences (Model 3 in Tables 3 and 4). Third, an Oaxaca decomposition confirms that individual risk preferences do not significantly account for the observed North-South differences neither in trust nor in contributions (Tables 7 and Table A-6 in Appendix). We conclude that the cooperation gap is not driven by individual differences in risk aversion.

Social capital. This study provides empirical evidence to shed light on the link between proxies of social capital and cooperative behavior. Social capital is a wide-encompassing concept (Nannicini et al., 2013). Here we focus on Putnam’s concept of social capital, which entails a collective dimension of social interaction:

”[...] social capital refers to connections among individuals – social networks and the norms of reciprocity and trustworthiness that arise from them [...] A society of many virtuous but isolated individuals is not necessarily rich in social capital” (Putnam et al., 1993, p.19).

³² See Table A-5 in Appendix.

One obstacle to surmount when using social capital is to find appropriate proxies. Studies about Italy customarily employ data about association density, electoral participation, and blood donations, which are the proxies that we use in Result 4 (Putnam, 2000; Cartocci, 2007; Guiso et al., 2004; Buonanno et al., 2009).

Result 4 *Our behavioral measures of cooperation do not correlate with any of the customary proxies for social capital.*

Support for Result 4 comes from comparing cooperation patterns in the experiment and proxies of social capital both at the county level and at the individual level. Below there is a description of the proxies for social capital at the county level.

Association density is defined as the number of associations per 100,000 inhabitants. Associations can be cultural, leisure, artistic, sports, environmental, and any kind of nonprofit associations with the exclusion of professional and religious associations (Putnam et al., 1993). We used county-level data for year 2000 and considered registered voluntary associations according to law 291/91 per 100,000 inhabitants (data from Buonanno et al., 2009), base on Istat, ‘*Primo censimento istituzioni nonprofit in Italia, 1999.*’

Electoral participation considers the average voting turnout, expressed as the percentage of eligible voters in all referenda held in Italy from 1946 to 1999 (Guiso et al., 2004 on original data of the Italian Ministry of Internal Affairs). Referenda are chosen in place of political elections as they are considered a better proxy of the desire of civic participation, rather than the regular elections for the National Parliament. The reasons are varied: voting at referenda is not mandatory in Italy, the issues on the ballot in referenda are less related to local interests, and referenda are immune from possible contamination from the so called ‘exchange vote.’ The exchange vote is an illegal practice according to which people may receive a payment in order to cast a vote for a particular candidate (see for instance Putnam et al., 1993).³³

Finally, *Blood donations* are measured as the instances of donations per 1,000 inhabitants. Our data are based on (Cartocci, 2007) and refer to year 2002.³⁴

The above proxies of social capital seem to capture the North-South divide in a broad sense. The average number of associations is 49 every 1000 inhabitants in the two counties of the North and 27 in the two counties of the South; average referenda turnout is 87% in the North and 71% in the South; the number of blood donations in a year is 59.5 per 1000 inhabitants versus 41.2. However, they do not correlate with the observed patterns of cooperation in the PGG and TG at the county level. According to social capital proxies,

³³ In our data, the counties of Belluno and Aosta have missing values for referenda turnout. We assigned to Belluno the average value for the Veneto region and to Aosta the average value of the Piemonte region.

³⁴ Data for Lazio and Puglia are available at the regional rather than county level and data for the counties of Gorizia and Trieste are the average value for the two counties.

Faenza scores first, followed by Ragusa, Cuneo, Crotona.³⁵ Cuneo and Ragusa are the closest counties in terms of social capital proxies and the most further apart in terms of ability to cooperate in the experiment. Faenza unquestionably appears the best in social capital but not in terms of cooperation levels. Within each macro area, the county with the lowest level of social capital cooperated more than the one with the highest level.³⁶

We have so far considered county-level comparisons. Following Gaechter and Herrman (2011), we also considered individual-level measures. Result 4 is also supported when correlating behavioral measures of cooperation with proxies of social capital at the individual level.

These measures were self-reported by participants in the final questionnaire. We asked participants whether they i) donated blood at least once during the previous 12 months, ii) voted in the 2009 European elections, iii) voted at least in one of the referenda held since 1999, iv) are member of an association or a social organizations (a list of type of associations followed).³⁷ Voting in the most recent referenda is not any longer a reliable indicator of civic duty because abstention has been strategically used to invalidate the referenda and maintain the status quo (a 50 per cent voter turnout is required). For this reason we also asked voting turnout in the election for the European Parliament, which have exhibited lower turnout rates than local or national political elections, and where voting behavior is usually driven by issues that are distant from local interests. In the analysis presented in Table 8 we consider a proxy that takes value 1 if a participant either voted at least in one referenda or for the European parliament.

We employed an Oaxaca decomposition to estimate how much of the observed gap in cooperation can be explained by individual-level proxies of social capital (Table 8). The decomposition performed on the individual contributions to the Public Good shows that the predicted North-South difference in contributions is accounted only in minimal part by individual-level measures of social capital and is not statistically significant (Model 1). The decomposition on the individual trust frequency exhibits a similar picture (Model 2).³⁸ In sum, there is mixed evidence about the predictive power of association density, electoral turnout, and blood donation for cooperative behavior. Other measures of social capital may turn out to be more tightly connected with trust and contributions to the public good.

³⁵ When considering Referenda turnout the ranking is Faenza, Cuneo, Ragusa, Crotona. For Faenza we consider the county of Ravenna. Recall from Section 2 that the selection of the counties in this study relied on measures of social capital.

³⁶Table A-7 (Model 1 and 3, in Appendix) provides further support to the idea that these proxies for social capital cannot explain the observed gap in cooperative behavior. *Blood donation* is significant in a model that explains cooperation but with a sign opposite to what is expected.

³⁷A transcript of the questions is in Appendix 3.3. Subjects had the chance to answer that they were not eligible for donating blood or for voting at the time of the European elections or of the referenda: in those cases, we coded the answers as zeros, but created specific dummies to denote these subjects.

³⁸Linear regression analysis on individual contributions to the PGG and trust frequencies in the TG provide similar results. See Table A-7, Model 2 and 4 in Appendix.

Table 8: Individual-level social capital: an Oaxaca decomposition of the North-South gap in cooperation

Dep var:	<i>Individual Contribution in PGG Model 1</i>	<i>Individual Trust in TG Model 2</i>
Prediction South	8.153*** (0.378)	0.364*** (0.029)
Prediction North	9.366*** (0.339)	0.475*** (0.032)
Difference	-1.213** (0.507)	-0.111** (0.044)
Explained part		
Blood donor	-0.020 (0.039)	-0.000 (0.001)
Voted in referenda or european elections	0.016 (0.040)	0.011 (0.010)
Association member	-0.016 (0.029)	-0.000 (0.013)
Missing value for social capital	-0.112 (0.080)	-0.007 (0.008)
Total explained	-0.131 (0.192)	-0.003 (0.018)
Unexplained part		
Total unexplained	-1.082* (0.507)	-0.114** (0.047)
N.obs. (individuals)	372	242

Notes: In Model 1, the dependent variable is the contribution of one participant averaged over all rounds of the PGG. In Model 2, the dependent variable is the frequency of one participant trusting over all rounds of the TG when she was a trustor. Symbols * * *, **, and * indicate significance at the 1%, 5% and 10% level, respectively.

6 Discussion

Does the Italian North-South divide originate from regional differences in incentives or rather in how differently people respond to equal payoffs? Our findings support the importance of the latter factor.

In a lab-in-the-field experiment, we find that people in the North have a higher propensity to cooperate than people in the South (Result 1). This evidence was obtained in a highly controlled situation, which offered participants in all locations identical opportunities to earn money: in such situation both the institutions and the returns from cooperation were the same. In this study, a representative sample of the Italian population was presented with two classic social dilemmas, the trust game and the voluntary contribution to a public good, which were played among people who live in the same location but that are not friends or relatives.

Not only do we find that in the North people trust and contribute more than in the South; we also observe that, in terms of ability to cooperate, the ranking of the four locations under study is the same according to both our two empirical measures (Result 2). These findings imply first, that the experimental measures of the ability to cooperate are reliable, in that they are robust to changes in the design and do not depend on idiosyncratic characteristics of the participants. Second, they indicate that we have captured a deep trait, which manifests itself regardless of the specific social dilemma faced by the subjects. This result highlights the resilience of the North-South gap in cooperative behavior.

We look at our data through the lenses of two well-known conjectures on the determinants of the North-South divide, which were formulated by Banfield and Fasano (1958) and Putnam et al. (1993). They suggest that preferences, expectations, and social norms are key factors in explaining the differences in outcome between the South and the North of Italy (Result 1) – that is, these conjectures go beyond the disparities in opportunities. In this sense, they are broadly in line with our findings.

At a closer look, however, these conjectures miss the mark. Banfield and Fasano (1958) suggests that Southerners display a higher level of self-interest than Northerners and framed it as a morality issue. We elicit individual concerns towards equity and efficiency through incentivized tasks (Dictator Games) and find no systematic North-South divide along this dimension. Moreover, data about self-interest at the individual level cannot explain the observed gap in cooperative behavior (Result 3). Putnam et al. (1993) instead relies on the concept of social capital to interpret the wide disparities present between North and South of Italy. The customary proxies for social capital do vary dramatically between Northern and Southern regions; they cannot, however, account for the gap in cooperative behavior we observe in our data. This implies that these proxies do not correlate with the actual ability of a society to overcome a social dilemma (Result 4).

To summarize, the experiment provides support for the role of preferences, expectations, and social norms in shaping the differential ability to cooperate that we observe across Italy. Our findings also suggest directions for a more precise identification of the behavioral dimensions that determine why people respond so differently to identical incentives, in the North and in the South. Two such dimensions relate to how people’s deal with aspects of social interaction that characterize group tasks. One possible interpretation of our results is that the North-South behavioral gap may originate in a difference in social norms of *conditional cooperation*, or in the expectations thereof (Kocher2008). Cooperation is conditional when it emerges as a reciprocal response to others’ actions, or it relies on the expectations that others will cooperate as well (Fischbacher et al., 2001). If a norm of conditional cooperation is in place, when people interact with each other in group tasks (e.g. Trust Game, Public Good Game), the higher is the observed or expected level of initial cooperation, the easier it is to sustain cooperation in a society. To explain the gap, it would be enough to prove either that the fraction of conditional cooperators is lower in the South, or simply that the expectations on others’ cooperation are more optimistic in the North. In the present experiment, the ability to cooperate is inherently social and can spread as a beneficial bacterium, in a self-reinforcing process. This mechanism can operate even if, according to choices in the Dictator Games, the fraction of self-interested participants is similar in Northern and Southern Italy.

A second interpretation relates to the aversion to a specific type of risk. Our evidence shows that tolerance of financial risk – elicited through a lottery task – plays a minor role in accounting for the North-South gap in the ability to cooperate. One should consider, however, that this finding is based on the customary assumption that the degree of risk aversion is identical for all domains, which cannot be taken for granted. In particular, previous experiments suggest that people exhibit a higher degree of aversion towards the social risk of being cheated by others, than to the risk related to events that only depend on luck, as in our lottery task (Bohnet and Zeckhauser, 2004). Existing evidence also indicates that the degree of this *betrayal aversion* varies across societies (Bohnet et al., 2008). The Italian gap in cooperation levels could spring from a specific aversion of Southerners, not to risk in general, but to the social risk of being cheated by others. This type of social risk is present when playing both the Trust Game and the Public Good Game, but not in unilateral decisions such as those in Dictator Games.

The two interpretations lead to distinct behavioral predictions when moving from in-group to out-group cooperation. If the cooperation gap depends on conditional cooperation, people would increase their level of cooperation when facing a group that is expected to cooperate more. On the contrary, if the betrayal aversion interpretation holds, the in-group and out-group cooperation levels would remain similar.

Our study contributes to the understanding of the *characteristics* of the North-South gap in the ability to cooperate, which appears to lie in the ability to cooperate but not necessarily

in other dimensions and is rooted in behaviors related to social interaction. These results are novel. An implication of the findings is that building infrastructures, removing the pressure from organized crime, increasing the productive investment in the South may not be enough to equalize regional outcomes – at least not in the short-medium run – unless people’s dispositions toward in-group cooperation change as well. We acknowledge that regional variations in the structure of incentives may contribute to the existing North-South divide in Italy. What we claim is that our study identifies the presence of a gap in cooperative behavior that persists even when incentives are held constant. In a sense, what we measure represents a lower bound for the North-South divide.

The next step would be to understand the *origins* of such distinct norms at the local level. Regional disparities in Italy survived 150 years of common national history (Felice, 2014; Daniele and Malanima, 2011), thus displaying long-term persistence, and several scholars have pointed at heterogeneous experiences in the distant past as the source of the gap in cooperation levels (Putnam et al., 1993; Nunn and Wantchekon, 2011).

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Appendixes

1 Selection of locations and participants

We selected four medium-sized cities in Italy to conduct our experiments. Table A-1 summarizes the main characteristics of the four cities and Figure A-1 depicts the laboratory in the different locations.

Study participants were recruited among the general population of each county. Socio-demographic characteristics of the actual sample are reported in Table A-2.

Two professional companies -Metis-Ricerche and Demoskopea- were hired for the recruitment of subjects; we provided them with a script to approach potential participants.¹ The recruiters had no prior knowledge of the purpose or content of the study. We asked them to recruit people residing in or outside the town where we ran the experiment. In addition to the aforementioned requirements, special categories of people were ex-ante barred from participation: employees of the research sector; people who took part in market researches in the preceding three months prior to the contract; family members of the recruiters; employees of marketing companies and of the press in general. Moreover, no more than two people per session should be acquainted with each other.

One company (Metis-Ricerche) recruited subjects for the first five sessions in Faenza. Potential subjects were identified by using telephone book entries and they were approached by telephone calls. All phases of the recruitment process were carried out from the headquarters of the company, and, in case of acceptance, the company mailed a confirmation letter to the participant. Metis-Ricerche decided not to renew the contract for the other locations because the recruitment procedures turned out to be more costly than expected for them. The other company (Demoskopea) recruited subjects for two sessions in Faenza and for five sessions in each of the other cities. Local representatives of Demoskopea carried out the recruitment of the subjects in each county, by choosing/ randomly extracting names from telephone books and by using random contacts obtained through personal interactions, as instructed by the headquarter.

¹The script is available upon request to the authors.

Table A-1: Characteristic of the selected counties

City	South		North		Source	Year
	Ragusa	Crotone	Faenza	Cuneo		
Population						
City population	73,333	61,392	57,664	55,464	Istat	2009
County population	316,113	173,812	389,509	589,586	Istat	2009
Population density (residents/squared km)	196	101	209	85	Istat	2009
Foreign citizens (% of residents)	2.8%	1.5%	4.5%	4.6%	Istat	2003
Geography						
Latitude	36°56'N	39°05'N	44°17'N	44°23'N		
City elevation (mt on the sea level)	520	8	34	534	Sopros	
Economy						
Per-capita GDP (euros)	20,008	15,447	29,110	30,414	Unioncamere	2008
Regional cost of living (Italy=100)	90.9	83.9	105.2	103.1		
Active labor force (% of population above 15)	43.8%	32.6%	53.8%	54.9%	Istat	
Social capital						
Number of voluntary associations/1,000 inhabitants (<i>ranking out of 103</i>)	37.77 (44)	16.08 (101)	64.45 (9)	33.73 (48)	Istat	2000
Referenda turnout as % of eligible to vote (<i>ranking out of 103</i>)	78% (66)	64% (101)	91% (2)	83% (56)	Data base Guiso et al. (2010)	2004
N. of blood donations per 1000 inhabitants (<i>ranking out of 103</i>)	64.5 (5)	18 (95)	84.8 (1)	34.2 (58)	Cartocci (2007)	2002
Justice						
Average duration of a civil trial	1007	1463	1004	555	Ministry of Justice	2006
Violent deaths (N. homicides/100,000 inhabitants)	1.93	5.8	0.53	0.17	Istat	2007
Education						
6th grade standardized test in Reading and Mathematics (<i>rankings out of 103</i>)	99 (94)	101 (100)	28 (25)	16 (6)	Invalsi	2009/2010
Literacy in the region	97.20%	95.30%	99.30%	99.30%	Istat	2001

Notes: Data are at the county level unless noted. City elevation from http://www.sopros.it/download/Tabella_Gradi-Italia.pdf. GDP is in Euro at current prices. Statistics for GDP at the level of the province are not available, thus data on value added at the level of the province are used as a proxy. Average duration of a civil trial refer to days for an ordinary trial in the judiciary district. Invalsi is the national institute for the evaluation of Italian schooling and education system, 'Istituto nazionale per la valutazione del sistema educativo di istruzione e di formazione'. Data on the average duration of a civil trial are taken from Carmigliani and Giacomelli (2009).

Table A-2: Socio-demographic variables

	Ragusa	Crotone	Faenza	Cuneo	Total
Male	43.9%	47.9%	49.4%	49.3%	47.7%
Age					
18-39	36.7%	23.2%	30.1%	23.6%	28.4%
40-59	40.3%	53.5%	42.3%	45.1%	45.3%
60 or +	23.0%	23.2%	27.6%	31.3%	26.3%
Employment Status					
Employed	34.8%	42.3%	45.5%	42.4%	41.4%
Housewife/Retired	34.8%	30.3%	27.6%	38.9%	32.8%
Student/Unemployed	30.4%	27.5%	26.9%	18.8%	25.9%
Education Level					
8th grade or lower	43.8%	43.7%	23.1%	24.3%	33.3%
High school	40.9%	45.8%	45.5%	45.8%	44.6%
College/Master/Ph.D.	15.3%	10.6%	31.4%	29.9%	22.1%
Rootedness					
Elementary school in the county	99.3%	94.4%	91.7%	99.3%	96.0%
Mother born in the county	90.7%	87.3%	75.6%	85.4%	84.5%
Father born in the county	90.6%	85.2%	71.2%	72.2%	79.5%
Sessions					
PGG sessions (year 2011)	26/05 6.30 pm 27/05 6.30 pm 28/05 4.00 pm	19/05 6.30 pm 20/05 6.30 pm 21/05 10.30 am	02/03 6.30 pm 04/03 6.30 pm 05/03 3.30 pm 01/10 10.30 am	10/06 6.30 pm 11/06 10.30 am 11/06 3.30 pm	–
TG sessions (year 2011)	25/05 6.30 pm 28/05 10.30 am	21/05 3.30 pm 21/05 7.00 pm [†]	03/03 6.30 pm 05/03 10.30 am 01/10 3.30 pm	08/06 6.30 pm 09/06 6.30 pm	–
Subjects					
N. of participants	152	142	180	144	618
N. of completed questionnaires	139	142	156	144	581

[†]For technical problems, one session (i.e., Crotone, 18/05/2011) was stopped after task two and the session was rescheduled; 15 subjects from the original session showed-up for completing the experiment on a later date (i.e., Crotone 21/05/2011, 7pm) and 12 additional subjects were recruited; only task 3 and 4 were played in that session.

Figure A-1: Mobile laboratory

(a) Crotone



(b) Cuneo



(c) Faenza



Figure A-2: Screen shot samples (English translation)

(a) Public Good Game (PGG)

CICLE 1

YOU HAVE 20 COINS: HOW MANY DO YOU WANT TO PUT IN THE COMMON PROJECT AND HOW MANY DO YOU WANT TO KEEP?

COINS IN YOUR WALLET: ?

YOU

?

COMMON PROJECT

?

(b) Trust Game (TG)

CICLE 1

WHAT DO YOU WANT TO DO? CHOOSE BETWEEN KEEP AND SEND

KEEP

SEND

KEEP

(c) Dictator Game (DG1)

SITUATION I

<p>A: 160 you: 160 B: 160</p> <p>total = 480</p>	<p>A: 196 you: 160 B: 164</p> <p>total = 510</p>	<p>A: 232 you: 160 B: 148</p> <p>total = 540</p>
<p>A: 268 you: 160 B: 142</p> <p>total = 570</p>	<p>A: 304 you: 160 B: 136</p> <p>total = 600</p>	<p>A: 340 you: 160 B: 130</p> <p>total = 630</p>

(d) Lottery choice

Press the button corresponding to your preferred option.

option	if the ball drawn at random is ORANGE you earn:	if the ball drawn at random is WHITE you earn:	content of the URN
I	17.5	17.5	●●●●● ○●○●○
II	22.5	15.0	●●●●● ○●○●○
III	27.5	12.5	●●●●● ○●○●○
IV	32.5	10.0	●●●●● ○●○●○
V	37.5	7.5	●●●●● ○●○●○
VI	44.0	1.0	●●●●● ○●○●○

2 Additional statistical analysis

This Section presents additional statistical analysis and details on the relation between contributions to the PGG, trust, trustworthiness, concerns for equality and efficiency, risk of nature, and demographic characteristics of the subject pool.

In Table 5 in the main text, we provide evidence of a positive and significant relation between individual contributions and trust. As a robustness check, we also run the symmetric linear regression, where the dependent variable is the frequency of trust measured at the individual level (Table A-3), and the only independent variable in Model 1 is the average contribution to the public good at the county level. Results indicate that an increase by 1 point (5 percent) in the average contribution to the PGG corresponds to a highly significant increase of the frequency of trust, by about 6 percentage points. In a second specification (Table A-3, Model 2), we include additional regressors to control for task comprehension and demographic characteristics. Results from Model 2 confirm that the positive and significant relation between trust and individual contributions to the public good is not driven uniquely by differences in the individual characteristics of our subjects across counties.

Table A-3: Average individual trust vs. contribution to the PGG at the county level.

<i>Dep.var.: Trust frequency in the TG</i>		
	Model 1	Model 2
County-average contribution	0.060*** (0.011)	0.063*** (0.015)
Task comprehension (1=low)		-0.033 (0.048)
Socio-demographic characteristics	No	Yes
N.obs. (individuals)	242	242
R-squared	0.023	0.050

Notes: OLS regression with standard errors robust for clustering at the matching-group level (in parentheses). Symbols ***, **, and * indicate significance at the 1%, 5% and 10% level, respectively.

In Table A-4 we test whether a significant relation emerges between the dummy *Northern Italy* and the average gains from trust, measured as the average profit obtained by a subject in all periods when he had the role of truster and decided to trust. Gains were higher in the North as compared to the South, but the coefficient is not significant (Model 1). We also tested for latitude and find that is not significantly correlated with the gains from trust (Model 2).

In Section 5 we report data on individual preferences as elicited in the Dictator Games and in the lottery task. Table A-5 reports data on individual types divided by county and task. We classify 246 participants according to their choices in the three DGs (Table 2):² a participant expresses a “strong concern for group efficiency” when she favors total surplus in the group both (i) over equality of earnings in the costless choice DG1, and (ii) over self-interest in DG2; by contrast, a participant expresses a “strong concern for equality” when

²Only participants in the TG sessions took part in the modified DGs.

Table A-4: Average gains from trust.

<i>Dep.var.: Average Gains from Trust</i>		
	Model 1	Model 2
Northern Italy	1.744 (1.976)	
Latitude		0.391 (0.260)
N.obs. (individuals)	176	176
R-squared	0.003	0.007

Notes: OLS regression with standard errors robust for clustering at the matching-group level (in parentheses). Symbols ***, **, and * indicate significance at the 1%, 5% and 10% level, respectively.

she favors equality of earnings both (i) over total surplus in the costless choice DG1, and (ii) over self-interest in DG3. The third category is residual. The summary statistics indicate that there is variation across counties, but there is no gap between North and South.

Similar results emerge when considering attitudes toward risk of nature (Table A-5). Our 618 participants were classified according to the lottery chosen out of a menu of six. Subjects who chose lottery 1 or 2 were classified as "Not risk averse." Subjects who chose the intermediate lotteries (3, 4) are classified as "weakly risk averse," and finally subjects who choose lottery 5 or 6 are labelled as "Strongly risk averse."

Table A-5: Risk preferences and concerns for equality and efficiency

	Ragusa	Crotone	Faenza	Cuneo
Individual concerns for efficiency and equality				
Strong concerns for efficiency	37%	37%	43%	35%
Strong concerns for equality	33%	37%	39%	27%
Weak other-regardness or self-interest	30%	26%	18%	38%
	South	←	→	North
Choices over lotteries				
Strongly risk averse	28%	21%	42%	25%
Weakly risk averse	44%	45%	42%	47%
Not risk averse	28%	34%	16%	28%

As a further test for the role of individual preferences in explaining the North-South divide, we have employed a (Blinder-)Oaxaca decomposition (Blinder, 1973; Oaxaca, 1973). In the main text, we report the Oaxaca decomposition for the individual trust frequency in the TG (Table 7). Here we report the same analysis for contributions to the PGG (Table A-6). In the PGG, the estimated difference in the average contribution between Northern and Southern counties is equal to -1.213 points (Prediction South - Prediction North), and it is statistically significant at the 5% level (Table A-6, Model 1). One can see how much of this difference can be attributed to differences in risk preferences. This dimension is coded through two dummy variables (*Strongly risk averse* and *Risk neutral/Risk loving*) and can explain -0.111 point difference in average contribution, which amounts to only 9%.

To test for the social capital explanation proposed by Putnam, we considered three widely

Table A-6: Oaxaca decomposition of North South difference in average contribution to the public good.

<i>Dependent variable: Individual contribution to the PGG</i>	
	Model 1
Prediction South	8.153*** (0.377)
Prediction North	9.366*** (0.338)
Difference	-1.213** (0.507)
Explained Part	
Strongly risk averse	-0.067 (0.062)
Risk neutral/Risk loving	-0.044 (0.050)
Total explained	-0.111 (0.078)
Unexplained Part	
Total unexplained	-1.102** (0.507)
N.obs. (individuals)	372

Notes: Symbols ***, **, and * indicate significance at the 1%, 5% and 10% level, respectively.

used proxies: association density, electoral participatin, and blood donation.³

In Table A-7 we test for the correlation between cooperation (contribution to the PGG in Model 1 and trust in the TG in Model 3) and county-level measures of social capital. The specifications also include controls for individual preferences, understanding and demographic characteristics. The only proxy for social capital that is significant is *Blood donations*, however the sign is negative and not positive as suggested by the literature on social capital. Individual-level measures of social capital –described in the main text– are included in Models 2 and 4. Once more, we do not find support for the idea that the North-South divide is explained by the social capital hypothesis.

3 Experimental Instructions

3.1 Instructions (PGG Experiment)

Welcome! This study is part of a research project led by the Universities of Bologna and Oxford and financed by the European Commission. All participants in this room were born in this Province, or in this Region.

(You will earn 30 euros in gasoline vouchers for taking part in the study). You will be able to earn additional money depending on your choices and the choices of the other participants. You will be paid in private at the end of today’s study.

³See the main text for a detailed description of the proxies.

Table A-7: Regression analysis on social capital.

<i>Dep.var.:</i>	<i>Individual Contribution (PGG)</i>		<i>Individual trust (TG)</i>	
	Model 1	Model 2	Model 3	Model 4
Strongly risk averse	0.896 (0.586)	0.683 (0.611)	-0.032 (0.055)	-0.028 (0.057)
Risk neutral/Risk loving	-0.887* (0.479)	-1.001** (0.396)	-0.019 (0.064)	-0.022 (0.066)
Strong concerns for equality			-0.036 (0.065)	-0.040 (0.069)
Strong concerns for efficiency			0.026 (0.068)	0.024 (0.068)
Task comprehension (1=low)	0.820 (0.704)	1.039 (0.751)	-0.029 (0.048)	-0.035 (0.055)
County-level measures of social capital				
Blood donations			-0.080*** (0.017)	-0.005*** (0.002)
Electoral participation			3.578 (5.402)	0.359 (0.451)
Association density			0.086* (0.043)	0.007 (0.005)
Individual-level measures of social capital (questionnaire)				
Blood donor		-1.154 (0.685)		-0.026 (0.094)
Voted in referenda or european elections		1.261s (1.130)		-0.022 (0.086)
Association member		0.822 (0.490)		0.029 (0.054)
Social capital missing		-0.137 (0.570)		-0.049 (0.057)
Socio-demographic characteristics	Yes	Yes	Yes	Yes
N.obs. (individuals)	372	372	242	242
R-squared	0.115	0.106	0.061	0.043

Notes: The dependent variable in Models 1-2 is the contribution of one participant averaged over all rounds of the PGG. The dependent variable in Models 3-4 is the frequency of one participant trusting over all rounds of the TG when she was a trustor. *Association member* takes value 1 for all subjects who declared to be active member of at least one association, and 0 otherwise. The default category for risk preferences is: moderately risk averse. Socio-demographic characteristics are listed in the main text.

Please, turn off your mobile phone. From this moment on, no form of communication among participants is allowed. In case you have a question, please rise your hand and one of us will come to your desk to answer it.

It is important that you carefully follow the instructions. There are five parts to this study ; I am about to read instructions for Part 1.⁴

Instructions Part 1

In this part, you have to choose among six different earnings options. Each option can produce either a high or a low earning. Please, look at the screen. For each option:

- the high earning is in the second column;
- the low earning is in the third column.

Figure A-3: Sample screenshot for Lottery task.

opzione	se la pallina estratta è ARANCIONE guadagni:	se la pallina estratta è BIANCA guadagni:	contenuto dell'URNA
I	17.5	17.5	● ● ● ● ● ○ ○ ○ ○ ○
II	22.5	15.0	● ● ● ● ● ○ ○ ○ ○ ○
III	27.5	12.5	● ● ● ● ● ○ ○ ○ ○ ○
IV	32.5	10.0	● ● ● ● ● ○ ○ ○ ○ ○
V	37.5	7.5	● ● ● ● ● ○ ○ ○ ○ ○
VI	44.0	1.0	● ● ● ● ● ○ ○ ○ ○ ○

The high earning has a 50 percent probability of being realized and the low earning has a 50 percent probability of being realized.

What is your task? You have to choose your favorite option. Look at the screen: for each row you can see a button, numbered from I to VI (see Figure A-3). In order to choose, you have to press the button next to your favorite option. Please, touch the screen with your fingers only; pencils could damage the screen.

How are your earnings computed?

- at the end of today's study, two participants in this room will be randomly selected ; only the selected persons will receive a payment for this part. The payment can be either high or low;

⁴For brevity, we report instructions only for part 1 and 2 and omit part 3 to 5, which are not included in the present paper. The full set of instructions is available upon request to the authors. Original instructions were in Italian.

- there will be a urn with ten balls: 5 orange and 5 white balls;
- if an orange ball is drawn from the urn, the selected people will get the high payment for the option they've chosen ;
- if a white ball is drawn from the urn, the selected people will get the low payment for the option they've chosen .

Let's run a test, with no consequences for your final earnings. Please, press the button V. You earn 37.5 Euros if an orange ball is drawn from the urn, while you earn 7.5 Euros if a white ball is drawn from the urn. [*Did you press the button?*] A box to CONFIRM or CHANGE your choice has appeared on the screen; please, press CHANGE. Now you can change your choice . [*OK*] Now press the button III; you earn 27.5 Euros if an orange ball is drawn from the urn, while you earn 12.5 Euros if a white ball is drawn from the urn. Please, press CONFIRM. [*The choice cannot be changed anymore. Please, everyone press CONFIRM. Is everything clear? If there are no questions, we can start with Part 1.*]

Instructions Part 2

In the present and subsequent parts, your earnings are expressed in tokens that will be converted in Euros at the rate of 1 Euro for 40 tokens.

For this part, people in this room are randomly divided in groups of four; nobody can know the identity of the other members of the group.

The screen displays your group: you are the person in red.

What is your task? Each member of the group is endowed with 20 tokens, that have to be divided between a common project and his wallet. You can see four red buttons on the screen (*see Figure A-4 for two sample screenshots*). You can decide to:

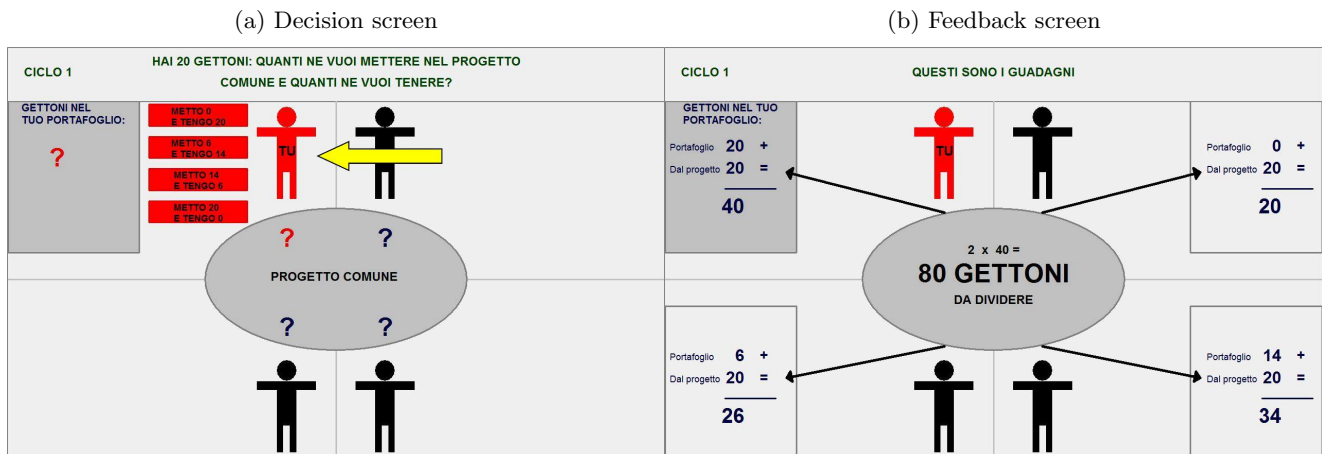
- put 0 tokens in the common project and keep 20 tokens in your wallet;
- put 6 tokens in the common project and keep 14 tokens in your wallet;
- put 14 tokens in the common project and keep 6 tokens in your wallet;
- put 20 tokens in the common project and keep 0 tokens in your wallet.

As an example with no consequences for your earnings, please press the button PUT 0 AND KEEP 20. [*Have you pressed the button?*] A box to CONFIRM or CHANGE your choice has appeared on the screen; please, press CONFIRM. [*The choice cannot be changed anymore. Please, everyone press CONFIRM.*]

After everyone has confirmed his choice, you can see:

- the tokens kept in the wallet by each member of the group;
- the tokens put in the common project by each member of the group;
- the total number of tokens that the group has put in the common project.

Figure A-4: Sample screenshot for PG task



How are your earnings computed?

- you earn the tokens you kept in your wallet;
- the total number of tokens in the project is doubled and divided equally among the four members of the group.

Look at the top-left part of the screen; as you can see, in the present example you earn the 20 tokens you kept in your wallet. In addition, you earn 20 tokens from the common project. Why? Because:

- you put 0 tokens in the common project, while the other people put 20, 14, and 6 tokens, for a total of 40;
- the 40 tokens are doubled for a total of 80;
- the 80 tokens are equally shared; therefore, you earn 20 from the common project; that is, 80 divided by 4.

Earnings for the other members of the group are computed alike. Please, remember that this is just an example.

Earnings from the common project are the same for each member of the group: is it just a coincidence? No, it is not; even though the amount of tokens put in the project by each member is different, the total amount is always shared equally. [Any question?]

Can you know how much has been put in the common project by each member of the group? Yes, you can know the amount. Consider the tokens kept in the wallet, as reported next to each person:

- if the person kept 20 tokens in his wallet, he put 0 tokens in the common project;
- if the person kept 14 tokens in his wallet, he put 6 tokens in the common project;

- if the person kept 6 tokens in his wallet, he put 14 tokens in the common project;
- if the person kept 0 tokens in his wallet, he put 20 tokens in the common project.

In this part there are 8 rounds with the same rules. In the upper-left part of the screen you can see the number of the current round. At the beginning of each round, new groups of four people are formed at random.

To sum up, in every round:

- you are endowed with 20 tokens;
- you have to decide how to allocate the tokens between your wallet and the common project;
- the tokens put in the common project by the group members are doubled and then equally divided among the four members of the group;
- your earnings are equal to the sum of what is in your wallet and the tokens from the common project.

Earnings cumulate from round to round. *[Is everything clear?]*

Before starting, please answer a few questions. ?

3.2 Instructions (TG Experiment)

Welcome! This study is part of a research project of the Universities of Bologna and Oxford and is financed by the European Commission. All participants in this room were born in this Province, or in this Region.

You will earn Euros 30 in gasoline vouchers for taking part to the study. You will be able to earn additional money depending on your choices and the choices of the other participants. You will be paid in private at the end of today's study.

Please, turn off your mobile phone. From this moment on, no form of communication among participants is allowed. In case you have a question, please rise your hand and one of us will come to your desk to answer it.

It is important you carefully follow the instructions. In this study there are four parts; I am about to read instructions for Part 1.⁵

Instructions Part 2

In the present and subsequent parts, your earnings are expressed in tokens that will be converted in Euros at the rate of 1 Euro for 40 tokens.

In this part, people in this room are randomly divided in groups of three; nobody can know

⁵For brevity, we report instructions only for part 2 and 3 and omit part 4 that is not included in the present paper. Instructions for part 1 are identical to part 1 instructions in the PGG experiment. The full set of instructions is available upon request to the authors

the identity of the other members of the group.

Three situations will be presented one after the other. What is a situation? Look at the screen (see Figure A-6), you can see an example. *[Can you see six figures on the screen? OK]* Each figure is divided in three slices; the red slice indicates your earnings, while the black and the white slices represent the earnings of the other persons in your group.

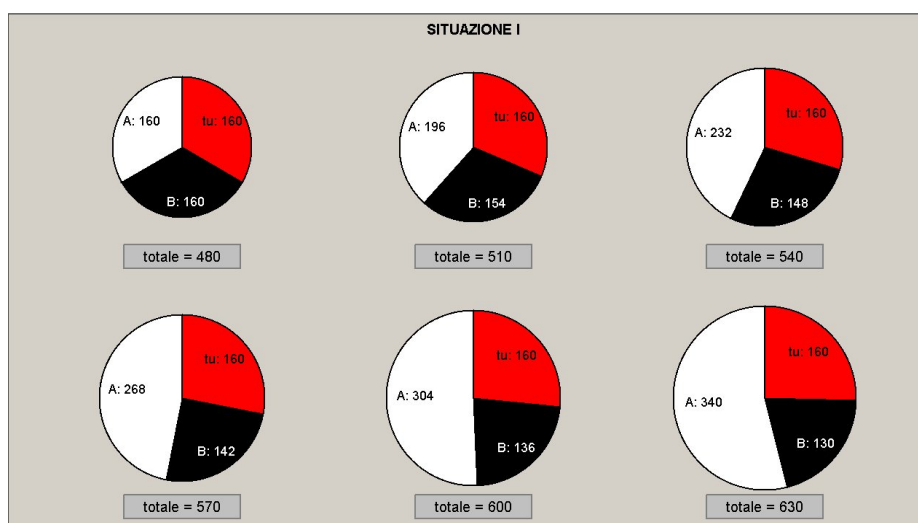
For instance, in the top-left figure, your earnings amount to 160 tokens, while the earnings for the other two persons in your group amount to 160 tokens each. Let's consider another example; if you choose the bottom-right figure, you earn 160 tokens, while one person in your group earns 340 tokens and the other person in your group earns 130 tokens. *[Is everything clear?]*

As you can see, the different figures can be of different dimensions. The sum of the earnings for each member of the group is displayed below each figure. *[Are there any questions?]*

What is your task? You have to choose one of the six figures; in order to choose, you have to press the figure you prefer the most. As an example without consequences for your earning, press the top-center figure. A box to "CONFIRM" or "CHANGE" your choice has appeared on the screen; the chosen figure is highlighted by a white box. Please, press CONFIRM. *[Your choice cannot be changed now. Are there any questions?]*

How are your earnings computed? Every person in your group will make a choice for each

Figure A-5: Sample screenshot for DG task.



situation. Among all the choices made within your group, only one randomly chosen choice will be implemented; the implemented choice can be your choice or the choice by another member of your group.

What if your choice is randomly chosen? Your choice will determine your earnings and the earnings of the other members of your group.

What if the choice of another person in your group is randomly chosen? It can happen that your earning is different from the one you chose. In this case, your earning depends on the choice made by the selected person and the color you have been assigned at random: either

white or black. The choice will be randomly selected at the end of this part; therefore, you have to pay attention to all your choices. *[Is everything clear?]*
 Before starting, please answer a few questions.

Instructions Part 3

As in the previous part, people in this room are randomly divided in groups of three people; nobody can know the identity of the other members of the group.

There are two different roles in each group: role A and role B. In each group, a person has the role A and two have the role B. Roles are randomly assigned by the computer.

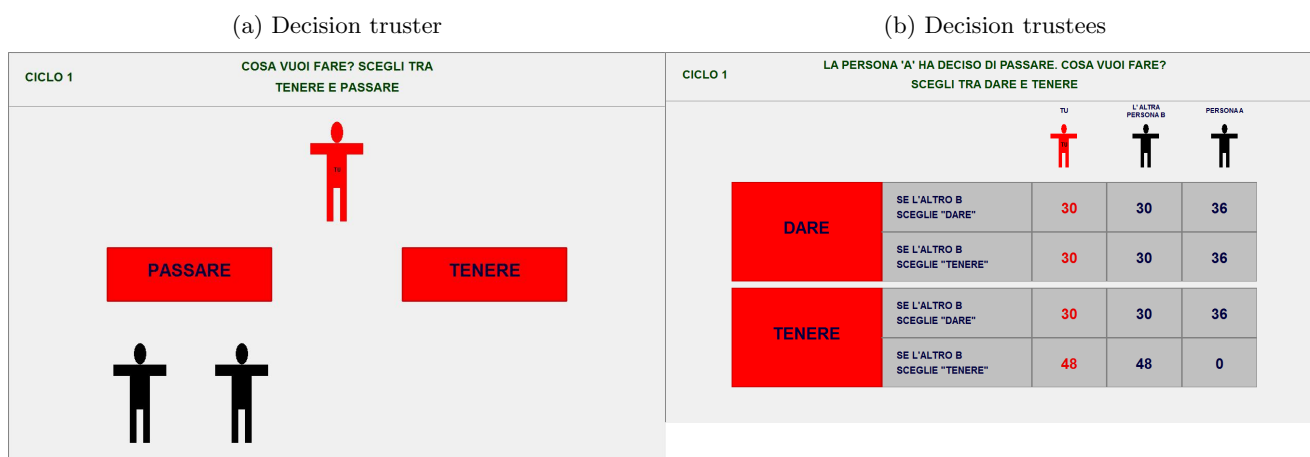
What is the task for a role A person? Look at the screen (*see Figure A-6*), the role A person has to decide between PASS and KEEP.

- if the person A decides to KEEP, everyone in the group earns 20 tokens. In this case, role B people do not have to take any decisions;
- if the person A decides to PASS, he earns either 0 or 36 depending on the choices made by the role B people in the group.

As an example with no consequences for your earnings, please press the button PASS. You can now decide whether to CONFIRM or CHANGE your choice; please, press CONFIRM. *[The choice cannot be changed anymore. Please, everyone press CONFIRM]*

What is the task for a role B person if the role A person decides to PASS? Look at the screen, the two role B people have to simultaneously choose between GIVE and KEEP. If A decides

Figure A-6: Sample screenshot for TG task



to PASS, how are the earnings computed?

- if both role B persons decide to KEEP, role B persons earn 48 tokens each and the role A person earns 0 tokens;

- if both role B people decide to GIVE, role B persons earn 30 tokens each and the role A person earns 36 tokens;
- if one role B person decides to GIVE and the other decides to KEEP, role B persons earn 30 tokens each and the role A person earns 36 tokens.

Please remember that everyone in the group earns 20 tokens if role A person decides to KEEP.

Let's make an example with no consequences for your earnings. In this example, you have the role B. Please, press KEEP and then CONFIRM. *[The choice cannot be changed anymore. Please, everyone press CONFIRM]*

In the following screen, you can see the final earnings for the group. In the present example, you have been assigned role B and have decided to KEEP, while the other person who has been assigned role B decided to GIVE. Both you and the other person with the role B earn 30 tokens and the person with the role A earns 36 tokens.

In this part, there are 10 rounds with the same rules. In the upper-left part of the screen you can see the number of the current round. At the beginning of every round, new groups of three people are formed at random.

To sum up, in every round:

- the person with role A has to decide between PASS and KEEP;
- if A decides to KEEP, the round ends and everyone earns 20 tokens;
- if A decides to PASS, the two people with role B have to choose between GIVE and KEEP and earnings are computed as explained above.

Earnings cumulate from round to round. *[Is everything clear?]* Before starting, please answer a few questions.

3.3 Questionnaire (PGG and TG experiments)

Were the instructions clear to you?

1. Not at all clear
2. Not very clear
3. Somewhat clear
4. Very clear

What is your age range?

1. 18-25
2. 26-32
3. 33-39
4. 40-49

5.50-59

6.60-69

7.70 and more

Sex

1.Female

2.Male

Birthplace

1.In this city or county

2.Outside this county, but in this region

3.Trentino AA, Veneto, Friuli VG

4.Piemonte, Valle d'Aosta, Lombardia, Liguria

5.Toscana, Umbria, Marche, Lazio

6.Abruzzo, Molise, Puglia, Basilicata, Calabria, Campania

7.Sicila, Sardegna

8.Foreign Country

Mother's birthplace

1.In this city or county

2.Outside this county, but in this region

3.Trentino AA, Veneto, Friuli VG

4.Piemonte, Valle d'Aosta, Lombardia, Liguria

5.Toscana, Umbria, Marche, Lazio

6.Abruzzo, Molise, Puglia, Basilicata, Calabria, Campania

7.Sicila, Sardegna

8.Foreign Country

Father's birthplace

1.In this city or county

2.Outside this county, but in this region

3.Trentino AA, Veneto, Friuli VG

4.Piemonte, Valle d'Aosta, Lombardia, Liguria

5.Toscana, Umbria, Marche, Lazio

6.Abruzzo, Molise, Puglia, Basilicata, Calabria, Campania

7.Sicila, Sardegna

8.Foreign Country

Where did you attend elementary school?

1. In this city or county
2. Outside this county, but in this region
3. Trentino AA, Veneto, Friuli VG
4. Piemonte, Valle d'Aosta, Lombardia, Liguria
5. Toscana, Umbria, Marche, Lazio
6. Abruzzo, Molise, Puglia, Basilicata, Calabria, Campania
7. Sicila, Sardegna
8. Foreign Country

Marital status:

1. Unmarried
2. Married
3. Separated
4. Divorced
5. Widower

How many people compose your family, including yourself?

1. 1
2. 2
3. 3
4. 4
5. 5 or more

Are you your family's main source of income?

1. Yes
2. No

Have you got brothers and/or sisters?

1. No
2. 1
3. 2
4. 3 or more

Does your family possess a car?

1. Yes, 1
2. Yes, 2 or more
3. No

Is the house where your family lives:

- 1.Rented
- 2.Your property
- 3.Other

Employment:

- 1.Inexperienced worker
- 2.Experienced labor force
- 3.Self-employed
- 4.Employed with fixed term contract
- 5.Employed with permanent contract
- 6.Retired
- 7.Student
- 8.Housewife
- 9.Not able to work or not searching for a job

If in the previous question you responded 3. Self-employed:

- 1.Entrepreneur with employees
- 2.Entrepreneur without employees
- 3.Free-lance professional
- 4.Partner in a cooperative
- 5.Family co-worker
- 6.Artisan (Craftsman)
- 7.Merchant
- 8.Fixed term worker in a project (co.co.pro).

If you instead responded 4. or 5. Employee (with fixed term or permanent contract):

- 1.Executive, medical doctor or university professor
- 2.Managing employee, white collar
- 3.Office worker
- 4.Teacher
- 5.Worker, shop assistant, nurse and similar
- 6.Apprentice
- 7.Cottage worker for a firm
- 8.Fixed term worker in a project (co.co.pro).

Education level

- 1.Primary school or lower

2. Intermediate school (8th grade)
3. High school
4. College
5. Master or PhD

In general, would you say that most people can be trusted or that you need to be very careful in dealing with people

1. Most people can be trusted
2. Need to be very careful
3. Do not know

Do you think that most people would try to take advantage of you if they got a chance, or would they try to be fair? Please show your response on this card, where 1 means that “people would try to take advantage of you”, and 10 means that “people would try to be fair”:

1. People would try to take advantage of you
10. People would try to be fair

Imagine you lost your wallet or purse while walking in the main street of this city. The wallet contained 100 euros in cash. Someone finds it and understands that you are the owner, because documents show your identity and address. Which do you think would be the probability that the person that finds it would return it to you, if the person in question is born in this city but you do not know it personally?

1. Almost sure
2. Very probable
3. Rather probable
4. Not very probable
5. Not at all probable

What happens if it is an elementary school teacher of this city to find it?

1. Almost sure
2. Very probable
3. Rather probable
4. Not very probable
5. Not at all probable

What if it is a shop assistant of this city to find it?

1. Almost sure

2. Very probable
3. Rather probable
4. Not very probable
5. Not at all probable

What if it is a police man of this city to find it?

1. Almost sure
2. Very probable
3. Rather probable
4. Not very probable
5. Not at all probable

Are you generally ready to take on risks or you tend to avoid them? Please use this scale where 1 means “risk averse”, while 10 means “ready to take risks”.

1. risk averse
10. ready to take risks

I am going to name a number of voluntary organizations. For each one, could you tell us if you are an active member? (You can check more than 1 answer)

1. I am not a member of any organization or association
2. Associations or groups related to the “churches”
3. Sport or leisure associations or organizations
4. Artistic, music or educational associations or organizations
5. Labor Unions
6. Political Parties
7. Environmental organizations
8. Professional organizations
9. Charitable or humanitarian organizations
10. Consumers organizations

Have you made a blood donation in the last 12 months?

1. Yes
2. No
3. I cannot donate for medical reasons

Did you vote in the last european elections in 2009?

1. Yes
2. No

3.I had no voting right

Did you vote in one referendum at least since 1999? In 1999 there has been a referendum on the abolition of the proportional share for the chamber of deputies. There have been other referendum on other issues in 2000, 2003, 2005 e 2009.

1.Yes

2.No

3.I had no voting right