

Trust and Identity in a Small, Post-Socialist, Post-Crisis Society

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Abstract

The principal focus in the substantial literature on impediments to economic development has been on the inadequacies of policies and governance. However, successful economic development requires effectiveness of markets and incentives for investment, which in turn require trust. This paper reports on trust in a development context. The paper uses trust experiments, a post-experiment survey, and econometric analysis relating trust to identity and other personal attributes in the setting of Montenegro, a small, recently-independent, post-socialist, post-crisis society. External validity was sought by providing sufficient material reward to balance identity-related expressive motives and by having two groups of subjects, one usual university students and

another group that, while also students, was somewhat older and had had greater market or commercial experience. The paper reviews cultural priors that can be expected to affect trust and distinguishes between generalized trust that can be socially beneficial and particularized trust that can be disadvantageous for development. The empirical results suggest that trust among private individuals is not an impediment to development in Montenegro. As a result, policy reform can improve economic and social outcomes. However, the results redirect the focus to issues of governance and political entrenchment as potential explanations for impediments to development.

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1. Introduction

Economic development and growth require trust. Trust is, of course, not sufficient for development and growth. Appropriate governance and public policies are required. Policies aimed at economic improvement are, however, ineffective in the absence of trust. If high trust and trustworthiness can be shown to be present in a population, the focus in searching for explanations for impeded development can move to issues of governance and political entrenchment.

1.1 The primacy of trust in economic development

Trust of course facilitates market transactions (Fukuyama, 1995; La Porta et al., 1997; Zak and Knack, 2001). In the absence of trust, transactions that could be agreed upon directly and informally require complex contingent contracts and guarantees with third-party intervention (la Porta et al., 1997; Uslaner, 2002). Trust is required in the course of everyday life when buyers pay sellers. When trust is low or absent, people are unwilling to give credit card details to strangers and to accept checks for payment. Terms of payment over time or credit are not offered (Fukuyama, 1995). Guarantees for products sold to consumers may not be given because of anticipations of opportunistic behavior.

Absence of trust is also a disincentive for investment including investment in education or human capital (Dearmon and Grier, 2011; Bjørnskov and Méon, 2013). Business partnerships are compromised or non-sustainable when partners do not trust one another. The separation between ownership and management makes investment impossible or challenging and high-risk when investors do not trust managers with invested funds.

Bank lending can be extremely restrictive when trust is absent or low. Collateral that is provided is discounted because of the anticipation of opportunism in using the same collateral in more than one loan. Real estate transactions are inhibited when trust is low or absent because of the possibility that the same property may be sold to more than one buyer.

Trust has a corresponding international dimension. Absence of trust deters foreign trade (Guiso et al., 2009) and foreign investment (Dearmon and Grier, 2009).

Trust is a substitute for missing or ineffective formal institutions (Ahlerup, Olsson, and Yanagizawa, 2009). Trust is accordingly the basis for informal sector activities where recourse to formal payment relations and court-enforced contracts is not available (Annen, 2013). We therefore expect individuals engaged in informal sector activities to have experienced high trust and also trustworthiness.

Trust is also involved in relations between private individuals and government (see Keele, 2007; Bjørnskov and Sønderskov, 2013). Investors confronting potential time-inconsistency problems require trust that governments will not opportunistically adopt appropriative policies after fixed investments are in place. Lack of trust in government decreases willingness to pay taxes. Trust in government also affects investment incentives, through faith in the civil and criminal justice system. Investment is deterred when trust is compromised by absence of the rule of law as indicated by corruption and organized crime (Knack and Keefer, 1997; Blanco, 2013). Investors also need to be able to trust the judicial system to provide fair treatment in disputes involving the government. In disputes between private parties, trust is required that judges are not prone to biased judgments based on personal relationships.

1.2 Montenegro

Against the background of the evidence of the necessity of trust for economic development, we report on a study of trust in Montenegro – a small (population 650,000) post-socialist post-conflict, post-crisis country that became independent in its contemporary form on June 3, 2006. In a referendum on May 21, 2006 on secession from the federation, 55.5 percent of voters, marginally in excess of the required 55 percent majority, supported secession from a Serbian-Montenegrin federation that had been created in the course of the break-up of the former

Yugoslavia. Secession was a divisive issue and, at the time of our trust study in 2012, divisions in society remained influenced by the referendum on independence. Despite important gains in income per capita and poverty reduction in the period 2002-2012, high unemployment remains a problem and broader economic development had not advanced in step with people's expectations; in addition, the economy was struggling to resume robust growth in the aftermath of the global financial crisis (World Bank, 2012). Problems relating to the viability of former socialist industry, employment, and public finance – the same types of problems that other post-socialist societies had experienced some two decades earlier – were present.¹

1.3 Conclusions on trust

Our study finds levels of trust in Montenegro comparable to high-income countries. Indeed, for participants from one group in our study, who we associate with private-sector activity, the results show extremely high levels of trust. Our study, therefore, suggests that impediments to growth and development in Montenegro are not to be sought in lack of trust in the private sector. Our experiments provide no data on trust in institutions – because interactions were between private individuals. We, however, asked participants in the experiments about their trust in government and in institutions and included the responses in empirical estimates of determinants of observed personal behavior.

1.4 Implications

The trust revealed in Montenegro is consistent with per capita income considerably higher than formally reported in official statistics. Informal activity

¹ The problems in Montenegro, for example, paralleled the problems of transition in Bulgaria two decades earlier described in Bogetić and Hillman (1995). See also the studies in Campos and Fidrmuc (2003).

adds to official income but there have been no hard measures of the extent of informal sector activity in Montenegro. Some estimates have suggested 20 percent of employment in informal activities.² Calculations based on interviews conducted in Montenegro by the World Bank suggest that the informal sector increases income beyond official data by some 30 percent. As background for such estimates, official ILO statistics show extraordinarily low labor-force participation rates of 54.8% for men and 45.2% for women (for the four quarters to June 2013). Unemployment rates were 28.7 % for men and 22% for women. Significant private sector income appears to be derived from the informal sector. We note the evidence that informal sector activity requires high trust.

At the time of our study, democracy in Montenegro had been ineffective in giving rise to turnover in government. While Montenegro is a functioning democracy with parliament representing all strata of the population, and vibrant press and non-government sector, little had changed with regard to political dominance and control since the end of single-party socialism. Absence of effective political competition in formally newly democratic countries has been shown to result in political entrenchment and privileged use of political office. With development based on official statistics impeded but high trust shown to be present among private individuals, further research is required to establish how issues of governance and political entrenchment have affected development.³

² See Institute of Strategic Studies and Prognoses (2010). For observations of the informal sector in Montenegro, see also the observations by Barić and Williams (2012).

³ On markets and politicized economic decisions, see the studies in Hillman (1991), and for an overview of political behavior as an impediment to development, see Hillman (2007). Acemoglu and Robinson (2012) present a far-reaching array of historical case studies demonstrating the inconsistency between self-interested rule and economic development. Gelb et al (1998) present a focus on political rent creation and rent seeking in transition economies. In Hillman (2004) “Nietzschean development failures” are described as occurring when the strong in a society are unimpeded by legal and ethical constraints in appropriative behavior toward the weak. Besley and Persson (2011) provide a perspective that focuses on requisites for successful development.

1.5 *The organization of the paper*

We continue as follows. Section 2 describes the trust experiments and survey. Section 3 is concerned with external validity (the relevance of experiments for conclusions regarding broader society). Section 4 distinguishes generalized from particularized trust. Section 5 reviews cultural priors in Montenegro that could be expected to affect trust. Section 6 summarizes the data. Section 7 reports the results of the experiments and relates the results to self-reported data from the survey. Section 8 reports the empirical results from regression analysis. Section 9 discusses the results and suggests directions for ongoing research.

2. Trust experiments and survey responses

Data on trust can be obtained from self-reporting in surveys. People can be asked whether they trust others or whether they regard themselves as trustworthy. Self-reported survey responses are compromised by identity-related expressive behavior (Hillman, 2010). People do not usually wish to describe themselves as not trusting others or as not trustworthy. In contrast to self-reporting in surveys, a trust experiment is non-hypothetical in placing individuals in circumstances in which displays of trust and trustworthiness are directly observed, albeit behavior of individuals is anonymous.

Trust experiments provide participants with opportunities for mutually beneficial Pareto-improving change, with personal losses if trust in others is misjudged. We implemented a standard trust game. Each of two mutually anonymous individuals received a sum of money (10 euros). One randomly chosen individual, called the *initiator*, was given the option to transfer part or all of the 10 euros that he or she had received to the other person, called the *recipient*. Any sum of money transferred by the initiator to the recipient was multiplied by 3. A transfer of all of the 10 euro therefore results in the recipient receiving 30 euro. The recipient, who then has 40 euro, can return money to the initiator or can simply anonymously exit with all the money, leaving the initiator with nothing.

There is no pre- or post-game interaction or negotiation. Personal reputation is not involved. The trust game is only played out once for the participants. There is, however, a presumption that an individual's *behavior* in the trust game reflects repeated consequences of *past* experiences in interactions with others in the society.

If the initiator does not trust the recipient to return money, no money will be transferred and the opportunity for Pareto-improving change is forgone. The predicted Nash equilibrium of the trust game is that the initiator gives nothing because the initiator knows that the recipient maximizes utility by keeping all money.

In experiments, money is nonetheless usually transferred by the initiator and returned by the recipient. Because of the departure from the predicted Nash equilibrium, the trust game has been viewed as in the category of behavioral economics – that is, as involving departure from rationality.

The no-transfer Nash equilibrium is, however, the predicted outcome of rational utility-maximizing behavior based solely on *material* gain or money. A rational-behavior explanation for the giving and return of money in experiments recognizes expressive motives. People maximize utility that includes expressive benefit from showing or playing out an identity.⁴

Participants in the experiments completed a questionnaire after knowing their own behavior and also as initiators how others had behaved towards them in returning money. The responses in the questionnaire are low-cost expressive behavior and need not coincide with actual behavior in experiments, which can also be influenced by identity-associated expressive utility.

The post-experiment questionnaire asked whether individuals regarded themselves as trusting or trustworthy. For a recipient, identity could be expressed

⁴ See Hillman (2010). On expressive behavior more generally, see Schuessler (2000). On identity, see Akerlof and Kranton (2010).

as: “I am good to people who are good to me – or who trust me”, which could have been confirmed in the experiment by responding to trust by returning money to the initiator. An alternative identity was of the form: “I am a utility maximizer. Why should I give anything back? I am not sentimental and I take advantage of my opportunities”.

Receivers confront no uncertainty in making their decisions regarding how much to return to initiators. Receivers’ behavior is not strategic. As in the “dictator game”, behavior of recipients in returning money is purely expressive, given that receivers perceive there is no post-game interaction.⁵

For initiators, there is more complexity. Initiators who in principle are inclined to trust people are nonetheless subject to the uncertainty of not knowing how receivers will behave. Behavior of initiators is therefore influenced not only by the combination of prospect of loss of material utility (money) and the expressive benefit of displaying a trusting identity but also by the prospect of expressive loss from possibly finding that trust has been betrayed. Or, because a trusting person wants to avoid feeling a fool by having trust betrayed, the amount transferred by initiators to receivers could be diminished by “betrayal aversion” (Fehr, 2009). “Betrayal aversion” breaks the link between expressively self-declared identity and actual behavior in trusting others. Because of disutility from

⁵ See Holm and Danielson (2007) for confirmation of parallel motives by receivers returning money in trust games and behavior in the “dictator game” (which is actually not a game at all because of absence of strategic interaction). In the dictator game, individuals are given a sum of money and asked to divide the money between themselves and an anonymous other person, who is passive in simply taking any money given. The giving of money to the other anonymous person is purely expressive because maximal material utility would be achieved by keeping all the money and also it is unknown whether the anonymous other person is better or less well-off than the person giving the money. In Hillman (2010), the behavior is described as “expressive generosity”. For a trust game in which participants have known different incomes, see Brülhart and Usunier (2012).

possible betrayal, it is expressively easier for a receiver to display trustworthiness than for an initiator to display trust.⁶

3. External validity

External validity is required if conclusions from experiments are to be applied to broader society. We sought external validity in two ways. We included as participants in the experiments and survey two groups, one consisting of usual college or university students and another group that on average had more experience with markets and business conduct. We also sought to provide sufficiently high material utility (the benefits from money) so as prospectively to match or outweigh expressive utility associated with display of identity.⁷

3.1 Personal experiences

Subjects in trust experiments and in experimental economics more generally are often college or university students who are at a stage of life at which experience is limited to social interactions with other students. Behavior, for example, may involve petty rivalries relating to academic success or popularity and “social life”. The students are not earning income, other than perhaps through part-time employment. There may be financial dependence on parents. With experience in broader society awaiting completion of studies, experiments based on behavior of students may not have external validity. We therefore used as subjects in our experiments, in addition to usual post-high-school university students, other students who were on average older and had had more experience with

⁶ Evidence on trust can also be inferred from behavior in the standard prisoners’ dilemma, with trust in others a precondition for cooperation (Basu 2007). In experiments, the prisoners’ dilemma is often embedded in experiments involving private voluntary financing of public goods. For example, Gächter et al (2004) find that survey evidence on self-reported trust in others is correlated with cooperative behavior in a public-good experiment (conducted in Russia with student and non-student participants). The trust game explicitly involves trust and trustworthiness.

⁷ This is not assured when sums of money used in experiments are small. See Hillman (2010).

commercial life. The evidence from other experiments is that students tend to be less trusting and also less trustworthy than the population at large.⁸ We hypothesized that members of the two groups would behave differently and that experience with markets and business of the second, older group would provide external validity.

3.2 Expressive behavior

In experiments in western high-income societies, the sums of money involved are often no more than what students would spend on lunch and less than they would spend on a social outing. Material utility associated with money might therefore be expected to be overwhelmed by expressive utility associated with display of identity as being a trusting and trustworthy person. There is a “reporting effect” (Hillman, 2010) whereby participants in experiments benefit expressively when they report to friends or family how they behaved. They could lie. They can also behave in the experiments in a trusting or trustworthy manner and report their behavior truthfully to others. They may not wish to report that “I do not trust people and I gave no money” or “the other person trusted me to return money but I took all the money”. Perceptions of character are influenced through the communication of behavior to others.⁹

⁸ Fehr and List (2004) compared the behavior of businessmen with that of students in Costa Rica and found the students to be both less trusting and less trustworthy. Gächter et al (2004), in a prisoners’ dilemma public-good experiment conducted in Russia with student and non-student participants, found that non-students were more trusting in behavior in the experiments and also described themselves as more trusting in an accompanying survey. Evidence on trust can be inferred from behavior in the prisoners’ dilemma, with trust in others a precondition for cooperation. The trust game more explicitly involves trust and trustworthiness.

⁹ Tullock (1971) describes how, on the other hand, identity expressed in the low-cost act of voting contradicts actual behavior in voting for but not actually personally giving money to charity.

If there is sufficient expressive benefit from conforming to a trusting or trustworthy identity, the payoffs in the trust game inclusive of expressive benefit can result in a Pareto-efficient equilibrium, achieved through all 10 euros being transferred by the initiator. Because of the possibility that expressive utility can overwhelm material utility, external validity requires sums of money that are large enough for material utility to be potentially significant in affecting behavior. A role for material utility is required for external validity because, while students in experiments may be expressive, business and commercial decisions are generally made on the basis of material gain or reward.

In Montenegro in 2012, official per capita income was \$7,160 (World Bank 2012). Unofficially, in all likelihood, as we have noted, per capita income was at least some 30 percent higher – because of unreported income in particular deriving from personal catering, tourism, and related services on the Adriatic coast, and retail trade. Taking Montenegrin per capita income inclusive of the informal sector, the initial endowment of 10 euros is comparatively equivalent to around 40 euros for Germany, France, or the U.K. or \$70 dollars for the U.S. If all 10 euros were transferred, the recipient would have the equivalent with reference to western per capita income of 160 euros or \$280 U.S. We view such sums as sufficient for considerations of material gain to influence behavior. Individuals who would play out an identity as trusting of others may then not transfer all their initial endowment, so revealing an actual not-expressively-dominated degree of lack of trust – or recipients who would expressively play out an identity of being trustworthy may be tempted under the conditions of anonymity to keep all or a large share of the money.

4. Particularized and generalized trust

Because consequences of trust depend on who is trusted or who is not, it is important to distinguish between particularized and generalized trust (Freitag and Traunmüller 2009). Particularized trust is trust between people who know

one another or who know they share a common identity (Freitag and Bauer, 2013). Generalized trust is a social phenomenon relating to trust in strangers and is associated with “social capital”.¹⁰

To the extent that two persons who know one another can form particularized trust through repeated interactions with no defined end period (formally an infinitely repeated game), personal reputation can be the foundation for particularized trust. The trust game is, however, not a repeated game.

When we described the benefits to a society from trust, the presumption was generalized trust. Generalized trust is beneficial for economic development but particularized trust may hinder economic development and can be a symptom of lack of generalized trust.

Putnam (2000) proposed that particularized trust in identifiable people built through association in voluntary associations and clubs with others would be transformed into generalized trust in people whom one does not personally know.¹¹ The view was thus that social capital would result from trust developed over time through interactions among anonymous people through expectations that generalize from known people to strangers in the population. Particularized trust was therefore predicted to coalesce into generalized trust.

Subsequent studies have nevertheless shown that particularized trust built through investment in reputation through activities in voluntary organizations or other networks is *not* associated with social or generalized trust defined as trust in people with regard to whom one has no specific information. Particularized trust

¹⁰ The concept of social capital was introduced into academic discourse by Jane Jacobs (1961) in relation to urban life and “neighborliness”. Glenn Loury (1977) observed the role of trust in his research on racial exclusion, Pierre Bourdieu (1983) viewed trust in the context of social theory. James Coleman (1988) noted the importance of social capital for education. See also Fukuyama (1995) and Putnam (2000).

¹¹ Bowling for Putnam was representative: he titled his book on the decline of trust in modern western society “bowling alone”.

based on known people can take the form of “honor” (or trust) among thieves (Heller, and Sieberg, 2010). Particularized trust is associated with corruption (Tanzi, 1998). Generalized trust is, in contrast, strongly negatively associated with corruption (Bjørnskov and Svendsen, 2013).¹²

Particularized trust is a substitute for absent generalized trust when elite extended families dominate the economic life of a country through vertical control over industries and interlocking family ownership. The elite families are usually associated with the political regime, often through representation of the family in the government and in the bureaucracy. There may be no generalized trust in the society at large but particularized trust facilitates economic activity by the elite extended families.

When particularized trust extends beyond family ties to common group identity, anonymity can be partial and group-related.¹³ The two groups that participated in our experiments are not as distinct as family-based economic and political elites or groups with common ethnicity or links of common heritage.

¹² Uslaner (2002) found that the weak association between social trust and network activity arises due to a selection effect whereby people with high trust are more likely to engage in network activity. Bjørnskov and Sønderskov (2013) conclude that neither social nor political trust is associated with network activities, nor by extension with particularized trust of any kind. Naef and Schupp (2009) test the relation between trust in family and friends and social trust and show using the German Socio-Economic Household Panel that standard questions intended to reveal social trust indeed do so but are entirely uncorrelated with trust in friends, family or colleagues. Alesina and Giuliano (2011) using detailed Italian data found support for the proposal by Banfield (1967) of ‘amoral familism’ in showing that people with little social trust tend to develop strong bonds to family and friends. For another perspective on dimensionality in Putnam’s concept, see Bjørnskov (2006).

¹³ The particularized trust among members of particular groups can be advantageous in allowing trade but with limited market participants. See Greif (1989). Bouckaert and Dhaene (2004) report trust among businessmen from different ethnic origins in the same city in contemporary Belgium. The results suggest particularized trust in a small city among people engaged in business who are likely to know one another.

There were however predetermined distinctly different group identities. People respond through favoritism to group identity (Sherif, 1966, Tajfel and Turner, 1979) and even arbitrary assignment of individuals between groups has been shown to result in group bias in behavior (Chen and Li, 2009). We matched members of the two groups in experiments among themselves and also against members of the other group. Participants knew which was the case. We also conducted an experiment with randomized matching.

5. Culture priors and trust

Results of the trust game vary across societies (see Johnson and Mislin, 2011). The evidence also indicates persistence of trust over generations in the same society.¹⁴ The diversity of outcomes and the persistence of trust suggest that cultural priors influence trust.¹⁵ We now briefly review the sources of cultural priors that could be expected to underlie trust and trustworthiness in Montenegro.

5.1 Trust and traditional Montenegrin society

Montenegro was formally recognized as an independent state at the Berlin congress in 1878, along with Serbia and Bulgaria, but Montenegrin society had distinctly developed during the course of the previous five centuries of the

¹⁴ Levels of trust persist over time unless disrupted by revolutionary events (Katz and Rotter, 1969; Uslaner, 2002; Guiso et al., 2009). In most countries, social trust has been virtually trendless since measurement began around 1980. Persistence is supported by evidence of within-family intergenerational transmission. Nunn and Wantchekon (2011) trace mistrust in Africa to extent of victimization in the slave trade. In the U.S., third-generation immigrants tend to exhibit levels of social trust of the population in the home country of their grandparents who migrated half a century ago (Uslaner, 2008; Bjørnskov and Svendsen, 2013).

¹⁵ For example, Johansson-Stenman, Mahmud, Martinsson (2011) report that participants in trust experiments in Bangladesh were influenced by the belief that selfishness would be punished, if not in this life, then in the next. Chen Kang and Fang-Fang Tang (2009) reported effects of culture on behavior of Han Chinese matched against Tibetan Buddhists in the ultimatum game.

presence of the Turkish Empire in the Balkans. In other regions of the Balkans, there was a system of subjugated serfdom. Montenegrin territory with the exception of towns, meadows beside the rivers, and the coastal area, consisted of rugged mountain areas that were not subjugated – not by the Turks or by anyone else. Because of separation by natural borders or by Turkish territory, each Montenegrin region had its own clan-based social structure based on kinship relationships with informal customs and norms based on trust and a code of honor. Excommunication and social demotion were the means of punishment for the infringement of the customs and norms. Uncertainty due to threats to food and physical security provided incentives for, and placed a premium on, trust within closely knit, small groups sharing family, clan and/or tribal values and interests.¹⁶ Animal breeding (mainly sheep and goats, and only to some extent indigenous mountain cows) used pasture land that was common property, located partly in the villages and at the higher altitude of mountains where people constructed seasonal settlements for breeding cattle during the spring and summer season. The common property required social norms that regulated use of pastures to avoid the “tragedy of the commons”. Fishing on Skadar Lake was subject to the same circumstances.¹⁷ Up to 1950, traditional Montenegrin society remained for the most part untouched.¹⁸ The historically close extended-family

¹⁶ An informal governance structure was based on authority of tribal dukes and bishops of the Orthodox Church. The bishops and subsequently princes ruling from the national capital Cetinje over time increased their administrative and judicial authority over the Montenegrin tribes.

¹⁷ Even after depopulation of the villages the 20th century, and after a few generations of people no longer using mountain cabins for sheep breeding, villagers continue to know the names of families and clans to which the rundown cabins belong and where the demarcations lines of tribal pasture areas lie. Language reflects social norms. It remains common in Montenegro to relate to first cousins (even second cousins) as “brother” or “sister”, with specific, additional qualifiers characterizing whether it is a patriarchal or matriarchal relative.

¹⁸ There were nonetheless numerous upheavals in the region, including the Balkan wars (1911-13), the First World War (1914-18), the brief civil war in Montenegro following the creation of the first

ties and voluntary non-coercive resolution of collective-action problems suggest high particularized trust.

5.2 Trust and workers self-management

After 1950 traditional society was transformed by socialism and associated communal institutions. Villages were depopulated and urbanization took place, although “mixed households” continued for some time to derive income from both urban and traditional rural areas (Bogetic, 1989). Socialism was of the labor self-management type. There were problems with the economic system.¹⁹ Socialist principles required equality but there were inequalities because of unemployment and because more profitable firms could pay higher wages.²⁰ As an offset, the government (or the socialist party) provided firms with soft budgets that in turn adversely affected incentives to be efficient or productive.²¹ There is a general finding of low trust in post-communist countries (Berggren and Bjørnskov, 2011). Labor self-management differed, however, from usual communism in that workers were not under centralized control, “worker solidarity” as an egalitarian principle was embedded in the self-management system, and trust among workers was required in the decentralized system for cooperation in production.

Yugoslavia (1919), the Second World War (1941-45), and the period of internal strife over the implementation of communism (1945-1950).

¹⁹ See Vodopivec (1992). On inefficient unemployment under labor self-management, see Hillman (2009, pp. 122-124). On non-diversifiable risk for workers as residual claimants, see Furubotn and Pejovich (1972).

²⁰ Gini coefficients were closer to those of Australia and the U.K. than communist countries (Saldanha, 1992).

²¹ Credits were required from the international financial institutions to sustain the economic system (Bartlett 1991; Bogetic and Heffley 1992).

5.3 Democracy and political competition

Adaption to democracy, understood as effective political competition and changes in political control, was limited at the time of the experiments. Under socialism, there had been no political competition. With the advent of formal democracy, in elections in which Montenegro was part of a joint state with Serbia and also in post-independence elections since 2006, the main successor to the socialist party had emerged with the largest number of seats in every election and had formed every government. Absence of an effective political opposition can adversely affect trust in government, although not necessarily trust among individuals. In the survey, we asked about trust in government and investigated whether there was a relationship between behavior in the experiments and respondents' answers.

5.4 Other influences

The involvement of Montenegro in war of disintegration of Yugoslavia in the 1990s could have increased generalized trust through societal solidarity (see Bellows and Migeul, 2009). A virulent and long hyperinflation in 1992-94 resulted in massive impoverishment and asset and income distribution that has likely adversely affected trust (Petrović, Bogetić and Mladenović 1999). The outcome of the subsequent referendum on independence in 2006 showed, on the other hand, internal divisions on whether Montenegro should be independent. In the survey we asked whether participants regarded themselves as "Montenegrin". Our experiments and survey were conducted in the aftermath of the global economic crisis of 2008-09, which had resulted in declines in real GDP, employment, land values, and foreign investment, and had adversely affected the banking system's balance sheets and the banks' ability and willingness to provide credit. The crisis, combined with inopportune privatization, could have diminished trust - although perhaps more so trust in government and in the banking system than trust among private individuals.

5.5 Summary of cultural priors

Trust has been found to be a societal characteristic that persists across generations. Vestiges of traditional society and socialism of the labor-management type could have provided foundations for particularized trust. There could have been cynicism because of the inability of the socialist system to provide declared equality. Past regional war and internal tensions could have affected trust. The retained political dominance of the successor of the socialist party and also distributive aspects of transition could have affected trust, as could have the financial crisis, but the lack of trust would be expected to be more in institutions and government rather than in other individuals.

6. The data

The trust experiments were conducted with World Bank support in the capital city of Montenegro, Podgorica, as part of a broader study of development constraints and opportunities in Montenegro (World Bank 2012). The first round of experiments was in May 2012 and a second round in September 2012.

6.1 Group-size effects

The participants were drawn from the State University of Montenegro and the private Mediterranean University. The state university has a considerably larger student body.²² Group-size effects might lead students at the private university to have a more pronounced sense of mutual identity and therefore to exhibit greater particularized trust among themselves than students at the state university.

²² The State University of Montenegro had 18,390 students at undergraduate level and 1,653 students at postgraduate and doctoral levels – a total of 20,043 students. The Faculty of Economics at the state university had in recent years enrolled 1,000 to 1,200 new students per year. The private Mediterranean University had a smaller student body of 1,450 undergraduate students and 200 postgraduate and doctoral students - the total of 1,650 students. In the Faculty for Business Studies there were 450 students in all programs, with 100 new students (1st year of study) and 138 new students in the previous year. The data are from Monstat – the statistical office of Montenegro.

6.2 Privilege

Students from the state university were more privileged in that they continued directly from high school to university and paid no tuition fees or fees that are on average one-third of the fees at the private university.²³ Privilege could affect trust, with the students from the private university envying and not trusting the students from the state university.

6.3 The study environment

The two groups differed in study environments. State university buildings are stand-alone facilities organized in clusters in which students and faculty interact on a daily basis. The smaller private university facility is located in premises (a mall) that house commercial establishments, including the local office of the European Bank for Reconstruction and Development and private commercial banks. The location and surroundings of the private university have a business or commercial character compared to the more usual environment of academic detachment of the state university.

6.4 Age and experience

On average, the students in the state university, because they begin their studies after high school graduation, were younger than the students from the private university. The private university attracts people from the private sector with vocational backgrounds who return to studies. The average age-difference between the two groups participating in the experiments was 18 months. Because they were also on average older and had experience beyond the university, including employment based on prior vocational training, students at the private university

²³ Tuition fees are 1,500 euro per year at the private university. At the state university in the Faculty of Economics, 300 students paid no tuition fees while the remaining students paid 500 euro per year. The economics and law faculties at the state university are subsidized by the government, through buildings, equipment, and salaries, with costs overall covered. The private university receives no such subsidies.

could be expected to be less naïve and more pragmatic than the students at the state university.

6.5 *The trust game*

The trust game provides the following information:

- An indicator of the *degree of trust* is how much of the 10 euro the initiator transfers to the receiver.
- An indicator of the *degree of trustworthiness* is how much the receiver returns to the initiator.
- The receiver's ability to return money and so display trustworthiness is limited by the trust shown by the initiator in transferring money: if the initiator gives nothing to the receiver, the receiver has no opportunity to respond and lack of trust then results in inability to show trustworthiness.
- The evidence regarding trust can be confounded by expressive behavior and betrayal aversion.

The experiments were conducted under conditions of anonymity. In each round, two groups from each university were voluntarily self-selected based on a publicized invitation to participate in economic research. The invitation to the students for participation did not describe the nature of the experiments. The purpose, structure and protocol for experiments were explained under controlled conditions that disallowed communication among participants before and during the course of the experiments. The *first round of experiments* matched students in within-group behavior: a group of initiators from each university was randomly matched with a group of responders from the same university, with $(29 + 29 = 58)$ participants from the private university and $(24 + 24 = 48)$ participants from the state university. The roles of initiator and responder were randomly determined. In a *second round*, three experiments were conducted with initiators and receivers from different groups. Initiators from the private university (P-initiators) were randomly matched with receivers from the state university (S-receivers), with (21

+ 21 = 42) participants and S-initiators were randomly matched with P-receivers, with (23 + 23 = 46) participants. In a further experiment, the assignment of partners from the different groups was randomized with (21 + 21 = 42) participants. There were 53% women in the 1st round of experiments and 55% women in the 2nd round.

Participants knew that each had received 10 euro at the onset of the game and were aware that money transferred from an initiator to a receiver would be tripled. After the initiator had made the decision regarding how much or if to transfer money to the receiver, the receiver decided whether to keep the tripled transfer money along with the initial 10 euro received, or to return money to the initiator. Transfers were made anonymously in envelopes. The contents of the envelopes were anonymously recorded as an envelope passed from an initiator to a receiver and then back from a receiver to an initiator. Envelopes with zero content were included. The full protocol, which is standard for the type of trust experiment conducted, is in appendix 1.

6.6 The post-experiment questionnaire

The post-experiment questionnaire provided self-reported data on (1) personal identity as trusting friends (particularized trust) and trusting people in general (generalized trust); (2) ideology in favoring markets and private property or socialism (which was expressive in being a low-cost declaration of identity) and (3) personal details of place of birth, gender, education of parents, whether the family was regarded as middle class, and, given the closeness of the independence referendum, whether the respondent regarded himself or herself as Montenegrin.²⁴

6.7 Descriptive statistics

The data from the experiments and the questionnaire are described in table 1.

²⁴ The complete questionnaire is available on request from the authors.

Table 1. Descriptive statistics (means) of the experiment and survey (in euro for earnings; see section below for other variables)

	All	Initiators	Receivers
Amount sent (0, 10)		6.915 (3.241)	
Amount returned (0, 30)			11.085 (7.609)
Earnings (-5, 25)	6.237 (6.051)	4.153 (5.231)	8.322 (6.117)
Generalized or social trust (1 low to 4 high)	2.017 (.918)	2.127 (.892)	1.907 (.934)
Particularized trust or trust in friends (1 to 4)	2.801 (.748)	2.831 (.766)	2.771 (.733)
Institutional trust (1 to 10)	4.024 (2.114)	3.929 (2.083)	4.119 (2.150)
Reported benevolent self- image (0 to 4))	1.661 (1.037)	2.042 (1.135)	1.279 ^a (.761)
Reported identity as material utility maximizer (1,0)	.322 (.468)	.389 (.489)	.254 (.437)
Socialism better (1,0)	.331 (.471)	.271 (.446)	.389 (.489)
Authoritarian better (1,0)	.127 (.334)	.110 (.314)	.144 (.353)
Would likely know people in the experiment (1,0)	.500 (.501)	.441 (.498)	.559 (.499)
Female (1,0)	.541 (.499)	.525 (.501)	.559 (.499)
Age (1 if 29+; 0)	.055 (.299)	.068 (.252)	.042 (.202)
Age missing	.089 (.285)	.102 (.304)	.076 (.267)
Private university (1,0)	.504 (.501)	.534 (.501)	.475 (.501)
Montenegrin (1,0)	.725 (.448)	.788 (.410)	.661 (.475)
Trust missing	.102 (.303)	.144 (.353)	0.59 (.237)

Note: The full dataset contains 236 observations for equal numbers of initiators and are receivers. Numbers in parentheses are standard deviations. The definitions of the variables and their mean scores in this table are explained below. Numbers in parentheses with variable names are the observed ranges of the variables. Receivers were not asked 2 questions that enter the expressiveness index. Age and trust missing are dummies taking the value of one if receivers have not answered the age or trust questions.

Amounts given and returned

Table 1 shows that, on average, over all experiments, initiators sent 6.9 euros to receivers, with the amount varying between 0 and 10 euros. Receivers returned on average 11.1 euros, with the amount varying between 0 and 30 euros. We shall be more interested in the group-specific results.

Generalized trust

Declared generalized trust is the average score of the question: "Generally speaking would you say that most people can be trusted and that it is not necessary to be too careful in dealing with people?" Categories completely disagree, somewhat disagree, somewhat agree and completely agree were given respective values of 1 to 4. The average overall score for generalized trust is 2.017.

Particularized trust

Declared particularized trust is measured through the variable 'trust in friends' constructed using the answers to the question: "Would you say that your friends and acquaintances can be trusted and that it is not necessary to be too careful in dealing with them?" The average score for particularized trust on the same scale of 1 to 4 is 2.801. More particularized trust was revealed than generalized trust.

Institutional trust

"Institutional trust" is the average of the confidence declared in (1) the president; (2) the government, (3) local government, (4) parliament, (5) police, and (6) the judiciary. All are measured on a scale from 1 (no confidence) to 10 (full confidence). The overall score for institutional trust is 4.024 on a scale from 1 to 10, which is a normal level observed in a post-socialist society.

Reported self-image

A measure of expressive reported self-image was obtained by adding data obtained in response to four questions: whether participants viewed themselves as

trusting; whether they wanted to display an image of being a successful person; whether they regarded themselves as social altruists; and whether they gave money in order to have “money spread out in society”. The expressive self-image variable is a simple count of these features that varies between 0 and 4 with a mean of 1.661.

Utility maximization

We included as a separate expressive measure a dummy variable taking the value one if receivers indicated that utility maximization influenced their behavior. The question is: “An influential model in economics teaches that people do the best they can for themselves under given constraints (or maximize utility). Under this assumption, your rational behavior is to give nothing. Did the prediction of utility maximization affect your decision about whether to give money or how much to give?” The question was designed to allow participants to ascribe to themselves an identity of being a materially self-interested person who behaves rationally.

Would likely know people in the experiment

The variable “Would likely know people in the experiment” is a dummy variable that takes the value one if the participants declared that they would with high likelihood know others participating.

Ideology

The variable “Socialism better” takes the value one if receivers agree that: “A socialist economy with the state owning land, factories, and hotels may be preferable to market economy.” The variable “Authoritarian better” indicates agreement with the statement: “Under some circumstances an authoritarian government may be preferable to democracy.”

Other data from the survey

“Female” is a dummy variable that takes the value of one for women. “Age” is a dummy variable that takes the value of one if a subject is more than 29 years old. “Private university” takes the value one if the participants in the experiment were from the private university. “Montenegrin” denotes whether or not a subject states that his or her nationality is Montenegrin. “Age missing” and “Trust missing” are variables taking the value of one if receivers have not answered either question.

7. Results

7.1 Transfers

Table 2 summarizes the results of the trust experiments.

- P-initiators sent large amounts to both P and S-receivers.
- S-initiators send smaller amounts than P-initiators but sent more to P-receivers.
- P-receivers and S-receivers both exhibited reciprocating behavior.

We note that transfer of S-initiators to S-receivers of 4.8 is a common amount in trust experiments.²⁵

Table 2. Transfers (in euros)

Average	Initiator sent	6.9 (0-10)	Receiver returned	11.1 (0-30)
Private university				
P-initiator sent	to P-receiver	8.2=24.6	P-receiver returned	14.9
P-initiator sent	to S-receiver	8.8=26.4	S-receiver returned	14.5
State university				
S-initiator sent	to P-receiver	5.9=17.7	P-receiver returned	8.3
S-initiator sent	to S-receiver	4.8=14.4	S-receiver returned	6.3

The average share of earnings returned *within the group* was:

- S-receivers returned 44 percent of earnings to S-initiators
- P-receivers returned 61 percent of earnings to P-initiators

²⁵ See Sapienza et al. (2007), Cox et al. (2009), Greiner et al. (2012).

- The difference is significant at $p < .00$.

The average share of earnings returned in *between group* interactions was:

- S-receivers returned 55 percent of earnings to P-initiators
- P-receivers returned 40 percent of earnings to S-initiators
- Difference is significant at $p < .02$.

Thus P-initiators were equally trusting of participants from their own group and from the state university. There was no “greater solidarity with” or “more trust in” members of their own group. Nor were there effects of privilege. Indeed P-initiators gave more to S-receivers than to their own group P-receivers. P-receivers returned a little more to their own group initiators than to S-initiators. Different group size therefore did not influence behavior.

7.2 Earnings and the distribution of gains

Table 3 shows earnings and the distribution of gains. The total surplus available for distribution is greater for P-initiators – because P-initiators transferred more and in turn received more back. In table 3 the surplus includes the amount transferred by the initiator. Both initiators and receivers earned, on average, positive returns above their initial 10-euro show-up fee.

- Average profit for initiators = 4.3 euros
- Average profit for receivers = 8.3 euros.

P-initiators on average earned substantially more.

Table 3: Earnings and the distribution of gains

		Total surplus	Distribution of surplus	
			Initiator	Receiver
Private university				
P-initiator	P-receiver	26.4	63%	37%
P-initiator	S-receiver	27.1	58%	42%
State university				
S-initiator	S-receiver	19.5	59%	41%
S-initiator	P-receiver	20.2	61%	39%

7.3 Reciprocating behavior

Receivers, as is usual in these types of experiments, exhibited reciprocating behavior (cf. Guerra and Zizzo, 2004).²⁶ In figures 1a and 1b, the horizontal axis is the amount in euros that receivers received in the experiment and the vertical axis is the amount that a responder returned to the initiator.

7.4 Earnings and survey responses: Initiators

Figure 2a suggests that, on average, those participants expressively declaring generalized trust through “most people can be trusted” in fact earn more by sending more. The correlation between earnings and declared trust is 0.35. There were self-fulfilling expectations. Since trust was rewarded with trustworthiness, trust that translated into giving more yielded a higher return – in within-group behavior. Results from mixed-group behavior depicted in figure 2b are weaker.

7.5 Earnings and survey responses: Receivers

Figures 3a and 3b show that declared generalized trust of receivers is not highly correlated with the actual behavior of receivers in returning money to initiators ($r= 0.17$). The correlation is greater when for particularized trust ($r= 0.31$).

²⁶ There is however wide variation in response of receivers to receiving the maximum 30 euros (after an initiator had transferred 10). The amounts returned by receivers range from 5 to 24. An amount returned under 10 imposed a loss for the maximally trusting initiator. In one case 5 was returned. In another case the initiator received 10. Only one S-initiator was sufficiently trusting to transfer 10 and in this case the S-responder provided a minimal gain to the trusting initiator.

Figure 2a: Within-group experiments

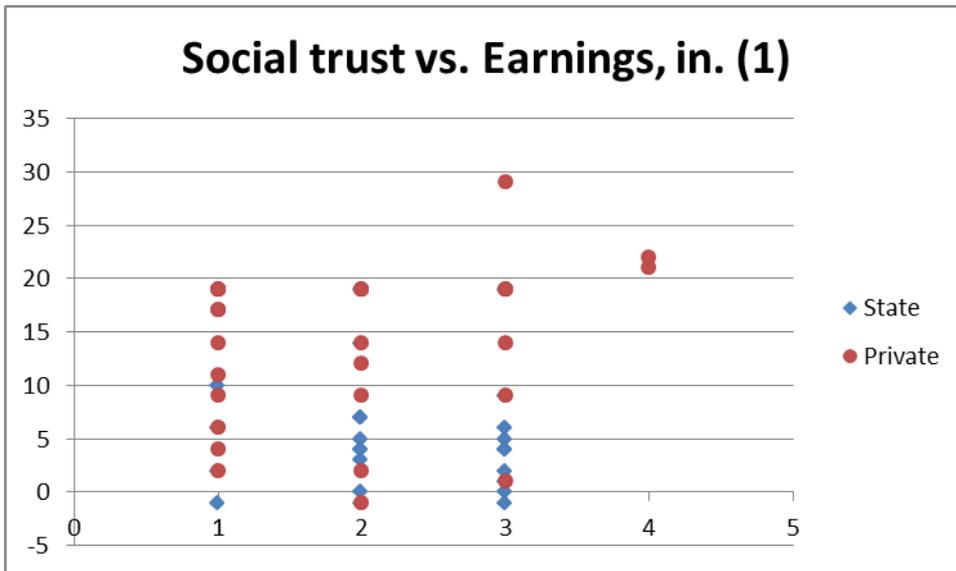
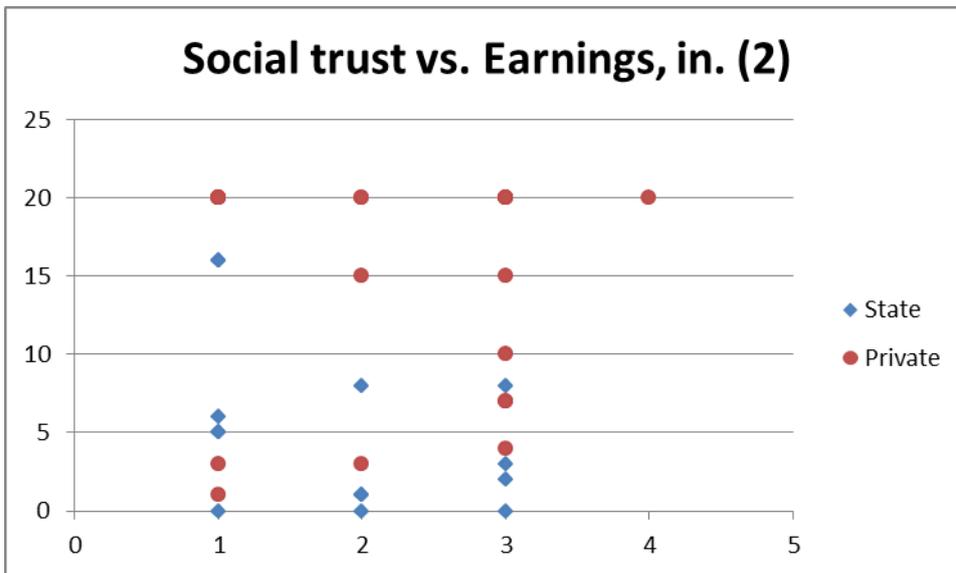


Figure 2b: Intergroup experiments



Source for figures 2a and 2b: The authors' trust experiments in Montenegro (September 2012); every dot is represents an initiator.

The horizontal axis is the measure of trust in others.

The vertical axis is the amount earned in the experiment.

Figure 3a: Within-group experiments

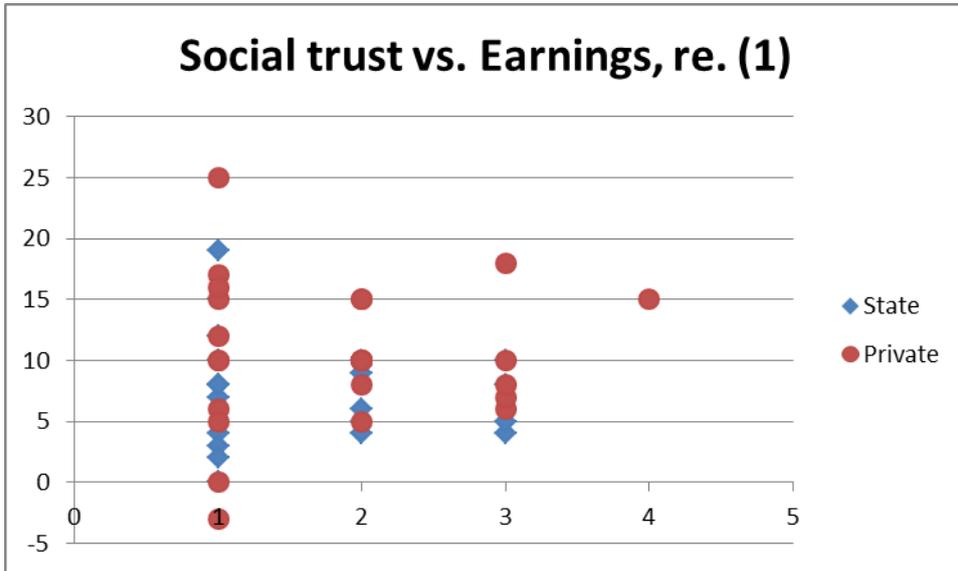
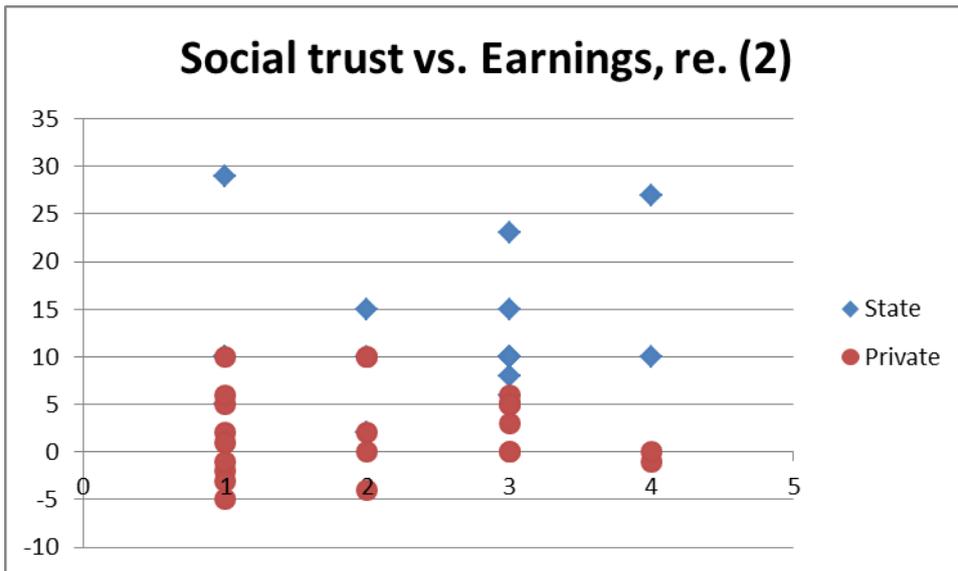


Figure 3b: Mixed-group experiments



Source: The authors' experiments: every dot represents a receiver. The horizontal axis is the measure of trust in others. The vertical axis is the amount earned in the experiment.

8. Regression analysis

OLS estimation was applied to search for a set of predictors of behavior using data from the experiments and the post-experiment survey.

8.1 Within-group behavior

Table 4a shows results for within-group behavior. Columns 1-5 report the results for how much initiators sent. Columns 6-10 report results for how much receivers returned. In both cases, in (1) and (6), we begin by including generalized or social trust, gender, a dummy for the private university, and add age as a dummy variable taking the value of 1 when subjects are older than 29. We then replace generalized social trust by particularized trust as measured by trust in friends and add a dummy indicating whether students are Montenegrin, their average trust in institutions, reported benevolent self-image, and a whether participants viewed themselves as utility maximizers. For receivers, we also include how much was received from initiators. The results are:

- P-participants were more trusting as initiators but there is no group difference for receivers.
- When account is taken of post-experiment declared identity as benevolent or being material utility maximizers, P-participants were also significantly more trustworthy in returning more.
- Reciprocity is indicated: for every euro received, on average 60 cents was returned, yielding an 80% return for initiators.
- Declared generalized trust was not significant in affecting actual behavior of initiators or receivers, but could be regarded as not applicable because participants knew that they were interacting within their own group.
- Declared particularized trust is significant in being associated with larger amounts returned by receivers and *smaller* amounts transferred by initiators.
- Women as receivers returned significantly more. The gender difference is in general only significant for behavior as receivers. When account is taken of

unwillingness to disclose age and unwillingness to answer regarding trust in institutions, the gender effect is significant for initiators and women also give less.²⁷

- Receivers' returned more if they declared themselves benevolent and returned less if they declared an identity of being a material utility maximizer.
- Declaring oneself "Montenegrin" did not affect behavior.

²⁷ The literature reports diverse findings with regard to gender (Guiso et al., 2009).

Table 4a. Main results for within group behavior

	Initiators					Receivers				
	1	2	3	4	5	6	7	8	9	10
Private university	2.915*** (.965)	3.709*** (.776)	3.712*** (.773)	3.023*** (.894)	3.808*** (.853)	1.543 (1.337)	1.647 (1.131)	1.659 (1.078)	1.475 (1.051)	2.181** (.984)
Amount received						.604*** (.058)	.601*** (.052)	.599*** (.050)	.605*** (.051)	.561*** (.045)
Social trust (Trust in anonymous others)	-.565 (.484)					.010 (.765)				
Particularized trust (Trust in friends)		-1.373** (.560)	-1.369** (.598)	-1.436** (.561)	-1.288** (.616)		2.838** (1.101)	3.038*** (1.111)	2.884*** (1.100)	2.972*** (.867)
Female	-1.291 (.867)	-1.319 (.803)	1.316 (.809)	-1.879** (.829)	-1.187 (.792)	-1.671 (1.167)	-2.146** (.933)	-1.648 (1.055)	-2.098** (.962)	-1.722* (.949)
Age above 29	2.124 (1.843)	1.572 (1.567)	1.579 (1.595)	2.264 (1.775)	1.488 (1.416)	.873 (1.323)	.502 (1.284)	-.383 (1.488)	.598 (1.298)	-.115 (1.426)
Age missing	1.515* (.902)	2.172** (.916)	2.179** (.944)	2.733** (1.056)	1.844 (1.172)	-1.229 (1.579)	.227 (1.727)	-.496 (1.718)	.007 (1.770)	-.481 (1.349)
Montenegrin			-.038 (.996)					2.061 (1.254)		
Institutional trust				-.070 (.206)					-.191 (.249)	
Institutional missing				3.791*** (.883)					-	
Benevolent self-image					.078 (.442)					.805** (.408)
Material utility maximizer					-.967 (.892)					-3.582*** (1.109)
Observations	53	53	53	53	53	53	53	53	53	53
R squared	.320	.391	.391	.462	.411	.764	.822	.834	.824	.860
F statistic	6.53	10.93	9.48	5.53	7.79	38.56	54.70	48.64	44.34	86.24
RMSE	2.946	2.789	2.819	2.678	2.803	4.041	3.510	3.422	3.521	3.179

Note: *** (**) [*] denote significance at $p < .01$ ($p < .05$) [$p < .10$]. All estimates include a constant term.

8.2 Mixed-group behavior

Table 4b reports results for mixed-group behavior.

- The same results are obtained as for intragroup behavior in P-initiators on average sending more and as receivers not behaving significantly differently from S-participants.
- Reciprocity is again present: receivers who received more returned more.
- Behavior of females reversed. Females as initiators sent substantially smaller amounts but do not behave significantly differently from males as receivers when returning money.
- There are age effects: the few older initiators in the sample sent larger amounts.
- Declared social trust is not significant.
- Declared particularized trust is again associated with smaller amounts sent.
- Initiators with more trust in national institutions tended to send less.
- Benevolent self-image and declaring oneself a material utility maximizer are insignificant.

Table 4b. Main results for mixed-group behavior

	Initiators					Receivers				
	1	2	3	4	5	6	7	8	9	10
Private university	2.970*** (.804)	2.815*** (.805)	2.778*** (.819)	2.597*** (.717)	2.808*** (.828)	-.899 (1.338)	-1.201 (1.209)	-1.305 (1.208)	-.998 (1.169)	-1.308 (1.118)
Amount received						.625*** (.051)	.626*** (.047)	.620*** (.052)	.648*** (.063)	.589*** (.059)
Social trust (Trust in anonymous others)	-.115 (.453)					.192 (.827)				
Particularized trust (Trust in friends)		-.925* (.508)	-1.077* (.568)	-.615 (.507)			2.028 (1.282)	1.925 (1.164)	2.053 (1.249)	2.395* (1.327)
Female	-2.665*** (.836)	-2.933*** (.792)	-2.884*** (.804)	-2.806*** (.780)	-2.883*** (.820)	-1.528 (1.288)	-.635 (1.587)	-.904 (1.448)	-.439 (1.435)	.219 (2.049)
Age above 29	-.218 (1.447)	3.896*** (1.144)	4.249*** (1.318)	5.239*** (1.209)	4.274*** (1.206)	-	-	-	-	-
Age missing	-.218 (1.447)	-.588 (1.262)	-.593 (1.245)	-.199 (1.163)	-.802 (1.248)	-.755 (1.469)	-1.850 (1.439)	-1.632 (1.401)	-2.249 (1.456)	-1.807 (2.078)
Montenegrin			-.764 (.878)					1.051 (1.394)		
Institutional trust				-.413** (.204)					-.357 (.489)	
Institutional missing				1.517 (1.307)					1.159 (1.501)	
Benevolent self-image					.184 (.302)					.412 (1.168)
Material utility maximizer					.521 (.905)					-3.192 (2.422)
Observations	44	44	44	44	44	44	44	44	44	44
R squared	.387	.425	.433	.522	.439	.669	.699	.704	.710	.731
F statistic	16.10	5.61	4.71	22.44	12.19	42.29	43.53	34.25	38.84	32.57
RMSE	2.627	2.544	2.559	2.383	2.580	4.705	4.481	4.511	4.521	4.357

Note: *** (**) [*] denote significance at $p < .01$ ($p < .05$) [$p < .10$]. All estimates include a constant term.

8.3 *Random matching*

The results in table 4c are for random matching. The results need to be interpreted tentatively due to the smaller sample size. The random matching introduced an additional element of uncertainty through mutually unknown identity of matched participants.

- As initiators, P-participants transferred less than state-university students.
- Reciprocity was present.
- Declared generalized trust is significant and declared particularized trust is not and again higher declared trust was associated with having sent smaller amounts.
- There are no gender effects.
- Receivers declaring a benevolent self-image returned more.

Table 4c. Main results -random matching

	Initiators					Receivers				
	1	2	3	4	5	6	7	8	9	10
Private university	-3.782*** (1.268)	-3.382*** (1.320)	-3.665*** (1.384)	-3.565*** (1.403)	-3.645*** (1.283)	2.833 (2.951)	2.433* (1.383)	.342 (2.236)	2.803 (1.753)	4.186 (3.130)
Amount received						.623*** (.162)	.723*** (.106)	.655*** (.155)	.642*** (.204)	.709*** (.190)
Social trust (Trust in anonymous others)	-1.366** (.664)		-1.329* (.682)	-1.586* (.811)		2.158 (1.591)			2.056 (1.844)	1.431 (1.524)
Particularized trust (Trust in friends)		-.568 (.643)					.785 (.857)			
Female	-.744 (1.087)	-1.532 (1.228)	-.869 (1.217)	-.978 (1.145)	-.792 (.989)	.109 (2.671)	-1.201 (1.467)	-.557 (1.477)	.219 (1.625)	-.447 (2.816)
Age above 29	-1.505 (1.937)	.393 (1.855)	-.459 (2.173)	-.460 (2.424)	-.456 (2.213)	-1.382 (5.380)	3.534 (1.293)	-2.620 (4.821)	-.995 (5.350)	1.955 (4.311)
Montenegrin			1.035 (1.135)					-2.569 (1.647)		
Institutional trust				-.188 (.375)					-.162 (.389)	
Institutional missing				-1.870 (1.474)					.398 (1.492)	
Benevolent self-image					.343 (.660)					2.739* (1.586)
Material utility maximizer					1.491 (1.457)					-3.148 (2.334)
Observations	21	21	21	21	21	21	21	21	21	21
R squared	.448	.386	.453	.508	.531	.799	.772	.812	.801	.848
F statistic	3.34	3.11	2.48	4.31	5.49	11.89	10.13	10.08	7.46	10.37
RMSE	2.559	2.698	2.632	2.584	2.521	3.761	4.005	3.761	4.018	3.508

Note: *** (**) [*] denote significance at $p < .01$ ($p < .05$) [$p < .10$]. All estimates include a constant term.

8.4 Further results

The results in tables 5a and 5b include ideology and interaction terms. There are similar results as previously for P-participants' behavior and reciprocity. Declared particularized trust is significant in both intragroup and intergroup behavior, although less so in the latter case. Again greater declared trust increases the amount returned by receivers and reduces the amount sent by initiators. There is evidence of benevolent self-image or viewing oneself as a material utility maximizer affecting behavior. Ideology does not affect initiators' behavior but there were significant effects of ideology on receivers' behavior: greater amounts were returned by receivers who declared beliefs that socialism is better and that authoritarian political systems are preferable to democracy. Interaction terms in tables 5a and 5b revealed significantly heterogeneous effects in only two instances. In the intragroup case, trust in friends is only relevant for receivers at the private university: the point estimate of .472 in table 5a refers to receivers at the state university, while the point estimate is 3.847 (.472+3.375) for receivers at the private university. In the intergroup case, for receivers, identity as a utility-maximizer reduces the amount returned, if receivers have low trust in their friends but not if they declare some trust. While the point estimates of utility maximization is strongly negative, it has to be evaluated at actual values of trust in friends (between 1 and 4). The actual effect therefore varies between -10.97 (with low trust) and an insignificant 2.675 (with high trust).²⁸

²⁸ When for example estimating an interaction in $aT + bP + cTP$, b in itself measures the effect of P at a value of $T = 0$. The marginal effect of a change to P is $(b + cT)$.

Table 5a. Further results -within group

	Initiators					Receivers				
	1	2	3	4	5	6	7	8	9	10
Private university	3.709*** (.776)	3.896*** (.825)	3.648*** (.772)	3.864*** (.828)	4.785 (3.871)	1.647 (1.131)	1.695** (.836)	1.649 (1.158)	1.761 (1.102)	-7.939** (3.903)
Amount received						.601*** (.052)	.557*** (.035)	.600 (.054)	.579*** (.049)	.608*** (.053)
Particularized trust (trust in friends)	-1.373** (.560)	-1.311** (.617)	-1.179** (.549)	-1.745** (.747)	-1.263** (.529)	2.838** (1.101)	2.619*** (.854)	2.829** (1.139)	2.571** (1.217)	.472 (.507)
Benevolent self-image		-.095 (.494)					.929** (.368)			
Material utility maximizer		-.986 (.880)		-4.773 (2.922)			-3.389*** (.937)		-6.338 (5.029)	
Socialism better		.555 (1.047)					1.724** (.749)			
Authoritarian better		-1.202 (1.955)					3.377** (1.056)			
Would likely know people			.225 (1.235)					.383 (1.702)		
Would likely know people * trust in friends			-.799 (.707)					-.138 (1.115)		
Utility max* trust in friends				1.305 (1.040)					.966 (1.723)	
Private university* trust in friends					-.375 (1.359)					3.375** (1.422)
Observations	53	53	53	53	53	53	53	53	53	53
R squared	.391	.422	.432	.430	.392	.822	.887	.822	.855	.839
F statistic	10.93	6.19	9.25	8.63	8.77	54.70	78.85	41.31	96.95	46.62
RMSE	2.789	2.839	2.752	2.757	2.816	3.510	78.85	3.587	3.231	3.365

Note: *** (**) [*] denote significance at $p < .01$ ($p < .05$) [$p < .10$]. All estimates include the full baseline specification and a constant term.

Table 5b. Further results - mixed group

	Initiators					Receivers				
	1	2	3	4	5	6	7	8	9	10
Private university	2.815*** (.805)	2.843*** (.876)	2.749*** (.803)	2.785*** (.825)	4.658 (3.006)	-1.201 (1.209)	-.851 (1.127)	-.899 (1.343)	-1.413 (1.057)	4.987 (5.290)
Amount received						.626*** (.047)	.593*** (.072)	.637 (.045)	.602*** (.050)	.614*** (.049)
Particularized trust (trust in friends)	-.925* (.508)	-.959* (.539)	-.990* (.529)	-1.047* (.541)	-.665 (.707)	2.028 (1.282)	3.016** (1.363)	2.337 (1.476)	.735 (.818)	2.752 (1.751)
Benevolent self-image		.203 (.326)					.193 (1.093)			
Material utility maximizer		.513 (.958)		-.711 (3.433)			-3.681 (2.597)			
Socialism better		-.256 (1.032)					-3.012** (1.194)			
Authoritarian better		.043 (1.568)					1.747 (2.315)			
Would likely know people			.980 (1.471)					2.667 (2.396)		
Would report to people * trust in friends			-.484 (.943)					-.564 (1.466)		
Utility max * trust in friends				.512 (1.181)					4.549** (2.223)	
Private university * trust in friends					-.687 (1.074)					-2.281 (1.794)
Observations	44	44	44	44	44	44	44	44	44	44
R squared	.425	.441	.433	.438	.431	.699	.757	.711	.769	.709
F statistic	5.61	9.18	3.93	10.82		43.53	33.40	39.95	37.62	34.51
RMSE	2.544	2.653	2.595	2.583	2.565	4.481	4.257	4.515	4.033	4.467

Note: *** (**) [*] denote significance at $p < .01$ ($p < .05$) [$p < .10$]. All estimates include the full baseline specification and a constant term.

8.5 Insignificant influences

Other results (not shown but available from the authors) indicate that various factors included in the survey such as living standards, parents' education, religion, being a party member, as well as fairness considerations and how much money receivers expected to be sent, were not significant in affecting behavior.

8.6 The relation between declared trust and actual behavior of initiators

The regression results indicate, as a persistent theme, that greater post-experiment declared trust is associated with larger amounts returned by receivers but *smaller* amounts sent by initiators. The negative association for initiators is shown by the interaction coefficients to be due to the behavior of private-university initiators. The negative association seems unique for reported trust experiments.²⁹

A signaling explanation

With reported trust a true expression of identity, initiators who trusted more could have felt that they could substitute actions for beliefs when sending a signal of trust. This provides the prediction consistent with the empirical outcome that high-trust initiators, because of the substitution effect in signaling, transfer less, the more trusting they are. The income effect is that the more that is transferred, the greater the potential return to the initiator. The signaling explanation is contrary to the behavioral assumption that greater trust is displayed through greater willingness to transfer money.

Disappointment

Initiators who expected greater returns than they received would have had reason in the post-experiment survey to express disappointment by declaring lack of trust in others. The more an initiator transferred and the less that was received back, the more disappointment there would have been and the less trust in others that would be declared. Participants from the private university, although they gained more in absolute terms than state university participants, because they gave more,

²⁹ Johansson-Stenman, Mahmud, Martinsson (2011) combined a survey with a trust game using as subjects household heads in Bangladesh and found a positive association between declared trust and the amount sent by initiators. Glaeser et al. (2000) using undergraduate students at Harvard found no significant relation between declared trust and the amount sent but, as in our results, found that the amount returned was significantly explained by stated trust. Their experiments were nevertheless not anonymized, contrary to most others in the literature.

could have had greater expectations of returns from their display of trust. Initiators from the state university would have been pleasantly surprised by the reciprocity exhibited in the amounts returned by receivers and would not have subject to the same disappointment. This explanation for the negative coefficients depends on how much was returned relative to how much was given. When we examine the data, we find no support for the disappointment hypothesis.

Betrayal aversion

We have emphasized that the decisions of initiators and receivers are not comparable. Receivers confront no uncertainty whereas initiators make their decisions subject to the risk that trust will not be reciprocated. There can therefore be reluctance to transfer money to receivers because of betrayal aversion. The decisions of initiators are made based on (1) expected material returns, (2) the expressive utility of acting in accord with a trusting identity, and (3) the expectation of expressive disutility from a feeling of having had trust betrayed. The empirical results suggest that betrayal aversion asymmetrically influenced private-university initiators. When answering the post-experiment questionnaire, private-university initiators had benefited from reciprocating behavior and saw that they had not been betrayed. Transferring large amounts was profitable because trust had been expressively reciprocated. It seems that private-university participants who sent relatively smaller amounts because of greater betrayal aversion expressively compensated ex-post for unwarranted inhibitions of betrayal aversion by declaring more trust in people.³⁰

³⁰ There is a question why state university students acting as initiators did not similarly compensate for unwarranted ex-ante betrayal aversion when ex-post declaring the degree of trust in others. The evidence indicates no such compensation. The state university initiators received back smaller amounts but this was because of their own high degree of lack of trust exhibited in the actual experiments. The primary betrayal had been of themselves by themselves in transferring small amounts of money.

9. Discussion and interpretations

With trust a requisite for development, we have studied trust in a country where there have been inhibitions on development. The question is what are the sources of the inhibitions? We have distinguished socially disadvantageous particularized trust from the generalized trust that underlies social capital. External validity has been sought by providing opportunities for high material gain as a counter to expressive behavior: we observed that expressive behavior can be important in “games” in experiments but business decisions are not in general expressive and made on the basis of material gain or reward. We have also sought external validity by having two groups of participants, with one group somewhat older and having business and market experience beyond student life.

9.1 Interpreting the results

We hypothesized that the behavior of the two groups of participants could differ because of differences in group size or perceptions associated with privilege. Group size and perceptions of privilege did not matter in explaining behavior. If trust were exhibited, we could have expected particularized trust to be displayed in intragroup interactions and generalized trust to be displayed in intergroup interactions. There was, however, no evidence of group-based discrimination. Initiators from the private university group were more trusting both among themselves and with regard to the state-university group. Initiators from the state university group also did not discriminate, in being less trusting in both intragroup and intergroup behavior. For receivers also, the observed reciprocating behavior was not influenced by group identity.

Although we used amounts of money that we conjectured could counterweigh expressive behavior, receivers continued to behave expressively in reciprocating trust. For receivers, there was also evidence of expressive behavior in the significance of self-declared identity according to a “benevolent self-image” or being “a utility maximizer” in explaining amounts returned. Identity associated with ideology was also significant in explaining amounts returned by receivers. A

negative relation between declared trust and actual trust appears most plausibly explained as a post-experiment response to betrayal aversion.

We found gender effects. In within-group behavior, female initiators behaved in the manner of their male counterparts in transferring money but female receivers returned less to initiators. In mixed-group behavior, women as initiators were less trusting and sent less but exhibited the same level of reciprocity as males when responding as receivers. Women therefore appeared to feel that they could return less to members of their own group and feel expressively good about themselves (since identity and expressive utility are the reasons for returning money), while, in interactions with participants from outside their group, women were less trusting or more wary and risk-averse (or more averse to betrayal) but reciprocated in the same way as males.³¹

The results for Montenegro are consistent with conclusions from other studies that university students are in general less trusting than people with experience in business. The results for Montenegro are, however, not consistent with results found in other studies that students are less trustworthy.

Table 6, which reproduces comparative cross-country results from Johnson and Mislin (2011), shows that the participants from the state university in Montenegro displayed trust and trustworthiness consistent with usual outcomes in high-income societies – and did so even though income incomparability may arise because of the high monetary sums in our experiments when normalized by lower Montenegrin per capita income. The participants from the Montenegrin private university showed the highest level of trust reported in cross-country experiments. They could apparently, based on their broader experiences, intuit or predict the reciprocating behavior of participants independent of group identity.³²

³¹ Women are generally more risk-averse than men in experiments. On gender differences in behavior in experiments, see Eckel and Grossman (2008) and Croson and Gneezy (2009).

³² In some cases in table 6, the gains from trust are not shared. A proportion of one-third returned to the initiator leaves the receiver with all the gains from trust. There is little evidence of the

The high trust exhibited in the experiments in Montenegro is consistent with cultural priors. However, the exceptionally high trust displayed by the private-university participants may also reflect experience with requisites of economic activity in the substantial informal sector of Montenegro. Indeed, because of high trust, economic activity can proceed without impediment in the substantial informal sector.³³

9.2 Further research

With development in Montenegro having been slow, the conclusion that trust in Montenegro is similar to or greater than that in high-income countries redirects us to political behavior. Because our experiments involved private individuals, external validity can only apply to the private sector. Data from the survey revealed the low trust in government and political institutions found elsewhere in transition economies.³⁴ We have noted the political entrenchment due to the absence of effective political competition in Montenegro. It would be instructive to observe trust and trustworthiness when private-sector participants are matched in experiments with politicians and when politicians play amongst themselves with public money and also with private money. We leave such investigations to future research, although we acknowledge the difficulties of finding large enough funding to provide the financial incentives required for such experiments.

calculation by receivers that equal sharing of the gains from trust entails returning two-thirds of the amount transferred to the initiator.

³³ Hence the low labor-market participation rates that we previously reported, of little more than 50 percent for both men and women.

³⁴ While mistrust of institutions and government is generally regarded as socially disadvantageous, recent studies find that a degree of mistrust may reduce the detrimental effects of excessively active government policies (Berggren et al., 2013). Declines in trust in government can signal that a majority of voters is dissatisfied with either the behavior of politicians or the direction of policies.

Table 6: International comparison ranked by the proportion sent

COUNTRY	PROPORTION SENT	PROPORTION RETURNED	#studies/# participants
Montenegro private university	0.79	0.55	6/236 (total)
Sweden	0.74	0.37	4/941
Switzerland	0.66	0.53	1/986
Austria	0.62	0.38	6/508
Montenegro state university	0.59	0.47	6/236 (total)
Israel	0.59	0.45	2/535
Japan	0.58	0.45	2/78
U.K.	0.54	0.28	5/274
Germany	0.51	0.44	15/1315
U.S.	0.51	0.34	46/4,552
Australia	0.51	0.32	2/196
Russia	0.49	0.37	2/758
India	0.49	0.29	1/92
China	0.48	0.55	5/1036
Netherlands	0.46	0.33	6/761
Costa Rica	0.46	0.26	1/425
South Africa	0.44	0.24	4/775
Argentina	0.43	0.40	3/678
France	0.43	0.33	9/1008
Italy	0.43	0.31	8/763

Kenya	0.38	0.32	4/646
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Source: For Montenegro, authors' experiments, for other countries Johnson and Mislin (2011).

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Appendix 1: The Protocol for the Montenegro trust game

The monitor and assistants managing the experiment strictly followed a based on earlier games (Berg et al., 1995; Glaeser et al., 2000; Cox et al., 2009):

- Assistant #1 waits in a room and gives the 2 envelopes labeled 1.1AB (with initial endowment of 10 euros) and 1.1T (envelope for transfer) to the 1st initiator.
- Assistant #1 tells the initiator that he or she has 1 minute to decide how much to transfer to the responder in transfer envelope 1.1T.
- Assistant #1 returns after a minute and takes the transfer envelope 1.1T.
- Assistant #1 gives the envelope to the Monitor who supervises the experiment and who is another room and does not see the initiator (or the responder).
- The monitor records the amount in the transfer envelope 1.1T.
- The monitor adds money to the envelope according to the amount of money in the envelope (the sum is multiplied by 3) plus 10 euro initial endowment for the receivers.
- The monitor gives the transfer envelope with the added money to assistant #2, who gives the envelope to the corresponding receiver.
- Assistant #2 leaves the room and indicates that to the receiver that he or she will return in 1 minute.
- The receiver anonymously decides whether to give money back and how much.
- After 1 minute, assistant #2 returns to the room and takes the transfer envelope to the Monitor, who records the amount in the envelope.
- Assistant #1 gives the return envelope to the initiator.

After this, the initiator and the receiver keep their money and throw away their envelopes. Then, in separate rooms, the initiator and the receiver anonymously answer the questionnaire. The questionnaire contains 68 detailed questions about the personal, family, gender, parental, locational, educational and other socio-economic characteristics of the student and her/his family. The information collected in the questionnaire is matched to the specific initiator and receiver via unique student numbers. The resulting database is subsequently used in an econometric analysis together with the data from the trust experiments.

Assistant #3 gives out and receives the questionnaire from the initiators. The answered questionnaire is placed by the student in a large brown envelope, which is returned to the monitor in a procedure that preserves anonymity.

Assistant #4 gives out and receives the questionnaire from the receivers. The answered questionnaire is placed by the student in a large brown envelope, which is returned to the monitor in a procedure that preserves anonymity.

The protocol is repeated for each pair of randomly selected students, for each game.