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The Cultural Transmission of Trust Norms: Evidence from a Lab in the Field on a Natural Experiment*

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Abstract

We conduct trust games in three villages in a northeastern Romanian commune. From 1775–1919, these villages were arbitrarily assigned to opposite sides of the Austrian and Ottoman/Russian border despite being located seven kilometers apart. This plausibly exogenous border assignment affected local institutions and late-18th century migration in a manner that likely also affected trust. Conditional on trust norms being affected by these centuries-old historical circumstances, our experimental design tests the degree to which such norms are transmitted intergenerationally. Consistent with theoretical predictions, we find that participants on the Austrian side that also have family roots in the village are indeed more likely to trust outsiders.

Keywords: trust, outgroup trust, trust game, culture, cultural transmission, natural experiment, field experiment, laboratory experiment, norms, Romania, Austria, Ottoman Empire, Habsburg Empire

JEL codes: C91, C93, N33, O17, Z1

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1 Introduction

Although it may seem obvious to a casual observer that “culture matters” for economic and political decision-making, it is not so obvious how it matters. How do we distinguish between cultural stimuli and economic, political, or institutional stimuli? To what degree do these stimuli feed into each other? Indeed, how do we even begin to quantify culture? The difficulty in providing satisfactory answers to these questions long dissuaded social scientists from investigating the connection between culture and political/economic outcomes, eschewing it as either untestable or unimportant.

However, culture has received a much revived interest from social scientists in the last two decades. While the term “culture” can mean many things, this literature generally conceptualizes culture as distinct from economic and institutional stimuli by defining it as the heuristics employed by people within a society to interpret the complex world around them (Boyd and Richerson 1985; Henrich 2001; Wedeen 2002; Giuliano and Nunn 2021; Greif and Mokyr 2017).¹ Within economics and political science, the causes and consequences of *trust* have received special attention. Trust is crucial to economic and political development (Arrow 1972; Putnam, Leonardi and Nanetti 1994; Whiteley 2000; Uslaner and Brown 2005; Tabellini 2010; Algan and Cahuc 2010, 2014; Butler, Giuliano and Guiso 2016), and those heuristics that people use to determine whether or not to trust others and under which conditions to trust others clearly differ by society (Henrich 2001). There are also practical reasons social scientists have recently focused on trust: there are numerous measures of trust collected in survey data (Fisman and Khanna 1999; Alesina and La Ferrara 2002; Zak and Knack 2001; Bahry et al. 2005; Hooghe et al. 2009; Aghion et al. 2010; Nunn and Wantchekon 2011; Grosjean 2011*b*; Kasara 2013; Grosfeld and Zhuravskaya 2015; Becker et al. 2016); and trust experiments are among the most widely used in experimental studies, both in the lab and in the field (Berg, Dickhaut and McCabe 1995; Croson and Buchan 1999; Glaeser et al. 2000; Fershtman and Gneezy 2001; Buchan, Croson and Dawes 2002; Fehr et al. 2003; Barr 2003; Karlan 2005; Johnson and Mislin 2011; Sapienza, Toldra-Simats and Zingales 2013; Robinson 2016).

The most difficult issue the literature faces is one of identification: how do we know when a determinant is “culture” and when it is some (potentially unobservable or institutional) variable related to culture? Convincing identification strategies used to separate cultural determinants from other economic, political, sociological, or institutional determinants have included instrumental variables (Uslaner and Brown 2005; Tabellini 2010; Nunn and Wantchekon 2011), regression discontinuity (Grosfeld, Rodnyansky and Zhuravskaya 2013;

¹For excellent overviews of recent developments in the culture and institutions literature, see Guiso, Sapienza and Zingales (2006), Nunn (2012), and Alesina and Giuliano (2015). For important overviews of recent works on the cultural transmission of traits and its effect on long run economic development, see Spolaore and Wacziarg (2013). Of particular relevance to the current paper is Algan and Cahuc (2014), who provide a nice review of the literature on trust and economic outcomes, and Nannestad (2008), who overviews the literature on generalized trust.

Grosfeld and Zhuravskaya 2015; Becker et al. 2016; Buggle 2016; Dupraz 2019), and laboratory or field experiments (Fershtman and Gneezy 2001; Cassar, d’Adda and Grosjean 2014; Adida, Laitin and Valfort 2016; Butler, Giuliano and Guiso 2016; Bigoni et al. 2016; Robinson 2016; Lowes et al. 2017; Jeon, Johnson and Robinson 2017; Walker 2020).² While such techniques are often useful, they are not always possible to use in a manner that yields insight into cultural and historical processes.

A recent literature, to which this paper adds, provides a novel method of testing for cultural persistence in such settings: *combining* a “lab in the field” experiment with a natural experiment (Lowes et al. 2017; Chaudhary et al. 2020; Walker 2020).³ The idea is straight-forward: if one can find a natural experiment in which a historical border was *arbitrarily* drawn, even if over a small expanse, *and* there is reason to believe that there are historical circumstances on either side of the border affecting culture, one can more finely pinpoint the degree to which cultural differences persisted by running laboratory experiments on subjects on either side of the border. The primary challenges of such an undertaking are: i) finding an arbitrarily drawn border—as noted above, most long borders are not arbitrary; ii) finding a border in which there is reason to believe there were cultural differences associated with the border; and iii) isolating the border effects from other (economic and non-economic) determinants which may also be different on either side of the border.

We address these challenges by running trust games on either side of an old Austrian (Habsburg) border in the Udești Commune located in northeastern Romania. This commune provides an ideal setting for testing the role that historically-generated cultural differences played in generating modern-day trust behavior for four reasons. First, a “natural experiment” occurred within the commune after it was annexed by the Austrians following the Treaty of Küçük Kaynarca in 1774, in which the Ottomans ceded the Bukovina region of Moldavia to the Austrians (see Figure 1). One of the villages in the commune, Știrbăt, was left on the Ottoman side despite there being a more natural river border to the north of Știrbăt (see Figure 2). Historical records, which we document in Section 2, indicate that this decision was due in large part to the idiosyncratic predilections of one landowner in Știrbăt, not some economic or geographical calculus. This “natural experiment” therefore satisfies the *arbitrariness criterion*. The historical record suggests that this border was not created by economic, military, or even geographical considerations, but was the result of the idiosyncratic desires of one individual over two centuries ago.

²Some papers have also exploited historical patterns that are likely only explicable through culture. For instance, Gangadharan et al. (2018) run lab in the field experiments in Cambodia, showing that participants who were directly affected by the Khmer Rouge genocide exhibit more anti-social behavior in the present. Algan and Cahuc (2010) exploit variation in immigration patterns to the US to isolate the inherited component of trust and test its impact on economic outcomes. Giuliano (2007) also exploits immigration patterns to the US to isolate cultural differences between southern and northern Europeans with respect to how long children live with their parents. Giuliano’s findings suggest that culture accounts for several stylized facts that purely economic explanations cannot account for. More insight into inter-generational cultural transmission is provided by Giuliano and Nunn (2021), who find that groups whose ancestors lived in more stable environments place a greater emphasis on maintaining tradition in the present.

³For an excellent overview of this literature more broadly, see Lowes (2021).

Figure 1: The Austrian-Ottoman Border in the Late-18th Century

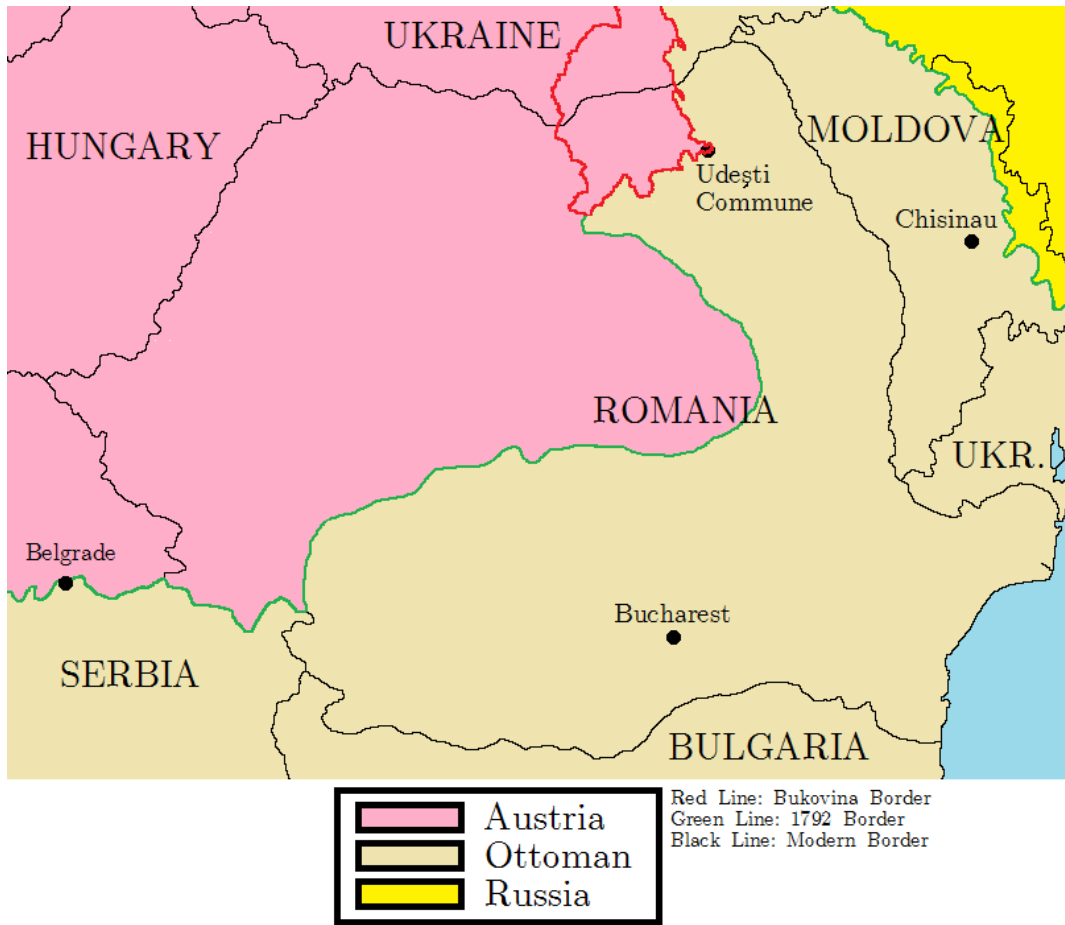
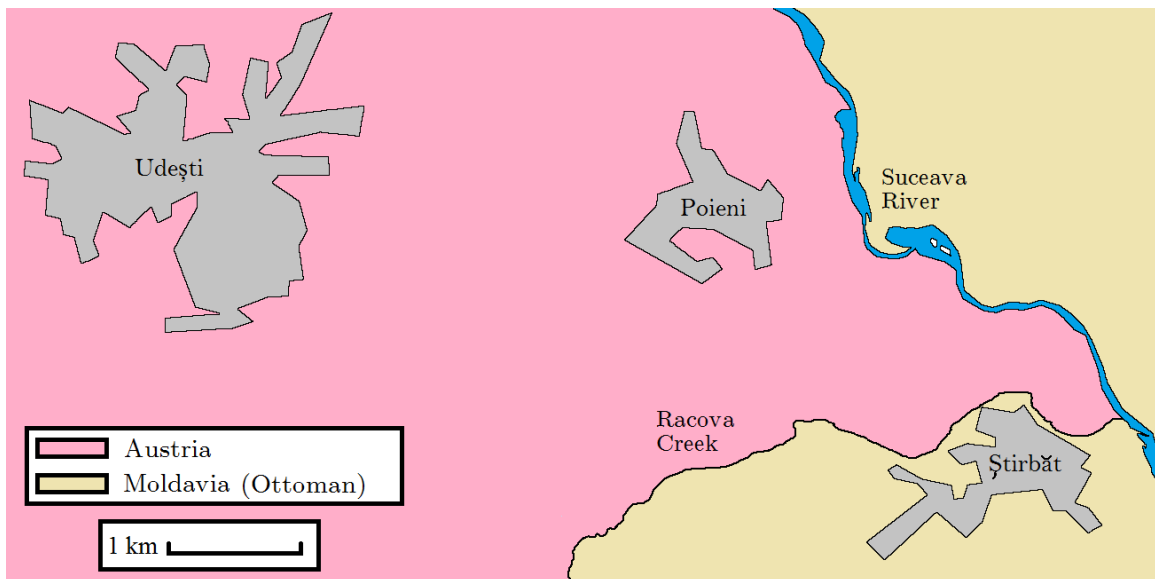


Figure 2: Udești, Poieni, and Știrbăt Villages



Second, there were two important economic differences created by the border. The first was institutional: Ottoman and Russian rule over Moldavia was unpredictable and prone to corruption by elites. While Austrian rule was hardly corruption-free, the Austrian government attempted to limit corruption by training local elites in Vienna and bringing them into the greater administrative structure. Second, evidence overviewed in Section 2 suggests there was selective migration into (non-Austrian) Știrbăt in the late-18th century. The first settlers were either forced to settle (as part of Madame Știrbeț’s corvée) or migrated due to dislike of their new Austrian overlords. This migration primarily occurred in the late-18th century, not since (meaning that recent migration is unlikely to be a confounding factor). Importantly, *both* of these phenomena—institutional differences and selective migration—could have facilitated a culture of relative “mistrust of outsiders” (and, conversely, trust of covillagers) in the late 18th and 19th centuries. To be clear, to the extent that this culture was in fact established, it would have done so by at latest the 19th century. Hence, our experiment is capable of testing whether people from villages that experienced Austrian rule over a century ago (as opposed to Ottoman rule, which had existed in the region since the 15th century) trust outsiders more than those that did not, although we cannot speak to which historical mechanism (institutions or migration) is more salient. The historical border therefore satisfies the *cultural difference criterion*. There is reason to believe that cultural differences were *associated with* historical events on either side of the border.

Third, the commune was reunified in 1919, meaning that for over a century the commune has shared common governance, fiscal institutions, communist legacies, and many other features one might expect would affect contemporary trust (Udișteanu 2005, ch. 1). The natural experiment therefore satisfies the *historical channel criterion*. Post-World War I economic and political events cannot explain differences between the villages, since they have been subject to the same forces for nearly a century. While it is likely true that political and economic differences persist *in general* on either side of the old Austrian-Ottoman border, one of the advantages of our methodology is that the three villages under study are small enough that any such differences would have been unlikely to survive the Communist period, in which the villages were placed under the same communal leadership. Hence, if differences in trust across villages are found, cultural differences associated with the historical border are a plausible root cause.

Finally, our experiment allows us to parse whether those whose families have lived in the villages for multiple generations—and were thus presumably more imbued with the culture of their ancestors—exhibit different trust behavior than those who are relative newcomers. Ancestral information was obtained in a post-experiment survey. Should such differences arise, they would provide further evidence that the inter-generational transmission of culture underlies our results rather than some unobserved differences between the villages.

The experimental design entails playing trust games in two villages on the Austrian side of the border (Udești and Poieni)⁴ and one on the Ottoman/Russian (hence, non-Austrian) side (Știrbăt). Figure 2 depicts just how close these villages are to each other; each is within walking distance of the other two villages. Ideally we would have run trust games in a second village on the non-Austrian side, but Știrbăt is the only village in the commune that satisfies this criterion. Participants in all villages played trust games with both co-villagers and people from one of the other villages (hence, outsiders).⁵ We compare actions of those whose villages experienced Austrian institutions (Udești and Poieni) with those whose village did not (Știrbăt). We also analyze actions between the two Austrian villages, under the hypothesis that there should be no differences, on average, in actions between the two.

Our findings support the conjecture that historically-induced culture affects contemporary trust and that inter-generational transmission is a plausible mechanism. First, we find that participants on the Austrian side of the border have greater trust of subjects from outside their village (i.e., they send more tokens). Meanwhile, no (significant) differences in trust behavior are found between the two Austrian villages. Second, we find that these inter-village differences in trust of outsiders *only* arise for subjects whose grandparents are from the village in question. We interpret this result as evidence of an inter-generational transmission mechanism. It is only those subjects whose families experienced the institutional differences of 1774–1919—or, at the very least, subjects whose grandparents grew up with people that experienced these differences—that showed differences in trust of outsiders. Third, we find that participants on the non-Austrian side (Știrbăt) are more trusting of co-villagers *relative to* outsiders.⁶

Our findings are consistent with three recent papers that use a similar “lab in the field on a natural experiment” technique to identify cultural persistence. Lowes et al. (2017) employ a rule-following experiment to analyze the persistence of institutions established by the 17th-century Kuba Kingdom of central Africa. As in our experiment, Lowes et al. (2017) look at a culturally homogeneous group that happened to live on opposite sides of a political border whose boundaries were arbitrarily formed. They find that descendants of the Kuba, which had more developed institutions in the past, give 3–7% less in ultimatum games and are

⁴Udești is the name of both the commune as well as a village in the commune. To avoid confusion, we refer to the former as the “Udești Commune” throughout the paper.

⁵We recognize that, given how close the villages are, some participants will not view people from other villages as “outsiders”. While there is clearly a spectrum of how strongly “outside” a person is viewed by another, we use this term in a relative context. That is, people from other villages are more outside than people from one’s one village.

⁶Participants in our experiment were much more trusting, according to our post-experiment survey, than Romanians in general according to the World Values Survey (Haerpfer et al. 2020). We found in all villages in our survey that around 65–66% of respondents said people can be trusted (i.e., chose 3, 4, or 5 on a 5-point scale). In the WVS, only 11.9% of Romanian respondents answered that people can be trusted (Q57). This is lower than the other countries of note in this paper: Turkey (14.3%), Russia (23.9%), and Germany (46.0%) (Austria is not surveyed in the WVS). In fact, in the WVS all types of trust are lower in Romania than in Turkey, Russia, or Germany. Combining respondents who answered “trust completely” or “trust somewhat”, 96.1% of Romanians trust their family (Q58), 43.4% trust their neighborhood (Q59), 62.6% trust people they know personally (Q60), 12.4% trust people they meet for the first time (Q61), 30.6% trust people of another religion (Q62), and 26.7% trust people of another nationality (Q63). All of these numbers are lower than their corresponding values in Turkey, Russia, and Germany. In short, Romania as a whole is a relatively low-trust society. Although we suspect the mechanisms we explore in this paper have contributed to this lack of trust, our paper cannot speak to Romania as a whole.

much more likely to take money not allotted to them (2–5% of the endowment). Lowes et al. (2017) reason that formal institutions supporting pro-social behavior substitute for the inculcation of norms supporting rule-following behavior. Our findings have a similar flavor: those who lived in a region with weaker formal institutions (the non-Austrian side) are relatively *more trusting* of co-villagers, although they are less trusting of outsiders. Among those with parents from the village, participants from the non-Austrian side are 24 percentage points more likely to send more to co-villagers than to outsiders. Another experiment similar to ours is Chaudhary et al. (2020), who run a public goods experiment on opposite sides of an old colonial border in India. Their findings are similar to ours with respect to outsider-insider bias and intergenerational transmission. They find that people on the side with greater public good provision in the past (British India) contribute more (4–5% of the endowment) to public goods that outsiders can benefit from, and this effect is confined mainly to those whose families are from the region. Walker (2020) combines a regression discontinuity analysis with a lab-in-the field experiment in the *same county* (Suceava) as our experimental towns in order to test the persistence of imperial norms and institutions on savings behavior, although the discontinuity is done at the county level (not just within Udești county).⁷ Walker (2020) gains insight into how historical legacies affect access to finance from a set of farmers in Suceava who recently applied for an EU cash transfer program.⁸ She finds that farmers living in former Austrian regions are 18 percentage points more likely to have saved 1,000 Lei (roughly one month’s salary), and this is mostly due to differential access to finance, not cultural norms. Although we do not find that people on opposite sides of the border have differential access to banks (Table A.2), this is not surprising given that we are focusing on one commune in which villages are mere kilometers apart, whereas Walker (2020) focuses on the entire county.

We do not wish to over-interpret our results for three reasons. First, these findings will be difficult, if not impossible, to replicate. In such small villages, one would be worried about playing the same game twice. Second, in one respect we identify cultural differences off of three village-level observations. In such a micro-level study, it is possible that some unknown, benign event in one of the villages’ historical past is responsible for our results. Third, the external validity of our methodology is not obvious. Such issues are not faced with larger-N studies that employ IV or regression discontinuity to identify cultural differences. For this reason, we do not advocate that a “low-N” study like ours be the *first* attempt at identifying cultural persistence across different populations. Instead, we suggest that such studies be done *in conjunction with*

⁷We were unaware of this project until after we had written up our results. We believe this attests to the fertile testing ground for theories of cultural and institutional persistence of this part of southeastern Europe.

⁸Sarah Walker informed us that of the three villages in our survey, she only had six participants from Știrbăt (and none from Udești or Poieni). Due to the nature of the experiment in Walker (2020), which only includes farmers who were participating in a specific EU cash transfer program (Measure 141), only those in agriculture participated in her experiment. In our experiment, only 4 participants from Știrbăt were in agriculture. Hence, at most, 4 people participated in both experiments. Moreover, the experiments in Walker (2020) were not trust games; they elicited behavioral features such as risk preference and discount rate. Given this, we feel comfortable that our results are not affected by experiments in Walker (2020). We thank Sarah Walker for sharing this information with us.

other high-N studies employing some other technique to address identification. In our specific historical case, such studies have been undertaken (Dimitrova-Grajzl 2007; Grosjean 2011*b*; Karaja 2013; Becker et al. 2016; Walker 2020), while other experimental studies conducted on different continents find results of a similar flavor to ours (Lowes et al. 2017; Chaudhary et al. 2020). Both of these facts support the external validity of our results.

The paper proceeds as follows. Section 2 overviews the relevant historical facts of the villages in which we conduct the experiment. Section 3 summarizes the experimental procedure. Section 4 reports the results, and Section 5 concludes.

2 Historical Background: The Udești Commune

2.1 The Udești Commune: A Brief History

The Udești Commune is located in the Moldavian region (Suceava County) of northeastern Romania. It is comprised of 11 small villages over approximately 11.04 km² (Udișteanu 2005), ranging from the very small (Mănăstioara, which has 23 households), to the largest village Udești, which has approximately 1,100 households. The largest of the villages in terms of population and size, Udești, was formed no later than the 1580s; it was originally a settlement for corvée workers of the royal court and other high officials (Marțolea 1986, p. 35).

Prior to 1775, the entire Udești Commune was part of the Bukovina region of Moldavia, a region which spans parts of modern day Romania, Moldova, and Ukraine. Moldavia fell under indirect Ottoman control in 1454, although it retained a degree of independence (İnalçık 1973, p. 27). Like other Christian vassal principalities of the Ottoman Empire (e.g., Wallachia, Transylvania, Dubrovnik, Georgia, and Circassia), Moldavia was ruled by its own princes as an Ottoman vassal state.

The major event in Udești history that we exploit in this paper is the partition following the signing of the Treaty of Küçük Kaynarca. Under the terms of this treaty, which ended the Russo-Turkish War in 1774, the Ottoman Empire ceded Bukovina to the Austrian Habsburg Empire (Udișteanu 2005). As can be seen in Figures 1 and 2, the Udești Commune is located on the border of Bukovina and what would remain Ottoman Moldavia. The citizens of Bukovina, including those in the Udești Commune, were required to take an oath in 1777 to their new Austrian empress Maria Theresa.⁹ However, not all Udești residents were willing to

⁹The “Oath of Faith to Austria” indicated Austria’s interest in Bukovinan tax revenue, which required legal, judicial, and administrative apparatuses:

I, Maria Terezia, widow and sovereign empress of the Hungarian Land and of Bukovina, etc. ... approach every person who is an inhabitant of Bukovina Districts, who lives here, or who owns lands here, who is our servant, who pays tribute to us or who is worthy of our protection ... First of all we assure you of our imperial and royal mercy ... For this, we need no more than for the inhabitants of this district of Bukovina, both the religious and the

live under Austrian rule. In 1777, one of the major landowners in the village, Ruxanda Știrbeț, was called to submit an oath in the name of her village, Chilișeni, to the new Austrian rulers (Chilișeni is located on the west bank of the Racova Creek, see Figure 2). Știrbeț refused to participate in the ceremony, which she considered “to be despotic and a crippling of Moldavia” (Marțolea 1986, p. 13). Afterwards, Știrbeț left her house in Chilișeni and moved to a nearly-unoccupied parcel of land on the opposite side of the creek, which at the time was still part of Chilișeni.¹⁰ Știrbeț claimed that this heretofore unproductive land was still part of Moldavian territory. When brought up before the Austrian Inventory Commission on December 13, 1782, Știrbeț argued that “the largest part of Chilișeni Village is in Moldavia and [Știrbeț] owns all the estate” (Marțolea 1986, p. 12). Being nearly uninhabited prior to Știrbeț’s move, there is no evidence one way or the other that it would have been considered part of Bukovina (and thus ceded to the Austrians) prior to the Treaty of Küçük Kaynarca. In 1786, the Austrians recognized Știrbeț’s claim and set a border stone on the right bank of Racova Creek, between Chilișeni and Știrbeț’s new settlement, which would later bear her name, Știrbăt. The Austrians also placed a border station on the left side of the bank, clearly demarcating Austrian from Moldavian (Ottoman) territory (Marțolea 1986, p. 13).

Soon after Știrbăt was formed, its population grew as families from Bucovina, Transylvania, and Maramureș, many of whom viewed themselves as Moldavian, escaped foreign occupation. Immigrants of Romanian/Moldavian ethnicity had been returning to Moldavia from Transylvania and Maramureș for over a century. This was due to the Hungarian occupation of the region, which began in 1526. This region fell under the Habsburg crown in 1690. Moldavians were persecuted under the Hungarian occupation—it was common for their property to be confiscated, and they were persecuted for their Orthodox Christian faith (the Habsburgs were staunch Catholics) (Udișteanu 2005, p. 5). Hence, families that had either emigrated under such circumstances to the Udești commune in the past or emigrated after the founding of Știrbăt had reason to prefer living in Moldavia rather than the Austrian Empire.

The initial population of Știrbăt was comprised mostly of Madame Știrbeț’s *corvée* and selectively chosen migrants. The migration described above contributed to modest population change in the following decades. By 1828, there were 43 households in Știrbăt, and the Moldavian Treasury in 1845 showed 51 households (Marțolea 1986, p. 15). Most of the inhabitants were slaves or *corvée* workers until the formation of the United Principalities of Moldavia and Wallachia in 1859. In 1864, Prince Alexandru Ioan Cuza abolished slavery and made peasants landowners (Marțolea 1986, p. 53). This contrasts with Austrian Bukovina (i.e.,

laic ones and the common people who live here, to submit their oath and pledge to be our subjects, becoming our obedient taxpayers. Based on this oath, they pledge to uphold the justice and the order that we instate, agreeing for us to take care of them and always have faith in us and in the fact that we will always be just and correct with Bukovina district (quoted in Udișteanu (2005)).

¹⁰According to census taken in 1772–74, this small village, known as Lățcanii, contained 9 households consisting of three families, a priest, and three poor women (Marțolea 1986, p. 14).

Udești), where the Austrian government eliminated slavery on the commune immediately after taking control in 1775, issuing a decree permitting serfdom. Austrian Bukovinian peasants were required to provide 3–6 days a week of unpaid work for the masters of the estate (Marțolea 1986, p. 51). These regulations were relieved in 1835, when a decree by the Emperor Ferdinand stated that all peasants' land was henceforth their private property.

The villages in the Udești Commune under Austrian control (including Udești and Poieni) remained under Austrian rule until Romania established control over Bukovina in 1919, following the collapse of Austria-Hungary after World War I. Moldavia (including Știrbăt) fell under various rulers following the Treaty of Küçük Kaynarca. Until the Russo-Turkish War of 1828–29, it remained under both Ottoman and Russian spheres of influence. After the war, it fell under Russian domination for three decades until the conclusion of the Crimean War. As part of the Treaty of Paris (1856) in the aftermath of the Crimean War, Moldavia unified with Wallachia (to its south) to form the independent state known as The United Principalities of Moldavia and Wallachia. The United Principalities were the predecessor to the Kingdom of Romania (1881–1947), which eventually incorporated Bukovina in the Treaty of Saint Germain (1919). In 1947, the Kingdom of Romania was proclaimed the Socialist Republic of Romania, and it remained under one party Communist rule until 1989. In 1950, under the communist regime, the Udești Commune was organized as a commune managed by a Popular Council. On December 24, 1960, an administrative reform placed the Udești Commune within the Suceava District (Udișteanu 2005, ch. 1).

The upshots of this short history of the Udești Commune are: i) one village in the commune, Știrbăt, fell under non-Austrian rule for 144 years (1775–1919), while the rest of the commune, including Udești and Poieni, fell under Austrian rule; ii) these differences were not the result of geography, military strategy, or any of the conventional causes of territorial boundaries, but the predilections of one landowner (Ruxanda Știrbeț); iii) part of the initial population of Știrbăt was selectively chosen, as it consisted largely of people escaping Austrian rule for some reason or another; iv) the commune has been reunified for over a century (since 1919), and it has experienced a World War, Communist rule, and the post-Communist era as one political unit.¹¹

2.2 Institutions, Migration, and Trust

There are two avenues through which the Ottoman-Austrian border may have affected trust norms. The first is selective migration. As noted in the previous section, some of Știrbăt's first residents were either escaping

¹¹It certainly could be the case that the Communist regime affected trust norms within the commune. However, since the villages in our study were all part of the same commune, we see little reason that trust norms should have been affected differently by Communism across villages. Even if Communism did in fact affect norms more strongly depending on the strength of pre-Communist trust norms, our findings would still hold with the caveat that Communism strengthened the channel of persistence.

Austrian domination or viewed themselves as Moldavian (Marțolea 1986). Importantly, there is no evidence to suggest that migrants to Știrbăt moved because they committed crimes and Știrbăt was a place to which they could escape from the long hand of Austrian law. To the extent that there was selective migration, the historical records cited above indicate that the immigrants were those whose families had been persecuted by Hungarian and Habsburg rulers. In other words, “push”, not “pull”, factors seem to have caused selective migration. Hence, by all accounts, the early Știrbăt migrants had some reason to be distrustful of their “Austrian occupiers.” Importantly, this selective migration mostly occurred soon after Știrbăt’s founding. Hence, with respect to trust attitudes, it follows that these migrants should have been more trusting of the people in the location they escaped to (Știrbăt) and less trusting of people in places they escaped from (the rest of the Udești commune).

Second, there were numerous institutional differences between the Austrian Habsburg Empire and its two eastern neighbors, the Ottoman Empire and Russian Empire. One important difference was the relative autonomy of local governance. The Habsburgs had long permitted (though perhaps not desired) strong free independent cities, which were independent centers of political, economic, and cultural activity. Administrative and cultural autonomy was also the norm in the more peripheral Austrian territories, where locals manned the bureaucracy and were permitted wide purview over economic, religious, and cultural matters (Subtelny 2007; Grosfeld and Zhuravskaya 2015). Indeed, there is a large literature, summarized by Becker et al. (2016), suggesting that the Austrian bureaucracy was known for its honesty, diligence, fairness, efficiency, and freedom from corruption. When the Habsburgs acquired new territories, locals were sent to Vienna for extensive administrative training before returning to work in the bureaucracy.

In contrast, the Russians rarely compromised on their autocratic prerogatives or gave political power to local elites. Local elites were given socio-economic privileges in order to ensure their subservience to the tsar, who imposed oppressive cultural, social, and economic policies on regions that were not fully integrated or assimilated into the empire (Subtelny 2007; Grosfeld and Zhuravskaya 2015). As a result, there were few local power bases outside of the central government, and the ties between local elites and the masses were much weaker than they were in the Habsburg lands (Subtelny 2007). Meanwhile, the Ottoman political structure became decentralized after the 17th century, as local notables acquired control over most local political and economic affairs (İnalçık 1973; Coşgel et al. 2013). But unlike the Austrian regime, which maintained a tight relationship with the local nobility and therefore maintained some level of control over corruption, Ottoman decentralization was a result of the center’s inability to collect revenue or provide local law and order. The Ottoman central authorities could do little to prevent corruption and expropriation.

Ottoman and Russian institutions therefore enabled much higher levels of uncertainty, nepotism, and corruption than Austrian institutions. A large literature, summarized by Nannestad (2008, p. 423–25), suggests

that such features can enable the formation of strong in-group trust norms and significant distrust toward anyone outside the community. Rothstein and Stolle (2008) presents a theory which ties together many of the findings in this literature. They argue that corrupt and biased practices among state administrators decreases generalized trust but can increase particularized trust towards one's own social group. On the one hand, institutional weakness or corruption forces societies to privately supply what is otherwise publicly supplied. This increases trust in the (small, private) group that supplies the good to each other. However, institutional weakness also means a lack of detection and punishment of people who break contracts—i.e., those who are untrustworthy. This results in a low-trust equilibrium in which people believe that others will act untrustworthy, and these expectations are fulfilled in equilibrium. Importantly, this lack of trust is directed towards *outsiders*; i.e., those who are not part of the local group who supplies public goods to each other.¹²

Moreover, a growing literature suggests that institutional differences helped shape cultural attitudes across the old Austrian border that have persisted to the present day. Becker et al. (2016) employ a regression discontinuity around the old Habsburg border and find that Habsburg affiliation increases trust with respect to government institutions and reduces corruption (i.e., bribery) in contemporary courts and police. They argue that norms of functional citizen-state interactions, along with a decentralized and honest bureaucracy, affected trust in local public services and levels of corruption in local administration. Karaja (2013) uses a similar design across the old Austrian-Ottoman border and finds higher willingness to bribe, lower trust of public officials, and lower growth in GDP per capita in the old Ottoman lands. Walker (2020) and Grosjean (2011*a*) find that Ottoman rule is associated with lower contemporary financial development, even within countries that were partially ruled by the Ottoman Empire. They both argue that the Islamic ban on interest slowed the development of financial institutions in Ottoman-controlled regions, with persistent effects to the present day. Dimitrova-Grajzl (2007) uses a variety of econometric techniques and finds that Habsburg successor states have more efficient market economies, greater protection of property rights, lower risk of government exploitation of private investors, lower levels of corruption, higher trust in the government, greater governmental effectiveness, and stronger civil societies than Ottoman successor states. These outcomes can all be explained by the differences in Austrian and Ottoman institutions highlighted in this section. Grosfeld and Zhuravskaya (2015) find that within Poland, Habsburg and Russian legacies affect contemporary voting patterns, with people in former Habsburg lands being more likely to vote for both liberals and religious conservatives. They cite Austrian local autonomy, especially with regard to religious

¹²For much more on the connection between the quality of political institutions and generalized trust, see Rothstein (2000), Rothstein and Uslaner (2005), and Delhey and Newton (2005).

issues, as the reason for support of religious conservatives, while differences in governance institutions affected beliefs in democracy on both sides of the border and thus support for liberals.

In short, selective migration and 18th–19th century institutions may have engendered a culture of mistrust of outsiders and relative trust of insiders on the non-Austrian side of the border. Indeed, a large experimental literature suggests that “outgroup” trust is in part culturally determined (Tajfel et al. 1971; Bahry et al. 2005; Yuki et al. 2005; Ruffle and Sosis 2006; Balliet, Wu and De Dreu 2014; Robinson 2016), although it can also be generated in the lab (Chen and Li 2009). These histories therefore suggest the possibility—should the cultural differences generated by these institutions over a century ago be sticky enough to exist in the present—that *outgroup trust* should be greater for descendants of the Austrian Empire, and, possibly, that in-group trust is lower. While we cannot nail down the specific causal pathway connecting past differences created by the border and contemporary trust, the key question addressed in this paper is whether cultural differences generated long ago *persist*, whatever their origin. On this front, we are fortunate that selection into Știrbăt yields the same prediction regarding outgroup and ingroup trust as do differences in Austrian and non-Austrian institutions. While this does mean that our results reflect an upper bound on the role that each of these mechanisms (institutions and selective migration) played in initiating the processes through which differences in trust arose, we view the fact that these mechanisms worked in the same direction as favoring our analysis because they yield falsifiable predictions regarding persistence. If these two mechanisms worked in opposite directions, any result would favor one of the two mechanisms, and persistence would not be falsifiable.¹³

Finally, we turn to the cultural transmission mechanism. The most commonly accepted mechanism in the economics literature is the one proposed by Bisin and Verdier (2001), in which parents transmit their preferences to their children as a form of “parental altruism” (also see Nunn and Wantchekon (2011) and Giuliano and Nunn (2021)).¹⁴ This type of cultural transmission is denoted as vertical transmission (i.e., from parent to child). These preferences may also spread through the population either horizontally via peer group or obliquely via teaching (Cavalli-Sforza and Feldman 1981; Boyd and Richerson 1985; Bisin and Verdier 2009; Henrich 2015). While we cannot speak to the exact mechanism, given the simplicity

¹³Unfortunately, we did not pre-register our experiment. Our *ex ante* predictions were that outgroup trust would be lower on the non-Austrian side of the border, but we were agnostic about ingroup trust. On the one hand, the institutional/migration past may have affected generalized trust, suggesting that ingroup trust would be lower on the non-Austrian side. On the other hand, if the past mainly affected outgroup trust, this could conceivably strengthen ingroup trust. We felt that which one of these effects was stronger was an empirical question. We also expected these effects to be stronger among participants with family from the region, although we were not sure whether we would have the statistical power—given the size of the villages—to tease out this effect.

¹⁴A large theoretical literature addresses the mechanisms through which cultural transmission occurs. Bisin and Verdier (2001), Tabellini (2008), and Guiso, Sapienza and Zingales (2008) focus primarily on the intra-family transmission process, while Dohmen et al. (2011) highlight the role of assortative mating and the local environment. Bisin and Verdier (2017), Kimbrough, Smith and Wilson (2008), Greif and Tadelis (2010), Lowes et al. (2017), and Iyigun, Rubin and Seror (2021) provide arguments for how culture and institutions interact.

of our experiment, our questionnaire—which asked participants how long their families have lived in the village—allows us to test an implication of the Bisin and Verdier model. If cultural transmission occurred in the villages, people whose families have lived on the Austrian (non-Austrian) side for multiple generations should have greater (less) trust of outsiders and relatively less (more) trust of co-villagers.

3 A Lab in the Field on a Natural Experiment: Design and Implementation

3.1 Experiment Design and Instructions

We designed a “lab in the field” experiment to exploit the natural experiment discussed in Section 2.1. Participants played simple trust games—similar to those played hundreds of times in university laboratories—in one village on the non-Austrian side of the border, Știrbăt, and two villages on the Austrian side of the border, Udești and Poieni.

Participants played the same trust game multiple times. Participants were grouped into rooms of 20-30 people. Prior to playing, instructions were read aloud in Romanian (all instructions and handouts were translated into Romanian). In each game, participants were first told the village of residence of the person they would be matched with. They were then told what their role would be (e.g., sending tokens to a partner or returning tokens to a partner), and we employed neutral language throughout; see Appendix B for instructions in English and Appendix C for instructions in Romanian. The exact identity of one’s partner was not known. Matches were randomly determined by a spreadsheet, so even the experimenters did not know the identity of the matched pairs. Participants were given an incentivized quiz before making their decisions in the first game in which they participated (see Appendix B.3).

Senders made one decision: how many of three tokens to send to their partner. They made this decision by circling 0, 1, 2, or 3 on a handout provided to them by an experimenter (see Figure 3). Participants were instructed that they would keep any tokens they did not send, while any tokens they sent would be multiplied by 3 and given to the receiver. Each token was equivalent to 3 Romanian lei, or \$0.75.

Senders were told in the instructions that receivers would make a choice of how many of the tokens they received to return to the sender. We employed a strategy method in which receivers made 3 decisions: how much to return to the sender conditional on the sender sending 1, 2, or 3 tokens (see Figure 4). If the sender sent 0, there was nothing for the receiver to return, so we circled “0” for participants. For each of the three

Figure 3: Handout Participants Filled Out to Make the Send Decision

0 **1** **2** **3**

Circle one of the above numbers. The number you circle is the amount of your 3 tokens you will send to the participant with whom you are matched.

Please only circle one number. If you change your mind, cross out your choice and make a new choice.

decisions, receivers were allowed to circle any number between 0 and three times the amount sent to them to return to the sender.¹⁵

Figure 4: Handout Participants Filled Out to Make the Return Decision

If your partner sends	You receive	Circle a number to return to your partner
0	0	<input checked="" type="radio"/> 0
1	3	<input type="radio"/> 0 <input type="radio"/> 1 <input type="radio"/> 2 <input type="radio"/> 3
2	6	<input type="radio"/> 0 <input type="radio"/> 1 <input type="radio"/> 2 <input type="radio"/> 3 <input type="radio"/> 4 <input type="radio"/> 5 <input type="radio"/> 6
3	9	<input type="radio"/> 0 <input type="radio"/> 1 <input type="radio"/> 2 <input type="radio"/> 3 <input type="radio"/> 4 <input type="radio"/> 5 <input type="radio"/> 6 <input type="radio"/> 7 <input type="radio"/> 8 <input type="radio"/> 9

Participants first played the game as a sender, matched with a receiver from either their own or another village, and then played the game as a receiver, matched with a *different* sender from that village. All participants played the game at least four times (twice as a sender and twice as a receiver), matched with co-villagers and outsiders. We did not use the terms “co-villagers” and “outsiders” in the instructions, only noting the village one’s partner was from. Instructions were similar, although abbreviated, for receivers. After participants completed the final game they took a short demographic survey (see Appendix B.4 for details). On the day of the experiment, participants received a 10 lei (\$2.50) show-up fee, paid before the experiment began (to engender the belief that participants would indeed be paid). They were told only that they could make much more during the experiment, and that in one week a representative of the firm conducting the experiment would come back to the village to pay their earnings (beyond the show-up fee).

¹⁵Receivers were not given an endowment. Our game thus differs slightly from Berg, Dickhaut and McCabe (1995), in which receivers are given an endowment. However, Johnson and Mislin (2011), in a meta-analysis of trust games, find that receivers have endowments in only 54% of the trust games they study (out of 161), and whether a receiver has an endowment tends to not have a statistically significant impact on game play.

Once the experiment commenced, participants were told they would keep earnings from each round of the experiment.

3.2 Comparison Groups

As of July 2016, there were around 1,100 households in (Austrian) Udești, 270 households in (Austrian) Poieni, and 300 households in (non-Austrian) Știrbăt. These were among the only villages in the Udești Commune large enough to have sufficient participants for our study (see Table 1). We chose to run the experiment in Udești (village) because our design required a population large enough to have some participants play with people on both sides of the old border. We chose Poieni because it was the closest village to Știrbăt among the villages with a similar population (Chilișeni is closer to Știrbăt, but we feared it was too small for us to enroll enough participants). In all, there were 200 participants from Udești and 100 participants from both Poieni and Știrbăt, totaling 400 participants. Given the unequal numbers from each of the villages, we augmented the game slightly for participants from each of the villages in a manner described below.

Table 1: Number of Households in Each Village in the Udești Commune, July 2016

Village	Number of Households
<i>Villages in Experiment</i>	
Udești	1100
Poieni	270
Știrbăt	300
<i>Villages not in Experiment</i>	
Plăvălari	500
Luncușoara	300
Reuseeni	273
Rușii Mănăstioara	270
Chilișeni	220
Racova	172
Securiceni	85
Mănăstioara	23

Notes: Data from Udești city hall.

We recruited 300 participants from the Austrian side of the border (200 from Udești and 100 from Poieni). These villages experienced Austrian institutions and outmigration in the late 18th century. Meanwhile, we recruited 100 participants from (non-Austrian) Știrbăt. All participants played the game multiple times. In the first and third games they played as a sender and in the second and fourth games they played as a receiver. One hundred of the (Austrian) Udești participants played two games with co-villagers and the other two with people from (non-Austrian) Știrbăt while the other 100 played twice with co-villagers and

twice with people from (Austrian) Poieni. Meanwhile, both the 100 Poieni and 100 Știrbăt participants played two games with people from all three villages (in the fifth game they acted as sender and in the sixth as receiver, playing with outgroup participants). To control for order effects, we split each of these groups into two, alternating the order of game play. For a summary of the order of play, see Table 2.

Table 2: Order of Play

Village	Order	N
<i>Austrian Side of the Border</i>		
Udești	Udești - Știrbăt	50
Udești	Știrbăt - Udești	50
Udești	Udești - Poieni	50
Udești	Poieni - Udești	50
Poieni	Poieni - Udești - Știrbăt	50
Poieni	Udești - Poieni - Știrbăt	50
<i>Non-Austrian Side of the Border</i>		
Știrbăt	Știrbăt - Udești - Poieni	50
Știrbăt	Udești - Știrbăt - Poieni	50

3.3 Experiment Implementation in the Udești Commune

We employed the Bucharest-based research firm Cult Market Research (CMR) to implement the experiments on July 21–23, 2016. Six researchers from CMR carried out the experiments in secondary schools, spending one day in each village. Prior to conducting the experiments, CMR made local contacts to serve as field recruiters: 3 in Udești, 1 in Poieni, and 1 in Știrbăt. These contacts were all well-known in their village and were introduced to CMR by the mayor. The field recruiters worked with two CMR researchers to organize the experiment (e.g., find a location) and sign up participants one week prior to implementation. The popularity of the field recruiters (who worked with the mayor and city hall employees on recruiting for our project) is one of the primary reasons we were able to achieve such high turnout for the experiment. And, luckily, the weather was beautiful the three days CMR conducted the experiment.

Importantly, CMR was never informed about the natural experiment this paper exploits. We had many discussions with the CMR researchers regarding the implementation of the experiment, the villages involved, and the manner in which they would collect and input data, but we never discussed the old Austrian border central to our identification strategy. Hence, the experiment was double-blind, with neither participants nor experimenters knowing the research questions.

CMR conducted the experiment with 20–30 participants at a time, all playing the same game. As noted before, instructions were read aloud in Romanian, and all instructions and handouts were translated into Romanian. About 50% of participants needed additional explanations for at least one of the tasks, although

all participants also took a quiz to test their understanding. Participants largely followed instructions and were silent during the experiment except when asking questions. Each session took about one hour to complete.

After the experiment was conducted, the CMR researchers entered the data into a de-identified spreadsheet, which returned how much each participant earned in the experiment (participants were identified by a number, and CMR kept a separate spreadsheet that matched participants' names to their ID number). A CMR researcher returned one week later to pay participants their earnings. We unfortunately could not pay subjects their earnings immediately because payouts were contingent on decisions made in other villages.

4 Results

4.1 Demographic Summary Statistics

Before presenting the results of the experiment, we present balance tests across the Austrian and non-Austrian groups on basic demographic characteristics, derived from the survey administered after the experiment. The results are summarized in Table 3. Such balance is important; Alesina and La Ferrara (2002) suggest that poor educational or occupational outcomes (among other things) are associated with low trust. Hence, if our participant sample is skewed, it might be these demographic features driving any differences we find. Fortunately, our sample is mostly balanced. Around half of the participants were female in both the Austrian and non-Austrian groups. Likewise, there are no statistically significant differences between the average age or education level between the two groups.¹⁶ While an overwhelming majority of participants in all three villages are Eastern Orthodox, the proportion is higher in (non-Austrian) Știrbăt than in the Austrian villages (0.88 vs. 0.96, $p = 0.021$). The other statistically different demographic characteristic is marital status (0.65 vs. 0.53, $p = 0.041$).¹⁷

For the sake of a trust experiment, it is also desirable to have balance across occupations. It is possible that past institutional differences affect income or occupational mobility in the present, which itself could affect trust norms. To address this possibility, we report in Table 4 the participants' self-reported occupation.¹⁸ This is our best indication of participants' economic status. While the non-employed (including housewives,

¹⁶Note that the high school completion rate is rather low. This is likely due to our oversampling of housewives and retirees (see Table 4). Only 37.0% of housewives and 39.6% of retirees had a high school education. Moreover, only 33.3% of those in agriculture had a high school education. Combined, these three groups make up 58.9% of the participants whose occupations we could classify. Of the remaining 41.1% of participants, 70.2% had at least a high school education.

¹⁷Note that in Table 3, as well as the remaining tables, the total N does not account for all participants (i.e., $N < 400$). This is due to missing or uninterpretable responses. We drop these observations from the analysis.

¹⁸The minimum age to participate in the experiment was 16, although 4 participants under 16 apparently took part in the experiment. Of the 37 students that participated in the experiment, 5 were high school students, 29 were college students, and 3 were graduate students.

Table 3: Summary Statistics, Demographics

Side of Border	Female	Age	Married	High School or Above	Eastern Orthodox
Austrian (Udești and Poieni)	0.53 (0.03) N = 300	45.91 (1.04) N = 279	0.65 (0.03) N = 298	0.51 (0.03) N = 295	0.88 (0.02) N = 296
Non-Austrian (Știrbăt)	0.52 (0.05) N = 100	43.01 (2.03) N = 94	0.53 (0.05) N = 98	0.45 (0.05) N = 94	0.96 (0.02) N = 97
p-value (differences)	0.908	0.153	0.041*	0.288	0.021*

Notes: Standard errors in parentheses. ** $p < 0.01$; * $p < 0.05$. p-values from Wilcoxon rank-sum (Mann-Whitney) test for the age variable, and from a Fisher exact test for the remaining variables. The minimum age to participate in the experiment was 16, although 4 participants under 16 apparently took part in the experiment. The minimum age of participants was 14 and the maximum age was 86.

Table 4: Summary Statistics, Occupations

Side of Border	Housewife	Student	Retired	Unemployed	Agric	Service	Blue Collar
Austrian (Udești and Poieni) N = 284	0.26 (0.03)	0.09 (0.02)	0.24 (0.03)	0.06 (0.01)	0.10 (0.02)	0.11 (0.02)	0.13 (0.02)
Non-Austrian (Știrbăt) N = 90	0.28 (0.05)	0.13 (0.04)	0.24 (0.05)	0.07 (0.03)	0.04 (0.02)	0.10 (0.03)	0.12 (0.03)
p-value (differences)	0.682	0.226	1.000	0.797	0.133	0.848	1.000

Notes: Standard errors in parentheses. ** $p < 0.01$; * $p < 0.05$. p-values from Fisher exact test. “Housewife” includes housewives, househusbands, and those raising children. “Unemployed” includes self-identified unemployed and those who list job as “none”. “Agriculture” includes agriculturalists, farmers, daymen, and cattlemen. “Service” includes clothiers, sellers, drivers, personal assistants, bakers, caretakers, postal workers, teachers, city hall workers, freelancers, poets, partners, administrators, athletes, interior designers, postal workers, clerks, librarians, treasurers, and one economist. “Blue collar” includes those in construction, “workers,” technicians, plumbers, car washers, mechanics, steel workers, security agents, and chambermaids. Four participants listed jobs we could not classify.

house-husbands, retirees, and students) are over-represented, likely due to the nature of recruiting for a field experiment, there are no statistically significant differences in any of the set of occupations.

In the analysis that follows, we split the sample by one’s family history in the village as a proxy to test whether cultural transmission plays some role in determining modern-day trust behavior. Thus, to make any remotely causal claim, there must also be demographic balance across groups with respect to their family history. We address this issue in Table 5, which reports the demographic summary statistics

Table 5: Demographic Summary Statistics, by History in Village

Grandparents from Village?	Female		Age		Married		High School or Above		Eastern Orthodox	
	Yes	No	Yes	No	Yes	No	Yes	No	Yes	No
Austrian (Udești and Poieni)	0.55 (0.05)	0.58 (0.05)	46.85 (1.76)	45.28 (1.60)	0.57 (0.05)	0.66 (0.04)	0.53 (0.05)	0.57 (0.05)	0.90 (0.03)	0.86 (0.03)
N	112	119	107	109	111	119	109	118	111	118
p-value (differences)	0.693		0.521		0.138		0.596		0.320	
Non-Austrian (Știrbăt)	0.56 (0.10)	0.58 (0.08)	36.72 (3.79)	43.65 (3.07)	0.44 (0.10)	0.51 (0.08)	0.63 (0.09)	0.35 (0.07)	1.00 (0.00)	0.93 (0.04)
N	27	43	25	43	27	43	27	43	27	43
p-value (differences)	1.000		0.169		0.630		0.028*		0.279	

Notes: Standard errors in parentheses. ** $p < 0.01$; * $p < 0.05$. p-values are *within village*, from Wilcoxon rank-sum (Mann-Whitney) test for the age variable, and from a Fisher exact test for the remaining variables.

broken down by whether or not one has a grandparent from the village.¹⁹ The reported p-values are intra-village comparisons between those whose grandparents are and are not from the village. Within villages, participants whose grandparents are from the village are statistically similar to those whose grandparents are not from the village. The one difference of potential concern is that participants from (non-Austrian) Știrbăt whose grandparents are from Știrbăt have higher education than those whose grandparents are not from Știrbăt. However, this would suggest that participants from Știrbăt whose grandparents were from Știrbăt should be *more* trusting of outsiders. The standard result in the literature (Alesina and La Ferrara 2002) is that more education leads to *greater* trust, thus biasing against us finding lower trust in Știrbăt.²⁰

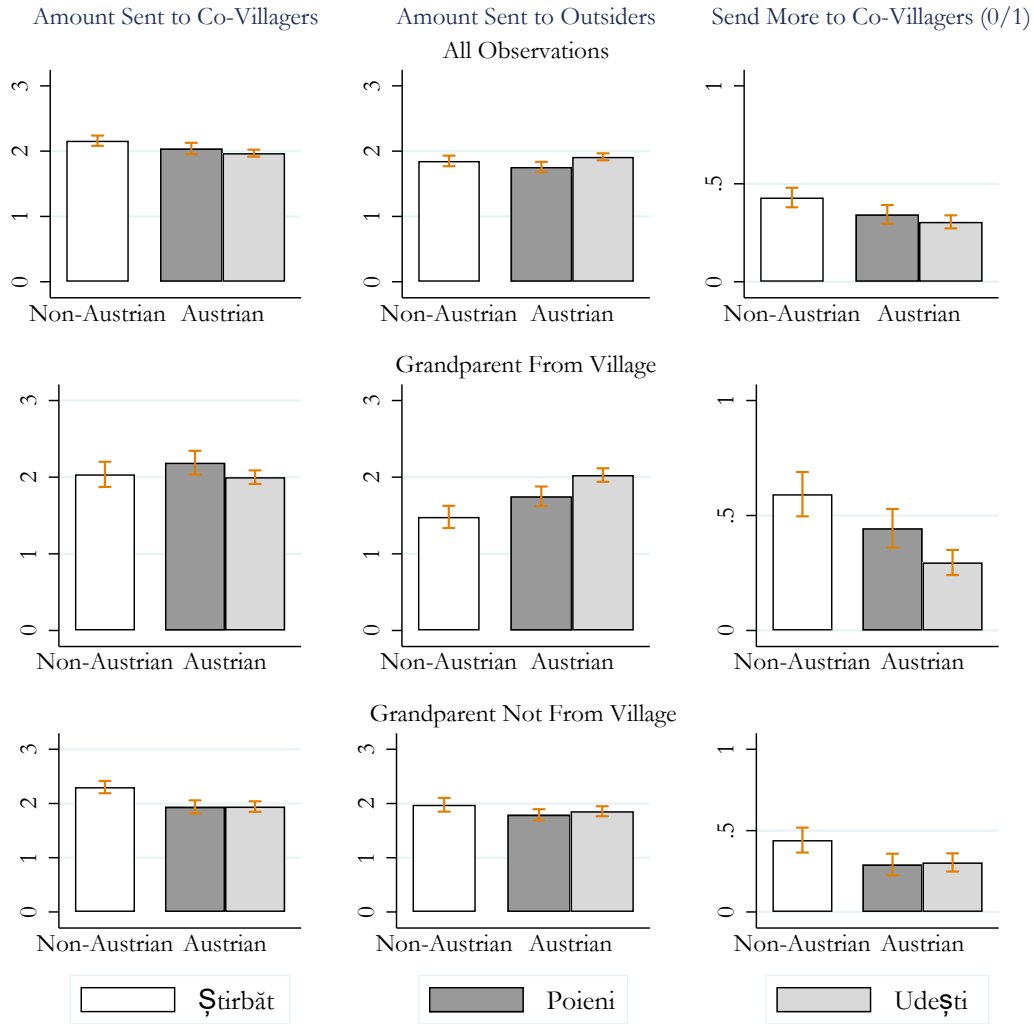
¹⁹Our questionnaire obtains family information via the question “To your knowledge, how long has your family lived in [village]?” (Question #7, available in Appendix B.4). The possible answers are “You moved to [village] during your lifetime,” “Your parents moved to [village],” “Your grandparents moved to [village],” “Your great-grandparents or an older generation moved to [village],” and “I don’t know.” We recognize that different subjects could take this question differently (i.e., some may answer “grandparents” if one grandparent is from the village while others may answer only if all four are). While this is a possibility, there is little reason we know of why the propensity to answer in one way or another would differ across the three villages in question.

²⁰We asked more questions in the survey about trust in others and unofficial payments (i.e., bribes) one has to make to secure a variety of public goods. The results are reported in Appendix Table A.1. In Appendix Table A.2, we report answers to questions about participants’ financial history (i.e., borrowing and lending). In Appendix Table A.3, we report the fraction of participants who answered each quiz question correctly as well as their average earnings from the experiment. We also examined the degree to which participants (self-reported) trust others. The results are summarized in Table A.4. We asked participants to rate how much they trust people in each of the three villages (from 1–5, with 1 being extremely untrustworthy and 5 being extremely trustworthy; see Appendix B.4 for details). Not surprisingly, participants tended to find people from their own village more trustworthy. Participants from both Austrian Udești and Poieni view people from non-Austrian Știrbăt as less trustworthy than their co-villagers while participants from Știrbăt viewed their co-villagers as more trustworthy than people from Udești and Poieni. Yet, participants from the Austrian and non-Austrian villages found their co-villagers about equally trustworthy (3.73 vs. 3.74) while also finding people from the opposite side of the old border equally (less) trustworthy. Within the Austrian villages, it appears that participants from Udești and Poieni trust each other approximately the same, while trusting people from (non-Austrian) Știrbăt less. However, these are the results of a *non-incentivized* survey, taken after participants played a variety of trust games. Hence, their responses may have been affected by the game itself or their expectations of what the experimenters desired (given that they just played a trust game).

4.2 Trust: The Send Decision

We begin the analysis by reporting results regarding participants' send decision. To test whether intra-family, vertical cultural transmission is among the mechanisms connecting historically-derived cultural differences with contemporary trust norms, we break down the results by whether one's grandparents lived in the village.²¹ Table 6 and Figure 5 report the results.

Figure 5: Average Amount Sent to Co-villagers and Outsiders



²¹ Appendix Table A.5 provides the same information as Panel A of Table 6, but with the data broken down by whether one's great-grandparents are from the village or not. Results are similar. It may also be possible that people whose grandparents are from Știrbăt lack mobility and thus know less people in the other villages. In the survey, we asked participants if they knew people from each of the other two villages. Results are reported in Appendix Table A.6. There appears to be no intra-village differences with respect to whether one's grandparents are from the village or not. If anything, people from Știrbăt appear to know more people from Udești than vice-versa, which would bias against us finding negative outgroup bias amongst those from Știrbăt. Moreover, participants from Știrbăt and Poieni are about equally likely to know someone from Udești. Our results hold (although less strongly due to sample size) when just comparing Știrbăt and Poieni, which is difficult to reconcile with a theory based on differential mobility.

Table 6: Average Amount Sent to Co-villagers and Outsiders

	Sent to Co-villagers			Sent to Outsiders			Sent More to Co-villagers (0/1)		
	Grandparents from Village?			Grandparents from Village?			Grandparents from Village?		
	All	Yes	No	All	Yes	No	All	Yes	No
<i>A. Austrian vs. Non-Austrian Villages</i>									
Austrian (Udești and Poieni)	1.99 (0.05)	2.06 (0.08)	1.94 (0.08)	1.86 (0.04)	1.94 (0.07)	1.83 (0.07)	0.32 (0.03)	0.35 (0.05)	0.30 (0.04)
N	298	111	118	294	108	118	292	107	117
Non-Austrian (Știrbăt)	2.16 (0.08)	2.04 (0.16)	2.30 (0.11)	1.85 (0.08)	1.48 (0.14)	1.98 (0.13)	0.43 (0.05)	0.59 (0.10)	0.44 (0.08)
N	100	27	43	100	27	43	100	27	43
p-value (differences)	0.079	0.842	0.013*	0.796	0.007**	0.317	0.051	0.027*	0.131
<i>B. Small Villages</i>									
Austrian (Poieni)	2.04 (0.09)	2.19 (0.15)	1.94 (0.12)	1.67 (0.09)	1.72 (0.15)	1.71 (0.12)	0.43 (0.05)	0.44 (0.08)	0.40 (0.07)
N	100	37	48	99	36	48	99	36	48
Non-Austrian (Știrbăt)	2.16 (0.08)	2.04 (0.16)	2.30 (0.11)	1.55 (0.09)	1.33 (0.20)	1.56 (0.12)	0.51 (0.05)	0.52 (0.10)	0.56 (0.08)
N	100	27	43	100	27	43	100	27	43
p-value (differences)	0.392	0.400	0.036*	0.322	0.100	0.335	0.245	0.311	0.190
<i>C. Austrian Villages</i>									
Austrian (Udești)	1.97 (0.05)	2.00 (0.09)	1.94 (0.10)	1.91 (0.05)	2.03 (0.09)	1.86 (0.09)	0.31 (0.03)	0.30 (0.05)	0.30 (0.06)
N	198	74	70	195	72	70	193	71	69
Austrian (Poieni)	2.04 (0.09)	2.19 (0.15)	1.94 (0.12)	1.76 (0.08)	1.75 (0.13)	1.79 (0.10)	0.34 (0.05)	0.44 (0.08)	0.29 (0.07)
N	100	37	48	99	36	48	99	36	48
p-value (differences)	0.380	0.145	0.947	0.199	0.089	0.785	0.511	0.138	1.000

Notes: Standard errors in parentheses. ** $p < 0.01$; * $p < 0.05$. p-values from Wilcoxon rank-sum (Mann-Whitney) test for “Sent to Co-Villagers” and “Sent to Outsiders” and from Fisher exact test for “Sent More to Co-Villagers.” Sent More to Co-villagers = 1 if participant sent more to co-villagers than to outsiders. In the panels A and C, outsiders are defined as the other village one played with in the first four rounds. In panel B, outsiders are defined as the other village one played with in the final two rounds.

Figure 5 shows the average amount sent to one’s co-villagers (column 1), sent to outsiders (column 2), and the proportion of participants who sent more to their co-villagers than to outsiders (column 3). The second and third rows break down these results by whether one’s grandparents are from the village or not.

While breaking down results by family lineage reduces the sample size, it comes with the benefit of providing insight into the transmission channel, even if this test is somewhat underpowered.²²

The average amount sent to outsiders in the Austrian villages (1.86) is similar to the amount sent to outsiders in the non-Austrian village (1.85; $p = 0.796$). However, participants from Știrbăt whose grandparents are from Știrbăt send *much less* to outsiders than do participants from the Austrian villages whose grandparents are from the village (1.94 vs. 1.48; $p = 0.007$). This difference in means of 0.46 is 0.60 standard deviations from the mean. Meanwhile, there is no statistically significant difference in the amount sent to outsiders across villages among participants whose grandparents are not from the village (1.83 vs. 1.98; $p = 0.317$). In fact, within this group the average amount sent is larger for participants from (non-Austrian) Știrbăt.

One confounding factor in our analysis is that one of the villages on the Austrian side, Udești, is larger than the other two villages (1,100 households vs. around 300 households in the other two villages). We address this issue in panel B of Table 6, which compares only the two smallest villages, Poieni and Știrbăt. While this comparison lacks power, the results with respect to the amount sent to outsiders are similar to those reported in panel A. Comparing the final two rounds of play (in which participants from Știrbăt played with those from Poieni and vice versa), we find that participants from the two villages send a similar amount to outsiders (1.67 vs. 1.55; $p = 0.322$). However, among those with a grandparent from the village, those from (non-Austrian) Știrbăt send much less than those from (Austrian) Poieni (1.72 vs. 1.33; $p = 0.100$), although this result is not statistically significant.

Finally, in panel C of Table 6, we compare the two Austrian villages. With respect to the amount sent to outsiders, we see little difference across villages (1.91 vs. 1.76; $p = 0.199$). While there does appear to be a difference among those whose grandparents are from the village (2.03 vs. 1.75; $p = 0.089$), these amounts remain much larger than in (non-Austrian) Știrbăt (1.48). We summarize the statistically significant results as follows:

Result 1: Participants from (non-Austrian) Știrbăt whose grandparents are from Știrbăt send less when playing with outsiders than do participants from the Austrian villages whose grandparents are from the village.

Next, we turn to participants' send decisions to co-villagers relative to outsiders. The third column of Figure 5 reports the fraction of participants who sent more to co-villagers than to outsiders.²³ A greater

²²The issue of the tests being underpowered is a reflection of just how small these villages are. In Știrbăt and Poieni, around 1/3 of all households in the village participated in our experiment, while in Udești, around 1/5 of households participated. This lack of power is exacerbated when the Austrian villages are unpooled. Nonetheless, we report these results in Appendix Table A.7. In terms of statistical significance, these results are broadly similar to those reported in Table 6.

²³We also analyzed the difference in the total amount sent to co-villagers and outsiders. All results are similar in terms of statistical significance. For brevity we do not include these statistics.

fraction of participants from the non-Austrian village (Știrbăt) sent more to their co-villagers than participants from the Austrian villages (0.32 vs. 0.43; $p = 0.051$). This is true whether or not one’s grandparents are from the village, although for different reasons. Among participants whose grandparents are not from the village, those from (non-Austrian) Știrbăt send much more to their *co-villagers* than do those from the Austrian villages (1.94 vs. 2.30; $p = 0.013$). Meanwhile, among participants whose grandparents are from the village, Result 1 noted that those from Știrbăt send much less to *outsiders* than do those from the two Austrian villages.²⁴

How do we explain this result? Why should participants whose families are *not from Știrbăt* act differently than those from the Austrian villages? One possibility is that observed co-variables that differ across villages and family lineages affect the results presented above. To address this possibility, we run ordered probit regressions on the amount participants sent to co-villagers and outsiders. We control for order effects, the participant’s quiz score, the interaction between the participant’s quiz score and a Știrbăt dummy, and demographic controls including a gender dummy, age, age squared, marital status, a high school education dummy, an Eastern Orthodox dummy, religiosity, and occupational status. We also include a dummy which equals one if the participant claimed to know someone from the other town in question.²⁵ The marginal effects are reported in Table 7.²⁶

The results regarding the amount sent to outsiders are broadly consistent with Result 1. The bottom panel reports regressions in which the dependent variable is the amount sent to outsiders. These results suggest that subjects whose grandparents are from Știrbăt send significantly less to outsiders (consistent with Result 1): they are 21 percentage points more likely to send 1 token, but 20 percentage points less likely to send 3 tokens relative to outsiders. On the other hand, there appears to be no statistically distinguishable difference between the Austrian and non-Austrian villages in the amount sent to co-villagers (upper panel of Table 7). This is true both for those whose grandparents are and are not from the village. This is different from the simple comparison of means, which indicated the possibility that participants from Știrbăt whose grandparents are *not from the village* gave more to co-villagers. It turns out that these results were driven

²⁴These results find support from the survey answers to the following question (#25): “If you [chose different amounts depending on which village your partner lives], why did you make your choices differently?” Of the 400 participants, 174 answered this question (reflecting, in part, the fact that many participants chose the same amount regardless of who they were partnered with). We classified their answers in Appendix Table A.8. Consistent with the above findings, we find that participants from Știrbăt have highly positive views of their co-villagers and slightly more negative views of outsiders than those from Udești. Among those who answered the question, the primary difference between those from Știrbăt and Poieni appears to be that those from the former are less comfortable trusting people from a village in which they know nobody.

²⁵See Appendix Table A.6 for the proportion of participants from each town that know someone from one of the other towns.

²⁶In Appendix Table A.9 we include potentially endogenous regressors, i.e., those related to trust. Results are broadly similar to the ones reported in Table 7, although the key coefficients of interest are only marginally significant. In the “Sent to Outsiders” regressions, the coefficient on the interaction “Grandparent from Village * Știrbăt” is significant at $p = 0.14$ for the marginal effect at amount sent of 3 and $p = 0.13$ for the marginal effect at amount sent of 1. In Appendix Table A.10, we report results of regressions in which participants who responded “I don’t know” to the question “To your knowledge, how long has your family lived in [village]?” are classified as not having family from the village. The results are even stronger than those reported in Result 1. Results (reported in Table A.11) are similar when we treat those who reported “I don’t know” as a separate category.

Table 7: Marginal Effects of Ordered Probit Regressions: Average Amount Sent to Co-villagers and Outsiders

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Dependent Variable:	<i>Sent to Co-villagers</i>							
Marginal Effect on Amount Sent:	0		1		2		3	
Ştirbăt Dummy	0.02 (0.02)	-0.01 (0.03)	0.14 (0.12)	-0.04 (0.16)	0.01 (0.01)	-0.00 (0.01)	-0.17 (0.14)	0.05 (0.20)
Grandparents from Village Dummy		-0.01 (0.01)		-0.03 (0.04)		-0.00 (0.00)		0.04 (0.06)
Grandparents from Village * Ştirbăt		0.02 (0.02)		0.11 (0.10)		0.01 (0.01)		-0.14 (0.12)
Order: Own First	0.01 (0.01)	0.01 (0.01)	0.07 (0.04)	0.04 (0.04)	0.00 (0.01)	0.00 (0.00)	-0.09 (0.05)	-0.04 (0.05)
Know Someone From Other Village	-0.01 (0.01)	-0.01 (0.01)	-0.04 (0.04)	-0.03 (0.05)	-0.00 (0.00)	-0.00 (0.00)	0.05 (0.05)	0.03 (0.06)
N	336	264	336	264	336	264	336	264
Dependent Variable:	<i>Sent to Outsiders</i>							
Marginal Effect on Amount Sent:	0		1		2		3	
Ştirbăt Dummy	0.01 (0.03)	0.04 (0.04)	0.05 (0.11)	0.14 (0.15)	-0.01 (0.03)	-0.04 (0.04)	-0.05 (0.11)	-0.14 (0.15)
Grandparents from Village Dummy		-0.01 (0.01)		-0.04 (0.04)		0.01 (0.01)		0.03 (0.04)
Grandparents from Village * Ştirbăt		0.05 (0.03)		0.21* (0.09)		-0.06 (0.03)		-0.20* (0.09)
Order: Own First	0.04** (0.01)	0.03* (0.01)	0.14** (0.03)	0.11** (0.04)	-0.04** (0.01)	-0.03* (0.01)	-0.14** (0.04)	-0.10* (0.04)
Know Someone From Other Village	-0.00 (0.01)	-0.00 (0.01)	-0.00 (0.04)	-0.01 (0.04)	0.00 (0.01)	0.00 (0.01)	0.00 (0.04)	0.00 (0.04)
N	332	260	332	260	332	260	332	260
QUIZ SCORE	YES	YES	YES	YES	YES	YES	YES	YES
DEMOGRAPHIC	YES	YES	YES	YES	YES	YES	YES	YES

Notes: Marginal effects of ordered probit coefficients reported. Standard errors in parentheses. ** $p < 0.01$; * $p < 0.05$. Quiz Score is number correct out of 6 on incentivized quiz. Interaction between quiz score and Ştirbăt dummy included. Demographic characteristics are a gender dummy, age, age squared, married dummy, high school education dummy, Eastern Orthodox dummy, dummy for whether subjects attend religious services, and dummies for occupation type (not employed, blue collar, agriculture, service, and other). Outsiders are defined as the outside village one played with in the first four rounds.

by a few participants who did not understand the experiment well. When we drop the quiz score and quiz interaction variables, the Ştirbăt dummy is positive and significant (see Appendix Table A.12). We summarize these results as follows:

Result 2: After controlling for covariates, Result 1 holds, and there are no statistically significant differences in the amount sent to co-villagers between the non-Austrian village (Știrbăt) and the Austrian villages.

4.3 Trustworthiness: The Return Decision

We now turn to the return decisions. If participants have beliefs about the trustworthiness of people from different villages, this could affect their decision of how much to send in the first place. For instance, if people from Știrbăt are indeed more trustworthy (i.e., they return more conditional on the amount sent), their fellow villagers could know this and accordingly send more to their co-villagers. Such a choice would be rational “statistical discrimination,” as discussed in Fershtman and Gneezy (2001).

We first address this issue by “typing” the participants. Numerous experiments using the strategy method have found that—regardless of where the experiment is conducted—there are four “types” of participants in experimental games: conditional cooperators, free-riders, altruists, and “other” (Fischbacher, Gächter and Fehr 2001; Kocher et al. 2008; Herrmann and Thöni 2009; Fischbacher, Gächter and Quercia 2012; Sapienza, Toldra-Simats and Zingales 2013). For our purposes, we define conditional cooperators as those who return more the more they are sent,²⁷ free-riders return 0 regardless of the amount sent, altruists return the maximum possible amount, and other is the residual. We report the types for decisions made to co-villagers and outsiders in Table 8.

These results suggest that most (around 60–70%) participants are conditional cooperators: they return more the more they are sent. This is consistent with the literature, even if it is a little high. Almost no subjects are free riders. The one surprising result is that people on the non-Austrian side are more likely to be altruists, *even when playing with outsiders*. While this seems to contradict some of the results reported in Section 4.2, only 2 of the 12 altruists (when playing with outsiders) from Știrbăt had grandparents from the village (see Panel B).²⁸

In short, most players in all of the villages are conditional cooperators. Senders should have been incentivized to send more if they believed that the probability of being matched with a conditional cooperator was sufficiently high. Yet, this is only part of the story. It is also possible that the total amount returned to outsiders in Știrbăt was larger, conditional on the amount sent. This could help explain Result 1 as rational behavior by those whose families are from the villages (and who may have had more information about the

²⁷Formally, we define one as a conditional cooperator as one who is not an altruist and responds Returned if Sent 3 \geq Returned if Sent 2 \geq Returned if Sent 1, with strict inequality between Sent 3 and Sent 1.

²⁸We could not classify 6 of the 12 altruists as from the village or not. 3 answered they did not know if their grandparents were from the village and 3 did not answer the question.

Table 8: Player Types

	Conditional Cooperator	Free Rider	Altruist	Other	Conditional Cooperator	Free Rider	Altruist	Other
<i>A. All Participants</i>								
	<i>Playing with Co-villagers</i>				<i>Playing with Outsiders</i>			
Austrian (N = 300) (Udești and Poieni)	0.69 (0.03)	0.00 (0.00)	0.07 (0.01)	0.24 (0.02)	0.71 (0.03)	0.01 (0.00)	0.05 (0.01)	0.23 (0.02)
Non-Austrian (N = 100) (Știrbăt)	0.63 (0.05)	0.00 (0.00)	0.11 (0.03)	0.26 (0.04)	0.65 (0.05)	0.01 (0.01)	0.12 (0.03)	0.22 (0.04)
p-value (differences)	0.267	—	0.194	0.689	0.258	1.000	0.021*	0.891
<i>B. Grandparents From Village</i>								
	<i>Playing with Co-villagers</i>				<i>Playing with Outsiders</i>			
Austrian (N = 112) (Udești and Poieni)	0.73 (0.04)	0.00 (0.00)	0.10 (0.03)	0.17 (0.04)	0.77 (0.04)	0.00 (0.00)	0.02 (0.01)	0.21 (0.04)
Non-Austrian (N = 27) (Știrbăt)	0.52 (0.10)	0.00 (0.00)	0.19 (0.08)	0.30 (0.09)	0.59 (0.10)	0.00 (0.00)	0.07 (0.05)	0.33 (0.09)
p-value (differences)	0.038*	—	0.198	0.174	0.088	—	0.170	0.212
<i>C. Grandparents Not From Village</i>								
	<i>Playing with Co-villagers</i>				<i>Playing with Outsiders</i>			
Austrian (N = 119) (Udești and Poieni)	0.69 (0.04)	0.00 (0.00)	0.04 (0.02)	0.27 (0.04)	0.69 (0.04)	0.02 (0.01)	0.07 (0.02)	0.23 (0.04)
Non-Austrian (N = 43) (Știrbăt)	0.70 (0.07)	0.00 (0.00)	0.05 (0.03)	0.26 (0.07)	0.70 (0.07)	0.02 (0.02)	0.09 (0.04)	0.19 (0.06)
p-value (differences)	1.000	—	1.000	1.000	1.000	1.000	0.734	0.669

Notes: Standard errors in parentheses. ** $p < 0.01$; * $p < 0.05$. p-values from Fisher exact test.

trustworthiness of those from the other village). That is, if people from the Austrian villages returned less to outsiders, it makes sense for subjects from non-Austrian Știrbăt to send less to them in the first place.

To address this possibility, we analyze the amount returned to co-villagers and outsiders conditional on the sender they were matched with sending 1, 2, or 3 tokens. The results are summarized in Table 9 and Figure 6.²⁹ On the one hand, these results indicate that, on average, it was rational for *all* subjects to send tokens. Regardless of how many were sent (1, 2, or 3), receivers from both groups returned more (on average) than the amount sent.

The average amounts returned to outsiders conditional on the amount sent are summarized in the bottom panel of Table 9. The results indicate that participants from Știrbăt return more on average to outsiders than those from the Austrian villages conditional on being sent 2 tokens (3.24 vs. 3.52; $p = 0.130$) and conditional on being sent 3 tokens (4.71 vs. 5.26; $p = 0.047$). However, these results are *not* driven by

²⁹Appendix Table A.13 provides the same information as Table 9, with the data broken down by whether one's great-grandparents are from the village. Results are similar to those reported in Table 9.

Table 9: Average Amount Returned to Co-villagers and Outsiders

	If Sent 1			If Sent 2			If Sent 3		
	All	Yes	No	All	Yes	No	All	Yes	No
	<i>Returned to Co-villagers</i>								
Austrian (Udești and Poieni)	2.00 (0.04)	1.87 (0.08)	2.08 (0.07)	3.36 (0.08)	3.30 (0.13)	3.43 (0.13)	4.82 (0.13)	4.90 (0.21)	4.91 (0.21)
N	297	110	119	295	109	119	292	108	118
Non-Austrian (Știrbăt)	2.00 (0.08)	1.96 (0.16)	2.05 (0.10)	3.65 (0.16)	3.48 (0.36)	3.60 (0.25)	5.26 (0.24)	4.85 (0.49)	5.28 (0.32)
N	99	27	43	98	27	42	99	27	43
p-value (differences)	0.964	0.661	0.710	0.052	0.627	0.436	0.128	0.813	0.342
	<i>Returned to Outsiders</i>								
Austrian (Udești and Poieni)	1.78 (0.04)	1.80 (0.07)	1.76 (0.07)	3.24 (0.08)	3.17 (0.14)	3.30 (0.14)	4.71 (0.13)	4.67 (0.20)	4.81 (0.21)
N	298	111	118	297	110	118	294	108	118
Non-Austrian (Știrbăt)	1.92 (0.09)	1.69 (0.15)	1.90 (0.13)	3.52 (0.16)	2.92 (0.30)	3.62 (0.25)	5.26 (0.26)	4.19 (0.50)	5.22 (0.37)
N	96	26	41	97	26	42	97	27	41
p-value (differences)	0.117	0.445	0.295	0.130	0.349	0.261	0.047*	0.350	0.357

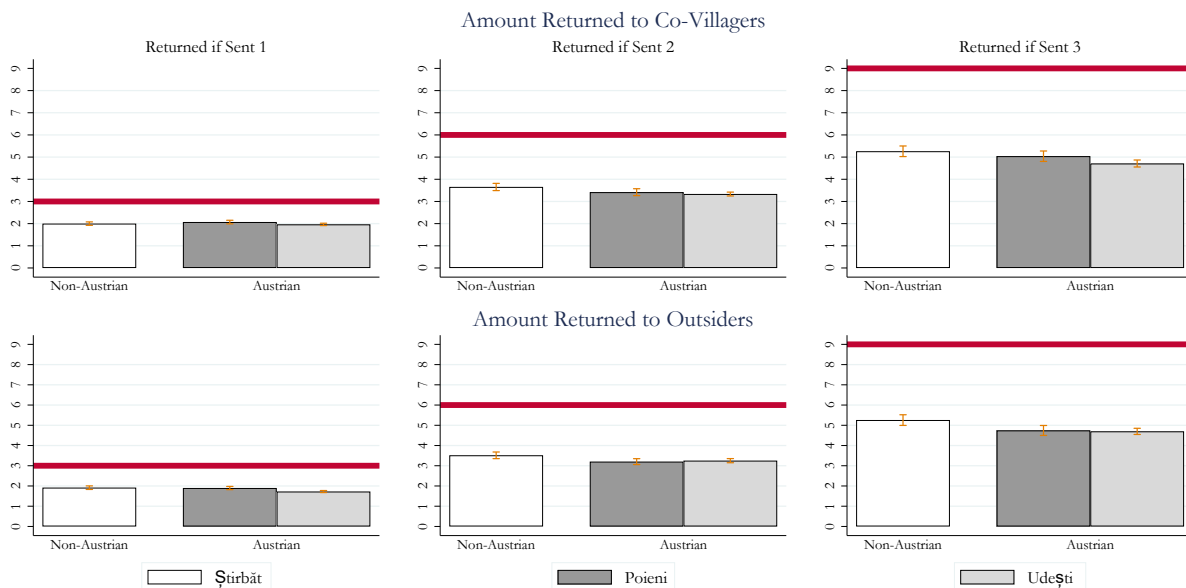
Notes: Standard errors in parentheses. ** $p < 0.01$; * $p < 0.05$. p-values from Wilcoxon rank-sum (Mann-Whitney) test.

participants whose grandparents are from the village. There is no statistically significant difference in the amount returned between the two villages among participants whose grandparents are from the village; if anything, those from Știrbăt return less. As suggested by Table 8, this is because among those whose grandparents are from the village, participants from Știrbăt are less likely to be conditional cooperators, both when playing with outsiders (0.77 vs. 0.59; $p = 0.088$) and co-villagers (0.73 vs. 0.52; $p = 0.038$).

Moreover, within Știrbăt, participants whose grandparents are from the village return less to outsiders than those whose grandparents are not from the village conditional on being sent 2 tokens (2.92 vs. 3.62; $p = 0.052$) or 3 tokens (4.19 vs. 5.22; $p = 0.111$). Within the Austrian villages, participants whose grandparents are from the village return a statistically indistinguishable amount from those whose grandparents are not from the village conditional on being sent 2 tokens (3.17 vs. 3.30; $p = 0.320$) or 3 tokens (4.67 vs. 4.81; $p = 0.622$).³⁰

³⁰The results also indicate a tendency for participants from Știrbăt whose grandparents are from Știrbăt to return more to co-villagers than outsiders relative to participants from the Austrian villages. Although we do not have enough observations to gain statistical power, the “co-villagers premium” of people whose grandparents are from the village, conditional on the sender sending 3 tokens, is 0.66 in Știrbăt (4.85 – 4.19) and 0.23 in the Austrian villages (4.90 – 4.67). The fraction of participants who returned more to co-villagers (of those whose grandparents are from the village), conditional on the sender sending three tokens, is 0.48 for Știrbăt and 0.32 for the Austrian villages ($p = 0.12$).

Figure 6: Average Amount Returned to Co-villagers and Outsiders



Hence, although we cannot rule out statistical discrimination as the primary force behind Result 1, this seems unlikely. Send decisions to outsiders are indeed broadly consistent with statistical discrimination, even if most of the differences across villages are statistically insignificant (see Result 2). However, the differences in the amount returned to outsiders highlighted in Table 9 are primarily driven by those who *did not have family from the village*. We see little reason why this would be the case if statistical discrimination were in fact the driving force behind our results. In short, while it is possible that at least part of Result 1 is explained by statistical discrimination, the most likely explanation for Result 1 remains that outgroup trust—rational or not—is weaker on the non-Austrian side of the border.

5 Conclusion

This paper takes advantage of a natural experiment to shed light on whether norms derived from historical circumstances persist in the long run. We run a “lab in the field” trust game experiment in three villages in northeastern Romania which were on opposite sides of the old Austrian border for over a century for arbitrary, idiosyncratic reasons. The arbitrariness of the border placement in combination with differences in Austrian and Ottoman/Russian institutions and centuries-old migration patterns makes this an ideal environment to test whether cultural norms that arose due to historical reasons persist in the long run. These histories suggest multiple reasons why trust (particularly of outsiders) may have diverged across the

border beginning in the late-18th century. Our design permits us to test whether such trust norms have persisted to the present day. Moreover, our design permits insight into whether trust norms are passed on inter-generationally (i.e., vertically), as we can slice the sample into those whose grandparents are and are not from the village in question. The grandparents of those in the former group would have lived, or lived with people who lived, while the border differences existed, and thus possibly would have been imbued with these cultural attributes at an early age.

Our most striking result is that when participants played the game with outsiders, there was no difference between the Austrian and non-Austrian villages in the amount sent. However, focusing on the overall average masks significant heterogeneity within the village: while there were no differences in the amount sent by people whose grandparents were not from their home village, people whose grandparents grew up in the village on the Austrian side sent significantly more to outsiders than people whose grandparents grew up in the non-Austrian side. Meanwhile, the difference in amount sent to co-villagers and outsiders is much greater on the non-Austrian side.

While these results permit alternative hypotheses—perhaps people whose grandparents are from this one village in northeastern Romania are just less trusting of outsiders for some idiosyncratic reason besides cultural transmission—our methodology and the complementary literature suggest that these results are reflective of the cultural transmission of norms established over a century ago. First, we chose to run the experiments in three small villages in which we had *ex ante* hypotheses for how participants in the village would act. These predictions were largely confirmed by the experiments. Second, the experiment was run double-blind, so the experimenters could not subconsciously affect the outcomes in favor of the proposed predictions. Third, the results support the prediction that the differences would largely arise from participants whose grandparents were from the villages (admittedly, we were surprised by how strong these findings were).

These results have implications for the role that culture can play in affecting economic outcomes and vice versa. By identifying a cultural attribute that arguably has economic and institutional antecedents, we avoid conflating the direction of causality. We also show that once a trait becomes imbued in a society's (or, in our case, village's) culture, it can remain in spite of economic and political changes which entail that the cultural trait is not necessarily a best response. The persistence of trust norms can have immense consequences for societies, as trust is correlated with conflict (Nunn and Wantchekon 2011), nationalism (Robinson 2016), political institutions (Putnam, Leonardi and Nanetti 1994; Lowes et al. 2017), economic development (Algan and Cahuc 2010; Tabellini 2010; Grosfeld, Rodnyansky and Zhuravskaya 2013), and a host of other important economic and political variables. Although we do not wish to push results from an experiment in one Romanian commune too far, this insight has broad implications for the role that

culture plays in the evolution—or lack thereof—of economic and political institutions. If culture is indeed as “sticky” as our results suggest, it is difficult, if not impossible, to understand the role of institutions on decision-making unless one also understands how a society’s culture (and, possibly, its historical antecedents) interacts with institutions to incentivize behavior. More practically, our results imply that policy-making processes for developing and implementing sustainable development are unlikely to succeed if local cultural features, especially those related to social capital, are not taken into account.

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A Appendix: Extra Tables and Robustness Checks

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Table A.1: Summary Statistics, General Trust in Others and Public Goods

Side of Border	Can People be Trusted	Can People be Trusted (prior to 1989)	Unofficial Payment to Police	Unofficial Payment for Official Documents	Unofficial Payment for Education	Unofficial Payment for Medical
Austrian (Udești and Poieni)	0.65 (0.03) N = 267	0.81 (0.03) N = 244	0.13 (0.02) N = 269	0.18 (0.02) N = 272	0.24 (0.03) N = 270	0.41 (0.03) N = 274
Non-Austrian (Știrbăt)	0.66 (0.05) N = 89	0.81 (0.05) N = 70	0.13 (0.03) N = 95	0.16 (0.04) N = 92	0.19 (0.04) N = 89	0.38 (0.05) N = 94
p-value (differences)	0.898	1.000	1.000	0.874	0.384	0.629

Notes: Standard errors in parentheses. ** $p < 0.01$; * $p < 0.05$. p-values from Fisher exact test. All variables take value of 1 if subject answered 3, 4, or 5 on 5 point scale.

Table A.2: Summary Statistics, Personal Finance

Side of Border	Have a Bank Account	Borrowed from a Co-Villager	Lent to a Co-Villager	Borrowed from an Outsider	Lent to an Outsider
Austrian (Udești and Poieni)	0.25 (0.03) N = 291	0.56 (0.03) N = 289	0.67 (0.03) N = 295	0.31 (0.03) N = 293	0.38 (0.03) N = 290
Non-Austrian (Știrbăt)	0.28 (0.05) N = 92	0.71 (0.05) N = 97	0.77 (0.04) N = 98	0.38 (0.05) N = 99	0.46 (0.05) N = 97
p-value (differences)	0.585	0.009**	0.078	0.218	0.188

Notes: Standard errors in parentheses. ** $p < 0.01$; * $p < 0.05$. p-values from Fisher exact test.

Table A.3: Summary Statistics, Experiment Results

Side of Border	Question 1	Question 2	Question 3	Question 4	Question 5	Question 6
Austrian (Udești and Poieni)	0.95 (0.01) N = 296	0.82 (0.02) N = 291	0.62 (0.03) N = 285	0.77 (0.02) N = 284	0.64 (0.03) N = 277	0.68 (0.03) N = 270
Non-Austrian (Știrbăt)	0.99 (0.01) N = 97	0.95 (0.02) N = 95	0.55 (0.05) N = 95	0.82 (0.04) N = 93	0.28 (0.05) N = 92	0.44 (0.05) N = 86
p-value (differences)	0.130	0.002**	0.230	0.388	0.000**	0.000**
	Udești	Poieni	Știrbăt			
Total Earnings (USD)	13.49 (0.21) N = 200	18.21 (0.35) N = 100	18.34 (0.35) N = 100			

Notes: Standard errors in parentheses. ** $p < 0.01$; * $p < 0.05$. p-values from Fisher exact test. Earnings are lower in Udești (in part) because participants played two fewer rounds. p-value of difference in means between earnings in Poieni and Știrbăt is 0.633. Earnings were paid in Romanian leu. The exchange rate at the time of the experiment was 4 leu: 1 USD.

Table A.4: Summary Statistics, Trust Others

Side of Border	Trust Co-villagers (1-5)	Trust Udești (1-5)	Trust Poieni (1-5)	Trust Știrbăt (1-5)
Austrian (Udești and Poieni)	3.73 (0.06) N = 280	3.74 (0.05) N = 281	3.71 (0.06) N = 284	3.48 (0.06) N = 281
Non-Austrian (Știrbăt)	3.74 (0.11) N = 94	3.54 (0.10) N = 93	3.53 (0.11) N = 94	3.74 (0.11) N = 94
p-value (differences)	0.595	0.068	0.121	0.002**

Notes: Standard errors in parentheses. ** $p < 0.01$; * $p < 0.05$. p-values from Wilcoxon rank-sum (Mann-Whitney) test, in which null hypothesis is that the populations have the same distribution.

Table A.5: Average Amount Sent to Co-villagers and Outsiders, Participants whose Great-Grandparents are and are not from the Village

	Sent to Co-villagers		Sent to Outsiders	
	Great-Grandparents from Village?		Great-Grandparents from Village?	
	Yes	No	Yes	No
Austrian (Udești and Poieni)	2.09 (0.09) N = 87	1.94 (0.07) N = 142	1.96 (0.08) N = 83	1.83 (0.06) N = 143
Non-Austrian (Știrbăt)	1.95 (0.18) N = 22	2.31 (0.11) N = 48	1.50 (0.16) N = 22	1.92 (0.12) N = 48
p-value (differences)	0.443	0.008**	0.008**	0.497

Notes: Standard errors in parentheses. ** $p < 0.01$; * $p < 0.05$. p-values from Wilcoxon rank-sum (Mann-Whitney) test, in which null hypothesis is that the populations have the same distribution. Outsiders are defined as the other village the participant played with in first four rounds

Table A.6: Proportion of Participants that Know Someone from Another Town

	Udești		Poieni		Știrbăt	
	<i>Grandparents from Town</i> Yes	<i>Grandparents from Town</i> No	<i>Grandparents from Town</i> Yes	<i>Grandparents from Town</i> No	<i>Grandparents from Town</i> Yes	<i>Grandparents from Town</i> No
Know Someone from Udești	—	—	0.838 N = 37	0.792 N = 48	0.889 N = 27	0.837 N = 43
			p-value, diff: 0.592		p-value, diff: 0.550	
Know Someone from Poieni	0.736 N = 72	0.721 N = 68	—	—	0.741 N = 27	0.791 N = 43
	p-value, diff: 0.837				p-value, diff: 0.631	
Know Someone from Știrbăt	0.662 N = 74	0.652 N = 69	0.892 N = 37	0.854 N = 48	—	—
	p-value, diff: 0.900		p-value, diff: 0.610			

Notes: ** $p < 0.01$; * $p < 0.05$. p-values from Wilcoxon rank-sum (Mann-Whitney) test, in which null hypothesis is that the populations have the same distribution.

Table A.7: Average Amount Sent to Co-villagers and Outsiders, Austrian data unpooled

	Sent to Co-villagers			Sent to Outsiders			Sent More to Co-villagers (0/1)		
	Grandparents from Village?			Grandparents from Village?			Grandparents from Village?		
	All	Yes	No	All	Yes	No	All	Yes	No
Udești (Austrian)	1.97 (0.05)	2.00 (0.09)	1.94 (0.10)	1.91 (0.05)	2.03 (0.09)	1.86 (0.09)	0.31 (0.03)	0.30 (0.05)	0.30 (0.06)
N	198	74	70	195	72	70	193	71	69
Poieni (Austrian)	2.04 (0.09)	2.19 (0.15)	1.94 (0.12)	1.76 (0.08)	1.75 (0.13)	1.79 (0.10)	0.34 (0.05)	0.44 (0.08)	0.29 (0.07)
N	100	37	48	99	36	48	99	36	48
Știrbăt (non-Austrian)	2.16 (0.08)	2.04 (0.16)	2.30 (0.11)	1.85 (0.08)	1.48 (0.14)	1.98 (0.13)	0.43 (0.05)	0.59 (0.10)	0.44 (0.08)
N	100	27	43	100	27	43	100	27	43
	<i>p-values (differences)</i>								
Udești vs. Știrbăt	0.046*	0.851	0.023*	0.509	0.002**	0.440	0.039*	0.010**	0.159
Poieni vs. Știrbăt	0.392	0.400	0.036*	0.611	0.141	0.302	0.245	0.311	0.190
Udești vs. Poieni	0.380	0.145	0.947	0.199	0.089	0.785	0.511	0.138	1.000

Notes: Standard errors in parentheses. ** $p < 0.01$; * $p < 0.05$. p-values from Wilcoxon rank-sum (Mann-Whitney) test for “Sent to Co-Villagers” and “Sent to Outsiders,” from Fisher exact test for “Sent More to Co-villagers.” Sent More to Home Village = 1 if participant sent more to co-villagers than to outsiders. Outsiders are defined as the other village the participant played with in first four rounds.

Table A.8: Survey Responses: Why Participants Responded Differently to Co-Villagers and Outsiders

	Udești	Poieni	Știrbăt
Positive view of co-villagers	10	16	18
Negative view of co-villagers	2	0	0
Positive view of outsiders	8	3	6
Negative view of outsiders	5	6	8
Do not trust those they do not know or trusts those they know	19	9	23
Relatives or friends that are outsiders	5	9	6
Other	4	12	9
Total Participants Answering Question #25	50	54	69

Notes: Numbers are numbers of participants who answered question #25 from the survey in a manner consistent with the given classification. Note that some participants gave answers that fit into more than one category. We double-counted those answers, meaning that the “Total” row is not the sum of the column.

Table A.9: Ordered Probit Regressions: Average Amount Sent to Co-villagers and Outsiders, with potentially endogenous regressors

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Dependent Variable:	<i>Sent to Co-villagers</i>							
Marginal Effect on Amount Sent:	0		1		2		3	
Ştirbăt Dummy	0.02 (0.02)	-0.01 (0.04)	0.12 (0.14)	-0.03 (0.18)	-0.00 (0.01)	-0.00 (0.00)	-0.14 (0.16)	0.04 (0.22)
Grandparents from Village Dummy		-0.00 (0.01)		-0.01 (0.05)		-0.00 (0.00)		0.01 (0.06)
Grandparents from Village * Ştirbăt		0.02 (0.02)		0.11 (0.11)		0.00 (0.01)		-0.14 (0.13)
Order: Own First	0.01 (0.01)	0.01 (0.01)	0.05 (0.04)	0.03 (0.05)	-0.00 (0.00)	0.00 (0.00)	-0.06 (0.05)	-0.04 (0.06)
Know Someone From Other Village	-0.01 (0.01)	-0.01 (0.01)	-0.06 (0.05)	-0.04 (0.05)	0.00 (0.00)	-0.00 (0.00)	0.06 (0.06)	0.04 (0.06)
N	293	237	293	237	293	237	293	237
Dependent Variable:	<i>Sent to Outsiders</i>							
Marginal Effect on Amount Sent:	0		1		2		3	
Ştirbăt Dummy	0.04 (0.04)	0.04 (0.04)	0.14 (0.13)	0.17 (0.17)	-0.04 (0.04)	-0.04 (0.05)	-0.14 (0.13)	-0.17 (0.17)
Grandparents from Village Dummy		-0.00 (0.01)		-0.00 (0.05)		0.00 (0.01)		0.00 (0.05)
Grandparents from Village * Ştirbăt		0.04 (0.03)		0.16 (0.10)		-0.04 (0.03)		-0.16 (0.11)
Order: Own First	0.04* (0.01)	0.02 (0.01)	0.13** (0.04)	0.10* (0.04)	-0.04* (0.02)	-0.02 (0.01)	-0.13** (0.04)	-0.10* (0.05)
Know Someone From Other Village	-0.00 (0.01)	-0.01 (0.01)	-0.01 (0.05)	-0.02 (0.05)	0.00 (0.01)	0.01 (0.01)	0.01 (0.04)	0.02 (0.05)
N	289	233	289	233	289	233	289	233
QUIZ SCORE	YES	YES	YES	YES	YES	YES	YES	YES
DEMOGRAPHIC	YES	YES	YES	YES	YES	YES	YES	YES
FINANCE	YES	YES	YES	YES	YES	YES	YES	YES
PAY FOR SERVICE	YES	YES	YES	YES	YES	YES	YES	YES

Notes: Standard errors in parentheses. ** $p < 0.01$; * $p < 0.05$. Quiz Score is number correct out of 6 on incentivized quiz. Interaction between quiz score and Ştirbăt dummy included. Demographic characteristics are a gender dummy, age, age squared, married dummy, high school education dummy, Eastern Orthodox dummy, dummy for whether subjects attend religious services, and dummies for occupation type (not employed, blue collar, agriculture, service, and other). Finance includes dummies for whether one has borrowed and lent to co-villagers and outsiders. Pay for Service is an answer (1-5) regarding how often one has to pay bribes to police, for official documents, to receive public education, and to receive medical treatment.

Table A.10: Marginal Effects of Ordered Probit Regressions: Average Amount Sent to Co-villagers and Outsiders, participants who answered “I don’t know” if family is from village counted as grandparents not from village

	(1)	(2)	(3)	(4)
Dependent Variable:	<i>Sent to Co-villagers</i>			
Marginal Effect on Amount Sent:	0	1	2	3
Știrbăt Dummy	0.01 (0.03)	0.03 (0.16)	0.00 (0.01)	-0.04 (0.19)
Grandparents from Village Dummy	-0.01 (0.01)	-0.03 (0.04)	-0.00 (0.00)	0.04 (0.05)
Grandparents from Village * Știrbăt	0.01 (0.02)	0.07 (0.10)	0.00 (0.01)	-0.08 (0.12)
Order: Own First	0.01 (0.01)	0.05 (0.04)	0.00 (0.00)	-0.06 (0.05)
Know Someone From Other Village	-0.01 (0.01)	-0.03 (0.05)	-0.00 (0.00)	0.04 (0.06)
N	296	296	296	296
Dependent Variable:	<i>Sent to Outsiders</i>			
Marginal Effect on Amount Sent:	0	1	2	3
Știrbăt Dummy	0.03 (0.04)	0.11 (0.14)	-0.04 (0.05)	-0.10 (0.13)
Grandparents from Village Dummy	-0.01 (0.01)	-0.05 (0.04)	0.02 (0.01)	0.04 (0.04)
Grandparents from Village * Știrbăt	0.06* (0.03)	0.20* (0.09)	-0.07* (0.03)	-0.19* (0.08)
Order: Own First	0.04* (0.01)	0.12** (0.04)	-0.04** (0.02)	0.12** (0.04)
Know Someone From Other Village	0.00 (0.01)	0.01 (0.04)	-0.00 (0.01)	-0.01 (0.04)
N	292	292	292	292
QUIZ SCORE	YES	YES	YES	YES
DEMOGRAPHIC	YES	YES	YES	YES

Notes: Marginal effects of ordered probit coefficients reported. Standard errors in parentheses. ** $p < 0.01$; * $p < 0.05$. Quiz Score is number correct out of 6 on incentivized quiz. Interaction between quiz score and Știrbăt dummy included. Demographic characteristics are a gender dummy, age, age squared, married dummy, high school education dummy, Eastern Orthodox dummy, dummy for whether subjects attend religious services, and dummies for occupation type (not employed, blue collar, agriculture, service, and other). Outsiders are defined as the outside village one played with in the first four rounds.

Table A.11: Marginal Effects of Ordered Probit Regressions: Average Amount Sent to Co-villagers and Outsiders, participants who answered “I don’t know” if family is from village treated as separate category

	(1)	(2)	(3)	(4)
Dependent Variable:	<i>Sent to Co-villagers</i>			
Marginal Effect on Amount Sent:	0	1	2	3
Ştirbăt Dummy	-0.00 (0.03)	-0.01 (0.16)	-0.00 (0.01)	0.01 (0.19)
Grandparents from Village Dummy	-0.01 (0.01)	-0.03 (0.05)	-0.00 (0.00)	0.04 (0.05)
Grandparents from Village * Ştirbăt	0.02 (0.02)	0.09 (0.10)	0.00 (0.01)	-0.11 (0.12)
Don’t Know where Grandparents from	0.00 (0.01)	0.00 (0.07)	0.00 (0.00)	-0.00 (0.09)
Don’t know * Ştirbăt	0.03 (0.03)	0.17 (0.15)	0.01 (0.01)	-0.20 (0.18)
Order: Own First	0.01 (0.01)	0.06 (0.04)	0.00 (0.00)	-0.07 (0.05)
Know Someone From Other Village	-0.01 (0.01)	-0.03 (0.05)	-0.00 (0.00)	0.04 (0.06)
N	296	296	296	296
Dependent Variable:	<i>Sent to Outsiders</i>			
Marginal Effect on Amount Sent:	0	1	2	3
Ştirbăt Dummy	0.04 (0.04)	0.12 (0.14)	-0.04 (0.05)	-0.11 (0.14)
Grandparents from Village Dummy	-0.01 (0.01)	-0.03 (0.04)	0.01 (0.01)	0.03 (0.04)
Grandparents from Village * Ştirbăt	0.06 (0.03)	0.19* (0.09)	-0.07 (0.03)	-0.18* (0.09)
Don’t Know where Grandparents from	0.03 (0.02)	0.09 (0.07)	-0.03 (0.02)	-0.09 (0.06)
Don’t know * Ştirbăt	-0.01 (0.04)	-0.03 (0.14)	0.01 (0.05)	0.03 (0.13)
Order: Own First	0.04* (0.01)	0.12** (0.04)	-0.04* (0.02)	0.12** (0.04)
Know Someone From Other Village	0.00 (0.01)	0.00 (0.04)	-0.00 (0.01)	-0.00 (0.04)
N	292	292	292	292
QUIZ SCORE	YES	YES	YES	YES
DEMOGRAPHIC	YES	YES	YES	YES

Notes: Marginal effects of ordered probit coefficients reported. Standard errors in parentheses. ** $p < 0.01$; * $p < 0.05$. Quiz Score is number correct out of 6 on incentivized quiz. Interaction between quiz score and Ştirbăt dummy included. Demographic characteristics are a gender dummy, age, age squared, married dummy, high school education dummy, Eastern Orthodox dummy, dummy for whether subjects attend religious services, and dummies for occupation type (not employed, blue collar, agriculture, service, and other). Outsiders are defined as the outside village one played with in the first four rounds.

Table A.12: Marginal Effects of Ordered Probit Regressions: Average Amount Sent to Co-villagers and Outsiders, without controls for Quiz Score

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Dependent Variable:	<i>Sent to Co-villagers</i>							
Marginal Effect on Amount Sent:	0		1		2		3	
Ştirbăt Dummy	-0.01 (0.01)	-0.02 (0.01)	-0.07 (0.04)	-0.12* (0.06)	-0.00 (0.01)	-0.01 (0.01)	0.08 (0.05)	0.16* (0.07)
Grandparents from Village Dummy		-0.01 (0.01)		-0.03 (0.04)		-0.00 (0.00)		0.03 (0.06)
Grandparents from Village * Ştirbăt		0.02 (0.02)		0.11 (0.09)		0.01 (0.01)		-0.14 (0.12)
Order: Own First	0.01 (0.01)	0.01 (0.01)	0.07 (0.04)	0.05 (0.04)	0.00 (0.01)	0.00 (0.00)	-0.08 (0.04)	-0.06 (0.05)
Know Someone From Other Village	-0.01 (0.01)	-0.01 (0.01)	-0.04 (0.04)	-0.03 (0.05)	-0.00 (0.00)	-0.00 (0.00)	0.05 (0.05)	0.03 (0.06)
N	336	264	336	264	336	264	336	264
Dependent Variable:	<i>Sent to Outsiders</i>							
Marginal Effect on Amount Sent:	0		1		2		3	
Ştirbăt Dummy	-0.01 (0.01)	-0.02 (0.02)	-0.02 (0.04)	-0.09 (0.06)	0.01 (0.01)	0.03 (0.02)	0.02 (0.04)	0.09 (0.06)
Grandparents from Village Dummy		-0.01 (0.01)		-0.03 (0.04)		0.01 (0.01)		0.03 (0.04)
Grandparents from Village * Ştirbăt		0.06* (0.03)		0.24** (0.09)		-0.07* (0.03)		-0.24** (0.09)
Order: Own First	0.03** (0.01)	0.03* (0.01)	0.13** (0.03)	0.11** (0.04)	-0.04** (0.01)	-0.03* (0.01)	-0.13** (0.03)	-0.11** (0.04)
Know Someone From Other Village	-0.00 (0.01)	-0.00 (0.01)	-0.00 (0.04)	-0.01 (0.04)	0.00 (0.01)	0.00 (0.01)	0.00 (0.04)	0.01 (0.04)
N	332	260	332	260	332	260	332	260
QUIZ SCORE	NO	NO	NO	NO	NO	NO	NO	NO
DEMOGRAPHIC	YES	YES	YES	YES	YES	YES	YES	YES

Notes: Marginal effects of ordered probit coefficients reported. Standard errors in parentheses. ** $p < 0.01$; * $p < 0.05$. Demographic characteristics are a gender dummy, age, age squared, married dummy, high school education dummy, Eastern Orthodox dummy, dummy for whether subjects attend religious services, and dummies for occupation type (not employed, blue collar, agriculture, service, and other). Outsiders are defined as the outside village one played with in the first four rounds.

Table A.13: Average Amount Returned to Co-villagers and Outsiders, Participants whose Great-Grandparents are and are not from the Village

	If Sent 1		If Sent 2		If Sent 3	
	Great-Grandparents from Village?					
	Yes	No	Yes	No	Yes	No
<i>Returned to Co-villagers</i>						
Austrian	1.87	2.05	3.29	3.41	4.92	4.89
(Udești and Poieni)	(0.09)	(0.06)	(0.16)	(0.11)	(0.26)	(0.19)
N	86	143	85	143	85	141
Non-Austrian	2.00	2.02	3.55	3.55	5.18	5.08
(Știrbăt)	(0.17)	(0.10)	(0.41)	(0.23)	(0.56)	(0.31)
N	22	48	22	47	22	48
p-value (differences)	0.547	0.742	0.518	0.471	0.726	0.604
<i>Returned to Outsiders</i>						
Austrian	1.78	1.78	3.13	3.30	4.61	4.82
(Udești and Poieni)	(0.08)	(0.06)	(0.15)	(0.12)	(0.23)	(0.19)
N	87	142	86	142	85	141
Non-Austrian	1.67	1.89	3.00	3.51	4.18	5.11
(Știrbăt)	(0.17)	(0.12)	(0.32)	(0.25)	(0.53)	(0.36)
N	21	46	21	47	22	46
p-value (differences)	0.466	0.376	0.512	0.378	0.421	0.440

Notes: Standard errors in parentheses. ** $p < 0.01$; * $p < 0.05$. p-values from Wilcoxon rank-sum (Mann-Whitney) test.

B Appendix: Sample Instructions (in English)³¹

FOR ONLINE PUBLICATION

B.1 Instructions: Send Decision

This is an experiment in the economics of decision-making conducted by Cult Research on behalf of researchers in the USA. The instructions are simple.

You will receive 10 lei simply for participating in the experiment. If you follow the instructions carefully, you have the potential to earn a significant amount more. A Cult Research employee will collect your decisions from the experiment, and a different Cult Research employee will calculate how much you earned during the experiment. In one week, the Cult Research employee will return and pay you the amount you earned during the experiment. Please note that if you talk to others during the experiment or exclaim out loud, you will be asked to leave and you will not be paid.

There are 200 participants taking place in the experiment from Udești. You will not be told the names of the other participants and they will not be told your name. All participants have identical instructions.

The Decision Situation

You will begin the experiment with 3 tokens. Each token is equivalent to **3 lei**, meaning that you start the experiment with 9 total lei.

You will be partnered with another participant from Udești. You will not know who you are partnered with when you make your decisions, and you will not find out who you were partnered with after the experiment is over. We will call this person your “partner” for the remainder of these instructions.

Your Decision

The Cult Research employee will give you a handout after the instructions are read. At the top of the handout are numbers from 0 to 3.

You will circle one—and *only* one—of these numbers. The number you circle is the amount of your 3 tokens you will send to the participant from Udești with whom you are matched. You can choose any number you like, but you can only choose one number. You will keep any tokens you do not send to your partner.

Transferring Tokens to Your Partner

³¹These instructions were the ones given to the participants in Udești when they played with other participants in Udești (in the order in which one played against their own village first). Instructions for the other villages were exactly the same, with only the names of the villages changed. Instructions for later rounds were similar but abbreviated.

Your partner will receive **3 times** the number of tokens you circled on your handout.

For example, if you choose 2 tokens, your partner will receive 6 tokens. If you choose 0 tokens, your partner will receive 0 tokens. If you choose 3 tokens, your partner will receive 9 tokens.

The following table indicates how many tokens your partner receives for each possible amount you might circle.

Amount you circle	Your partner receives
0	0
1	3
2	6
3	9

Your Partner's Decision

Your partner will have the opportunity to return all, some, or none of the tokens you send them. They can choose to return to you anywhere between 0 tokens and the number of tokens they receive.

For example, if you choose to send your partner 2 tokens, your partner will receive 6 tokens. This means that they can choose to return to you 0, 1, 2, 3, 4, 5, or 6 tokens.

For another example, if you choose to send your partner 1 token, your partner will receive 3 tokens. This means that they can choose to return to you 0, 1, 2, or 3 tokens.

Your partner will not know how many tokens you sent them when they make their decision. Instead, they will fill out the following table. This table indicates how many tokens they will return to you for each possible number of tokens they received. Your partner will circle one number in each of the lower 3 boxes. We have circled the 0 in the first box, because if you send zero, your partner has no choice but to return 0 to you.

End of the Experiment

After the experiment is over, we will look at how many tokens you sent to your partner. We will take that amount and see what your partner says he/she would return to you should you send the amount you indicated.

For example, say you choose to send 2 tokens to your partner. This is multiplied by 3, so your partner has 6 tokens. We then look to see how many tokens your partner chooses to return to you when you chose to send him/her 2 tokens.

If your partner sends	You receive	Circle a number to return to your partner
0	0	<input checked="" type="radio"/> 0
1	3	<input type="radio"/> 0 <input type="radio"/> 1 <input type="radio"/> 2 <input type="radio"/> 3
2	6	<input type="radio"/> 0 <input type="radio"/> 1 <input type="radio"/> 2 <input type="radio"/> 3 <input type="radio"/> 4 <input type="radio"/> 5 <input type="radio"/> 6
3	9	<input type="radio"/> 0 <input type="radio"/> 1 <input type="radio"/> 2 <input type="radio"/> 3 <input type="radio"/> 4 <input type="radio"/> 5 <input type="radio"/> 6 <input type="radio"/> 7 <input type="radio"/> 8 <input type="radio"/> 9

You and Your Partner's Income

You will **keep** each token you do not send to your partner. You will also keep all tokens that your partner returns to you. At the end of the experiment, each token will be converted to 3 lei and paid to you in cash in one week.

Your Total Income = Tokens you do not send to your partner (= 3 tokens – amount you send) + Amount returned to you by your partner

Your Partner's Total Income = 3*Tokens you send – amount your partner returns to you

Examples

EXAMPLE 1: Suppose that you decide to send **1 token** to your partner. This 1 token is multiplied by 3, meaning that your partner receives 3 tokens. Suppose that in the box next to 1, your partner circles 2, meaning that she will return 2 tokens to you and keep 1 token. Your total earnings are therefore $(3 - 1) + 2 = 4$ tokens. Your partner's earnings are $3 - 2 = 1$ token.

EXAMPLE 2: Suppose that you decide to send **3 tokens** to your partner. These 3 tokens are multiplied by 3, meaning that your partner receives 9 tokens. Suppose that in the box next to 3, your partner chooses 2, meaning that she will return 2 tokens to you and keep 7 tokens. Your total earnings are therefore $(3 - 3) + 2 = 2$ tokens. Your partner's earnings are $9 - 2 = 7$ tokens.

The Cult Research employee will now hand out a short quiz to test your understanding of the experiment.

Playing the Game

You have been randomly matched with a participant from Udești. You will play this game only once. Please circle one (and only one) number on the handout that the Cult Research employee will hand to you shortly. At the end of the experiment, we will convert each of your tokens into 3 lei.

B.2 Instructions: Return Decision

You will now participate in the same experiment you just participated in, except now your role will be reversed. Like before, there are 200 participants taking place in the experiment from Udești. You will not be told the names of the other participants and they will not be told your name. All participants have identical instructions. You will not be matched with the same person you were matched with in the previous experiment. We will briefly refresh you on the decision situation below.

The Decision Situation

You will begin the experiment with 0 tokens. Each token is equivalent to 3 lei, meaning that you start the experiment with 0 total lei. You will be matched with another participant from Udești.

Tokens sent to you by your partner are multiplied by **three**. You will then be given the opportunity to return **none**, **some**, or **all** of the tokens your partner sent to you. You will keep any tokens you do not return to your partner.

Your Decision

Your partner will circle the amount he/she will send to you. They can circle any number between 0 and 3.

You will receive **3 times** the number of tokens your partner circled on his/her handout. You will not know how many tokens your partner from Udești sent to you when you make your decision. Instead, you will fill out the following table. This table indicates how many tokens you will return to your partner for each possible number of tokens they sent you. You will circle one number in each of the last 3 boxes. Please note that we have already circled “0” next to the top box because that is your only option. You do not need to circle anything in this box.

If your partner sends	You receive	Circle a number to return to your partner
0	0	<input checked="" type="text" value="0"/>
1	3	<input type="text" value="0"/> <input type="text" value="1"/> <input type="text" value="2"/> <input type="text" value="3"/>
2	6	<input type="text" value="0"/> <input type="text" value="1"/> <input type="text" value="2"/> <input type="text" value="3"/> <input type="text" value="4"/> <input type="text" value="5"/> <input type="text" value="6"/>
3	9	<input type="text" value="0"/> <input type="text" value="1"/> <input type="text" value="2"/> <input type="text" value="3"/> <input type="text" value="4"/> <input type="text" value="5"/> <input type="text" value="6"/> <input type="text" value="7"/> <input type="text" value="8"/> <input type="text" value="9"/>

You and Your Partner's Income

You will **keep** each token you do not return to your partner. At the end of the experiment, each token will be converted to 3 lei and paid to you in cash in one week.

Your Total Income = 3*Tokens your partner sends – amount you return to your partner

Your Partner's Total Income = Tokens he/she does not send to you (= 3 tokens – amount he/she sends) + Amount you return to him/her

Playing the Game

You have been randomly matched with a participant from Udești. You will play this game only once. Please circle one (and only one) number in each of the three bottom boxes on the handout that the Cult Research employee will hand to you shortly (you do not need to circle a number in the first box; we have already circled 0 for you). At the end of the experiment, we will convert each of your tokens into 3 lei.

B.3 Quiz

The 6 questions below will test your understanding of the experiment. You will be paid **0.75 leu** for each question you answer correctly. You will not be paid for incorrect answers. Please write your answer on the line provided next to each question. If we cannot read your answers, they will be counted as incorrect.

The Situation: Suppose that you decide to send **2 tokens** to your partner by circling the 2 on your handout as follows:

0

1

2

3

Suppose that the participant with whom you are randomly matched (your partner) fills out their handout as on the following page.

Question 1: How many tokens will your partner **return** to you? _____

Question 2: How many total tokens will you **earn**? _____

Question 3: How many total tokens will your partner **earn**? _____

Now, instead of assuming that you chose to send 2 tokens to your partner, assume that you chose to send **3 tokens**. Please answer the following questions, assuming that your partner fills out their handout as on the following page.

Question 4: How many tokens will your partner **return** to you? _____

Question 5: How many total tokens will you **earn**? _____

Question 6: How many total tokens will your partner **earn**? _____

If your partner sends	You receive	Circle a number to return to your partner
0	0	<div style="border: 1px solid black; padding: 2px; display: inline-block;"> 0 </div>
1	3	<div style="border: 1px solid black; padding: 2px; display: inline-block;"> 0 1 2 3 </div>
2	6	<div style="border: 1px solid black; padding: 2px; display: inline-block;"> 0 1 2 3 4 5 6 </div>
3	9	<div style="border: 1px solid black; padding: 2px; display: inline-block;"> 0 1 2 3 4 5 6 7 8 9 </div>

B.4 Survey³²

Please fill out this brief survey by circling the answer that most accurately applies. If there is a line next to a question, please enter your answer on the line. Your entries are confidential: none of the information in this survey will ever be matched to your name or shared with anybody outside of those conducting the experiment.

- 1) What is your gender?
 - a. Male
 - b. Female

- 2) What is your age?

- 3) What is your marital status?
 - a. Single
 - b. Married
 - c. Divorced
 - d. Widowed
 - e. Other

- 4) What is the highest level of education you completed?
 - a. None, or lower than grade school
 - b. Grade school or Middle school
 - c. High school
 - d. College (undergraduate)
 - e. College (graduate)

- 5) Have you lived in Udești your entire life?
 - a. Yes
 - b. No

- 6) If you answered “No” to Question 5, how long have you lived in Udești?

³²This sample survey is the one given to participants in Udești. Participants in Poieni and Știrbăt received surveys with different questions 23, 24, and 25, since they played against participants from both villages. Questions 5-7 were re-worded in Poieni and Știrbăt to reflect their home village, while questions 19-22 were re-worded to reflect the other two villages.

- 7) To your knowledge, how long has your family lived in Udești?
- You moved to Udești during your lifetime
 - Your parents moved to Udești
 - Your grandparents moved to Udești
 - Your great-grandparents or an older generation moved to Udești
 - I don't know
- 8) What is your occupation?
- 9) What is your religion?
- Eastern Orthodox
 - Roman Catholic
 - None/non-religious
 - Other (please list)
- 10) How often do you attend religious services?
- Never
 - Once or twice a year (or less)
 - Several times a year
 - Once a month
 - 2-3 times a month
 - Weekly
 - Several times a week
- 11) Generally speaking, would you say that most people can be trusted, or that you can't be too careful in dealing with people? Please answer on a scale from 1 to 5, where 1 means that you have complete distrust in people, and 5 means that most people can be trusted.
- What would it be today? (please answer 1 through 5)
 - And before 1989? (please answer 1 through 5)
- 12) In your opinion, how often is it necessary for people like you to have to make unofficial payments/gifts in these situations? Please answer on a scale from 1 to 5, where the scale is as follows: (Scale: Never=1, Seldom=2, Sometimes=3, Usually=4, Always=5)
- Interact with road police (please answer 1 through 5)
 - Dealing with official documents (1 through 5)
 - Receive public education (1 through 5)
 - Receive medical treatment (1 through 5)
- 13) Do you have a bank account?
- Yes
 - No
- 14) Have you ever borrowed money from someone living in Udești?
- Yes
 - No

- 15) Have you ever lent money to someone living in Udești?
- Yes
 - No
- 16) Have you ever borrowed money from someone living outside of Udești?
- Yes
 - No
- 17) Have you ever lent money to someone living outside of Udești?
- Yes
 - No
- 18) How trustworthy, in general, do you think the people of Udești are?
- Extremely trustworthy
 - Somewhat trustworthy
 - Uncertain
 - Somewhat untrustworthy
 - Extremely untrustworthy
- 19) Do you know anybody from Știrbăt?
- Yes
 - No
- 20) How trustworthy, in general, do you think the people of Știrbăt are?
- Extremely trustworthy
 - Somewhat trustworthy
 - Uncertain
 - Somewhat untrustworthy
 - Extremely untrustworthy
- 21) Do you know anybody from Poieni?
- Yes
 - No
- 22) How trustworthy, in general, do you think the people of Poieni are?
- Extremely trustworthy
 - Somewhat trustworthy
 - Uncertain
 - Somewhat untrustworthy
 - Extremely untrustworthy
- 23) Did you make choices differently when your partner was from Udești than when they were from Știrbăt?
- Yes
 - No

24) If you answered “Yes” to Question 23, why did you make your choices differently? Please answer below, and use as much space as needed.

C Appendix: Sample Instructions (in Romanian)³³

FOR ONLINE PUBLICATION

C.1 Instructions: Send Decision

Aceasta este un studiu cu caracter economic despre luarea deciziilor. Acesta este condus de **Cult Research** din partea **cercetătorilor din Statele Unite ale Americii**. Instrucțiunile sunt simple.

Veți primi 10 lei doar pentru simpla participare la experiment. Dacă veți urmări instrucțiunile cu atenție, aveți posibilitatea să câștigați o sumă mai mare de bani. Unul dintre angajații Cult Research va colecta deciziile dumneavoastră cu privire la experiment, iar un alt angajat de la Cult Research va calcula cât de mult ați câștigat de-a lungul experimentului. Într-o săptămână, reprezentantul Cult Research se va întoarce și vă va oferi suma de bani pe care ați acumulat-o de-a lungul experimentului. Vă rugăm să fiți atenți la faptul că dacă veți vorbi cu ceilalți în timpul experimentului sau dacă vă veți exprima cu voce tare, veți fi rugat să părăsiți încăperea și nu veți fi plătit.

Vor fi un număr de participanți care participă la experiment din localitatea **Udești**. Nu le veți spune numele dumneavoastră celorlalți participanți la studiu și ei nu vă vor spune numele lor. Toți participanții vor avea instrucțiuni identice.

Situația de decizie

Veți începe experimentul cu 3 jetoane. Fiecare jeton este echivalent cu **3 lei**, acest lucru însemnând că veți începe experimentul cu un total de 9 lei.

Veți fi pus în legătură cu un alt participant din localitatea Udești. Nu veți ști cu cine ați fost pus în legătură atunci când luați deciziile și nici nu veți ști cu cine ați fost pus în legătură odată ce experimentul s-a încheiat. Îi vom spune acestei persoane că este “partenerul” dumneavoastră pentru restul acestor instrucțiuni.

Decizia dumneavoastră

Un angajat Cult Research vă va înmâna un suport de hârtie după ce instrucțiunile au fost citite. În partea de sus a acestuia sunt numere de la 0 la 3.

Va trebui să încercuiți unul – și doar unul - dintre aceste numere. Numărul pe care îl încercuiți reprezintă câte din cele 3 jetoane pe care le aveți decideți să i le trimiteți participantului din **Udești** cu care dumneavoastră sunteți pus în legătură. Puteți alege orice număr doriți, dar să fiți atenți să fie doar un singur număr. Veți păstra orice jeton pe care nu îl veți trimite partenerului dumneavoastră.

³³As in Appendix B, we only provide instructions for the send and return decisions of the participants from Udești when they played with other participants from Udești. Instructions for Poieni and Știrbăt were the same, with the name of the villages changed.

Transferul de jetoane către partenerul dumneavoastră

Partenerul dumneavoastră va primi **de 3 ori mai multe** jetoane decât ați încercuit pe suportul de hârtie.

De exemplu, dacă alegeți 2 jetoane, partenerul dumneavoastră va primi 6 jetoane. Dacă alegeți 0 jetoane, partenerul dumneavoastră va primi 0 jetoane. Dacă alegeți 3 jetoane, partenerul dumneavoastră va primi 9 de jetoane.

Tabelul alăturat indică numărul de jetoane pe care îl poate primi partenerul dumneavoastră pentru fiecare sumă pe care dumneavoastră o încercuiți.

Cât încercuiți dumneavoastră	Cât primește partenerul dumneavoastră
0	0
1	3
2	6
3	9

Decizia partenerului dumneavoastră

Partenerul dumneavoastră are oportunitatea să returneze tot, o parte sau niciunul dintre jetoanele pe care dumneavoastră i le-ați trimis. El are opțiunea să returneze orice număr de jetoane cuprins între zero și numărul de jetoane pe care îl primesc.

De exemplu, dacă alegeți să îi trimiteți partenerului dumneavoastră 2 jetoane, acesta va primi 6 jetoane. Acest lucru înseamnă că el poate alege să vă returneze 0, 1, 2, 3, 4, 5 sau 6 jetoane.

Un alt exemplu: dacă dumneavoastră alegeți să îi trimiteți partenerului dumneavoastră 1 jeton, acesta va primi 3 jetoane. Acest lucru înseamnă că el poate alege să vă returneze 0, 1, 2 sau 3 jetoane.

Partenerul dumneavoastră nu va ști câte jetoane i-ați trimis atunci când va lua propria decizie. În schimb, el va completa tabelul următor. Acest tabel arată câte jetoane vă va returna pentru fiecare număr posibil de jetoane pe care îl primește. Partenerul dumneavoastră va încercui un număr în fiecare din cele 3 căsuțe. Am încercuit noi deja 0 pentru dumneavoastră în prima căsuță, deoarece dacă trimiteți zero, partenerul dumneavoastră nu are nici o opțiune de returnare, în afară de zero.

Sfârșitul acestui experiment

Dacă partenerul vă trimite	Dumneavoastră veți primi	Încercuiți un număr pentru a-l returna partenerului dumneavoastră.
0	0	<input type="text" value="0"/>
1	3	<input type="text" value="0 1 2 3"/>
2	6	<input type="text" value="0 1 2 3 4 5 6"/>
3	9	<input type="text" value="0 1 2 3 4 5 6 7 8 9"/>

După ce experimentul se încheie, ne vom uita la câte jetoane ați trimis partenerului. Vom lua acea sumă și vom vedea ce vă va returna partenerul dumneavoastră atunci când dumneavoastră îi trimiteți suma indicată.

De exemplu, să spunem că alegeți să trimiteți 2 jetoane partenerului dumneavoastră. Acestea se înmulțesc cu trei, astfel partenerului dumneavoastră îi revine 6 jetoane. Atunci, ne vom uita la câte jetoane alege partenerul dumneavoastră să vă returneze atunci când dumneavoastră alegeți să îi trimiteți 2 jetoane.

Venitul dumneavoastră și al partenerului

Veți păstra fiecare jeton pe care alegeți să nu îl trimiteți partenerului. De asemenea, veți păstra toate jetoanele pe care vi le returnează partenerul. La sfârșitul experimentului, fiecare jeton va fi convertit într-un leu, iar plata se va face într-o săptămână.

Venitul dumneavoastră total = Jetoanele pe care nu le-ați trimis partenerului dumneavoastră (=3 jetoane – suma pe care o trimite Participantul 1) + Suma returnată de partenerul dumneavoastră.

Venitul total al partenerului dumneavoastră = 3* jetoanele pe care i le-ați trimis – suma pe care partenerul decide să v-o returneze.

Examples

EXEMPLUL 1: Să presupunem că dumneavoastră decideți să trimiteți 1 jeton partenerului dumneavoastră. Acest jeton va fi înmulțit cu 3, ceea ce înseamnă că partenerul dumneavoastră va primi 3 jetoane. Să presupunem că în căsuța alăturată numărului 1, partenerul dumneavoastră va încercui 2, ceea ce înseamnă că acesta va returna 2 jetoane și va păstra 1 jeton. Câștigul total al dumneavoastră este $(3 - 1) + 2 = 4$ jetoane. Partenerul dumneavoastră are un câștig de $3 - 2 = 1$ jeton.

EXEMPLUL 2: Să presupunem că dumneavoastră decideți să trimiteți 3 jetoane Participantului 2. Aceste 3 jetoane sunt înmulțite cu 3, ceea ce înseamnă că Participantul 2 va primi 9 de jetoane. Să presupunem că în căsuța alăturată numărului 3, partenerul dumneavoastră va scrie 2, ceea ce înseamnă că acesta vă va

returna 2 jetoane și va păstra 7 jetoane. Câștigul dumneavoastră total este de $(3 - 3) + 2 = 2$ jetoane. Partenerul dumneavoastră are un câștig de $9 - 2 = 7$ jetoane.

Un reprezentant Cult Research vă va înmâna un scurt test pentru a verifica dacă dumneavoastră ați înțeles cerințele experimentului.

Desfășurarea jocului

Ați fost pus în legătură în mod aleatoriu cu un participant la studiu din **Udești**. Vă veți juca acest joc o singură dată. Vă rugăm să încercuiți un singur număr pe suportul de hârtie pe care vi-l va înmâna un angajat de la Cult Research în scurt timp. La sfârșitul experimentului, vă vom converti fiecare jeton pe care îl aveți în 3 lei.

C.2 Instructions: Return Decision

Acum veți participa la același experiment la care tocmai ați participat, cu excepția că rolul dumneavoastră va fi inversat. La fel ca înainte, vor participa la experiment un număr de persoane din **Udești**. Nu vi se vor spune numele celorlalți participanți și nici dumneavoastră nu veți spune celorlalți numele dumneavoastră. Toți participanții vor avea aceleași instrucțiuni. **Nu veți fi pus în legătură** cu aceeași persoană cu care ați corespondat în cadrul experimentului anterior. O să vă reamintim pe scurt în ce constă situația de decizie.

Situația de decizie

Veți începe experimentul cu 0 jetoane. Fiecare jeton este echivalentul a **3 lei**, ceea ce înseamnă că veți începe experimentul cu un total de 0 lei. Veți fi pus în legătură cu un alt participant din **Udești**.

Jetoanele trimise de partenerul dumneavoastră vor fi multiplicat **de trei ori**. Veți putea returna **zero, câteva sau toate jetoanele** primite de la partenerul dumneavoastră. Veți păstra jetoanele pe care nu le-ați trimis partenerului.

Decizia dumneavoastră

Partenerul dumneavoastră va încercui suma pe care el/ea decid să v-o trimită. El poate încercui orice număr cuprins între 0 și 3.

Veți primi **de 3 ori numărul** jetoanelor pe care partenerul dumneavoastră îl încercuiește în materialul lui printat. Nu veți ști câte jetoane ați primit de la partenerul dumneavoastră din **Udești** atunci când veți lua decizia. În schimb, veți completa următorul tabel. Acest tabel arată câte jetoane se vor întoarce la partenerul dumneavoastră pentru fiecare număr posibil de jetoane pe care acesta vi-l va trimite. Veți încercui un număr în fiecare dintre cele 3 căsuțe. Vă rugăm să fiți atenți la faptul că am încercuit deja 0, deoarece aceasta este singura dumneavoastră opțiune. Nu va fi nevoie să încercuiți altceva în această căsuță.

Dacă partenerul vă trimite	Dumneavoastră veți primi	Încercuiți un număr pentru a-l returna partenerului dumneavoastră.
0	0	0
1	3	0 1 2 3
2	6	0 1 2 3 4 5 6
3	9	0 1 2 3 4 5 6 7 8 9

Venitul dumneavoastră și cel al partenerului

Veți păstra fiecare jeton pe care nu îl veți returna partenerului dumneavoastră. La sfârșitul experimentului fiecare jeton va fi convertit în 3 lei și veți fi plătit în numerar într-o săptămână.

Venitul dumneavoastră total = 3*jetoanele pe care vi le trimite partenerul – suma pe care o returnați partenerului.

Venitul total al partenerului dumneavoastră = jetoanele pe care acesta nu vi le trimite (=3 jetoane - suma pe care nu v-o trimite) + suma pe care dumneavoastră o returnați.

Desfășurarea jocului

Ați fost pus în legătură în mod aleator cu un participant din **Udești**. Vă veți juca acest joc o singură dată. Vă rugăm să încercuiți un singur număr în fiecare căsuță din materialul printat pe care vi l-a înmănat unul dintre reprezentanții Cult Research (nu va trebui să încercuiți un număr în prima căsuță; am încercuit noi deja 0 pentru dumneavoastră). La sfârșitul experimentului vom converti fiecare jeton în 3 lei.