Kinship Systems, Cooperation, and the Evolution of Culture*

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Abstract

An influential body of psychological and anthropological theories holds that societies exhibit heterogeneous cooperation systems that differ both in their level of in-group favoritism and in the tools that they employ to enforce cooperative behavior. According to some of these theories, entire bundles of functional psychological adaptations – religious beliefs, moral values, negative reciprocity, emotions, and social norms – serve as "psychological police officer" in different cooperation regimes. This paper uses an anthropological measure of the tightness of historical kinship systems to study the structure of cooperation patterns and enforcement devices across historical ethnicities, contemporary countries, ethnicities within countries, and among migrants. The results document that societies with loose ancestral kinship ties cooperate and trust broadly, which appears to be enforced through a belief in moralizing gods, individualizing moral values, internalized guilt, altruistic punishment, and large-scale institutions. Societies with a historically tightly knit kinship structure, on the other hand, cheat on and distrust the out-group but readily support in-group members in need. This cooperation regime in turn is enforced by communal moral values, emotions of external shame, revenge-taking, and local governance structures including strong social norms. These patterns suggest that various seemingly unrelated aspects of culture are all functional and ultimately serve the same purpose of regulating economic behavior.

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1 Introduction

Economic life is pervaded by social dilemmas. In contexts such as the tragedy of the commons, bilateral trade, public goods provision, or team production, people can in principle cooperate with each other to achieve socially desirable outcomes, yet defecting is often an indiviudually rational strategy. Given the ubiquity of social dilemmas, economists, psychologists, and anthropologists alike have long worked towards an understanding of how societies attempt to overcome this "fundamental problem of human existence" (Greene, 2014). A popular notion in cultural psychology and anthropology is that the structure of kinship systems – one of the most basic aspects of a society's social organization – is of crucial importance for the scope of cooperation and trust. Kinship systems differ in their tightness, i.e., the extent to which people are embedded in large, interconnected extended family networks (Henrich, n.d.). With tight kinship, effective cooperation is believed to take place within cohesive in-groups, yet people outside the group are distrusted. In loose kinship societies, in contrast, people are hypothesized to also engage in productive interactions with outsiders, but do not place special emphasis on helping the in-group (Henrich, n.d.).[1]

But how is prosociality enforced in these different systems? While economists usually emphasize institutions as enforcement device, various distinct evolutionary psychological and anthropological literatures hypothesize that the problem of cooperation is of such importance that an entire package of psychological traits has evolved to support cooperation as "psychological police officers". Such *functional* psychological adaptations are theorized to include (i) moralizing gods that are concerned with human morality (Norenzayan, 2013); (ii) moral values that emphasize either an individualizing or communal morality (Shweder et al., 1997; Haidt, 2012); (iii) "moral emotions" of internalized guilt and external shame (Benedict, 1967; Bowles and Gintis, 2011); (iv) a predisposition to punish defectors, i.e., negative reciprocity (Fehr and Gächter, 2002; Boyd et al., 2003); and (v) an emphasis on conformity and norm adherence (Ostrom, 2000; Tomasello, 2009). Crucially, as has been argued by some of these authors, *different cooperation regimes might require different sets of psychological adaptations* to enforce prosocial behavior.

This paper brings these largely disparate theories from across the social sciences together to empirically study the relationship between kinship systems, the scope of cooperation, and the structure of enforcement devices. The key objective is to document that various aspects of cultural variation – types of prosocial behavior, trust, religious beliefs, moral values, moral emotions, negative reciprocity, and social norms – that may

[1] Related concepts include those of Gemeinschaft vs. Gesellschaft (Tönnies, 1955) or individualism vs. collectivism (Hofstede, 1984; Triandis, 1995; Markus and Kitayama, 1991).

Table 1: Overview of hypothesized cooperation systems

		Loose kinship	***Tight kinship***
Cooperation	*Trust*	Uniformly high	High in in-group, low in out-group
	Behavior	Equal treatment of in- and out-group	Cheat on out-group Care for in-group
Enforcement devices	*Religion*	Moralizing god	
	Emotions	Internalized guilt	External shame
	Morality	Individualizing values	Communal values
	Neg. reciprocity	Altruistic punishment	Second-party revenge punishment
	Governance	Global institutions	Local institutions / informal norms

appear puzzling and unrelated at first actually form internally coherent cooperation systems in which culture ultimately serves an economic purpose.

Table 1 illustrates the core argument of the paper, i.e., the structure and functional role of culture. The analysis takes as given the degree of kinship tightness, which constitutes one of the most fundamental aspects of a society's organization (Todd and Garrioch, 1985). In tight kinship societies, where cooperation is hypothesized to occur largely within in-groups, life is characterized by repeated interaction and familiarity. In loose kinship societies, on the other hand, anonymous one-shot exchange is more prevalent because people are hypothesized to also effectively cooperate with strangers. As I discuss in detail in Section 3, various authors outside of economics (e.g., Benedict, 1967; Haidt, 2012; Norenzayan, 2013; Henrich, n.d.) have suggested that these basic features have immediate implications for the structure of "optimal" enforcement devices. (i) First, successful regulation of impersonal one-shot exchange requires internalized punishment devices such as belief in omniscient punitive gods, or emotions of internalized guilt. On the other hand, repeated interaction and familiarity facilitate effective public shaming. (ii) Second, regarding people's sense of morality, enforcing in-group cooperation requires communal values that mandate, e.g., loyalty to the group. On the other hand, enforcing broader cooperation among strangers requires individualizing moral values that equally emphasize the welfare of everyone. (iii) Third, the hypothesized broader sense of prosociality in loose kinship societies facilitates a higher prevalence of altruistic punishment, i.e., the costly punishment of free-riders by unrelated bystanders. On the other hand, repeated interaction in tight kinship systems makes direct revenge punishment more feasible. (iv) Finally, enforcing geographically concentrated in-group cooperation can be achieved through local governance structures including conformity to informal social norms. On the other hand, if people interact broadly with strangers,

then more global (supra-tribal) institutions are required to enforce cooperation.

I investigate these hypotheses by presenting a pattern of conditional correlations across historical ethnicities, contemporary countries, ethnicities within countries, and among migrants. To this end, I link cross-cultural datasets on cooperation, trust, and enforcement devices to an anthropological index of the tightness of historical kinship systems, which measures the extent to which people are embedded in large, interconnected extended family networks (Henrich, n.d.). I construct this measure based on information in the Ethnographic Atlas, an ethnographic dataset on the historical structure of 1,311 pre-industrial ethnicities around the globe (Murdock, 1967; Giuliano and Nunn, 2017). Anthropologists often characterize kinship systems along three dimensions: family structure, marriage patterns, and descent systems (Parkin, 1997; Haviland, 2002; Schultz and Lavenda, 2005). For each of these dimensions, I closely follow Henrich (n.d.) in identifying two societal characteristics in the Ethnographic Atlas that reflect strong extended family networks: the presence of extended family systems and post-marital residence with parents (family structure), the presence of cousin marriage and polygamy (marriage patterns), and the presence of lineages and localized clans (descent systems). I aggregate these six variables through a factor analysis. The resulting score of kinship tightness loads positively and roughly equally on the presence of extended family systems and post-marital residence with parents, on both cousin marriage and polygamy, and on the presence of lineages and localized clans. Thus, the factor loadings endogenously correspond to anthropological notions of tight kinship. For example, cousin marriage and polygamy are both linked to the notion of kinship tightness because they contribute to the build-up of large family networks.

I study the relationship between kinship tightness, cooperation, and enforcement devices at various levels of aggregation: (i) within the Ethnographic Atlas and Standard Cross-Cultural Sample, i.e., across historical ethnicities, (ii) across contemporary countries by matching historical ethnicities to contemporary populations (following Giuliano and Nunn, 2017), (iii) across contemporary ethnicities within countries in the World Values Survey by linking historical ethnicities to contemporary ethnicities, and (iv) in individual-level within-country analyses by exploiting variation in ancestral kinship tightness across first- or second-generation migrants in the European Social Survey, Global Preference Survey (Falk et al., 2016), and Moral Foundations Questionnaire (Graham et al., 2012). Working at these different levels of aggregation allows me to study both historical and contemporary data, and to address the most obvious forms of endogeneity concerns.

The analysis begins by considering the link between kinship tightness, cooperation, and the radius of trust. I document that, across countries, kinship tightness is positively correlated with trust in in-group members (e.g., neighbors), but negatively associated

with both generalized trust and trust in specific categories of out-group members such as strangers or foreigners. By exploiting variation in kinship tightness and trust across contemporary ethnicities in the World Values Survey and across second-generation migrants in the European Social Survey, the analysis documents that the relationship between ancestral kinship tightness and people's trust radius extends to individual-level within-country analyses. Here, again, people from tight kinship societies exhibit higher in-group trust, but lower trust in people in general.

The strong distinction between trust towards in-group and out-group members in tight kinship societies is mirrored in people's asymmetric cooperation behavior. Across countries, ancestral kinship tightness is strongly negatively correlated with out-group cooperation, measured through experimental public goods and cheating games that were conducted among students across countries (Herrmann et al., 2008; Gächter and Schulz, 2016). But while tight kinship is associated with lower cooperation and more cheating on out-group members, it is strongly positively associated with cross-country variation in in-group favoritism in the business domain, i.e., the fraction of management jobs that is assigned based on kin relations (Van de Vliert, 2011). Similar results hold within countries: again exploiting variation across contemporary ethnicities and second-generation migrants, tight kinship is positively correlated with the importance people attach to helping and caring for in-group members, while controlling for country of residence as well as a host of covariates.

Having established the tight connection between kinship tightness, cooperation and trust, the analysis moves on to characterizing the enforcement devices that the different cooperation systems employ(ed). In a first step, I study the structure of enforcement in *pre-industrial* times in the Ethnographic Atlas. The results document that ethnicities with loose kinship systems were substantially more likely to honor a moralizing god, i.e., a god that is actively concerned with and supportive of human prosociality. This is consistent with the idea that omniscient and punitive big gods facilitate interactions that are not of a repeated nature. Second, again in line with the research hypothesis, I find that societies with tight kinship structures exhibit stronger moral values related to loyalty to the local community.

Third, I provides evidence that an ethnicity's kinship tightness is systematically related to the structure of its institutional setup. As hypothesized, the key distinction here is that between local and more large-scale institutions: kinship tightness is negatively related to the development of large-scale institutions that supersede local groups, such as chiefdoms or states. At the same time, kinship tightness is *positively* correlated with the sophistication and power of institutions at the level of local communities, such as village chiefs. Moreover, according to ethnographic records, ethnicities with tight kinship ties instilled significantly stronger notions of obedience into children. These correlations

document that governance in tight kinship societies is largely "local" and less formal.

Next, I characterize *contemporary* enforcement systems. This analysis links *ancestral* variation in kinship systems to the structure of contemporary moral values, emotions, negative reciprocity, institutions, and social norms.

First, I document that ancestral kinship tightness is positively related to the relative importance of communal over individualizing moral values in the Moral Foundations Questionnaire. For example, just like in historical data, tight kinship societies highly value in-group loyalty, also relative to moral values that emphasize concepts such as individual harm, rights, and justice equally across all members of society. These relationships hold both across countries and in within-country analyses that leverage variation across migrants.

Second, I study the relationship between kinship tightness and the relative importance of internalized guilt versus external shame, i.e., the so-called "moral emotions" (Haidt, 2003). Based on the idea that online searches reveal the subjective importance of psychological phenomena (Stephens-Davidowitz, 2014), I study the frequency with which people across countries searched for "shame" or "guilt" on Google in their respective language. The results document that kinship tightness is positively related to the relative frequency of googling shame, controlling for the language that people speak. Furthermore, based on self-reports in a cross-cultural psychological questionnaire on emotions, I document that people in tight kinship societies perceive shame as significantly more intense and long-lasting than feelings of guilt. Because shame and guilt are biologically based emotional reactions, some authors have noted that cross-societal variation in the prevalence of shame and guilt suggests a coevolution of biological and psychological enforcement devices of cooperation (Tomasello, 2009; Sapolsky, 2017).

Third, the analysis relates kinship tightness to the structure of negative reciprocity, i.e., the relative prevalence of altruistic (third-party) and revenge (second-party) punishment in the Global Preference Survey. The results document that kinship tightness is strongly positively related to people's propensito to engage in second-party relative to third-party punishment. Thus, members of societies with weak kinship ties are more likely to incur personal costs to sanction wrongdoing, even without having a personal stake in the issue. This is consistent with the notion that altruistic punishment is akin to contributing to an impersonal public good and should hence be more widespread in loose kinship societies. Again, these results hold both across countries and within countries across migrants.

Fourth, the analysis illuminates the role of contemporary governance structures, including conformity to social norms. I document that loose kinship is associated with the quality of large-scale institutions across countries. Tight kinship, on the other hand, is strongly correlated with experimentally measured norm compliance (conformity) and

the subjective importance of values that mandate norm adherence and proper behavior. These correlations hold both across countries and in within-country analyses across ethnicities or second-generation migrants. Thus, just like in historical data, governance in tight kinship societies is largely local and informal.

Taken together, the paper documents the close link between kinship systems and a host of variables that can be understood as being part of a society's cooperation system. The key takeaway is that seemingly random aspects of culture exhibit a perhaps surprising degree of structure and that this structure regulates economic behavior.

While I deliberately refrain from making causal claims, it is important to recognize that the patterns that I uncover indeed appear to be specific to ancestral kinship tightness as opposed to capturing the institutional sophistication of historical ethnicities. As I document through a series of placebo regressions, a standard proxy for institutional quality in the Ethnographic Atlas is only very weakly predictive of cooperation patterns, trust, or the structure of enforcement devices. Still, a potentially interesting mechanism that my analysis does explicitly not rule out is that evolved differences in, e.g., morality, religious beliefs, or institutions feed back into the structure of kinship systems and hence contribute to the formation of internally consistent cooperation systems, akin to the mechanisms in the models of Tabellini (2008b) and Greif and Tabellini (2017).

If historical kinship tightness is systematically related to the structure of cooperation systems, then what are potential implications for our understanding of economic development? Anthropologists have long observed that the emergence of tight kinship coincides with the emergence of agriculture, presumably to enable successful medium-scale cooperation (Blumberg and Winch, 1972; Gowdy and Krall, 2016). Later, however, tight kinship is believed to have turned into a sticky disadvantage once technological change required increased specialization, geographic mobility, and trade with strangers (see, e.g., Henrich (n.d.) or De la Croix et al.'s (2017) model of how kinship systems matter for the dissemination of knowledge). While causally examining these accounts is difficult, I correlationally study the relationship between kinship tightness and historical development over time. I document that for an extended period of time, the correlation between population density and kinship tightness was small, statistically insignificant, and flat over time. However, starting right with the onset of the Industrial Revolution, this relationship exhibits a sudden and sharp change, i.e., becomes strongly and significantly negative. These patterns are reminiscent of the theory that the social systems that are associated with tight kinship constituted a structural disadvantage once technological change required increased cooperation with strangers.

The remainder of the paper is organized as follows. Section 2 discusses related literature. Section 3 lays out the hypothesized relationship between kinship tightness, cooperation patterns, and enforcement devices. Section 4 presents the data. The anal-

ysis starts in Section 5 with the relationships between kinship tightness, cooperation, and trust. Sections 6 and 7 present evidence on how kinship tightness is associated with enforcement devices, in both historical and contemporary data. Section 8 reports extensions and robustness checks. Section 9 discusses the relationship between kinship tightness and development over time. Section 10 concludes.

2 Related Literature

This paper relates to the literature on social capital, trust, cooperation, and parochial altruism (Knack and Keefer, 1997; La Porta et al., 1997; Algan and Cahuc, 2010; Aghion et al., 2010; Henrich et al., 2010; de la Sierra, 2017). Early on, Greif (1994, 2006) highlighted the potential role of family systems for cooperative norms. Tabellini (2008b) as well as Greif and Tabellini (2017) provide corresponding models. At the same time, no empirical work has examined the relationship between kinship ties, cooperation with in- and out-group members, or the evolution of psychological enforcement devices. Instead, research on social organization has focused on the relationship between individualism and per capita income (Gorodnichenko and Roland, 2016; Roland, 2017), analyses of how segmentary lineage organization shapes civil conflict (Moscona et al., 2017a,b), the relationships between cousin marriage and corruption levels or democracy (Akbari et al., 2016; Schulz, 2016), the effect of matrilineality on within-household cooperation (Lowes, 2017), the relationship between matrilocal residence and investment in children (Bau, 2016), or the implications of nuclear family ties for labor regulation and political participation (Alesina and Giuliano, 2013; Alesina et al., 2015).

More broadly, this paper is part of the literature on cultural variation (Voigtländer and Voth, 2012; Desmet et al., Forthcoming), in particular papers that highlight the endogeneity of culture (Bisin and Verdier, 2001; Doepke and Zilibotti, 2014; Galor and Özak, 2016; Olsson and Paik, 2016; Buggle, 2017; Michalopoulos and Xue, 2017). My paper contributes to this line of work by documenting that cultural variation in a range of traits might be functional and enforces cooperation.

Finally, the paper builds on the various literatures in psychology and anthropology that developed the theories that serve as basis for my analysis (e.g., Bowles and Gintis, 2011; Haidt, 2012; Greene, 2014; Tomasello, 2016; Henrich, n.d.). Since these literatures are all theoretical or comprise of small case studies, my results contribute to this literature through a rigorous and quantitative investigation of the topic.

3 Research Hypothesis and Background

The various literatures outside of economics that deal with human cooperation share two aspects in common. First, they emphasize the important role of in-group vs. out-group distinctions for cooperation. Second, if only by their sheer breadth, these literatures suggest that enforcing cooperation is not achieved by any single mechanism, but rather by an entire package of interrelated tools.

3.1 Tight Kinship, Cooperation, and Trust

For cultural psychologists and anthropologists, the idea that societies exhibit heterogeneity in basic social organization regarding how deeply people are embedded in tight kinship groups, is as basic as the idea that markets equilibrate supply and demand to an economist (Triandis, 1995; Hofstede, 1984; Markus and Kitayama, 1991; Henrich, n.d.). Kinship describes the system of procreative relationships in society. It clarifies what rights and obligations people have and oftentimes even constitutes the foundation of people's social lifes (Schultz and Lavenda, 2005). Crucially, kinship systems exhibit large heterogeneity in how strongly people are embedded in large, extended family networks. The key characteristic of such tight kingroups is that they strongly partition society into multiple disjoint in-groups. As a result, people are said to think of themselves as "we": they rely on the in-group for food and other necessities of life in exchange for unquestioning loyalty. However, outsiders to their group are considered strangers at best, and enemies at worst. At the other extreme of the spectrum, psychologists say, lie societies in which people think of themselves as "I" because they are not part of a tightly interlinked kinship system. Such individuals are said to have weaker personal relationships with in-group members (if the concept of an extended in-group even exists). At the same time, people in these societies are believed to also enter productive relationships with people outside their group.

In sum, one expects a negative correlation between kinship tightness and cooperation with (or trust in) out-group members, but a positive relation between kinship tightness and treating in-group members well or trusting them.

3.2 Tight Kinship and Enforcement Devices

If it is true that societies exhibit heterogeneous cooperation schemes, it is conceivable that they use different devices to sustain and enforce such cooperation. Across the social sciences, researchers have proposed various mechanisms that serve to enforce cooperative behavior, including religious beliefs, moral values, basic emotions and their physiological consequences, negative reciprocity in the form of second- or third-party

punishment, formal institutions, and social norms. Crucially, by their very nature, some of these mechanisms predominantly apply to enforcing cooperation *within* an in-group, while others are also suitable for enforcing anonymous one-shot cooperation.

The literatures that I draw from to develop testable hypotheses are very much at the core of modern evolutionary theorizing about human cooperation outside of economics. Excellent overviews of (various subsets) of the hypotheses outlined below can be found in Boyd and Richerson (1988, 2009); Bowles and Gintis (2011); Haidt (2012); Tomasello (2016), and in particular Henrich (n.d.). Still, there is no single authoritative piece of work on the topic that outlines the full collection of hypotheses below. Rather, these hypotheses are derived by integrating concepts and arguments from different literatures in psychology and anthropology that evolved at least partly separately from each other. Thus, part of the contribution of this paper is to bring many conceptually interlinked theories together in one coherent framework and to apply the notion of kinship tightness to these enforcement devices. While I highlight the role of kinship tightness throughout, this does not preclude that evolved differences in, e.g., morality, religious beliefs, or institutions feed back into the structure of kinship systems and hence contribute to the formation of internally consistent cooperation systems, akin to the mechanisms in the models of Tabellini (2008b) and Greif and Tabellini (2017).

Moralizing gods. Cultural psychologists, anthropologists, historians, and scholars of religious studies routinely emphasize the importance of religious practices and beliefs in sustaining cooperation. In this context, moralizing gods are believed to play a key role (Norenzayan and Shariff, 2008; Norenzayan, 2013; Botero et al., 2014; Norenzayan et al., 2016). A god is said to be moralizing if they are concerned with and supportive of human morality by, e.g., punishing wrongdoing or rewarding prosocial behavior.[2] The notion that a god is moralizing is often implicit in contemporary discussions because – mostly due to the spread of the Abrahamic religions Islam and Christianity – today a large majority of humans live in a society that honors a moralizing god. However, historically, this was not the case. Animistic religions, for example, usually featured gods that were not particularly interested in the actions of mortal humans.

Crucially, belief in omniscient and punitive gods is hypothesized to solve human social dilemma problems. In large-scale anonymous societies in which direct enforcement is difficult due to a lack of repeated interaction, belief in a moralizing god is helpful because it functions as an internal "policeman" who punishes human wrongdoing even in the absence of worldly punishment. Importantly, societies with tight kinship ties are in less need of a moralizing god: because people predominantly interact within their

[2]Small-scale behavioral experiments have shown that belief in a punitive god is positively correlated with cooperative behavior (Purzycki et al., 2016; Norenzayan et al., 2016).

own group in which personal monitoring is feasible, a moralizing god has a smaller upside, but presumably the same downside in terms of paying the costs of religious beliefs such as attending mass and extending sacrifices (see, e.g., Norenzayan, 2013). Thus, one should expect a negative correlation between kinship tightness and belief in a moralizing god.

Moral values. Moral and evolutionary psychologists argue that human morality – people's sense of "right" and "wrong" – partly evolved to solve social dilemma problems (e.g., Haidt, 2012; Greene, 2014). Recent research in moral psychology, chiefly in Moral Foundations Theory (MFT, Graham et al., 2012) asserts that moral values consist of two structurally different types. First, some values are said to reflect "individualizing" or "universal" principles such as justice or avoidance of harm that emphasize the welfare of all individuals in society equally. Second, morality is said to also include "communal" or "groupish" values such as in-group loyalty that are tied to particular groups.[3,4] This distinction is important because if moral values actually emerged to enfore cooperation, then they *should* vary across societies: societies with tight kinship should have evolved communal moral values such as in-group loyalty that sustain in-group cooperation. Enforcing broader, anonymous cooperation in loose kinship societies, on the other hand, requires moral principles that apply universally. Thus, the relative importance of communal over individualizing values should be positively related to kinship tightness.

Shame versus guilt. Cultural psychologists and anthropologists have long coined the terms "shame" and "guilt" cultures (Dodds, 1957; Benedict, 1967; Scherer and Wallbott, 1994; Bowles and Gintis, 2003, 2011; Sznycer et al., 2012) to draw attention to the notion that societies inculcate different emotional responses to wrongdoing into their children. In this terminology, guilt refers to an emotion that is internalized and can be evoked even when nobody knows about the event. Shame, on the other hand, is called the "public emotion" and is evoked in front of others (in economics terminology, this is reminiscent of the difference between social and self image). Why should the relative importance of shame and guilt vary across societies? Shaming someone in front of others is more effective under repeated interaction, i.e., in a tight kinship system. With loose kinship, on the other hand, effective regulation of behavior requires inculcating internalized guilt. Thus, loose kinship systems should be associated with a more pronounced importance of guilt relative to shame. Because emotions like shame and guilt

[3] Haidt (2012) refers to these values as "binding".

[4] In the words of Shweder (1999), "there is an "ethics of autonomy," which strongly emphasizes harm, rights, and justice…There is an "ethics of community", which emphasizes such issues as duty, hierarchy, and interdependency."

have partly distinct physiological consequences, this hypothesis implies a coevolution of psychology and certain aspects of biology (Tomasello, 2009; Sapolsky, 2017).

Altruistic and revenge punishment. Across the social sciences, researchers have emphasized the important role of negative reciprocity in sanctioning wrongdoings (e.g., Fehr and Gächter, 2002; Boyd et al., 2003). The probably most important conceptual distinction in the discussion of such punishment patterns is that between second- and third-party (altruistic) punishment. Second-party punishment refers to direct revenge-taking by the victim. Altruistic punishment, on the other hand, describes behavior in which people are willing to incur personal costs to punish wrongdoing *even if they did not personally suffer from the misconduct*. As is implied in its name, altruistic punishment is conceptually very similar to cooperation behavior itself: because punishing norm violators is usually costly, there exists a so-called second-degree free-rider problem according to which people prefer for others to punish. There are at least two reasons to expect that the relative prevalence of second- over third-party punishment is increasing in kinship tightness. First, direct revenge-taking is more feasible in a system of repeated interaction and familiarity. Second, third-party punishment should be higher in loose kinship societies in which people have a broader sense of prosociality. After all, why would someone with strong in-group vs. out-group feelings expend costly resources to punish a person that defected on an out-group member?

Institutions and social norms. Institutions have long been recognized as crucial for enforcing cooperation. However, given the different scope of cooperation in the respective systems, differences in kinship tightness might go hand in hand with different governance structures. In particular, if people mainly interact with in-group members, then there is less of a need to bear the cost of setting up large-scale formal enforcement institutions that supersede separate groups. This perspective suggests that kinship tightness is negatively correlated with the development of formal institutions *above* the level of an in-group, but positively correlated with the development of institutions at the *local* level. As we will see below, local institutions may be less formal than more large-scale institutions and might hence be similar to social norms. In fact, the idea that social norms evolved for the purpose of enforcing cooperation is a very prominent one in cultural and developmental psychology (e.g., Tomasello, 2009, 2016; Gelfand et al., 2011). Because the violation of social norms likely evokes stronger responses in a setup in which everyone knows everyone, kinship tightness should be positively related to the strength of values related to norm adherence and resulting conformity. That is, according to this logic, loose kinship systems should be characterized by global institutions and tight kinship systems by strong local institutions and informal social norms.

4 Data

4.1 Measure of Kinship Tightness

Kinship describes the system of procreative relationships in society, i.e., potentially broad patterns of relatedness as they arise through mating and birth. The measure of kinship tightness is based on variables in the Ethnographic Atlas (EA), an ethnicity-level dataset that contains detailed information on the living conditions and social structures of 1,265 ethnic groups prior to industrialization (Murdock, 1967). The EA is arguably the leading collection of anthropological knowledge on historical ethnicities. Murdock constructed the data by coding ethnicities for the earliest period for which ethnographic data is available or can be reconstructed from written records. Following work in ethnography, Giuliano and Nunn (2017) extend this dataset by additionally including 46 ethnicities to broaden coverage in Europe.

The average year of observation is 1898, but even for those ethnicities for which information was sampled during the 20th century, the data are meant to describe living conditions prior to intense European contact or industrialization. The year of observation in the EA is only weakly and insignificantly correlated with the index of kinship tightness that I develop below ($\rho = 0.04$).

The EA contains information on mode of subsistence (agriculture, animal husbandry, hunting, gathering, and fishing), family structure and community organization, religious beliefs, language, and institutions, among others. In fact, for a subset of 186 ethnicities – the so-called Standard Cross-Cultural Sample (SCCS) – very detailed ethnographic information on local customs, beliefs etc. is available.[5]

Based on the research hypothesis above, the goal is to develop an index of kinship tightness that captures the extent to which people are interconnected in tightly structured, (very) extended family systems. This paper closely follows the discussion in Henrich (n.d.), which in turn is similar to the textbook treatments by Parkin (1997), Haviland (2002), and Schultz and Lavenda (2005).[6] At a broad level, dimensions of kinship can be partitioned into (i) family structure, (ii) marriage patterns, and (iii) descent systems. For each of these categories, I closely follow Henrich (n.d.) who identifies two variables in the EA that measure the extent to which aspects of categories (i)–(iii) induce strong extended family networks. That is, my index of kinship tightness is not based on my own judgment but rather on prior anthropological work. Appendix F.3.1 provides

[5]Murdock assembled the EA by relying on the records of different ethnographers, so that that Murdock's own predispositions are unlikely to be a major source of bias in the dataset. In addition, many of the theoretical developments in psychology and anthropology that link social structure to enforcement devices took place relatively recently and are hence implausible to have affected ethnographers' perceptions during the time of coding.

[6]For a classification of nuclear family ties, see Todd and Garrioch (1985) and Duranton et al. (2009).

all details of the underlying coding procedure and histograms for each variable.

1. Family structure

   (a) *Domestic organization.* A key distinction in the discussion of kinship ties is the presence of independent nuclear versus extended families. The idea is that living in extended family systems is an indication of the presence of large interconnected family networks. I generate a binary variable that equals zero if the domestic organization is around independent nuclear families and one otherwise (Q8 in the EA).

   (b) *Post-wedding residence.* Post-marital residence varies widely across cultures. Anthropologists argue that strong kinship ties are indicated by social norms that prescribe residence with the husband's (or the wife's) group. Weak kinship ties, on the other hand, are indicated by couples either living by themselves or flexibly with either the wife's or the husband's group. Accordingly, I generate a variable that equals 1 if the wife is expected to move in with the husband's group or vice versa, and 0 otherwise (Q11).

2. Marriage patterns

   (a) *Cousin marriage.* Endogamous marriage, i.e., marriage within in-groups is believed to be a key characteristic of tight kinship, and the most important case of this is cousin marriage (also see Schulz, 2016). This is because cousin marriage directly contributes to the build-up of strongly interconnected family networks. While many cultures allow marriage among (certain) first- or second-degree cousins, others do not. I construct a three-step index that equals one if marrying first-degree cousins is allowed, 0.5 if marriage among second-degree cousins is allowed, and zero otherwise (Q24). Since this variable is missing for 253 ethnicities in the EA (which leads to a loss of more than a dozen countries), I supplement this variable with information on local kin terminology (Q27). Anthropologists have long noted that those cultures that allow cousin marriage tend to make a linguistic distinction between those cousins that can be married and those that cannot. Thus, information on kin terms can be used to impute levels of cousin marriage for those ethnicities for which the cousin marriage variable is missing.[7]

[7]Specifically, for each of eight different kin terminology systems, I compute the average cousin marriage index described in the main text for all societies in the EA that have information on both Q24 and Q27. Then, I assign this index of "expected cousin marriage" to those ethnicities for which cousin marriage information is missing, based on their respective kin terminology.

(b) *Polygamy.* Polygamy is argued to support strong kinship ties because it allows the building of large interconnected families. For example, if a man has several wives and children from all of them, then in a patrilineal society the children would all be considered part of the same lineage, even though they have different mothers. To capture this aspect of kinship systems, I code a variable that equals 0 if polygamy is absent and 1 otherwise (Q9).

3. Descent systems

(a) *Lineages.* Descent groups are defined by people's ancestry. Key defining characteristic of a descent system is whether it features unilineal or bilateral descent. Unilineal descent systems track descent primarily through one line as opposed to through both lines, i.e., either through the father or through the mother. A lineage (unilineal descent group) is hence a group of people who can specify the links that unite them by tracing back to a known common ancestor, alive or dead. Such groups are typically much larger than Western notions of "the family" and can be composed of more than 1,000 people. Unilineal descent systems are said to induce particularly strong and cohesive in-groups because they make people feel close to a particular part of the family. In contrast, bilateral descent systems are ego-oriented. This means that people trace descent through both lines, so that everybody relates to a different family. For example, in a unilineal male descent system, the children of two brothers (cousins) belong to the same lineage, yet they have different families in a bilateral system because they also partly associate with the mother's side of the family. In consequence, bilateral systems are believed to prevent the build-up of extended tight linkages. I construct a variable that equals 0 if descent is bilateral, and 1 otherwise (Q43).

(b) *Segmented communities and localized clans.* When lineage systems become too large to be tractable and memorized, they split into new, smaller lineages. In such cases, people across lineages continue to recognize their "broad relatedness" even though they could not describe the specific path that connects them. Such systems are called clans. Clans are more or less closely interconnected, partly depending on whether clans determine geographical residency as opposed to being geographically dispersed. Accordingly, I code a variable that equals one if people are part of localized clans that live as segmented communities in, e.g., clan barrios, and zero otherwise (Q15).

In sum, this paper follows Henrich (n.d.) in characterizing kinship systems through a set of six variables. To aggregate these dimensions of kinship tightness, I compute the

first principal component.[8] This score endogenously has the appealing property that it loads to a substantial extent on all six of the above variables in a direction that is consistent with anthropological notions of tight kinship.[9] The index loads negatively on independent nuclear families (weight 0.35), negatively on neolocal residence (0.42), positively on cousin marriage (0.19), positively on polygamy (0.35), positively on unilineal descent (0.54), and positively on the presence of segmented communities or clans (0.50).[10] The resulting Kinship Tightness Index (KTI) is normalized to be in $[0, 1]$. Figure 10 in Appendix A.2 depicts the distribution of the kinship tightness index at the level of 989 historical ethnicities for which data on all six dimensions are available.[11] All main analyses are conducted using this composite index. Section 8 reports on analyses that use each of the six variables separately.

4.2 Additional Data Sources and Nature of Variation

The measure of kinship tightness can be utilized to exploit variation across historical ethnicities. In addition, the data can be matched to contemporary populations, hence allowing for contemporary cross-country, cross-ethnicity, and cross-migrant analyses. Appendix F provides a detailed description of all variables used in this study.

Cross-Country. Giuliano and Nunn (2017) propose a method to match the historical ethnicities in the EA to contemporary country-level populations. In this method, contemporary populations are related to their ancestors in the EA through the language people speak. To illustrate, if the Ethnologue project reported that 80% of all US residents speak English and 20% Spanish, then the country-level score for the US would consist of the weighted average score of those ethnicities in the EA whose languages are closest to English and Spanish in the Ethnologue language tree. Effectively, this method is a language-based version of the ancestry-adjustment procedure of Putterman and Weil (2010) and computes the historical kinship tightness index for each population

[8] Principal component analysis constructs a set of uncorrelated principal components from the observations such that the first principal component accounts for as much of the variance in the data as possible. Each succeeding component is then constructed to also explain as much of the variance as possible, conditional on being orthogonal to all previous principal components.

[9] This first component has an eigenvalue of 2.10, whereas that of the second component is 1.07. This second component is difficult to interpret given its weights. For example, it loads positively on cousin marriage, but also positively on bilateral descent and nuclear families, a combination that is hard to reconcile with anthropological notions of tight kinship.

[10] To interpret these weights, recall that all six variables are in [0,1].

[11] Table 16 in Appendix D documents that the country-level index of kinship tightness is positively correlated with contemporary measures of collectivism (vs. individualism) that have previously been employed, including the collectivism vs. individualism index of Hofstede (1984), a measure of family ties by Alesina and Giuliano (2013), and the fraction of the population speaking a language that allows dropping the pronoun (Tabellini, 2008a).

based on its ancestors. Appendix F.3.1 provides a further desciption of this matching procedure. Following the methodology of Giuliano and Nunn (2017), Figure 1 depicts the country-level distribution of historical kinship tightness, as it applies to contemporary populations.[12] The color coding roughly corresponds to the seven-quantiles of the distribution of kinship tightness. Evidently, kinship tightness exhibits geographic clustering: with a few exceptions, Western Europe and their offshoots have loose ancestral kinship ties, whereas parts of Eastern Europe, Asia, and Africa exhibit substantial variation. South America lies in between Western Europe and Asia or Africa. The analysis will link this variation to data on behavioral experiments, surveys, and language use across countries. In light of the geographical clustering of kinship tightness, the analysis will include within-country regressions to alleviate potential concerns about cross-country results. In addition, cross-country analyses will control for continent fixed effects.

World Values Survey: Ethnicities Within Countries. The World Values Survey (WVS) contains information on respondents' ethnicity. While these data are often very coarse, 111 ethnicities in 41 countries were described in sufficiently great detail for me to be able to match a total of 45,958 respondents to their ancestors in the EA. Thus, I can investigate the relationship between ancestral kinship tightness and respondents' trust or values by exploiting variation across contemporary ethnicities within countries.

European Social Survey: Second-Generation Migrants Within Countries. The European Social Survey (ESS) provides detailed information on the migration background of respondents' parents. Thus, following Giuliano (2007) and Fernández (2007), I can study the relationship between people's values and the kinship tightness of their ancestors by computing the kinship tightness index for the country of origin of father and mother (where the country-level data are computed as described above). In these analyses, the sample is restricted to respondents who were born in the country of current residence, yet their ancestral kinship tightness varies because of the parents' migratory background. Thus, similarly to the cross-ethnicity analysis in the WVS, this analysis identifies pure within-country correlates of kinship tightness. In practical terms, I assign each respondent the average kinship tightness index of (i) the countries of birth of mother and father if both were born outside the respondent's country of residence and (ii) the country of birth of the mother if the father was born in the respondent's country

[12] In cases in which the kinship tightness index is missing for the dominant ethnicity in a country, the country-level score is based on ethnicities that account for only a relatively small share of the population. I have verified that excluding all countries in which this is the case has only very minor, if any, effects on coefficient estimates and significance levels in the cross-country regressions.

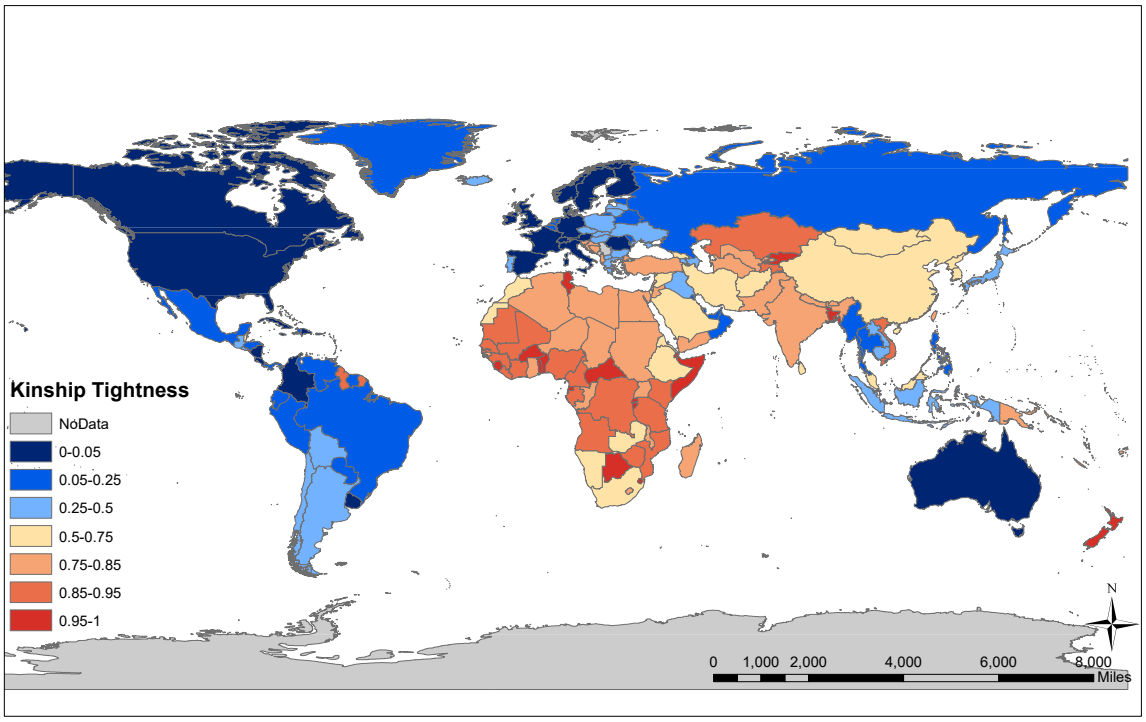


Figure 1: Distribution of kinship tightness across countries

of residence but the mother was not, and (iii) vice versa.[13] In total, I can make use of 20,733 respondents for whom I know the country of birth of both father and mother and that are second-generation migrants with respect to at least one parent. These respondents live in 32 countries. Their fathers and mothers were born in 164 and 160 different countries, espectively.

Global Preference Survey and Moral Foundations Questionnaire: First-Generation Migrants Within Countries. The Global Preference Survey is a survey dataset on economic preferences from representative population samples in 76 countries (Falk et al., 2016). The data include information on respondents' country of birth. Thus, similarly to the ESS, I can leverage within-country variation in kinship tightness by relating migrant's preferences to the ancestral kinship tightness in their country of birth, controlling for current country of residence. In total, I can make use of 2,430 migrants from 147 different countries of birth.

The Moral Foundations Questionnaire (MFQ) is a psychological questionnaire on moral values (Graham et al., 2012). The authors uploaded this questionnaire to www.

[13]This procedure ensures that I only exploit variation that is independent of the current country of residence.

yourmorals.org in 2008, where 285,792 of people have completed the questionnaire and provided basic background information including their country of birth. The sample of respondents is purely based on self-selection and hence not representative of a country's population. At the same time, I am not aware of reasons why the nature of differential self-selection into the survey across countries or groups of migrants should bias the results in favor of my research hypothesis, as opposed to just inducing measurement error.[14] Similarly to the GPS, the MFQ allows to leverage within-country variation in kinship tightness by relating people's moral values to the ancestral kinship tightness in their country of birth. In total, I have access to 26,657 immigrants from 199 countries of birth.

5 Tight Kinship, Cooperation, and Trust

5.1 Empirical Approach and Covariates

To study the relationship between kinship tightness, cooperation, trust, and enforcement devices, the analysis leverages variation across countries, within countries across ethnicities, within countries across migrants, and across historical ethnicities.

Contemporary Cross-Country. In cross-country analyses, I present multiple specifications for each dependent variable if feasible given the respective number of observations. Depending on the specification, I make use of three sets of covariates: (i) control variables for ancestral characteristics of contemporary populations from the EA, i.e., historical dependence on agriculture, number of jurisdictional hierachies above the local level, and year of observation; (ii) additional country-level covariates, including distance from the equator, log land suitability for agriculture, and ancestry-adjusted log population density in 1500; (iii) continent fixed effects and colonizer fixed effects (to capture potential cultural transmission). Section 8 reports robustness checks.

Contemporary Within-Country. The contemporary within-country analyses are all based on large-scale surveys. Here, I control for exogenous individual-level variables (age, age squared, and gender) and characteristics of the groups based on which the kinship tightness index is assigned to a given individual. That is, in analyses that leverage variation across ethnicities, I control for the following historical characteristics of ethnicities: dependence on agriculture, number of jurisdictional hierachies above the

[14] A potential conjecture is that people's trust level determines selection into the online survey. All results to be presented below are robust to controlling for the trust level in the country of origin of the migrant, see Tables 21 and 22 in Appendix D.

local level, distance from the equator, and year of observation in the EA. In analyses that leverage variation across migrants, I control for the same characteristics of the respondent's (or their parent's) country of birth as in the cross-country analyses.

Historical Cross-Ethnicity. In historical analyses, I make use of background information in the EA on subsistence mode (e.g., dependence on agriculture), number of jurisdictional hierachies above the local level, settlement complexity, year of observation, distance from the equator, longitude, and elevation.

In the analysis, all dependent variables but binary ones are transformed into z-scores, so that all regression coefficients can be easily interpreted: a coefficient of x means that increasing kinship tightness from its minimum of zero to its maximum of one is associated with an increase of x% of a standard deviation in the dependent variable. To keep the exposition concise, tables do not report the coefficients of covariates.

5.2 The Radius of Trust

To study the relationship between kinship tightness and trust, I rely on both the "general trust" question in the World Values Survey (WVS) and six additional trust questions that got added to the WVS more recently. These more specific questions ask respondents for their level of trust in their family, their neighbors, people they know, people they meet for the first time, people of another religion, and foreigners, respectively (Delhey et al., 2011). These data will allow to evaluate people's trust radius.

The analysis starts with OLS cross-country regressions which relate the different trust variables to kinship tightness, with and without covariates. Columns (1)–(3) of Table 2 reveal that kinship tightness is negatively associated with trust in people in general.[15] This result becomes stronger and more precisely estimated as controls, continent fixed effects, and colonizer fixed effects are added. To disaggregate this result and develop deeper insights into people's trust radius, I consider levels of trust in specific groups. Kinship tightness is positively correlated with trust in the family and trust in neighbors. The difference in statistical significance here is likely to be driven by a ceiling effect: on a four-point scale, the average trust in family across countries is 3.8. But while all societies seem to trust their own family, systematic patterns hold regarding the other groups. Columns (6) through (9) show that kinship tightness is negatively correlated with trust in all other groups. Also, as the analysis successively moves to more

[15]The Global Preference Survey (Falk et al., 2016) likewise contains a question that elicits a concept related to genral trust, by asking respondents to state their agreement with the statement: "I assume that people have only the best intentions." Responses to this question are likewise significantly negatively correlated with kinship tightness, $\rho = -0.25$, $p < 0.05$.

"distant" forms of out-group members (from left to right in Table 2), the point estimate monotonically decreases in size and eventually becomes highly statistically significant.

To draw out the distinction between trust in in-group and out-group even more clearly, I follow Delhey et al. (2011) who proposed measures of in-group trust (average of trust in family, neighbors and people one knows) and out-group trust (trust in people one meets for the first time, people of another religion, and people of another nationality). As columns (9)–(11) show, kinship tightness is strongly and significant correlated with the difference between in-group and out-group trust. The point estimates suggest that an increase in kinship tightness from zero to one is associated with an increase in the difference between in-group and out-group trust by 1.15 standard deviations. The left panel of Figure 2 visualizes this correlation.

To investigate whether these results might be spuriously driven by omitted cross-country variables, the analysis proceeds with within-country regressions. For this purpose, I make use of variation (i) across ethnicities in the WVS and (ii) across second-generation migrants in the ESS. Table 3 presents the results. In the WVS, columns (1)–(4), the point estimates suggest that people with high ancestral kinship tightness exhibit lower trust in people in general, yet this correlation is not statistically significant. However, kinship tightness is significantly related to larger differences between in- and out-group trust. Table 19 in Appendix D shows that the latter result again hides the fact that kinship tightness is positively correlated with trust in neighbors, yet negatively with trust in strangers.

Columns (5)–(8) show that similar results hold in the ESS. Here, the dependent variable in columns (5)–(6) is the general trust question; in columns (7)–(8), the dependent variable is respondents' average agreement with the statements "Most people try to take advantage of me." and "Most of the time people look out for themselves." Ancestral kinship tightness in the country of birth of the parents is significantly related to lower trust and a belief that others are selfish. These correlations hold conditional on individual-level controls as well as country of origin controls of the country of birth of father and mother. In sum, even though the nature of variation differs in various ways – across countries, across ethnicities, and across second-generation migrants – do the results consistently point to a relationship between kinship tightness and contemporary trust levels.

5.3 Cooperation, Cheating, and In-Group Favoritism

To complement the analysis of people's beliefs with evidence on their behaviors, the analysis continues by investigating the relationship between historical kinship tightness and contemporary behaviors pertaining to cooperation, cheating, and in-group

Table 2: Trust across countries

	Dependent variable:											
	Trust in:											
	People in general			Family	Neighbors	People know	First time	Other religion	Foreigner	Δ [In-group – out-group]		
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)
Kinship tightness	-0.60*	-0.63*	-1.04***	0.20	0.74**	-0.59	-0.68*	-0.81**	-1.19***	1.16***	1.38***	1.42***
	(0.33)	(0.36)	(0.36)	(0.31)	(0.34)	(0.37)	(0.35)	(0.36)	(0.33)	(0.33)	(0.34)	(0.42)
EA controls	No	Yes	Yes	No	No	No	No	No	No	No	Yes	Yes
Other controls	No	No	Yes	No	No	No	No	No	No	No	No	Yes
Continent FE	No	No	Yes	No	No	No	No	No	No	No	No	Yes
Colonizer FE	No	No	Yes	No	No	No	No	No	No	No	No	Yes
Observations	94	94	93	77	75	75	74	75	74	74	74	73
R^2	0.04	0.10	0.61	0.00	0.06	0.04	0.05	0.08	0.17	0.16	0.28	0.51

Notes. Country-level OLS estimates, robust standard errors in parentheses. All dependent variables are expressed as z-scores. The dependent variable in columns (1)–(3) is generalized trust. In columns (4)–(8), the dependent variables are people's trust in their neighbors, people they know, people they meet for the first time, people of another religion, and people of another nationality, respectively. In columns (9)–(11), the dependent variable is the the difference between trust in in-group (average of (4)–(6)) and out-group (average of (7)–(9)). EA controls include dependence on agriculture, number of levels of jurisdictional hierarchies above the local level, and year of observation (all computed as pertaining to contemporary populations). Other controls include distance from the equator, log land suitability for agriculture, and ancestry-adjusted log population density in 1500. * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$.

Table 3: Trust patterns: Within-country evidence

Variation in KTI is across:	World Values Survey Ethnicities				European Social Survey Second-generation migrants			
	Dependent variable:							
	General trust		Δ Trust [In- vs. out-group]		General trust		Others selfish	
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Kinship tightness	-0.074	-0.062	0.47***	0.48**	-0.15***	-0.18***	0.16***	0.17***
	(0.06)	(0.11)	(0.10)	(0.22)	(0.04)	(0.05)	(0.03)	(0.04)
Country FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Wave FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Individual-level controls	No	Yes	No	Yes	No	Yes	No	Yes
Ethnicity-level controls	No	Yes	No	Yes	No	No	No	No
Country of origin controls	No	No	No	No	No	Yes	No	Yes
Observations	44932	39736	21929	21609	20656	20225	20444	20017
R^2	0.09	0.08	0.08	0.08	0.10	0.09	0.11	0.11

Notes. Individual-level OLS estimates in the WVS / ESS, standard errors in parentheses. In columns (1)–(4), the sample consists of individuals in the WVS. The dependent variables are people's generalized trust and the difference in average trust in in-group and out-group, respectively, compare Table 2. The standard errors are clustered at the ethnicity level. Individual level controls include gender, age, and age squared. Ethnicity level controls include dependence on agriculture, number of levels of jurisdictional hierarchies above the local level, distance from the equator, and year of observation in the EA. In columns (5)–(8), the sample includes individuals in the ESS and the standard errors are clustered at the level of the country of birth of the father times the country of birth of the mother. The dependent variable in columns (5)–(6) is generalized trust. In columns (7)–(8), the dependent variable is the average agreement with the statements that most others try to take advantage of the respondent, and that others mostly look out for themselves as opposed to being helpful (both answers are elicited on a scale from 1 to 10). Individual level controls include gender, age, and age squared. Country of origin controls include dependence on agriculture, number of levels of jurisdictional hierarchies above the local level, and year of observation (all from the EA, but computed as pertaining to contemporary populations) as well as distance from the equator, log land suitability for agriculture, and ancestry-adjusted log population density in 1500. All country of origin controls are computed using the same procedure as for kinship tightness, see Section 4.2. All dependent variables are expressed as z-scores. * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$.

favoritism. First, Herrmann et al. (2008) conducted public goods games across 15 countries in which participants were students and hence presumably strangers to each other, or at least not in-group members.[16] My dependent variables are (i) initial contribution levels in an experimental treatment without availability of punishment, (ii) initial contribution levels in a treatment with punishment, and (iii) average contribution levels across conditions and periods. Second, Gächter and Schulz (2016) conducted an experimental cheating game across 23 countries in which participants could lie to the experimenter – an out-group member – to increase their monetary reward.[17] I use aver-

[16]The cross-cultural public goods games run by Henrich and collaborators are less useful for my purposes because they were administered on small-scale societies that may have had little cultural overlap with the majority of the population of the country they reside in (Henrich et al., 2001, 2010).

[17]Specifically, subjects were asked to roll a die in private and to report the outcome of the die roll. A subject's payout corresponded to the reported die roll. Thus, subjects had incentives to lie to the experimenter. While such cheating behavior cannot be identified at the individual level, average cheating levels in a subject pool can be easily computed as deviation from the expected distribution of die rolls.

Table 4: Cooperation, cheating, and in-group favoritism: Cross-country evidence

	Dependent variable:							
	Public goods game contributions			Cheating		In-group favoritism		
	Initial NOP	Initial P	Average	Lying game		Mgmt. jobs based on kin		
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Kinship tightness	-1.92***	-2.08***	-1.76**	2.04***	2.15***	0.80***	0.90***	1.31***
	(0.61)	(0.60)	(0.72)	(0.53)	(0.52)	(0.26)	(0.28)	(0.29)
EA controls	No	No	No	No	Yes	No	Yes	Yes
Other controls	No	No	No	No	No	No	No	Yes
Continent FE	No	No	No	No	No	No	No	Yes
Colonizer FE	No	No	No	No	No	No	No	Yes
Observations	15	15	15	23	23	114	113	112
R^2	0.34	0.40	0.29	0.43	0.48	0.08	0.09	0.50

Notes. Country-level OLS estimates, robust standard errors in parentheses. The dependent variables in columns (1) and (2) are initial contribution levels in the public goods game (PGG) of Herrmann et al. (2008) in the treatments without (NOP) and with availability of punishment (P), respectively. In column (3), contribution levels are averaged across both treatments and all ten periods of the PGG. In columns (4)–(5), the dependent variable is the average monetary payout subjects reported in the lying game of Gächter and Schulz (2016). In columns (6)–(8), the dependent variable is the fraction of jobs that is assigned based on kinship (Van de Vliert, 2011). All dependent variables are expressed as z-scores. EA controls include dependence on agriculture, number of levels of jurisdictional hierarchies above the local level, and year of observation (all computed as pertaining to contemporary populations). Other controls include distance from the equator, log land suitability for agriculture, and ancestry-adjusted log population density in 1500. * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$.

age lying levels as proxy for cheating behavior. Third, while the aforementioned experimental games capture the treatment of out-group members, a survey conducted among managers in large firms gives insights into people's preferential treatment of in-group members (Van de Vliert, 2011). Here, managers in large companies were asked which fraction of management jobs in their company is assigned based on kin relationships as opposed to personal qualifications.

Table 4 presents the results from OLS estimations. Columns (1)–(3) document that country-level ancestral kinship tightness is negatively correlated with contributions in a public goods game, hence providing evidence that societies with strong kinship ties are less cooperative when interacting with out-group members. Columns (4) and (5) establish that kinship tightness is positively associated with cheating on an out-group member in a lying game. The right panel of Figure 2 visualizes the relationship between kinship tightness and cheating behavior. While these behavioral tendencies suggest that social structures that are characterized by tight kinship have detrimental consequences for interactions among out-group members, the opposite holds true for in-group interactions. As columns (6)–(8) show, kinship tightness is significantly positively related to nepotism in the business domain. Here, the larger number of observations allows to condition on the full set of covariates described above, including continent fixed effects

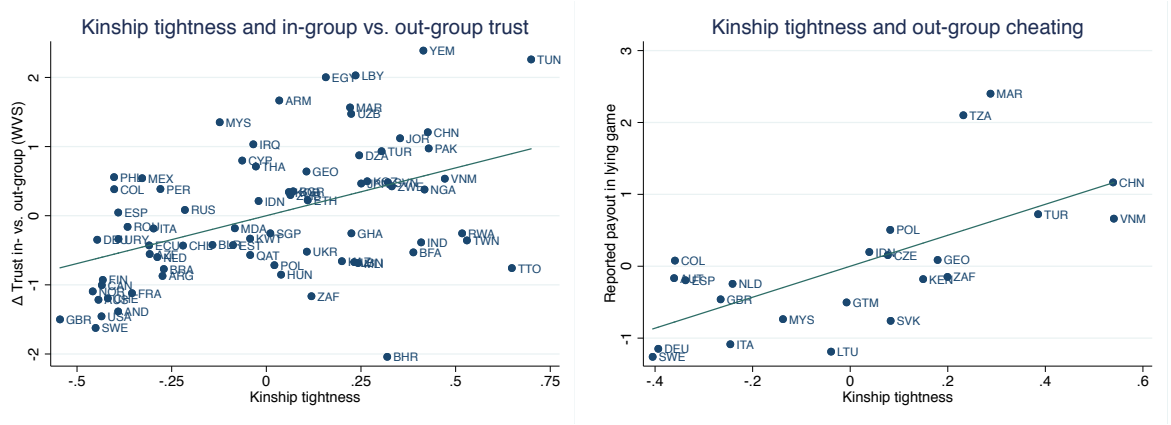


Figure 2: Relationship between kinship tightness and the difference between in-group and out-group trust in the WVS (left panel) and between kinship tightness and cheating in a lying game (Gächter and Schulz, 2016, left panel). Both plots are partial correlation plots conditional on the vector of "EA controls", compare column (5) of Table 4.

and colonizer fixed effects.

Table 4 has provided evidence for a cross-country difference in how members of tight kinship societies treat in- and out-group members. Table 5 shows that – analogously to the cross-country findings – tight ancestral kinship is also postively associated with people's willingness to help in-group members *within* countries. For this purpose, the analysis again exploits individual-level variation in ancestral kinship tightness in the WVS and ESS. In these analyses, the unit of observation is always an individual, yet the kinship tightness index is again assigned (i) based on the ethnicity of the respondent (WVS) or (ii) based on the respondents' parents' countries of birth (ESS).

The WVS asks respondents how important it is for them to help people nearby. The ESS elicits respondents' views about the importance of (i) helping people around them and to care for their well-being and (ii) being loyal to friends. I interpret these survey questions as asking about respondents' attitudes towards their in-group.[18] Columns (1)–(2) establish that ancestral kinship tightness is positively correlated with the importance people attach to helping in-group members in the WVS. This relationship holds conditioning on individual-level covariates as well as historical ethnicity-level controls from the EA, including dependence on agriculture, number of jurisdictional hierarchies above the local level, and year of observation.

Columns (3) and (4) show that similar results obtain in the ESS regarding the survey question that asks about "helping people around oneself". However, as shown in columns (5)–(6), being loyal to friends is uncorrelated with ancestral kinship tightness.

[18]The WVS also contains a question that asks people how important it is for them to "do something for the good of society". This question is arguably difficult to interpret given that "society" could pertain either to the local community or to, e.g., the country as a whole. In any case, in analogous regressions to columns (1) and (2) of Table 5, kinship tightness is significantly positively correlated with this variable.

Table 5: Attitudes about helping in-group members (WVS and ESS)

Variation in KTI is across:	World Values Survey Ethnicities		European Social Survey Second-generation migrants			
	Dependent variable: Important to:					
	Help people nearby		Help people around self		Loyal to friends	
	(1)	(2)	(3)	(4)	(5)	(6)
Kinship tightness	0.32**	0.56***	0.071***	0.070*	0.0078	-0.016
	(0.12)	(0.17)	(0.03)	(0.04)	(0.03)	(0.04)
Country FE	Yes	Yes	Yes	Yes	Yes	Yes
Wave FE	Yes	Yes	Yes	Yes	Yes	Yes
Individual-level controls	No	Yes	No	Yes	No	Yes
Ethnicity-level controls	No	Yes	No	No	No	No
Country of origin controls	No	No	No	Yes	No	Yes
Observations	15553	15210	20154	19753	20167	19766
R^2	0.06	0.06	0.07	0.09	0.07	0.08

Notes. Individual-level OLS estimates in the WVS / ESS, standard errors in parentheses. In columns (1)–(3), the sample consists of individuals in the WVS. The dependent variable is the importance people attach to helping others nearby. The standard errors are clustered at the ethnicity level. Individual level controls include gender, age, and age squared. Ethnicity level controls include dependence on agriculture, number of levels of jurisdictional hierarchies above the local level, distance from the equator, and year of observation in the EA. In columns (4)–(6), the sample includes individuals in the ESS and the standard errors are clustered at the level of the country of birth of the father times the country of birth of the mother. Individual level controls include gender, age, and age squared. Country of origin controls include dependence on agriculture, number of levels of jurisdictional hierarchies above the local level, and year of observation (all from the EA, but computed as pertaining to contemporary populations) as well as distance from the equator, log land suitability for agriculture, and ancestry-adjusted log population density in 1500. All country of origin controls are computed using the same procedure as for kinship tightness, see Section 4.2. All dependent variables are expressed as z-scores. * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$.

Still, taken together, the cross-country and within-country results on people's experimental behaviors, willingness to help others, and trust beliefs draw a consistent picture. Tight kinship is associated with low cooperativeness and trust towards the out-group, but in-group favoritism and strong trust in the in-group, while loose kinship societies cooperate relatively well with out-group members and do not disproportionately favor or trust in-group over out-group members.

Appendix B studies whether these differences in trust and in-group favoritism were already presented in pre-industrial times, i.e., in historical ethnicities in the EA. To this end, I make use of data from the so-called Standard Cross-Cultural Sample (SCCS), a subset of the EA that contains very detailed information on the practices and values of historical ethnicities. The SCCS contains data on the ethnographer's impression of the extent to which ethnicities inculcate trust in their children. Table 13 in Appendix B documents that – analogously to the contemporary patterns – kinship tightness was

already associated with lower trust in pre-industrial times. This lends credence to the idea that kinship tightness was already associated with different cooperation and trust patterns in the past.[19]

6 Enforcement Devices I: Historical Ethnicities

6.1 Moralizing Gods

Columns (1) and (2) of Table 6 study the relationship between religious beliefs and kinship tightness in the EA. The dependent variable is a binary indicator that equals one if a society has a moralizing god and zero otherwise, i.e., if the society has no high god or a god that is not moralizing (Q34 in the EA). The results show that societies with high kinship tightness were significantly less likely to develop beliefs in a moralizing god. The point estimate suggests that an increase in kinship tightness from zero to one is associated with a decrease in the probability of believing in a moralizing god by 33 percentage points. This result holds up when controlling for pre-industrial heterogeneity in subsistence style, settlement patterns, institutional quality, year of observation in the EA, geography, as well as continent fixed effects.[20] The left panel of Figure 3 visualizes this correlation.[21]

6.2 Moral Values

To study of the link between the structure of moral values and kinship tightness, the analysis again makes use of the detailed information contained in the SCCS. Specifically, a variable (Q778) measures the extent to which people are loyal to their local community on a scale of 1–4. According to Ross (1983), who assembled these data, this variable is meant to measure the degree of in-group loyalty and "we" feelings. Columns (3)–(4)

[19]Table 13 in Appendix B further documents that societies with tighter kinship systems also exhibited stronger in-group favoritism. The SCCS contains variables that code the acceptability of violence against members from the same society and against members from other societies. I document that the difference between these variables – which constitutes a measure of preferential treatment of the own society – is strongly correlated with kinship tightness. That is, tight kinship societies find violence towards members of other societies relatively more acceptable than violence against members of their own society.

[20]Table 17 in Appendix D shows that similar results hold when I restrict the sample of ethnicities to (i) societies that have a high god or (ii) continents that were largely not influenced by the Abrahamic religions at the time of recording, i.e., the Americas and Oceania.

[21]Appendix C studies the relationship between kinship tightness and belief in a moralizing deity in contemporary data. Researchers such as Norenzayan (2013) have argued that the negative relationship between kinship tightness and belief might weaken or even reverse over time. The argument is that religious beliefs might become functionally redundant once their behavioral prescriptions are internalized through, say, moral values or internalized guilt. Appendix C discusses these mechanisms in more detail and provides some preliminary evidence that this theory might have bite.

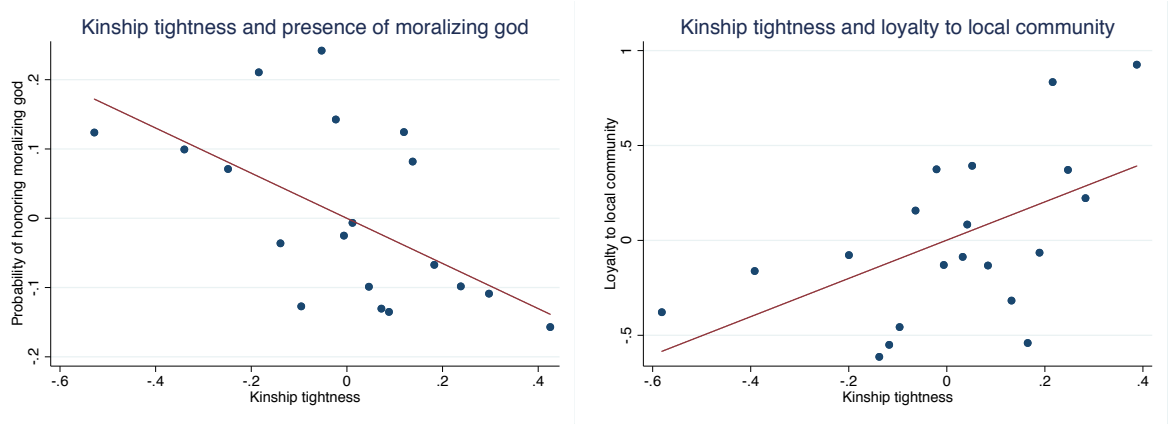


Figure 3: The left panel depicts a bin scatter plot between kinship tightness and the probability of honoring a moralizing god. The right panel provides a bin scatter of the correlation between kinship tightness and loyalty to the local community. Both plots are partial correlation plots, i.e., conditional on continent fixed effects.

of Table 6 present the results. Loyalty to the local community is significantly increasing in kinship tightness, both with and without covariates. The right panel of Figure 3 visualizes this correlation.

6.3 Institutions and Social Norms

As outlined above, the analysis requires me to distinguish between institutions at the local (community) level and those that supersede separate groups, which I refer to as "global". First, the EA contains a five-step variable that measures the number of levels of jurisdictional hierarchies beyond the local community (e.g., no levels, petty chiefdom, large chiefdom, state, large state, Q33 in the EA). This is the standard variable in the literature that people have used to proxy for the institutional sophistication of historical ethnicities (e.g., Giuliano and Nunn, 2013). However, the data also contain a variable that measures the levels of jurisdictional hierarchy at the *local* level (Q32), which is used less frequently in the literature.[22] Local levels of hierarchy include nuclear family, extended family, clan, and village. These institutional structures are arguably not just more "local", but also more informal than jurisdictional hierarchies above the local level.

Columns (5)–(8) of Table 6 relate these two variables to the kinship tightness index. As hypothesized, kinship tightness is negatively correlated with the development of institutions above the local level, but positively associated with levels of hierarchy at the local level. These correlations hold conditional on a society's dependence on agriculture and animal husbandry, respectively, settlement complexity, year of observation, distance from the equator, longitude, average elevation, and continent fixed effects. These find-

[22]The two variables exhibit a correlation of $\rho = 0.04$.

Table 6: Enforcement devices of cooperation in historical ethnicities

	Dependent variable:											
	Religious beliefs		Moral values		Global institutions		Local institutions				Norm adherence	
					# Levels jurisdictional hierarchy				Strength of local		Inculcate obedience	
	Moralizing god		Loyalty to community		Above local level		Local level		enforcement		in children	
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)
Kinship tightness	-0.33***	-0.24***	1.09**	1.09**	-0.35**	-0.32**	1.55***	1.51***	1.31***	1.08**	0.62*	0.75**
	(0.08)	(0.06)	(0.45)	(0.53)	(0.17)	(0.16)	(0.13)	(0.13)	(0.45)	(0.44)	(0.35)	(0.29)
Continent FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Historical controls	No	Yes	No	Yes	No	Yes	No	Yes	No	Yes	No	Yes
Observations	656	635	82	81	919	908	928	917	88	87	157	154
R^2	0.20	0.48	0.10	0.15	0.26	0.39	0.27	0.32	0.33	0.40	0.11	0.26

Notes. Historical ethnicity-level OLS estimates in the EA, robust standard errors in parentheses. The dependent variable in columns (1)–(2) is a binary indicator for whether a society honored a moralizing god. In columns (3)–(4), the dependent variable is the extent to which historical ethnicities emphasize loyalty to the local community and "we" feelings. The dependent variables in columns (5)–(6) and (7)–(8) are the number of levels of jurisdictional hierarchy above the local and at the local level, respectively. In columns (9)–(10), the dependent variable is the extent to which there is local enforcement and sanctioning for community decisions. The dependent variable in columns (11)–(12) is the average of the z-scores of four variables that measure the extent to which societies instill obedience into young boys, old boys, young girls, and old girls, respectively. In columns (1)–(2), the historical controls include dependence on agriculture, dependence on animal husbandry, year of observation, settlement complexity, number of levels of hierarchies above the local level, distance from the equator, longitude, and average elevation. In columns (3)–(6), the set of control variables is identical to the controls in (1)–(2), except that (naturally) I do not control for the number of levels of jurisdictional hierarchies above the local level. Due to the smaller number of observations, the historical controls in columns (9)–(12) only include year of observation, distance from the equator, longitude, average elevation, and number of jurisdictional hierarchies above the local level. All dependent variables but belief in a moralizing god are expressed as z-scores. * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$.

ings are consistent with the idea that tight kinship coevolved with strong institutions at the local level to regulate behavior within the group, while loose kinship requires the development of broader institutional frames to sustain cooperation across groups.

To shed further light on the nature of local institutions, I again make use of detailed ethnographic information from the SCCS. In particular, two items code the power that these local institutions had in terms of spelling out and enforcing sanctions.[23] Columns (5) and (6) show that high kinship tightness is associated with local institutions that were not just more developed, but also more powerful in enforcing behavior. Here, the smaller number of observations only allows me to condition on a subset of covariates, including continent fixed effects and geographic covariates.

In a final step, the analysis investigates the importance of social norm adherence in historical ethnicities. For this purpose, I again make use of detailed information in the SCCS on the values that parents inculcated in their children, according to ethnographic records. In particular, four separate variables describe the extent to which obedience was instilled into young boys, old boys, young girls, and old girls, respectively, on a scale of 0–9 each (Q322-325). I compute the z-scores of these four obedience variables and then average them to arrive at a summary measure of obedience. Columns (11) and (12) of Table 6 show that obedience is positively correlated with kinship tightness.

In sum, tight kinship is associated with less developed institutions above the local level, but powerful institutions at the local level to regulate in-group behavior. A potential concern with these regressions is that they compare ethnicicities with different subsistence modes. Chiefly, while some ethnic groups followed sophisticated farming or herding practices, others subsisted largely on hunting, gathering, and fishing. The analysis addresses this issue by controlling for (i) the extent (0-100%) to which an ethnicity subsisted on agriculture and animal husbandry, respectively, (ii) the complexity of local settlements0, and (iii) the year of observation in the EA. In a further robustness check, Table 18 in Appendix D shows that very similar results hold if I exclude all hunter-gatherers from the sample.

7 Enforcement Devices II: Contemporary Societies

7.1 Morality: Communal vs. Individualizing Moral Values

I continue by investigating the relationship between ancestral kinship tightness and contemporary values, both across and within countries. For this purpose, I exploit vari-

[23] For this purpose, I extract the first principal component of Q776 and Q777 in the SCCS. These items code the power of local institutions in enforcing community decisions and the presence of enforcement specialists, respectively, see Appendix F for details.

ation in individualizing vs. communal moral values in the MFQ, which was specifically designed to measure variation in moral principles that go beyond traditional notions of distributional fairness, reciprocity, and not harming others. In particular, building on research in cultural anthropology (Shweder et al., 1997), the moral psychologist Haidt (2012) and his collaborators explicitly measured the relative prevalence of individualizing and communal values. The MFQ contains survey-based measures of five "moral foundations": fairness / reciprocity, harm / care, in-group / loyalty, respect / authority, and purity. For example, the in-group loyalty dimension includes an item that asks respondents to indicate their agreement with the statement "People should be loyal to their family members, even when they have done something wrong", see Appendix F for details.

In line with the research hypothesis discussed in Section 3, the analysis employs two dependent variables, i.e., (i) the measure of in-group loyalty, and (ii) an index of the importance of communal values *relative* to the more universal (individualizing) ones. That is, the hypothesis is explicitly not about some societies being more or less moral than others, but merely about heterogeneity in the relative importance that people attach to structurally different types of values. To construct the index, I compute the first principal component of fairness / reciprocity, harm / care, in-group / loyalty, and respect / authority. The resulting score endogenously has the appealing property that – in line with the research hypothesis – it loads positively on the first two values and negatively on the latter two, with roughly equal weights, see Appendix F for details.[24] I compute country-level scores by averaging responses by country of residence of respondents. Importantly, in Enke (2017) I document that – in a nationally representative sample of Americans – this same index of moral communalism is strongly correlated with individuals' propensity to favor their local community over society as a whole in issues ranging from taxation and redistribution to donations and volunteering. Thus, there is evidence that the index of communal moral values captures economically meaningful behavioral heterogeneity.

Table 7 presents the cross-country results. Kinship tightness is strongly and significantly correlated with in-group loyalty as well as the relative importance of communal vs. individualizing moral values. The left panel of Figure 4 depicts the relationship between ancestral kinship tightness and the relative importance of communal values.

Table 8 presents analogous within-country analyses in the MFQ, which is based on the sample of migrants. These regressions leverage variation in the country of birth of respondents, conditional on the same country of residence. The regressions control for both individual-level covariates and country of origin controls. Across specifications and

[24] Since purity relates to the religious domain, it is not relevant for the research question pursued here. However, including the purity dimension in the construction of the index leaves the results unaffected.

Table 7: Moral values across countries

	Dependent variable:					
	In-group loyalty			Rel. imp. communal values		
	(1)	(2)	(3)	(4)	(5)	(6)
Kinship tightness	0.84***	0.73***	0.84**	1.20***	1.15***	1.09**
	(0.27)	(0.27)	(0.39)	(0.30)	(0.32)	(0.45)
EA controls	No	Yes	Yes	No	Yes	Yes
Other controls	No	No	Yes	No	No	Yes
Continent FE	No	No	Yes	No	No	Yes
Colonizer FE	No	No	Yes	No	No	Yes
Observations	104	103	95	104	103	95
R^2	0.08	0.10	0.35	0.16	0.22	0.48

Notes. Country-level OLS estimates, robust standard errors in parentheses. The dependent variable in columns (1)–(3) is the in-group loyalty dimension in the MFQ. In columns (4)–(6), I compute the relative importance of communal moral values by computing the first principal component of the MFQ dimensions fairness / reciprocity and harm / care (both of which enter with negative weights) and in-group loyalty and respect / authority (both of which have positive weights), see Appendix F for details. The sample is restricted to countries with at least 18 respondents in the MFQ, which corresponds to the 25th percentile of the distribution. Table 20 in Appendix D reports a robustness check that includes the full sample of countries, and weights each observation by the number of respondents. EA controls include dependence on agriculture, number of levels of jurisdictional hierarchies above the local level, and year of observation (all computed as pertaining to contemporary populations). Other controls include distance from the equator, log land suitability for agriculture, and ancestry-adjusted log population density in 1500. The dependent variables are expressed as z-scores. * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$.

dependent variables, kinship tightness is significantly correlated with the importance of ingroup loyalty and communal moral values more generally.

7.2 Emotions: Shame versus Guilt

Measuring the relative importance of different emotions across cultures requires non-standard data. First, I make use of ISEAR, i.e., the "International Survey on Emotion Antecedents and Reactions" (Scherer et al., 1986; Scherer and Wallbott, 1994). This dataset consists of responses to a psychological questionnaire on how university students across cultures experience emotions ($N = 2,921$; 37 countries). Among other questions, respondents were asked to describe a situation in which they experienced shame and guilt, respectively. Then, for each emotion, they were asked to describe how long-lasting (minutes, an hour, several hours, a day or more) and how intense (not very, moderately, intense, very) the feeling was.[25] I convert responses to these questions to

[25]The ISEAR questionnaire contains many more detailed questions, including about shame and guilt. The two questions that I use are the ones that are asked initially and represent the broadest assessment.

Table 8: Moral values: Within-country evidence (MFQ)

	Dependent variable:					
	In-group loyalty			Rel. imp. communal values		
	(1)	(2)	(3)	(4)	(5)	(6)
Kinship tightness	0.46***	0.46***	0.37***	0.33***	0.35***	0.36***
	(0.08)	(0.08)	(0.07)	(0.06)	(0.06)	(0.06)
Country FE	Yes	Yes	Yes	Yes	Yes	Yes
Individual-level controls	No	Yes	Yes	No	Yes	Yes
Country of origin controls	No	No	Yes	No	No	Yes
Observations	26512	26450	25907	25049	24990	24478
R^2	0.05	0.08	0.09	0.03	0.05	0.05

Notes. Individual-level OLS estimates in the MFQ, standard errors (clustered at country of birth) in parentheses. The dependent variables are in-group loyalty and the relative importance of communal values in the MFQ. The relative importance of communal values is constructed as first principal component of fairness / reciprocity and harm / care (both of which enter with negative weights) and in-group loyalty and authority / respect (both of which have positive weights). See Appendix F for details. Individual level controls include gender, age, and age squared. Country of origin controls include dependence on agriculture, number of levels of jurisdictional hierarchies above the local level, and year of observation (all from the EA, but computed as pertaining to contemporary populations) as well as distance from the equator, log land suitability for agriculture, and ancestry-adjusted log population density in 1500. The dependent variables are expressed as z-scores. * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$.

a scale of 1–4, respectively. Then, I compute the difference in intensity and length between shame and guilt, respectively, and average these two differences to arrive at an individual-level summary statistic of the relative (self-reported) strength of shame over guilt. A country-level index is then computed as average across respondents.[26]

In addition, I develop a second measure of the relative importance of shame and guilt, which does not rely on self-reports. I explore how often people across cultures think about shame and guilt by analyzing how often they entered the respective term into Google (Stephens-Davidowitz, 2014). Google Trends allows to assess this frequency *relative* to overall search volume, separately for each country. To avoid a potential bias that might arise by comparing search behavior across different languages, the analysis only relies on within-language variation. Accordingly, I restrict attention to languages that are an official language in at least two countries (since otherwise no within-language variation can be exploited) and that are covered in the linguistic study of Jaffe et al. (2014), so I have access to translations for shame and guilt. To take English as an example, I entered "guilt" and "shame" separately into Google trends and recorded how often (relative to total search volume) people across countries searched for either

Follow-up questions, which I have not analyzed, include detailed questions about the physiological symptoms and expressive behaviors that were associated with or followed the emotion.

[26] Wallbott and Scherer (1995) analyze these data and show that they are systematically related to the cross-cultural indices of Hofstede (1984).

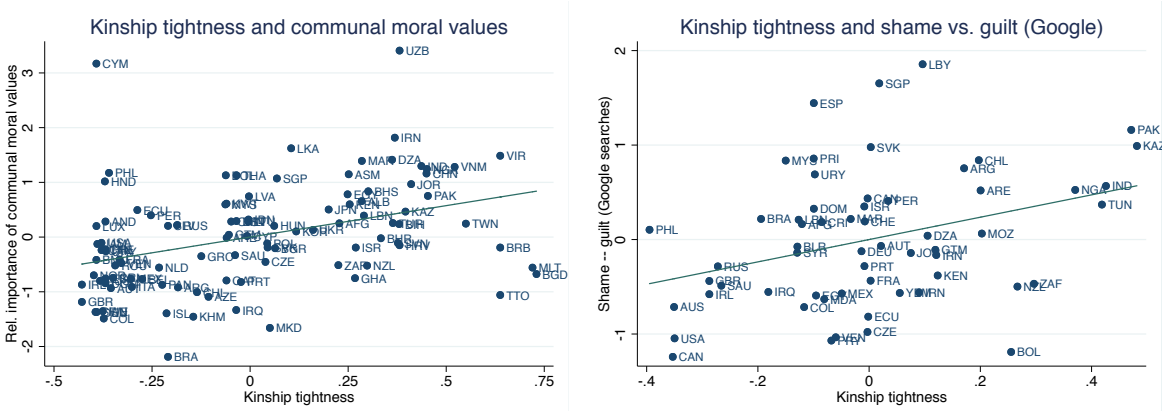


Figure 4: The left panel depicts the relationship between kinship tightness and the relative importance of communal moral values (Haidt, 2012). The right panel illustrates the correlation between kinship tightness and the relative importance of shame over guilt on Google. Both plots are partial correlation plots. The left panel is conditional on the vector of "EA controls", compare, e.g., column (5) of Table 4, and the right panel conditional on both the "EA controls" and language fixed effects.

concept in the last five years. I repeated the same procedure for each language in the consideration set. In total, I gathered data on search frequency in 59 country-language pairs (consisting of 9 languages and 56 countries) and computed the difference in word use between shame and guilt.[27] Importantly, this procedure implies that any noise or bias in the construction of the language variable that operates at the level of languages (say, through translation) is netted out because in the empirical analysis I only compare populations that speak the same language.

Table 9 presents the results. Columns (1) and (2) document that kinship tightness is positively correlated with the relative strength of feelings of shame over guilt, according to the self-reports of respondents in ISEAR. Columns (4)–(6) exploit variation within languages (by including language fixed effects) in search behavior on Google. I find that kinship tightness is significantly correlated with the relative importance of shame, also conditional on controls. The right panel of Figure 4 visualizes this correlation.

7.3 Altruistic and Revenge Punishment

To study people's punishment patterns across societies, I focus on the *difference* between altruistic and other forms of punishment, as discussed in the research hypothesis. For this purpose, the analysis employs two dependent variables. First, I consider observed punishment patterns in the cross-cultural public goods games of Herrmann et al. (2008). Here, I compute the difference between altruistic and antisocial punishment, i.e., the difference in punishment in cases in which the punisher contributed more and less than the punished participant, respectively. Second, the analysis makes use of the preference

[27] See Appendix F for details.

Table 9: Shame, guilt, and punishment patterns across countries

	Dependent variable:								
	Shame – guilt					Δ Punishment [Altruistic – Other]			
	Self-reports		# of Google searches			PGG	Global Preference Survey		
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
Kinship tightness	1.28***	1.66***	0.88**	1.18***	1.01**	-1.36*	-1.26***	-1.32***	-1.35**
	(0.43)	(0.49)	(0.34)	(0.39)	(0.45)	(0.70)	(0.30)	(0.35)	(0.65)
EA controls	No	Yes	No	Yes	Yes	No	No	Yes	Yes
Language FE	No	No	Yes	Yes	Yes	No	No	No	No
Other controls	No	No	No	No	Yes	No	No	No	Yes
Continent FE	No	No	No	No	No	No	No	No	Yes
Colonizer FE	No	No	No	No	Yes	No	No	No	Yes
Observations	35	35	59	59	59	15	75	75	74
R^2	0.20	0.43	0.55	0.56	0.66	0.17	0.18	0.21	0.41

Notes. Country-level OLS estimates, robust standard errors in parentheses. In columns (1)–(2), the dependent variable is the difference in the strength with which people report to have experienced shame and guilt, respectively. The measure is derived by averaging the z-scores of the self-reports for the length and the intensity of the emotions, respectively. In columns (3)–(5), the dependent variable is the difference between the relative frequency of Google searches for shame and guilt in a given country-language pair, see Appendix F. In column (6), the dependent variable is the difference between altruistic and antisocial punishment in the experimental public goods game data of Herrmann et al. (2008). In columns (7)–(9), the dependent variable is the difference between third-party and second-party punishment in the Global Preference Survey, see Appendix F for details. In columns (3)–(5), the standard errors are clustered at the country level. EA controls include dependence on agriculture, number of levels of jurisdictional hierarchies above the local level, and year of observation (all computed as pertaining to contemporary populations). Other controls include distance from the equator, log land suitability for agriculture, and ancestry-adjusted log population density in 1500. All dependent variables are expressed as z-scores. * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$.

measures on negative reciprocity in the GPS. The GPS explicitly includes survey items to measure both people's propensity for altruistic punishment ("How willing are you to punish someone who treats others unfairly, even if there may be costs for you?") and for second-party punishment (e.g., ("How willing are you to punish someone who treats you unfairly, even if there may be costs for you?"). I again compute the difference between these variables, see Appendix F for details.

Columns (6)–(9) of Table 9 document that kinship tightness is negatively correlated with the prevalence of altruistic punishment, relative to other forms of punishment. This result holds both in the PGG and in the GPS.

Table 10 provides ancillary regressions using within-country data from the GPS. Here, the dependent variable is again the difference between altruistic and second-party punishment. The analysis is restricted to migrants and exploits individual-level variation in ancestral kinship tightness across countries of residence, holding fixed respondents' current country of residence as well as other covariates. The results document that kinship tightness is negatively correlated with the relative importance of altruistic punishment within countries.

Table 10: Punishment patterns within countries

	Dependent variable:		
	Δ Punishment [Altruistic – Second-party]		
	(1)	(2)	(3)
Kinship tightness	-0.27***	-0.25***	-0.35***
	(0.09)	(0.09)	(0.12)
Country FE	Yes	Yes	Yes
Individual level controls	No	Yes	Yes
Country of origin controls	No	No	Yes
Observations	2306	2296	2272
R^2	0.09	0.09	0.09

Notes. Individual-level OLS estimates in the GPS, standard errors (clustered at country of birth) in parentheses. The dependent variable is the difference between third-party and second-party punishment in the Global Preference Survey, see Appendix F for details. Individual-level controls include gender, age, and age squared. Country of origin controls include dependence on agriculture, number of levels of jurisdictional hierarchies above the local level, and year of observation (all from the EA, but computed as pertaining to contemporary populations) as well as distance from the equator, log land suitability for agriculture, and ancestry-adjusted log population density in 1500. The dependent variable is expressed as z-score. * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$.

7.4 Governance Structures and Norm Compliance

I continue by studying the relationship between kinship tightness, institutions, and social norms. Above, I documented that in historical ethnicities kinship tightness was negatively correlated with the presence of large-scale institutions. I now proceed by showing the corresponding analogue in contemporary data. To this end, Columns (1)–(3) of Table 11 documents that kinship tightness is strongly negatively related to a property rights index, which arguably captures institutional quality at a "global" level beyond certain in-groups.

In historical data, kinship societies regulated behavior through strong local, more informal institutions and corresponding values of norm adherence. I hence proceed by studying the relationship between kinship systems and the strength of informal social norms in contemporary data. The study of social norms can be partitioned into people's *behavioral* conformity to social norms, and their intrinsic *values* related to norm adherence.[28] The standard method to experimentally measure norm *compliance* in social psychology consists of Asch's (1956) famous conformity game. Here, subjects are asked to point out the longest line out of a set of three, and are implicitly induced to give blatantly obvious wrong answers because seven other "subjects" (who are actually confederates) provided the same mistaken response beforehand. That is, these confederates uniformly point to the same wrong line to make the subject feel like they "have to"

[28] Gelfand et al. (2011) develops a survey-based measure of "tight" vs. "loose" countries with respect to social norms. This country-level index exhibits a correlation of $\rho = 0.31$ with kinship tightness ($p < 0.1$).

Table 11: Institutions and social norms across countries

	Dependent variable:						
	Institutions			Social norms			
	Property rights			Conformity	Important behave properly		
	(1)	(2)	(3)	(4)	(5)	(6)	(7)
Kinship tightness	-1.02***	-0.83***	-0.94***	1.93***	1.20***	1.15***	1.16***
	(0.23)	(0.27)	(0.31)	(0.55)	(0.30)	(0.31)	(0.43)
EA controls	No	Yes	Yes	No	No	Yes	Yes
Other controls	No	No	Yes	No	No	No	Yes
Continent FE	No	No	Yes	No	No	No	Yes
Colonizer FE	No	No	Yes	No	No	No	Yes
Observations	175	174	156	15	75	75	74
R^2	0.13	0.13	0.50	0.48	0.17	0.29	0.56

Notes. Country-level OLS estimates, robust standard errors in parentheses. In columns (1)–(3), the dependent variable is the property rights index in the QOG dataset. The dependent variable in column (4) is the fraction of errors in Asch's conformity game, i.e., the fraction of subjects who follow the responses of the confederates. In columns (5)–(7), the dependent variable is the average importance respondents in the WVS place on behaving properly. EA controls include dependence on agriculture, number of levels of jurisdictional hierarchies above the local level, and year of observation (all computed as pertaining to contemporary populations). Other controls include distance from the equator, log land suitability for agriculture, and ancestry-adjusted log population density in 1500. All dependent variables are expressed as z-scores. * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$.

conform. Since the implementation of this seminal study, researchers have replicated this design across 17 countries, as summarized in the meta-study of Bond and Smith (1996). This meta-study contains a total of 133 studies. The measure of conformity is the fraction of wrong responses in this experimental game, i.e., the fraction of subjects who follow the confederates.

Second, to assess the extent to which people's conformity with group norms is driven by values related to norm adherence, the analysis makes use of a range of questions in the WVS and ESS that ask people to assess to which extent it is important to "behave properly", "follow the rules", and "not draw attention".

The analysis begins at the country level. Column (1) of Table 11 shows that kinship tightness is strongly positively correlated ($\rho = 0.69$) with conformity in Asch's game. Columns (2)–(4) provide evidence that valuing proper behavior in the WVS is also significantly positively related to kinship tightness.

Finally, the analysis provides within-country evidence for the relationship between social norm adherence and kinship tightness using data from the WVS and ESS, see Table 12. Columns (1)–(2) exploit variation across native ethnicities within countries in the WVS to show that valuing proper behavior is positively related to kinship tightness, although these correlations are not or only marginally statistically significant. Similarly,

Table 12: Attitudes related to norm adherence: Within-country evidence (WVS and ESS)

Variation in KTI is across:	World Values Survey Ethnicities		European Social Survey Second-generation migrants					
	Dependent variable: Important to:							
	Behave properly		Behave properly		Follow rules		Not draw attention	
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Kinship tightness	0.11**	0.077	0.17***	0.20***	0.13***	0.18***	0.14***	0.12***
	(0.05)	(0.13)	(0.04)	(0.05)	(0.04)	(0.06)	(0.03)	(0.05)
Country FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Wave FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Individual-level controls	No	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Ethnicity-level controls	No	Yes	No	No	No	No	No	No
Country of origin controls	No	No	No	Yes	No	Yes	No	Yes
Observations	25616	25256	20033	19700	19991	19659	20051	19720
R^2	0.07	0.08	0.06	0.06	0.09	0.09	0.10	0.10

Notes. Individual-level OLS estimates in the WVS / ESS, standard errors in parentheses. In columns (1)–(2), the sample consists of individuals in the WVS. The dependent variable is the importance people attach to behaving properly. The standard errors are clustered at the ethnicity level. Individual level controls include gender, age, and age squared. Ethnicity level controls include dependence on agriculture, number of levels of jurisdictional hierarchies above the local level, distance from the equator, and year of observation in the EA. In columns (3)–(8), the sample includes individuals in the ESS and the standard errors are clustered at the level of the country of birth of the father times the country of birth of the mother. The dependent variables are the extent to which respondents deem (i) behaving properly, (ii) following rules, and (iii) not drawing attention important. Individual level controls include gender, age, and age squared. Country of origin controls include dependence on agriculture, number of levels of jurisdictional hierarchies above the local level, and year of observation (all from the EA, but computed as pertaining to contemporary populations) as well as distance from the equator, log land suitability for agriculture, and ancestry-adjusted log population density in 1500. All country of origin controls are computed using the same procedure as for kinship tightness, see Section 4.2. All dependent variables are expressed as z-scores. * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$.

columns (3)–(8) exploit variation across second-generation migrants in the ESS to show that ancestral kinship tightness (of mother's and father's country of birth) are correlated with the importance of following social norms. Here, the dependent variables are the importance respondents assign to valuing proper behavior, rule-following, and not drawing attention, respectively.

8 Robustness Checks and Extensions

8.1 Historical Institutions: A Placebo Test

The empirical analysis in this paper is correlational. Still, in light of the prominence of institutional structures in in economics, it is worth asking whether the patterns established above are indeed specific to the structure of kinship systems, or whether they should more appropriately be thought of as reflecting the sophistication of institutional

structures of the ethnicities in the Ethnographic Atlas. I evaluate this issue in two separate ways using the standard proxy for institutional sophistication in the EA, i.e., the number of levels of jurisdictional hierarchies beyond the community level Giuliano and Nunn (2013, 2017). First, the analyses above include many specifications that explicitly control for this variable.

Second, I investigate whether historical institutional sophistication is similarly consistently correlated with patterns of cooperation, trust, and enforcement devices as kinship tightness. To this end, Tables 23 through 30 in Appendix D.5 present an extensive set of placebo regressions. Here, I re-run all analyses from Sections 5, 6, and 7 – across historical ethnicities, contemporary countries, and across individuals within countries – yet with institutions instead of kinship systems as explanatory variable. The results document that institutions are not nearly as predictive of the structure of cooperation systems as kinship tightness. This is true across all levels of aggregation, but perhaps most salient in the individual-level within-country analyses: here, across the 14 dependent variables that I considered above, institutions are *never* significantly correlated with the dependent variable of interest (compare Tables 27–30). Similarly, in the cross-country analyses, historical institutions are almost uncorrelated with the relative importance of shame and guilt, the structure of negative reciprocity (second- or third-party punishment), or in-group favoritism.

I hence conclude that the systematic relationship between kinship tightness and the structure of cooperation systems results does not just reflect differences in the institutional sophistication of historical ethnicities.

8.2 Additional Covariates

This section assesses to which extent the contemporary cross-country and migrant-level results are robust against the inclusion of further covariates.

Individual-level income and education. Tables 32 through 35 replicate all individual-level analyses in the World Values Survey, European Social Survey, Global Preference Survey, and Moral Foundations Questionnaire, yet additionally control for education and – if available – household income.[29] All results reported in the main text go through virtually unchanged if these additional (more endogenous) covariates are accounted for.

Further geographic covariates. Tables 36 and 37 in Appendix D replicate all cross-country analyses (with a sufficiently large number of observations), but additionally

[29]Income is not available in the MFQ. In the ESS, income is measured inconsistently across waves, so that the inclusion of this variable would result in a huge drop in the number of observations.

control for longitude, average elevation, average temperature and the fraction of the population at risk of malaria. Tables 38 through 40 replicate the migrant-level analyses in the ESS, MFQ, and GPS, respectively, yet also control for the additional geographic covariates in the country of origin. All results are robust to these additional covariates.

Fraction of the population of European descent. Tables 41 and 42 in Appendix D replicate the cross-country analyses, but additionally control for the fraction of the population of European descent, constructed from the migration matrix of Putterman and Weil (2010). Tables 43, 44, and 45 conduct analogous analyses by replicating the migrant-level analyses in the ESS, MFQ, and GPS, respectively, but additionally controlling for the fraction of Europeans in the country of origin. This control variable may be of interest because many European ethnicities have relatively low kinship tightness. At the same time, it is likely to be a "bad control" because it is not clear why being European per se should generate a particular psychological pattern related to moral values etc. Still, controlling for the fraction of Europeans leaves the results largely unaffacted. This is especially true of the within-country results.

National income and human capital. Finally, I control for national income per capita and average years of schooling in a given country. These variables are even more likely to be "bad controls" in the sense that the relationship between kinship structures and cooperation systems that is at the heart of this paper might plausibly also affect these proxies for comparative development. Still, Tables 44–51 in Appendix D show that a large majority of both the cross-country and the within-country results hold up controlling for income per capita or average years of schooling. Again, the results are particularly robust in within-country analyses.

8.3 Excluding Countries with High Migration Inflows

The contemporary analyses rely on the matching from ethnicities in the Ethnographic Atlas to contemporary populations (Giuliano and Nunn, 2017). A potential concern is that ancestral kinship tightness is measured with higher error in those countries that have experienced large post-Columbian migration inflows. To document that this does not spuriously generate the results, Table 52 in Appendix D.9 replicates the cross-country regressions, yet restricts the sample to countries in which at least 80% of the population are native, according to the world migration matrix of Putterman and Weil (2010). This procedure excludes large parts of the Americas and Oceania from the sample, yet, if anything, the results become even stronger.

8.4 Separate Kinship Tightness Proxies

Thus far, the empirical analysis has relied on the summary statistic of kinship tightness that was derived from six characteristics of ethnicities in the EA. While the idea behind this index – that kinship is a multidimensional concept – is in line with how anthropologists think about kinship, it may be of interest to ask whether any single of these six characteristics alone is strongly predictive of cooperation patterns and enforcement devices. To assess this, Tables 53–58 in Appendix D.10 replicate one specification for each dependent variable from the analyses above by using each kinship tightness variable separately. The results are strongest for post-wedding residence patterns, the presence of lineages, and the presence of localized clans, yet all of the kinship tightness variables have some explanatory power for the different outcome variables.

9 Kinship Tightness and Development

The key insight of this paper is that different types of kinship systems are associated with distinct cooperation systems. This section provides a preliminary discussion of the perhaps obvious question: what is the relationship between these different systems and economic development?

Anthropologists, in particular Henrich (n.d.), have argued that the nature of the relationship between kinship systems and development may have changed over time. In short, the argument has two ingredients. First, tight kinship is believed to have initially evolved to sustain effective medium-scale cooperation in agriculture (Johnson and Earle, 2000; Talhelm et al., 2014; Gowdy and Krall, 2016).[30] Thus, tight kinship is not believed to have been "detrimental" at early stages of development.

Second, however, tight kinship might have constituted a structural disadvantage in the transition from simple agricultural to more advanced production modes. The argument is that tight kinship prevents people from cooperating and interacting broadly, trusting strangers, participating in specialization and trade, and being geographically mobile, all of which are activities that increasigly paid off after the Industrial Revolution took place (e.g., Henrich, n.d.).[31]

Empirically assessing these accounts requires a dynamic analysis. Consequently, I regress country-level log population density (as adequate proxy for development in pre-industrial times) in any given available year since 1000 CE on kinship tightness and then analyze the evolution of OLS coefficients over time. To keep the analysis meaning-

[30] Appendix E discusses the anthropological arguments for why tight kinship and agricultural production might go hand in hand.

[31] See Blumberg and Winch (1972) for an early account of the "curvilinear" hypothesis that discusses the non-linearity of the relationship between kinship systems and development.

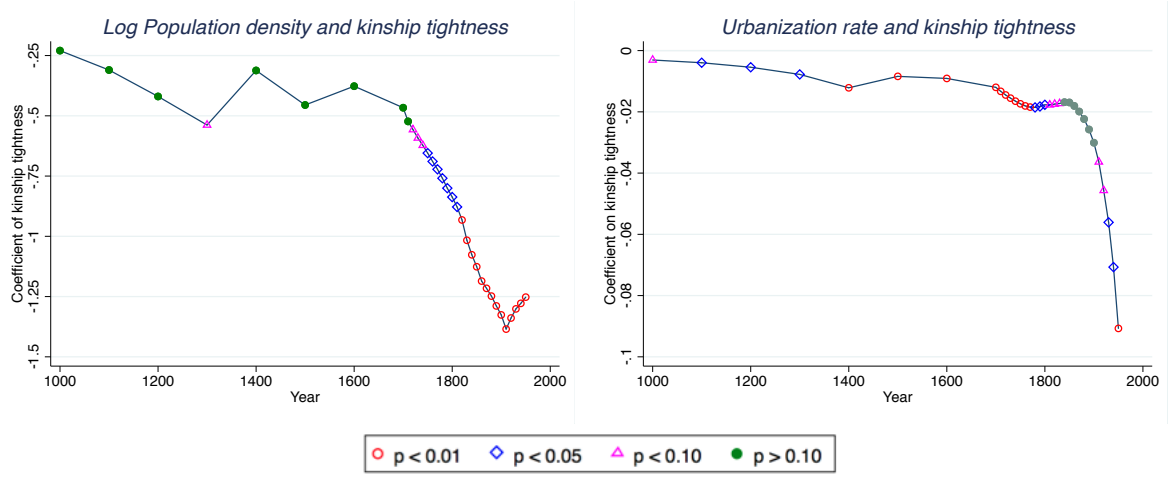


Figure 5: Kinship tightness and development over time. The left panel shows the results of OLS regressions in which I regress log population density in a given year on kinship tightness. Each dot represents the OLS point estimate for the regression in the respective year, and the color coding denotes levels of significance. In all regressions, the sample is restricted to countries in which at least 50% of the population are native, resulting in a sample of 127 countries. The right panel follows an analogous logic, except that the dependent variables are urbanization rates.

ful in light of the changes in the structure of populations through the post-Columbian migration flows, I restrict the sample to those 127 countries in which at least 50% of the current population are native, according to the migration matrix of Putterman and Weil (2010). The left panel of Figure 5 presents the results. In this figure, each dot represents the regression coefficient of kinship tightness from a given year and the color coding is used to denote statistical significance.[32]

As the figure shows, the relationship between country-level population density and kinship tightness starts out to be small and statistically insignificant. However, around the onset of the Industrial Revolution, the coefficient rapidly increases in absolute size and becomes statistically significant. Moreover, a set of Seemingly Unrelated Regressions shows that the regression coefficient in 1900 is statistically significantly larger than those in, e.g., 1000, 1500, 1600, 1700, and 1800 ($p < 0.01$).

The right panel of Figure 5 replicates the preceeding analysis, but uses urbanization rates instead of population density as dependent variable. The resulting picture is very similar in that the relationship between kinship tightness and development becomes much stronger in the course of the Industrial Revolution. Today, the correlation between kinship tightness and GDP p/c is $\rho = -0.53$, see Figure 11 in Appendix E. Taken together, the structure of kinship systems is systematically related to population density over time in ways that are broadly in line with anthropological arguments about how and why the different cooperation systems that I documented above might be relevant for economic development.

[32]Table 60 in Appendix D shows the regressions results underlying the construction of Figure 5.

10 Conclusion

Based on prominent theories in psychology and anthropology, this paper has presented an analysis of cultural variation in cooperation patterns and corresponding enforcement devices. The results suggest that kinship systems matter: they are intimately linked to the way people cooperate with and trust each other, and the formal and informal mechanisms they put in place to enforce cooperation. In particular, basic aspects of human psychology seem to have adapted to serve the functional role of enforcing cooperation within specific social structures. On the one hand, the broad cooperation and trust patterns of loose kinship societies are supported by large-scale institutions, third-party punishment, and "internal police officers" that broadly sanction wrongdoing even outside of the in-group, including moralizing gods, individualizing moral values, and guilt. On the other hand, the in-group oriented cooperation system of tight kinship societies appears to be sustained by strong social norms and corresponding values of norm adherence, combined with strong *local* institutions, revenge-taking, communal moral values, and an increased importance of being shamed in front of others. Thus, punishment in tight kinship societies is largely personal and direct, while it is often anonymous and "psychological" in loose kinship societies.

These results shed light on two prominent puzzles in cross-cultural research. First, the results provide a rationale for why we observe such large cultural variation along many dimensions: because some cultural traits regulate different cooperation regimes, they differ across societies. Second, the analysis illuminates the co-occurrence of various cultural traits. Across the social sciences, researchers with an interest in cultural variation have noted that cultural traits are frequently highly correlated, yet insights into why that is the case are rare (Alesina et al., 2015). The present paper sheds light on this issue by showing that different cultural traits serve a similar role in enforcing cooperation within a given regime, so that their co-occurrence is simply a by-product of them disciplining prosocial behavior in similar ways.

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ONLINE APPENDIX

A Kinship Tightness Index

A.1 Construction of Index in Ethnographic Atlas

This section describes the construction of the kinship tightness index in detail. I start by describing the construction of the six components. For each component, I list how each category in the EA is classified and the number of observations in parentheses. Note that the number of observations does not perfectly correspond to the numbers in the codebook of the EA because my dataset includes the ethnicities that were added by Giuliano and Nunn (2017).

Extended vs. nuclear family. Q8 in EA. Binary variable that takes on a value of:

- Zero, if domestic organization is:
  - Independent nuclear family, monogamous (122)
  - Independent nuclear family, occasional polygyny (273)
- One, if domestic organization is:
  - Independent polyandrous families (3)
  - Polygynous: unusual co-wives pattern (59)
  - Polygynous: usual co-wives pattern (222)
  - Minimal (stem) extended families (45)
  - Small extended families (323)
  - Large extended families (236)

Post-marital residence. Q11. Binary variable that takes on a value of:

- Zero, if post-wedding residence is:
  - Couple to either group or neolocal (164)
  - No common residence (8)
- One, if post-wedding residence is:
  - Wife to husband's group (915)
  - Husband to wife's group (200)

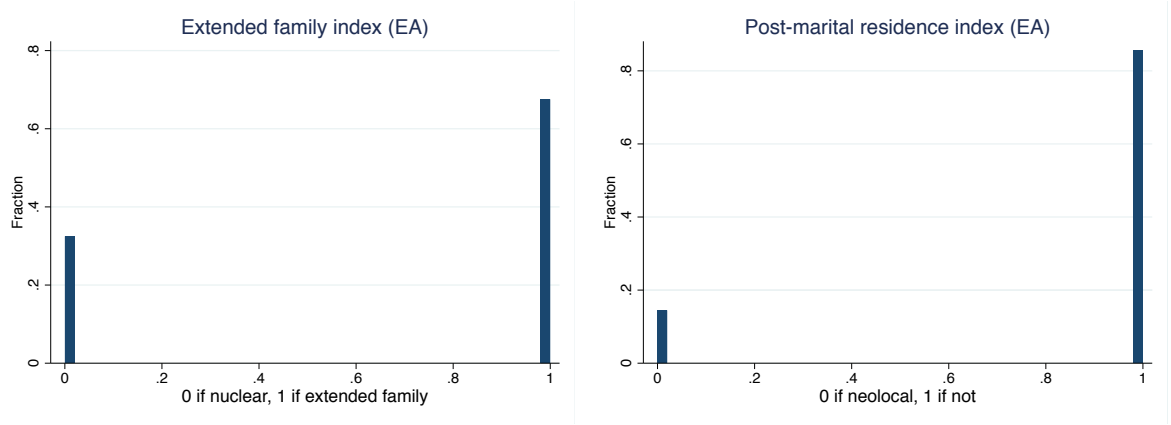


Figure 6: Distribution of extended vs. nuclear family index (left panel) and post-marital residence index (right panel).

Cousin marriage. Q24. Three-step variable that takes on a value of:

- Zero, if cousin marriage type is: No first or second cousins (285)
- 0.5, if cousin marriage type is:
  - No first cousins, all second cousins (64)
  - First and some second cousins excluded (13)
  - No first, unknown for second (280)
- One, if cousin marriage type is:
  - All four cousins (124)
  - Three of four cousins (25)
  - Two of four cousins (11)
  - One of four cousins (256)

Whenever Q24 is missing, the cousin marriage variable is imputed from the kin terminology variable in Q27. This is possible because it has long been known that terminology for cousins is strongly indicative of whether cousin marriage is allowed, see Schulz (2016); Henrich (n.d.).

For this purpose, I first compute the average cousin marriage variable for each of the eight possible values of Q27, and then assign this average value to an ethnicity based on its kin terminology if Q24 is missing.

Polgamy. Q9. Binary variable that takes on a value of:

- Zero, if marital composition is: Independent nuclear, monogamous (214)
- One, if marital composition is:
  - Independent nuclear, occasional polygyny (468)
  - Preferentially sororal, cowives in same dwelling (69)
  - Preferentially sororal, cowives in separate dwellings (18)
  - Non-sororal, cowives in separate dwellings (345)
  - Non-sororal, cowives in same dwelling (157)
  - Independent polyandrous families (4)

Lineages. Q43. Binary variable that takes on a value of:

- Zero, if descent is: Bilateral (374)
- One, if descent is:
  - Patrilineal (593)
  - Duolateral (52)
  - Matrilineal (161)
  - Quasi-lineages (12)
  - Ambilineal (49)
  - Mixed (50)

Segmented communities and localized clans. Q15. Binary variable that takes on a value of:

- Zero, if community organization is:
  - Demes, not segregated into clan barrios (86)
  - Agamous communities (404)
  - Exogamous communities, not clans (119)
- One, if community organization is:
  - Segmented communities without local exogamy (262)
  - Segmented communities, localized clans, local exogamy (9)
  - Clan communities, or clan barrios (242)

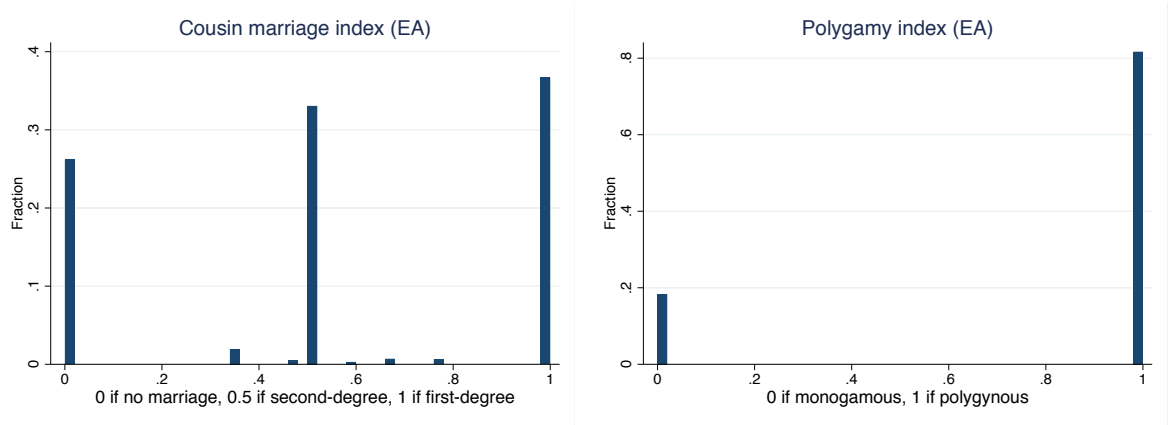


Figure 7: Distribution of cousin marriage index (left panel) and polygamy index (right panel).

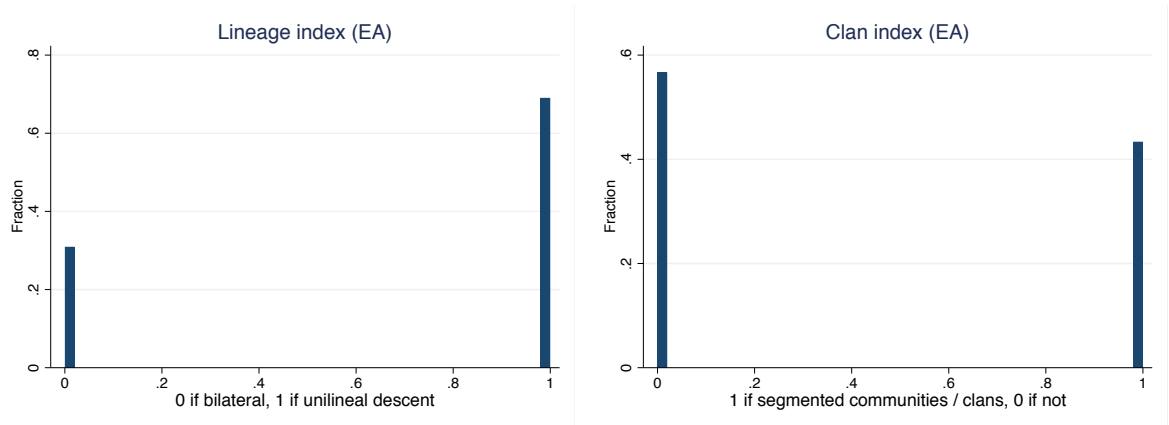


Figure 8: Distribution of lineage index (left panel) and clan index (right panel).

Kinship tightness index. First principal component of extended vs. nuclear family, post-wedding residence, cousin marriage, polygamy, lineages, and segmented communities and clans. The index loads negatively on independent nuclear families (weight 0.35), negatively on neolocal residence (0.42), positively on cousin marriage (0.19), positively on polygamy (0.35), positively on unilineal (bilateral) descent (0.54), and positively on the presence of segmented communities or clans (0.50).

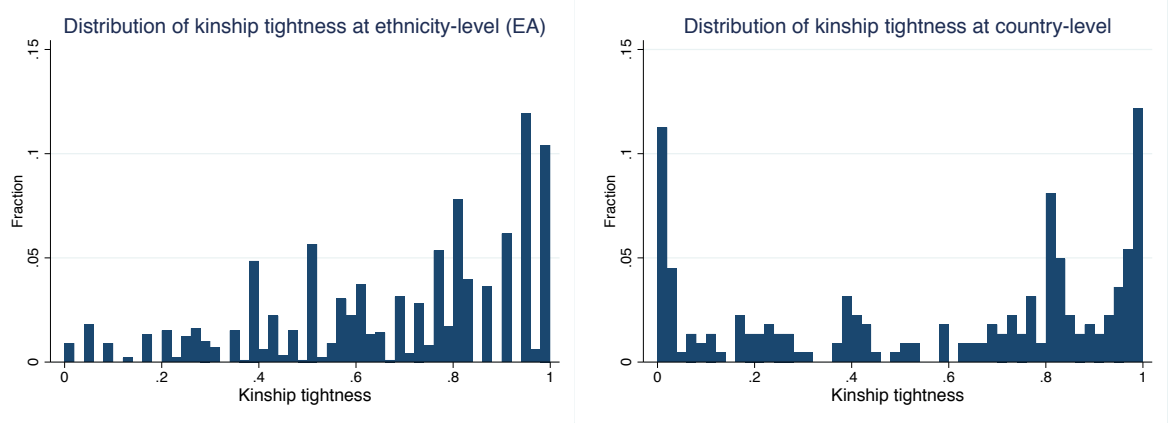


Figure 9: Distribution of kinship tightness at ethnicity level (left panel) and country level (right panel).

A.2 Distribution of Kinship Tightness

B Cooperation and Trust in Historical Ethnicities

This section extends the analysis in the main text to cooperation and trust patterns in historical ethnicities in the Ethnographic Atlas, based on the records of ethnographers. Ross (1983) coded an eleven-step variable that describes the extent to which parents in the respective ethnicity inculcated trust into their children. For the lack of more detailed information, I interpret this abstract trust variable as being similar to the "general trust" question in the WVS, i.e., that it describes trust levels in other people in general, as opposed to in the family or neighbors only.

In addition, the SCCS sample contains information on the acceptability of violence against members from (i) the local community, (ii) the same society, and (iii) other societies. From these variables, I construct a summary statistic of in-group favoritism by computing the difference between the acceptability of violence against other societies and the average acceptability of violence against the local community and the same society.

To reiterate, these types of variables reflect the impressions of ethnographers of values and beliefs in the respective communities; while such variables are probably noisy, I

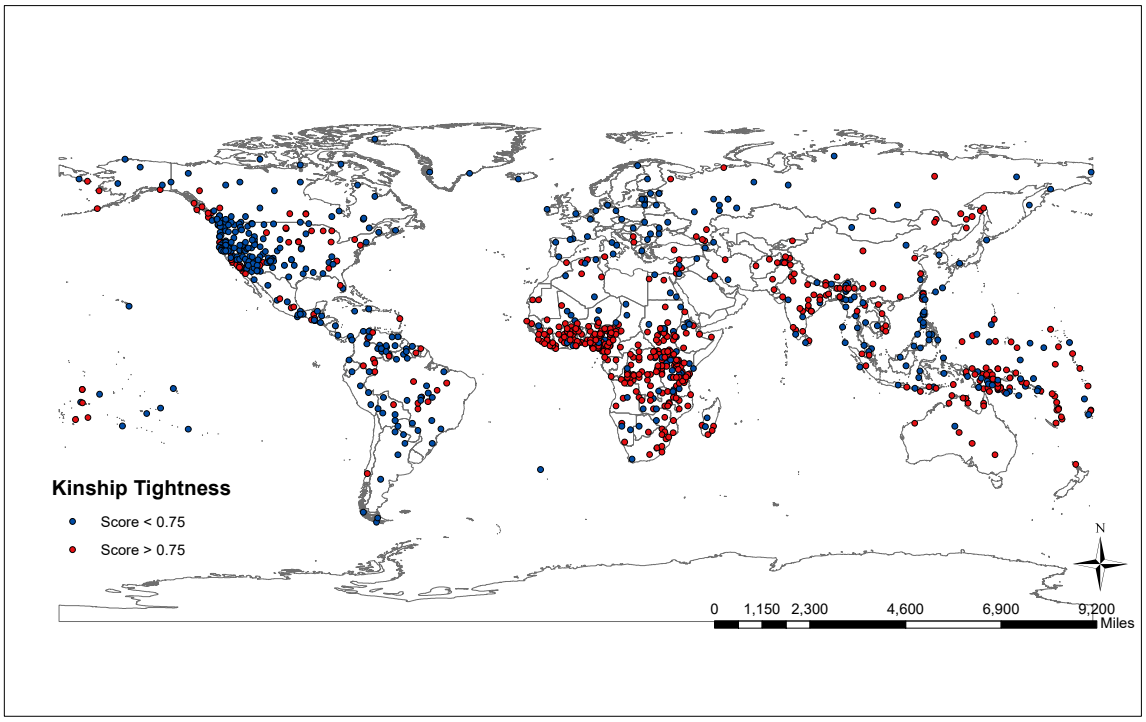


Figure 10: Distribution of kinship tightness index in the EA

am not aware of reasons to expect that they are somehow biased in favor of the research hypothesis. Columns (1) and (2) of Table 13 provide evidence that trust is negatively correlated with kinship tightness, which is reminiscent of the correlations found in contemporary data. In addition, as shown in columns (3)–(6), kinship tightness is positively correlated with the difference in the acceptability of violence against members of other societies and the same society. Thus, it appears as if kinship tightness was already associated with higher in-group favoritism in pre-industrial times.

Table 13: Trust and violence in historical ethnicities

	Dependent variable:					
	Trust		Acceptability of violence against:			
	Inculcate trust children		Other society	Same society	Δ [Other – same]	
	(1)	(2)	(3)	(4)	(5)	(6)
Kinship tightness	-0.66*	-0.70*	1.18*	-0.44	1.18**	1.05**
	(0.39)	(0.40)	(0.70)	(0.52)	(0.54)	(0.52)
Continent FE	Yes	Yes	Yes	Yes	Yes	Yes
Historical controls	No	Yes	No	No	No	Yes
Observations	129	126	63	76	60	60
R^2	0.05	0.11	0.12	0.05	0.15	0.35

Notes. Historical ethnicity-level OLS estimates, robust standard errors in parentheses. In columns (1)–(2), the dependent variable is a categorical 11-step variable that describes the extent to which ethnicities inculcated trust in their children. The dependent variable in column (3) is the acceptability of violence against other societies (0-3) and in column (4) it is the average acceptability of violence against members of the same society and against members of the same local community. In columns (5)–(6), the dependent variable is the difference between the variables in (3) and (4). Historical controls include year of observation, distance from the equator, longitude, average elevation, and number of jurisdictional hierarchies above the local level. All dependent variables are expressed as z-scores. * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$.

C The Dynamics of Religious Beliefs: A Cautious Approach

This Appendix studies the presence of belief in a moralizing god in contemporary data. As explained above, moralizing gods in principle have a larger upside in the impersonal exchange system of loose kinship. However, the researchers outside of economics that have theorized about the evolution of prosocial religions have pointed out that the relationship between the presence of impersonal exchange and a moralizing god may weaken or even reverse over time (Norenzayan and Shariff, 2008; Norenzayan, 2013; Norenzayan et al., 2016). The argument is that once a moralizing god has allowed societies to enforce cooperation, people have internalized many of the behavioral prescriptions that are associated with a moralizing god (e.g., through individualizing moral values and internalized guilt) and / or have developed formal institutions that sanction defectors. Thus, the argument goes, at some point a belief in a moralizing deity might become functionally redundant.[33] However, these theories do not make a prediction about *when* this weakening or reversal should occur so that any correlation found in contemporary data could in principle be rationalized post hoc.

Studying the relationship between ancestral kinship tightness and belief in a moralizing god is also complicated by the fact that – due to the spread of the Abrahamic

[33]The metaphor that researchers such as Norenzayan and Shariff (2008) and Norenzayan (2013) use is that societies might initially use a moralizing god to "climb up the evolutionary ladder" of cooperation, yet once they have arrived at the top stairs, they "kick away the ladder on which they climbed up".

Table 14: Religious beliefs across countries

	Dependent variable:					
	Belief in hell			Belief in heaven		
	(1)	(2)	(3)	(4)	(5)	(6)
Kinship tightness	1.18***	0.96***	0.44	0.64*	0.30	0.14
	(0.30)	(0.33)	(0.37)	(0.33)	(0.39)	(0.41)
EA controls	No	Yes	Yes	No	Yes	Yes
Other controls	No	No	Yes	No	No	Yes
Continent FE	No	No	Yes	No	No	Yes
Colonizer FE	No	No	Yes	No	No	Yes
Observations	79	79	79	64	64	64
R^2	0.16	0.25	0.73	0.05	0.21	0.75

Notes. Country-level OLS estimates, robust standard errors in parentheses. The dependent variable in columns (1)–(3) is belief in hell and in (4)–(6) it is belief in heaven, both from the WVS. EA controls include dependence on agriculture, number of levels of jurisdictional hierarchies above the local level, and year of observation (all computed as pertaining to contemporary populations). Other controls include distance from the equator, log land suitability for agriculture, and ancestry-adjusted log population density in 1500. The dependent variables are expressed as z-scores. * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$.

religions – the number of independent religions and hence observations is very small. In addition, classifications of the extent to which modern religions are moralizing are not readily available. I attempt to circumvent these problems by analyzing belief in hell and heaven in the WVS. Given that post-mortal punishment and reward are some of the key characteristics of moralizing religions, I use responses to these answers as proxy for the extent to which people today honor a moralizing deity. It is worth pointing out that these variables are an imperfect proxy for belief in moralizing deities because the WVS data do not allow me to evaluate whether people believe that entering hell and heaven is actually based on their prosocial behavior towards other humans.

With this caveat in mind, Table 7 investigates the relationship between ancestral kinship tightness and belief in hell and heaven across contemporary countries. The results document that kinship tightness is consistently positively related to belief in hell and heaven, respectively, yet these correlations are not statistically significant once covariates are accounted for. Table 15 documents that very similar results hold in within-country cross-ethnicity analyses.

Table 15: Religious beliefs: Within-country evidence (WVS)

	Dependent variable:					
	Belief in hell			Belief in heaven		
	(1)	(2)	(3)	(4)	(5)	(6)
Kinship tightness	0.20***	0.20***	0.087*	0.21*	0.20	0.15
	(0.04)	(0.04)	(0.05)	(0.13)	(0.13)	(0.12)
Country FE	Yes	Yes	Yes	Yes	Yes	Yes
Wave FE	Yes	Yes	Yes	Yes	Yes	Yes
Individual-level controls	No	Yes	Yes	No	Yes	Yes
Ethnicity-level controls	No	No	Yes	No	No	Yes
Observations	29736	29674	25955	15256	15249	11665
R^2	0.35	0.35	0.31	0.38	0.39	0.40

Notes. Individual-level OLS estimates in the WVS, standard errors (clustered at ethnicity level) in parentheses. The dependent variable in columns (1)–(3) is belief in hell in the WVS. In columns (4)–(6), it is belief in heaven. Individual level controls include gender, age, and age squared. Ethnicity level controls include dependence on agriculture, number of levels of jurisdictional hierarchies above the local level, distance from the equator, and year of observation in the EA. * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$.

D Additional Tables

D.1 Ancestral Kinship Tightness and Contemporary Individualism

Table 16: Kinship tightness and proxies for individualism

	Dependent variable:								
	Individualism			Family ties			Pronoun drop allowed		
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
Kinship tightness	-1.14***	-1.02***	-1.56***	1.05***	0.92**	1.48***	1.07**	1.33**	1.67***
	(0.27)	(0.28)	(0.31)	(0.35)	(0.35)	(0.49)	(0.49)	(0.52)	(0.25)
EA controls	No	Yes	Yes	No	Yes	Yes	No	Yes	Yes
Other controls	No	No	Yes	No	No	Yes	No	No	Yes
Continent FE	No	No	Yes	No	No	Yes	No	No	Yes
Colonizer FE	No	No	Yes	No	No	Yes	No	No	Yes
Observations	100	99	97	66	66	66	110	108	97
R^2	0.16	0.26	0.75	0.12	0.24	0.71	0.14	0.22	0.54

Notes. Country-level OLS estimates, robust standard errors in parentheses. In columns (7)–(9), the standard errors are clustered at the dominant language in a country. The dependent variable in columns (1)–(3) is the individualism variable of Hofstede (1984). In columns (4)–(6), it is family ties as discussed in Alesina and Giuliano (2013), and in columns (7)–(9) it is the fraction of the population that speaks a language which allows dropping the pronoun, see Appendix F. EA controls include dependence on agriculture, number of levels of jurisdictional hierarchies above the local level, and year of observation (all computed as pertaining to contemporary populations). Other controls include distance from the equator, log land suitability for agriculture, and ancestry-adjusted log population density in 1500. All dependent variables are expressed as z-scores. * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$.

D.2 Robustness Checks for EA Analyses

Table 17: Religious beliefs of historical ethnicities: Robustness

	Dependent variable: Moralizing god			
	Sample restricted to:			
	Have a high god		Americas & Oceania	
	(1)	(2)	(3)	(4)
Kinship tightness	-0.56***	-0.35***	-0.25**	-0.15**
	(0.11)	(0.09)	(0.11)	(0.07)
Continent FE	Yes	Yes	Yes	Yes
Historical controls	No	Yes	No	Yes
Observations	401	381	265	259
R^2	0.19	0.52	0.05	0.42

Notes. Ethnicity-level OLS estimates in EA, robust standard errors in parentheses. The dependent variable is an indicator for whether a society had a moralizing god. The sample is restricted to ethnicities that have a high god (moralizing or not), columns (1)–(2), or to Oceania and the Americas, columns (3)–(4). The historical controls include dependence on agriculture, settlement complexity, number of jurisdictional hierarchies above the local level, distance from the equator, longitude, and average elevation. * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$.

Table 18: EA analyses excluding hunter-gatherers

	Dependent variable:					
	Global institutions		Local institutions		Religion	
	# Levels jurisdictional hierarchy					
	Above local level		Local level		Moralizing god	
	(1)	(2)	(3)	(4)	(5)	(6)
Kinship tightness	-0.53**	-0.51**	1.64***	1.62***	-0.27**	-0.21**
	(0.25)	(0.25)	(0.17)	(0.17)	(0.11)	(0.10)
Continent FE	Yes	Yes	Yes	Yes	Yes	Yes
Historical controls	No	Yes	No	Yes	No	Yes
Observations	595	587	603	595	430	410
R^2	0.21	0.30	0.23	0.28	0.23	0.48

Notes. Ethnicity-level OLS estimates in EA, robust standard errors in parentheses. The dependent variables in columns (1)–(2) and (3)–(4) are the number of levels of jurisdictional hierarchy above the local and at the local level, respectively. In columns (5)–(6), the dependent variable is the presence of a moralizing god. All dependent variables are expressed as z-scores. The sample excludes ethnicities that subsisted to at least 50% on (the sum of) hunting, gathering, and fishing. In columns (1)–(4), the historical controls include dependence on agriculture, year of observation, settlement complexity, distance from the equator, longitude, and average elevation. Column (6) additionally includes the number of levels of jurisdictional hierarchies above the local level. * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$.

D.3 Robustness Check for Within-Country Trust Analysis

Table 19: Trust patterns: Within-country evidence

	Dependent variable:											
	Trust in:											
	Family		Neighbors		People know		Meet first time		Other religion		Foreign nationality	
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)
Kinship tightness	0.033*	0.16*	0.24***	0.33	-0.0024	0.35	-0.12***	0.13	-0.41***	-0.30	-0.39***	-0.11
	(0.02)	(0.08)	(0.06)	(0.27)	(0.04)	(0.24)	(0.04)	(0.16)	(0.10)	(0.29)	(0.09)	(0.26)
Country FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Wave FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Individual level controls	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Ethnicity-level controls	No	Yes	No	Yes	No	Yes	No	Yes	No	Yes	No	Yes
Observations	24048	22831	23073	22789	23082	22798	22902	22623	22310	22039	22309	22042
R^2	0.07	0.07	0.06	0.06	0.05	0.05	0.05	0.05	0.10	0.10	0.10	0.10

Notes. Individual-level OLS estimates in WVS, standard errors (clustered at ethnicity level) in parentheses. The dependent variables are respondents' trust in specific groups of people, as explained in the notes of Table 2. Individual level controls include gender, age, and age squared. Ethnicity level controls include dependence on agriculture, number of levels of jurisdictional hierarchies above the local level, distance from the equator, and year of observation in the EA. All dependent variables are expressed as z-scores. * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$.

D.4 Robustness Checks for Moral Values Analysis

Table 20: Moral values across countries: WLS regressions

	Dependent variable:					
	In-group loyalty			Rel. imp. communal values		
	(1)	(2)	(3)	(4)	(5)	(6)
Kinship tightness	0.91**	0.61	2.08***	0.20***	0.13*	0.44***
	(0.45)	(0.40)	(0.42)	(0.07)	(0.08)	(0.07)
EA controls	No	Yes	Yes	No	Yes	Yes
Other controls	No	No	Yes	No	No	Yes
Continent FE	No	No	Yes	No	No	Yes
Colonizer FE	No	No	Yes	No	No	Yes
Observations	197	195	154	197	195	154
R^2	0.09	0.30	0.76	0.09	0.23	0.82

Notes. Country-level WLS estimates, robust standard errors in parentheses. The dependent variable in columns (1)–(3) is the in-group loyalty dimension in the MFQ. In columns (4)–(6), I compute the relative importance of communal values as described in Appendix F. As explained in the main text, the country-scores of moral values are sometimes based on very few respondents in the MFQ. Still, in the present table, the sample includes all countries, but each observation is weighted by the square root of the number of respondents in the MFQ. EA controls include dependence on agriculture, number of levels of jurisdictional hierarchies above the local level, and year of observation (all computed as pertaining to contemporary populations). Other controls include distance from the equator, log land suitability for agriculture, and ancestry-adjusted log population density in 1500. All dependent variables are expressed as z-scores. * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$.

Table 21: Moral values across countries: Controlling for trust

	Dependent variable:					
	In-group loyalty			Rel. imp. communal values		
	(1)	(2)	(3)	(4)	(5)	(6)
Kinship tightness	0.75**	0.74**	0.68*	1.42***	1.33***	1.40***
	(0.29)	(0.32)	(0.36)	(0.33)	(0.34)	(0.39)
General trust	-0.29***	-0.29***	-0.24**	0.0034	-0.041	-0.072
	(0.10)	(0.10)	(0.11)	(0.10)	(0.11)	(0.12)
EA controls	No	Yes	Yes	No	Yes	Yes
Other controls	No	No	Yes	No	No	Yes
Continent FE	No	No	Yes	No	No	Yes
Colonizer FE	No	No	Yes	No	No	Yes
Observations	78	78	77	78	78	77
R^2	0.19	0.20	0.53	0.23	0.31	0.58

Notes. Country-level OLS estimates, robust standard errors in parentheses. The dependent variable in columns (1)–(3) is the in-group loyalty dimension in the MFQ. In columns (4)–(6), I compute the relative importance of communal moral values by computing the first principal component of the MFQ dimensions fairness / reciprocity, harm / care, in-group loyalty, and respect / authority, see Appendix F for details. EA controls include dependence on agriculture, number of levels of jurisdictional hierarchies above the local level, and year of observation (all computed as pertaining to contemporary populations). Other controls include distance from the equator, log land suitability for agriculture, and ancestry-adjusted log population density in 1500. All dependent variables are expressed as z-scores. * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$.

Table 22: Moral values within countries: Controlling for trust in country of birth

	Dependent variable:					
	In-group loyalty			Rel. imp. communal values		
	(1)	(2)	(3)	(4)	(5)	(6)
Kinship tightness	0.19**	0.22**	0.27***	0.17***	0.20***	0.25***
	(0.09)	(0.08)	(0.06)	(0.06)	(0.06)	(0.03)
General trust in country of birth	-0.054	-0.062	-0.10	0.051	0.044	0.047
	(0.15)	(0.14)	(0.14)	(0.08)	(0.08)	(0.08)
Country FE	Yes	Yes	Yes	Yes	Yes	Yes
Individual-level controls	No	Yes	Yes	No	Yes	Yes
Country of origin controls	No	No	Yes	No	No	Yes
Additional country of origin controls	Yes	Yes	Yes	Yes	Yes	Yes
Observations	23753	23716	23716	22472	22437	22437
R^2	0.06	0.10	0.10	0.04	0.05	0.05

Notes. Individual-level OLS estimates in the MFQ, standard errors (clustered at country of birth) in parentheses. Individual level controls include gender, age, and age squared. Country of origin controls include dependence on agriculture, number of levels of jurisdictional hierarchies above the local level, and year of observation (all from the EA, but computed as pertaining to contemporary populations) as well as distance from the equator, log land suitability for agriculture, and ancestry-adjusted log population density in 1500. All dependent variables are expressed as z-scores. * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$.

D.5 Placebo Analysis: Historical Institutions as Explanatory Variable

This Appendix presents a placebo analysis. The purpose is to document that historical kinship tightness is much more consistently related to the structure of cooperation and psychological enforcement devices than historical institutions. To make this point, I relate all dependent variables from the analysis in the main text to the number of levels of jurisdictional hierarchies above the local level in the Ethnographic Atlas. This is the standard measure of institutional sophistication in the EA that the literature has used (Alesina et al., 2013; Giuliano and Nunn, 2013, 2017). To work with this variable in contemporary data (both across countries and across migrants), I again follow Giuliano and Nunn (2017) in constructing an ancestry-adjusted version of the jurisdictional hierarchies variable in exactly the same fashion as for the kinship tightness variable, i.e., by matching contemporary linguistic groups to the ethnicities in the EA.

Table 23 presents an analysis of the dependent variables in the Ethnographic Atlas. Here, institutions are positively related to belief in a moralizing god, but uncorrelated with loyalty to the local community (moral values) or the number of levels of jurisdictional hierarchies at the local level. Moreover, institutional quality above the local level is *positively* correlated with the strength of local enforcement and the extent to which obedience is inculcated into children. Thus, institutional quality does not generate the distinctive pattern of kinship tightness, i.e., positive correlations with some and negative correlations with other enforcement devices.

Tables 24 through 26 present the contemporary country-level analyses. Here, again, historical institutional sophistication is related to some of the cooperation variables and enforcement devices (as is expected because it is negatively correlated with kinship tightness), yet the associations are not as strong and consistent as in the case of kinship tightness. For example, experimental cheating, in-group favoritism, generalized trust, shame vs. guilt, and the relative importance of prosocial punishment are not significantly correlated with historical institutional sophistication. Moreover, when kinship tightness and institutional sophistication are jointly inserted into the regression, kinship tightness almost always continues to be statistically significant.

Finally, Tables 27 through 30 present the individual-level within-country analyses with institutions as explanatory variable. In the WVS, historical institutional sophistication is not significantly correlated with *any* dependent variable, i.e., the importance of helping in-group members, trust, the difference between in-group and out-group trust, and the importance of behaving properly. Similar patterns hold in analyses across second-generation migrants in the ESS (Table 28), MFQ (Table 29) and GPS (Table 30). In fact, in *none* of the within-country analyses is the sophistication of historical institu-

tions significantly related to the structure of psychological enforcement devices.

In sum, these patterns suggest that the consistent pattern that links kinship tightness, cooperation, trust, and psychological enforcement devices, is not an artifact of variations in institutional quality.

Table 23: Placebo analysis in Ethnographic Atlas: Historical institutions as explanatory variable

	Dependent variable:									
	Moralizing god		Loyalty local community		Local jurisd. hierarchy		Strength local enf.		Inculcate obedience	
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
Jurisdictional hierarchy beyond local community	0.16***	0.15***	0.16	0.079	0.053	0.084**	0.32**	0.24*	0.26***	0.28***
	(0.02)	(0.02)	(0.14)	(0.15)	(0.04)	(0.03)	(0.12)	(0.12)	(0.08)	(0.08)
Kinship tightness		-0.24***		1.03**		1.55***		1.10**		0.79**
		(0.07)		(0.50)		(0.13)		(0.45)		(0.31)
Continent FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Observations	642	642	81	81	918	918	87	87	154	154
R^2	0.31	0.32	0.04	0.09	0.17	0.28	0.31	0.37	0.16	0.19

Notes. Ethnicity-level OLS estimates, robust standard errors in parentheses. See Table 6 for details on the dependent variables. * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$.

Table 24: Placebo analysis across countries: Historical institutions as explanatory variable (1/3)

	Dependent variable:													
	Cooperation						Trust				Moral values			
	PGG		Cheating		Nepotism		General trust		Δ [In – Out] Trust		In-group loyalty		Rel. imp. communal values	
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)
Jurisdictional hierarchy beyond local community	0.61***	0.41**	-0.31	0.059	-0.063	0.095	0.28	0.21	0.27*	0.48***	-0.30**	-0.19	-0.23**	-0.065
	(0.13)	(0.16)	(0.33)	(0.26)	(0.14)	(0.14)	(0.18)	(0.19)	(0.15)	(0.16)	(0.13)	(0.13)	(0.11)	(0.13)
Kinship tightness		-1.58**		2.09***		0.87***		-0.48		1.39***		0.74***		1.17***
		(0.63)		(0.54)		(0.26)		(0.35)		(0.33)		(0.27)		(0.33)
Observations	15	15	23	23	114	114	94	94	74	74	104	104	104	104
R^2	0.22	0.43	0.04	0.43	0.00	0.08	0.04	0.06	0.03	0.24	0.03	0.09	0.02	0.17

Notes. Country-level OLS estimates, robust standard errors in parentheses. * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$.

Table 25: Placebo analysis across countries: Historical institutions as explanatory variable (2/3)

	Dependent variable:													
	Shame vs. guilt				Δ Punishment [Prosoc. – Other]				Institutions		Social norms			
	Google		Self-reports		PGG		GPS		Property rights		Conformity		Behave prop.	
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)
Jurisdictional hierarchy beyond local community	-0.032	0.18	-0.31	0.15	0.12	-0.061	0.22	-0.031	0.28***	0.13*	-0.74***	-0.21	-0.45**	-0.28
	(0.14)	(0.15)	(0.23)	(0.21)	(0.31)	(0.31)	(0.14)	(0.15)	(0.07)	(0.08)	(0.22)	(0.28)	(0.20)	(0.20)
Kinship tightness		1.09***		1.45***		-1.41		-1.28***		-0.88***		1.55		1.04***
		(0.35)		(0.53)		(0.85)		(0.33)		(0.25)		(0.87)		(0.31)
Language FE	Yes	Yes	No	No	No	No	No	No	No	No	No	No	No	No
Observations	59	59	35	35	15	15	75	75	175	175	15	15	75	75
R^2	0.50	0.56	0.04	0.21	0.01	0.17	0.02	0.18	0.06	0.14	0.37	0.49	0.08	0.20

Notes. Country-level OLS estimates, robust standard errors in parentheses. * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$.

Table 26: Placebo analysis across countries: Historical institutions as explanatory variable (3/3)

	Dependent variable:			
	Belief in heaven		Belief in hell	
	(1)	(2)	(3)	(4)
Jurisdictional hierarchy beyond local community	-0.49***	-0.35**	-0.58***	-0.53***
	(0.16)	(0.17)	(0.17)	(0.18)
Kinship tightness		0.98***		0.32
		(0.32)		(0.38)
Observations	79	79	64	64
R^2	0.11	0.21	0.16	0.17

Notes. Country-level OLS estimates, robust standard errors in parentheses.
* $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$.

Table 27: Placebo analysis in WVS (individual level): Historical institutions as explanatory variable

	Dependent variable:							
	Important help		Gen. trust		Δ Trust [In vs. Out-group]		Imp. behave properly	
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Jurisdictional hierarchy beyond local community	-0.025	-0.013	0.0039	-0.0013	-0.073*	-0.012	-0.0075	0.00051
	(0.02)	(0.02)	(0.02)	(0.02)	(0.04)	(0.04)	(0.01)	(0.02)
Kinship tightness		0.34**		-0.071		0.46***		0.092
		(0.14)		(0.07)		(0.12)		(0.06)
Country FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Wave FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Observations	15304	15304	41743	41743	21692	21692	25375	25375
R^2	0.06	0.06	0.07	0.07	0.08	0.08	0.07	0.07

Notes. Individual-level OLS estimates in the WVS, robust standard errors (clustered at ethnic group level) in parentheses.
* $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$.

Table 28: Placebo analysis in ESS (individual level): Historical institutions as explanatory variable

	Dependent variable:													
	Important help		Important loyal		Gen. trust		Others unfair		Imp. behave properly		Imp. follow rules		Imp. not attract attention	
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)
Jurisdictional hierarchy beyond local community	-0.021	-0.0100	-0.033*	-0.033	0.0093	-0.015	-0.028	-0.0023	-0.0099	-0.00026	0.027	0.033	-0.010	-0.0029
	(0.02)	(0.02)	(0.02)	(0.02)	(0.02)	(0.02)	(0.02)	(0.02)	(0.02)	(0.03)	(0.02)	(0.02)	(0.02)	(0.02)
Kinship tightness		0.068**		-0.0020		-0.16***		0.16***		0.061		0.042		0.047
		(0.03)		(0.04)		(0.04)		(0.03)		(0.04)		(0.04)		(0.04)
Country FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Wave FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	No	No	No	No	No	No
Observations	20154	20154	20167	20167	20656	20656	20444	20444	20100	20100	20058	20058	20118	20118
R^2	0.07	0.07	0.07	0.07	0.09	0.10	0.10	0.11	0.04	0.04	0.07	0.07	0.08	0.08

Notes. Individual-level OLS estimates in the ESS, robust standard errors (clustered at country of birth of father times country of birth of mother) in parentheses. * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$.

Table 29: Placebo analysis in MFQ (individual level): Historical institutions as explanatory variable

	Dependent variable:			
	In-group loyalty		Rel. imp. communal values	
	(1)	(2)	(3)	(4)
Jurisdictional hierarchy beyond local community	-0.026	0.053	0.0061	0.065
	(0.07)	(0.05)	(0.05)	(0.04)
Kinship tightness		0.48***		0.36***
		(0.08)		(0.05)
Country FE	Yes	Yes	Yes	Yes
Observations	26512	26512	25049	25049
R^2	0.03	0.05	0.02	0.03

Notes. Individual-level OLS estimates in the MFQ, robust standard errors (clustered at country of birth) in parentheses. * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$.

Table 30: Placebo analysis in GPS (individual level): Historical institutions as explanatory variable

	Dependent variable:	
	Δ Punishment [Altruistic – Second-party]	
	(1)	(2)
Jurisdictional hierarchy beyond local community	-0.0030	-0.095
	(0.05)	(0.06)
Kinship tightness		-0.35***
		(0.10)
Country FE	Yes	Yes
Observations	2306	2306
R^2	0.08	0.09

Notes. Individual-level OLS estimates in the GPS, robust standard errors (clustered at country of birth) in parentheses. * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$.

D.6 Controlling for Individual-Level Income and Education in Within-Country Analyses

This section presents a series of robustness checks for the individual-level within-country analyses in the WVS, ESS, GPS, and MFQ. In addition to the baseline control variables discussed in the main text, I here control for household income and the respondent's educational attainment (to the extent that such information is available). The results are almost always very similar to those reported in the main text.

Table 31: Within-country GPS analyses: Controlling for individual-level income and education

	Dependent variable:					
	Δ Punishment [Altruistic – Second-party]					
	(1)	(2)	(3)	(4)	(5)	(6)
Kinship tightness	-0.23***	-0.24***	-0.22**	-0.33***	-0.33***	-0.32**
	(0.08)	(0.09)	(0.09)	(0.12)	(0.12)	(0.12)
Education level	0.16***		0.17***	0.16***		0.17***
	(0.03)		(0.03)	(0.03)		(0.03)
Log [Household income p/c]		0.0083	-0.014		0.0052	-0.018
		(0.03)	(0.02)		(0.03)	(0.02)
Country FE	Yes	Yes	Yes	Yes	Yes	Yes
Individual level controls	Yes	Yes	Yes	Yes	Yes	Yes
Country of origin controls	No	No	No	Yes	Yes	Yes
Observations	2282	2281	2267	2259	2257	2244
R^2	0.10	0.09	0.10	0.10	0.10	0.11

Notes. Individual-level OLS estimates in the GPS, standard errors (clustered at country of birth) in parentheses. is the difference between prosocial punishment and second-party punishment in the Global Preference Survey, see Appendix F for details. Individual level controls include gender, age, and age squared. Country of origin controls include dependence on agriculture, number of levels of jurisdictional hierarchies above the local level, and year of observation (all from the EA, but computed as pertaining to contemporary populations) as well as distance from the equator, log land suitability for agriculture, and ancestry-adjusted log population density in 1500. The dependent variable is expressed as z-score. * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$.

Table 32: Within-country WVS analyses: Controlling for individual-level income and education

	Dependent variable:									
	General trust		Δ Trust [In- vs. out-group]		Imp. help people nearby		Imp. behave properly		Belief in hell	
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
Kinship tightness	-0.052	-0.042	0.51***	0.52**	0.38***	0.65***	0.14**	0.13	0.20***	0.088
	(0.05)	(0.12)	(0.09)	(0.23)	(0.11)	(0.21)	(0.06)	(0.13)	(0.04)	(0.06)
Education category	0.021***	0.017**	-0.030***	-0.031***	0.0093	0.0089	0.011	0.0099	-0.0053**	-0.0027
	(0.01)	(0.01)	(0.01)	(0.00)	(0.01)	(0.01)	(0.01)	(0.01)	(0.00)	(0.00)
Income category	0.0087	0.0096	0.00058	0.00023	-0.012	-0.014	-0.014	-0.015	-0.0031*	-0.0030
	(0.01)	(0.01)	(0.01)	(0.01)	(0.01)	(0.01)	(0.01)	(0.01)	(0.00)	(0.00)
Country FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Wave FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Individual level controls	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Ethnicity-level controls	No	Yes	No	Yes	No	Yes	No	Yes	No	Yes
Observations	39437	36076	20607	20375	14189	13968	23950	23708	26473	23513
R^2	0.08	0.08	0.09	0.09	0.07	0.07	0.08	0.08	0.33	0.29

Notes. Individual-level OLS estimates in WVS, standard errors (clustered at ethnicity level) in parentheses. The dependent variables are respondents' trust in specific groups of people, as explained in the notes of Table 2. All dependent variables are expressed as z-scores. Education category is in 8 steps and income in 10 steps, see Appendix F. Individual level controls include gender, age, and age squared. Ethnicity level controls include dependence on agriculture, number of levels of jurisdictional hierarchies above the local level, distance from the equator, and year of observation in the EA. * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$.

Table 33: Within-country ESS analyses: Controlling for individual-level and education (1/2)

	Dependent variable:							
	Trust		Others unfair		Imp. help people around self		Imp. loyal to friends	
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Kinship tightness	-0.14***	-0.17***	0.13***	0.16***	0.089***	0.070*	-0.015	-0.0099
	(0.03)	(0.04)	(0.03)	(0.04)	(0.03)	(0.04)	(0.03)	(0.04)
Years of education	0.043***	0.044***	-0.033***	-0.033***	0.0028	0.0034	0.011***	0.012***
	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)
Country FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Wave FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Individual-level controls	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Country of origin controls	No	Yes	No	Yes	No	Yes	No	Yes
Observations	20419	20073	20216	19872	19947	19615	19962	19630
R^2	0.12	0.12	0.12	0.12	0.09	0.09	0.08	0.08

Notes. Individual-level OLS estimates, robust standard errors (clustered at the level of the country of birth of the father times the country of birth of the mother) in parentheses. Individual level controls include gender, age, and age squared. Country of origin controls include dependence on agriculture, number of levels of jurisdictional hierarchies above the local level, and year of observation (all from the EA, but computed as pertaining to contemporary populations) as well as distance from the equator, log land suitability for agriculture, and ancestry-adjusted log population density in 1500. All dependent variables are expressed as z-scores. * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$.

Table 34: Within-country ESS analyses: Controlling for individual-level income and education (2/2)

	Dependent variable:					
	Imp. behave properly		Imp. follow rules		Imp. not draw attention	
	(1)	(2)	(3)	(4)	(5)	(6)
Kinship tightness	0.17***	0.19***	0.12***	0.18***	0.14***	0.12***
	(0.04)	(0.05)	(0.04)	(0.06)	(0.03)	(0.04)
Years of education	-0.019***	-0.019***	-0.017***	-0.017***	-0.024***	-0.024***
	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)
Country FE	Yes	Yes	Yes	Yes	Yes	Yes
Wave FE	Yes	Yes	Yes	Yes	Yes	Yes
Individual-level controls	Yes	Yes	Yes	Yes	Yes	Yes
Country of origin controls	No	Yes	No	Yes	No	Yes
Observations	19897	19565	19854	19523	19916	19586
R^2	0.06	0.06	0.09	0.09	0.11	0.11

Notes. Individual-level OLS estimates, robust standard errors (clustered at the level of the country of birth of the father times the country of birth of the mother) in parentheses. Individual level controls include gender, age, and age squared. Country of origin controls include dependence on agriculture, number of levels of jurisdictional hierarchies above the local level, and year of observation (all from the EA, but computed as pertaining to contemporary populations) as well as distance from the equator, log land suitability for agriculture, and ancestry-adjusted log population density in 1500. All dependent variables are expressed as z-scores. * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$.

Table 35: Within-country MFQ analyses: Controlling for individual-level education

	Dependent variable:					
	In-group loyalty			Rel. imp. communal values		
	(1)	(2)	(3)	(4)	(5)	(6)
Kinship tightness	0.19**	0.22**	0.29***	0.15***	0.18***	0.23***
	(0.09)	(0.09)	(0.07)	(0.05)	(0.06)	(0.04)
Education category	-0.092***	-0.063***	-0.068***	-0.033**	-0.034**	-0.037***
	(0.02)	(0.02)	(0.02)	(0.01)	(0.01)	(0.01)
Country FE	Yes	Yes	Yes	Yes	Yes	Yes
Individual-level controls	No	Yes	Yes	No	Yes	Yes
Country of origin controls	No	No	Yes	No	No	Yes
Additional country of origin controls	Yes	Yes	Yes	Yes	Yes	Yes
Observations	25315	25269	25105	23938	23894	23742
R^2	0.07	0.10	0.10	0.04	0.05	0.05

Notes. Individual-level OLS estimates in the MFQ, standard errors (clustered at country of birth) in parentheses. The dependent variable in columns (1)–(6) is the in-group loyalty dimension in the MFQ. In columns (7)–(12), I compute the relative importance of communal values by computing the first principal component of fairness / reciprocity and harm / care (both of which have negative weights) and in-group loyalty and authority / respect (both of which have positive weights). See Appendix F for details. All dependent variables are expressed as z-scores. Education category is a three-step variable: high school, college, graduate degree. Individual level controls include gender, age, and age squared. Country of origin controls include dependence on agriculture, number of levels of jurisdictional hierarchies above the local level, and year of observation (all from the EA, but computed as pertaining to contemporary populations) as well as distance from the equator, log land suitability for agriculture, and ancestry-adjusted log population density in 1500. Additional country of origin controls include longitude, average temperature, average elevation, and the fraction of the population at risk of malaria. * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$.

D.7 Additional Country-Level Geography Covariates

This section reports a set of robustness checks that condition on further country-level geography variables (longitude, average temperature, average elevation, and the fraction of the population at risk of malaria). Tables 36 through 38 replicate the cross-country analyses reported in the main text, yet additionally control for the set of geography variables. The set of regressions is restricted to those outcome variables with a sufficiently large number of observations since it is infeasible to condition on four additional covariates if the baseline regression has only, say, 15 observations.

Tables 38 through 40 present within-country analyses in the ESS, GPS, and MFQ in which I additionally control for the abovementioned set of geography variables in the respondent's country of origin.

Table 36: Country-level analyses: Controlling for geography (1/2)

	Dependent variable:											
	Favoritism and trust						Religious beliefs and moral values					
	In-group favoritism		General trust		Δ Trust [In- vs. out-group]		Belief in hell		In-group loyalty		Rel. imp. comm. values	
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)
Kinship tightness	1.10***	1.14***	-1.40***	-1.10***	1.63***	1.66***	0.41	0.40	1.05**	1.02**	1.26**	1.21**
	(0.30)	(0.31)	(0.42)	(0.38)	(0.45)	(0.46)	(0.43)	(0.40)	(0.48)	(0.47)	(0.48)	(0.48)
EA controls	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Other controls	No	Yes	No	Yes	No	Yes	No	Yes	No	Yes	No	Yes
Additional geography controls	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Continent FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Colonizer FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Observations	110	109	91	91	71	71	78	78	93	92	93	92
R^2	0.55	0.56	0.56	0.65	0.67	0.70	0.65	0.73	0.31	0.37	0.47	0.53

Notes. Country-level OLS estimates, robust standard errors in parentheses. In columns (1)–(2), the dependent variable is the fraction of jobs that is assigned based on kinship (Van de Vliert, 2011). In columns (3)–(4), it is general trust and in (5)–(6), the difference between in- and out-group trust, see Table 2. In columns (7)–(8), the dependent variable is belief in hell from the WVS. In columns (9)–(10) and (11)–(12), the dependent variables are in-group loyalty and the relative importance of communal moral values in the MFQ, compare Table 7. All dependent variables are expressed as z-scores. EA controls include dependence on agriculture, number of levels of jurisdictional hierarchies above the local level, and year of observation (all computed as pertaining to contemporary populations). Other controls include distance from the equator, log land suitability for agriculture, and ancestry-adjusted log population density in 1500. Additional geography include longitude, average temperature, average elevation, and the fraction of the population at risk of malaria. * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$.

Table 37: Country-level analyses: Controlling for geography (2/2)

	Dependent variable:							
	Shame – guilt		Punishment		Institutions and social norms			
	Google		Δ [Altruistic – second-party]		Property rights		Imp. behave properly	
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Kinship tightness	1.30***	1.39***	-1.17*	-1.34*	-1.20***	-1.10***	1.40***	1.37***
	(0.47)	(0.51)	(0.66)	(0.72)	(0.34)	(0.31)	(0.47)	(0.48)
Language FE	Yes	Yes	No	No	No	No	No	No
EA controls	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Other controls	No	Yes	No	Yes	No	Yes	No	Yes
Additional geography controls	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Continent FE	No	No	Yes	Yes	Yes	Yes	Yes	Yes
Colonizer FE	No	No	Yes	Yes	Yes	Yes	Yes	Yes
Observations	59	59	75	74	154	150	72	72
R^2	0.60	0.61	0.41	0.43	0.50	0.57	0.61	0.62

Notes. Country-level OLS estimates, robust standard errors in parentheses. In columns (1)–(2), the dependent variable is the difference in Google searches for shame and guilt, see Table 9. In columns (3)–(4), it is the difference between altruistic and second-party punishment in the GPS. In columns (5)–(6), it is a property rights index and in (7)–(8) the importance respondents in the WVS attach to behaving properly, compare Table 11. All dependent variables are expressed as z-scores. EA controls include dependence on agriculture, number of levels of jurisdictional hierarchies above the local level, and year of observation (all computed as pertaining to contemporary populations). Other controls include distance from the equator, log land suitability for agriculture, and ancestry-adjusted log population density in 1500. Additional geography include longitude, average temperature, average elevation, and the fraction of the population at risk of malaria. * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$.

Table 38: Within-country ESS analyses: Additional geography controls in country of origin

	European Social Survey													
	Dependent variable:													
					Important to:									
	Trust		Others unfair		Help people around self		Loyal to friends		Behave properly		Follow rules		Not draw attention	
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)
Kinship tightness	-0.14***	-0.12***	0.13***	0.12***	0.046	0.054	-0.016	0.0070	0.14***	0.14***	0.11**	0.12**	0.12***	0.10**
	(0.04)	(0.04)	(0.04)	(0.04)	(0.04)	(0.04)	(0.04)	(0.04)	(0.05)	(0.05)	(0.05)	(0.05)	(0.04)	(0.04)
Country FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Wave FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Individual-level controls	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Country of origin controls	No	Yes	No	Yes	No	Yes	No	Yes	No	Yes	No	Yes	No	Yes
Additional country of origin controls	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Observations	20231	20148	20024	19941	19755	19677	19768	19690	19702	19624	19661	19583	19722	19644
R^2	0.10	0.10	0.11	0.11	0.09	0.09	0.08	0.08	0.06	0.06	0.09	0.09	0.10	0.10

Notes. Individual-level OLS estimates in the ESS, standard errors (clustered at the level of the country of birth of the father times the country of birth of the mother) in parentheses. The dependent variables are general trust (columns (1)–(2)), the belief that others will be selfish ((3)–(4)), the extent to which respondents deem helping people around the self ((5)–(6)), being loyal to friends ((7)–(8)), behaving properly ((9)–(10)), following rules ((11)–(12)), and not drawing attention ((13)–(14)) important. Individual level controls include gender, age, and age squared. Country of origin controls include dependence on agriculture, number of levels of jurisdictional hierarchies above the local level, and year of observation (all from the EA, but computed as pertaining to contemporary populations) as well as distance from the equator, log land suitability for agriculture, and ancestry-adjusted log population density in 1500. Additional country of origin controls include longitude, average temperature, average elevation, and the fraction of the population at risk of malaria. All dependent variables are expressed as z-scores. * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$.

Table 39: Within-country MFQ analyses: Additional geography controls in country of origin

	Dependent variable:					
	In-group loyalty			Rel. imp. communal values		
	(1)	(2)	(3)	(4)	(5)	(6)
Kinship tightness	0.18**	0.21**	0.28***	0.16***	0.18***	0.24***
	(0.09)	(0.08)	(0.07)	(0.06)	(0.06)	(0.04)
Country FE	Yes	Yes	Yes	Yes	Yes	Yes
Individual-level controls	No	Yes	Yes	No	Yes	Yes
Country of origin controls	No	No	Yes	No	No	Yes
Additional country of origin controls	Yes	Yes	Yes	Yes	Yes	Yes
Observations	25879	25825	25658	24457	24405	24250
R^2	0.06	0.10	0.10	0.04	0.05	0.05

Notes. Individual-level OLS estimates in the MFQ, standard errors (clustered at country of birth) in parentheses. The dependent variable in columns (1)–(3) is the in-group loyalty dimension in the MFQ. In columns (4)–(6), I compute the relative importance of communal values by computing the first principal component of fairness / reciprocity and harm / care (both of which have negative weights) and in-group loyalty and authority / respect (both of which have positive weights). See Appendix F for details. All dependent variables are expressed as z-scores. Individual level controls include gender, age, and age squared. Country of origin controls include dependence on agriculture, number of levels of jurisdictional hierarchies above the local level, and year of observation (all from the EA, but computed as pertaining to contemporary populations) as well as distance from the equator, log land suitability for agriculture, and ancestry-adjusted log population density in 1500. Additional country of origin controls include longitude, average temperature, average elevation, and the fraction of the population at risk of malaria. * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$.

Table 40: Within-country GPS analyses: Additional geography controls in country of origin

	Dependent variable:		
	Δ Punishment [Altruistic – Second-party]		
	(1)	(2)	(3)
Kinship tightness	-0.19	-0.19	-0.25*
	(0.12)	(0.12)	(0.14)
Country FE	Yes	Yes	Yes
Individual level controls	No	Yes	Yes
Country of origin controls	No	No	Yes
Additional country of origin controls	Yes	Yes	Yes
Observations	2295	2285	2264
R^2	0.09	0.09	0.10

Notes. Individual-level OLS estimates in the GPS, standard errors (clustered at country of birth) in parentheses. Individual level controls include gender, age, and age squared. Country of origin controls include dependence on agriculture, number of levels of jurisdictional hierarchies above the local level, and year of observation (all from the EA, but computed as pertaining to contemporary populations) as well as distance from the equator, log land suitability for agriculture, and ancestry-adjusted log population density in 1500. Additional country of origin controls include longitude, average temperature, average elevation, and the fraction of the population at risk of malaria. * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$.

D.8 Additional Country-Level Covariates: Fraction Europeans, Income and Education

This section replicates the cross-country and cross-migrant analyses from the main text, but additionally controls for either the fraction of the population that is of European descent (Putterman and Weil, 2010), or GDP p/c, or average years of schooling. That is, in the migrant analyses, I control for these variables in the country of origin.

Table 41: Country-level analyses: Controlling for fraction Europeans (1/2)

	Dependent variable:											
	In-group favoritism		General trust		Δ Trust [In- vs. out-group]		Belief in hell		In-group loyalty		Rel. imp. comm. values	
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)
Kinship tightness	1.22***	1.24***	-1.08**	-0.81**	0.90*	0.90	0.13	0.12	0.88**	0.87**	1.01**	0.99**
	(0.34)	(0.31)	(0.51)	(0.39)	(0.49)	(0.54)	(0.41)	(0.37)	(0.41)	(0.40)	(0.42)	(0.44)
% of European descent	-1.01***	-0.47	0.90***	0.49**	-1.30***	-1.05**	-1.40***	-0.66*	-0.86**	-0.039	-1.21***	-0.81*
	(0.28)	(0.34)	(0.27)	(0.24)	(0.36)	(0.46)	(0.34)	(0.37)	(0.37)	(0.40)	(0.42)	(0.47)
EA controls	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Other controls	No	Yes	No	Yes	No	Yes	No	Yes	No	Yes	No	Yes
Continent FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Colonizer FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Observations	111	111	92	92	72	72	78	78	94	94	94	94
R^2	0.48	0.52	0.51	0.62	0.54	0.56	0.65	0.75	0.27	0.36	0.49	0.51

Notes. Country-level OLS estimates, robust standard errors in parentheses. In columns (1)–(2), the dependent variable is the fraction of jobs that is assigned based on kinship (Van de Vliert, 2011). In columns (3)–(4), it is general trust and in (5)–(6), the difference between in- and out-group trust, see Table 2. In columns (7)–(8), the dependent variable is belief in hell from the WVS. In columns (9)–(10) and (11)–(12), the dependent variables are in-group loyalty and the relative importance of communal moral values in the MFQ, compare Table 7. All dependent variables are expressed as z-scores. EA controls include dependence on agriculture, number of levels of jurisdictional hierarchies above the local level, and year of observation (all computed as pertaining to contemporary populations). Other controls include distance from the equator, log land suitability for agriculture, and ancestry-adjusted log population density in 1500. * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$.

Table 42: Country-level analyses: Controlling for fraction Europeans (2/2)

	Dependent variable:							
	Shame – guilt		Punishment		Institutions and social norms			
	Google		Δ [Altruistic – second-party]		Property rights		Imp. behave properly	
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Kinship tightness	1.03**	0.95	-0.85	-1.07	-0.73**	-0.74**	0.78	0.82*
	(0.49)	(0.57)	(0.63)	(0.70)	(0.35)	(0.32)	(0.47)	(0.42)
% of European descent	-0.22	-0.32	0.76	0.58	1.54***	0.85**	-1.04***	-0.55
	(0.54)	(0.72)	(0.60)	(0.77)	(0.30)	(0.33)	(0.28)	(0.44)
Language FE	Yes	Yes	No	No	No	No	No	No
EA controls	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Other controls	No	Yes	No	Yes	No	Yes	No	Yes
Continent FE	No	No	Yes	Yes	Yes	Yes	Yes	Yes
Colonizer FE	No	No	Yes	Yes	Yes	Yes	Yes	Yes
Observations	59	59	74	74	155	155	73	73
R^2	0.56	0.57	0.40	0.41	0.47	0.54	0.53	0.58

Notes. Country-level OLS estimates, robust standard errors in parentheses. In columns (1)–(2), the dependent variable is the relative importance of shame versus guilt in ISEAR self-reports. In columns (3)–(4), it is the difference in Google searches for shame and guilt, see Table 9. In columns (5)–(6), it is the importance respondents in the WVS attach to behaving properly, compare Table 11. All dependent variables are expressed as z-scores. EA controls include dependence on agriculture, number of levels of jurisdictional hierarchies above the local level, and year of observation (all computed as pertaining to contemporary populations). Other controls include distance from the equator, log land suitability for agriculture, and ancestry-adjusted log population density in 1500. Additional geography include longitude, average temperature, average elevation, and the fraction of the population at risk of malaria. * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$.

Table 43: ESS analyses: Controlling for fraction Europeans

	European Social Survey													
	Dependent variable:													
					Important to:									
	Trust		Others unfair		Help people around self		Loyal to friends		Behave properly		Follow rules		Not draw attention	
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)
Kinship tightness	-0.13***	-0.13***	0.12***	0.13***	0.039	0.038	0.00062	0.0077	0.14***	0.15***	0.11***	0.12***	0.077*	0.081*
	(0.04)	(0.04)	(0.04)	(0.04)	(0.05)	(0.05)	(0.04)	(0.04)	(0.05)	(0.05)	(0.04)	(0.04)	(0.04)	(0.05)
% of European descent	0.049	0.10*	-0.040	-0.070	-0.050	-0.064	0.033	0.049	-0.037	-0.10	-0.042	-0.12*	-0.071	-0.090
	(0.04)	(0.06)	(0.04)	(0.05)	(0.04)	(0.04)	(0.03)	(0.05)	(0.05)	(0.07)	(0.04)	(0.07)	(0.05)	(0.06)
Country FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Wave FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Individual-level controls	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Country of origin controls	No	Yes	No	Yes	No	Yes	No	Yes	No	Yes	No	Yes	No	Yes
Observations	20223	20223	20015	20015	19751	19751	19764	19764	19698	19698	19657	19657	19718	19718
R^2	0.09	0.09	0.11	0.11	0.09	0.09	0.08	0.08	0.06	0.06	0.09	0.09	0.10	0.10

Notes. Individual-level OLS estimates in the ESS, standard errors (clustered at the level of the country of birth of the father times the country of birth of the mother) in parentheses. The dependent variables are general trust (columns (1)–(2)), the belief that others will be selfish ((3)–(4)), the extent to which respondents deem helping people around the self ((5)–(6)), being loyal to friends ((7)–(8)), behaving properly ((9)–(10)), following rules ((11)–(12)), and not drawing attention ((13)–(14)) important. Individual level controls include gender, age, and age squared. Country of origin controls include dependence on agriculture, number of levels of jurisdictional hierarchies above the local level, and year of observation (all from the EA, but computed as pertaining to contemporary populations) as well as distance from the equator, log land suitability for agriculture, and ancestry-adjusted log population density in 1500. All dependent variables are expressed as z-scores. * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$.

Table 44: MFQ analyses: Additional controls

	Dependent variable:											
	In-group loyalty						Rel. imp. communal values					
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)
Kinship tightness	0.18**	0.24***	0.21**	0.22**	0.19**	0.22***	0.19***	0.23***	0.23***	0.26***	0.26***	0.30***
	(0.08)	(0.07)	(0.08)	(0.09)	(0.09)	(0.08)	(0.06)	(0.04)	(0.07)	(0.08)	(0.07)	(0.07)
% of European descent	-0.37***	-0.24***					-0.22***	-0.23***				
	(0.06)	(0.08)					(0.05)	(0.06)				
Log [GDP p/c]			-0.11***	-0.086***					-0.059***	-0.052***		
			(0.02)	(0.02)					(0.01)	(0.02)		
Avg. yrs. of schooling					-0.065***	-0.050***					-0.026***	-0.016
					(0.01)	(0.01)					(0.01)	(0.01)
Country FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Individual-level controls	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Country of origin controls	No	Yes	No	Yes	No	Yes	No	Yes	No	Yes	No	Yes
Observations	25813	25707	25982	25670	25452	25268	24397	24295	24552	24261	24046	23875
R^2	0.10	0.10	0.10	0.10	0.10	0.10	0.05	0.05	0.05	0.05	0.05	0.05

Notes. Individual-level OLS estimates in the MFQ, standard errors (clustered at country of birth) in parentheses. The dependent variable in columns (1)–(6) is the in-group loyalty dimension in the MFQ. In columns (7)–(12), I compute the relative importance of communal values by computing the first principal component of fairness / reciprocity and harm / care (both of which have negative weights) and in-group loyalty and authority / respect (both of which have positive weights). See Appendix F for details. All dependent variables are expressed as z-scores. Individual level controls include gender, age, and age squared. Country of origin controls include dependence on agriculture, number of levels of jurisdictional hierarchies above the local level, and year of observation (all from the EA, but computed as pertaining to contemporary populations) as well as distance from the equator, log land suitability for agriculture, and ancestry-adjusted log population density in 1500. * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$.

Table 45: Within-country GPS analyses: Additional controls

	Dependent variable:								
	Δ Punishment [Altruistic – Second-party]								
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
Kinship tightness	-0.25**	-0.26**	-0.35**	-0.14	-0.15	-0.31**	-0.23**	-0.24**	-0.33**
	(0.12)	(0.12)	(0.14)	(0.10)	(0.10)	(0.14)	(0.11)	(0.11)	(0.14)
% of European descent	0.026	-0.0068	-0.00031						
	(0.09)	(0.09)	(0.15)						
Log [GDP p/c]				0.055**	0.045*	0.019			
				(0.02)	(0.02)	(0.04)			
Avg. yrs. of schooling							0.016	0.011	0.0086
							(0.02)	(0.02)	(0.02)
Country FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Individual level controls	No	Yes	Yes	No	Yes	Yes	No	Yes	Yes
Country of origin controls	No	No	Yes	No	No	Yes	No	No	Yes
Observations	2292	2282	2272	2300	2290	2266	2028	2018	2008
R^2	0.09	0.09	0.09	0.09	0.09	0.09	0.09	0.10	0.10

Notes. Individual-level OLS estimates in the GPS, standard errors (clustered at country of birth) in parentheses. is the difference between prosocial punishment and second-party punishment in the Global Preference Survey, see Appendix F for details. Individual level controls include gender, age, and age squared. Country of origin controls include dependence on agriculture, number of levels of jurisdictional hierarchies above the local level, and year of observation (all from the EA, but computed as pertaining to contemporary populations) as well as distance from the equator, log land suitability for agriculture, and ancestry-adjusted log population density in 1500. The dependent variable is expressed as z-score. * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$.

Table 46: Country-level analyses: Controlling for income p/c (1/2)

	Dependent variable:											
	In-group favoritism		General trust		Δ Trust [In- vs. out-group]		Belief in hell		In-group loyalty		Rel. imp. comm. values	
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)
Kinship tightness	0.61**	0.65**	-0.94*	-0.96**	0.90*	0.86	-0.19	0.13	0.96*	1.25**	0.85*	1.00**
	(0.26)	(0.26)	(0.49)	(0.45)	(0.53)	(0.56)	(0.53)	(0.50)	(0.56)	(0.56)	(0.44)	(0.48)
Log [GDP p/c]	-0.52***	-0.50***	0.20	0.018	-0.41***	-0.38**	-0.41***	-0.12	-0.028	0.25	-0.26*	-0.10
	(0.07)	(0.06)	(0.13)	(0.13)	(0.11)	(0.15)	(0.10)	(0.10)	(0.16)	(0.19)	(0.14)	(0.16)
EA controls	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Other controls	No	Yes	No	Yes	No	Yes	No	Yes	No	Yes	No	Yes
Continent FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Colonizer FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Observations	112	111	93	92	73	72	78	78	99	94	99	94
R^2	0.63	0.64	0.48	0.62	0.60	0.60	0.63	0.74	0.22	0.39	0.42	0.50

Notes. Country-level OLS estimates, robust standard errors in parentheses. In columns (1)–(2), the dependent variable is the fraction of jobs that is assigned based on kinship (Van de Vliert, 2011). In columns (3)–(4), it is general trust and in (5)–(6), the difference between in- and out-group trust, see Table 2. In columns (7)–(8), the dependent variable is belief in hell from the WVS. In columns (9)–(10) and (11)–(12), the dependent variables are in-group loyalty and the relative importance of communal moral values in the MFQ, compare Table 7. All dependent variables are expressed as z-scores. EA controls include dependence on agriculture, number of levels of jurisdictional hierarchies above the local level, and year of observation (all computed as pertaining to contemporary populations). Other controls include distance from the equator, log land suitability for agriculture, and ancestry-adjusted log population density in 1500. * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$.

Table 47: Country-level analyses: Controlling for income p/c (2/2)

	Dependent variable:							
	Shame – guilt		Punishment		Institutions and social norms			
	Google		Δ [Altruistic – second-party]		Property rights		Imp. behave properly	
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Kinship tightness	1.64***	1.61***	-0.67	-0.79	-0.19	-0.46*	0.62	0.63
	(0.57)	(0.54)	(0.61)	(0.66)	(0.25)	(0.25)	(0.48)	(0.48)
Log [GDP p/c]	0.21	0.25	0.29**	0.34**	0.54***	0.44***	-0.35***	-0.25*
	(0.15)	(0.16)	(0.13)	(0.15)	(0.06)	(0.07)	(0.12)	(0.14)
Language FE	Yes	Yes	No	No	No	No	No	No
EA controls	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Other controls	No	Yes	No	Yes	No	Yes	No	Yes
Continent FE	No	No	Yes	Yes	Yes	Yes	Yes	Yes
Colonizer FE	No	No	Yes	Yes	Yes	Yes	Yes	Yes
Observations	58	58	75	74	171	153	74	73
R^2	0.59	0.60	0.44	0.46	0.62	0.69	0.56	0.59

Notes. Country-level OLS estimates, robust standard errors in parentheses. In columns (1)–(2), the dependent variable is the relative importance of shame versus guilt in ISEAR self-reports. In columns (3)–(4), it is the difference in Google searches for shame and guilt, see Table 9. In columns (5)–(6), it is a property rights index and in (7)–(8) the importance respondents in the WVS attach to behaving properly, compare Table 11. All dependent variables are expressed as z-scores. EA controls include dependence on agriculture, number of levels of jurisdictional hierarchies above the local level, and year of observation (all computed as pertaining to contemporary populations). Other controls include distance from the equator, log land suitability for agriculture, and ancestry-adjusted log population density in 1500. Additional geography include longitude, average temperature, average elevation, and the fraction of the population at risk of malaria. * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$.

Table 48: ESS analyses: Controlling for income p/c

	European Social Survey													
	Dependent variable:													
					Important to:									
	Trust		Others unfair		Help people around self		Loyal to friends		Behave properly		Follow rules		Not draw attention	
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)
Kinship tightness	-0.19***	-0.18***	0.17***	0.16***	0.12***	0.11**	-0.012	-0.026	0.21***	0.19***	0.15**	0.16**	0.097**	0.098**
	(0.06)	(0.06)	(0.06)	(0.06)	(0.04)	(0.04)	(0.05)	(0.05)	(0.06)	(0.06)	(0.07)	(0.07)	(0.04)	(0.04)
Log [GDP p/c]	-0.0069	-0.0066	0.0029	0.00000067	0.013	0.027*	0.0069	-0.0023	0.013	-0.00021	0.0039	-0.0069	-0.015	-0.015
	(0.02)	(0.02)	(0.01)	(0.02)	(0.01)	(0.01)	(0.01)	(0.02)	(0.02)	(0.02)	(0.02)	(0.02)	(0.02)	(0.02)
Country FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Wave FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Individual-level controls	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Country of origin controls	No	Yes	No	Yes	No	Yes	No	Yes	No	Yes	No	Yes	No	Yes
Observations	20238	20088	20030	19880	19769	19623	19782	19636	19716	19570	19674	19529	19735	19590
R^2	0.10	0.09	0.11	0.11	0.09	0.09	0.07	0.08	0.06	0.06	0.09	0.09	0.10	0.10

Notes. Individual-level OLS estimates in the ESS, standard errors (clustered at the level of the country of birth of the father times the country of birth of the mother) in parentheses. The dependent variables are general trust (columns (1)–(2)), the belief that others will be selfish ((3)–(4)), the extent to which respondents deem helping people around the self ((5)–(6)), being loyal to friends ((7)–(8)), behaving properly ((9)–(10)), following rules ((11)–(12)), and not drawing attention ((13)–(14)) important. Individual level controls include gender, age, and age squared. Country of origin controls include dependence on agriculture, number of levels of jurisdictional hierarchies above the local level, and year of observation (all from the EA, but computed as pertaining to contemporary populations) as well as distance from the equator, log land suitability for agriculture, and ancestry-adjusted log population density in 1500. All dependent variables are expressed as z-scores. * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$.

Table 49: Country-level analyses: Controlling for education (1/2)

	Dependent variable:											
	In-group favoritism		General trust		Δ Trust [In- vs. out-group]		Belief in hell		In-group loyalty		Rel. imp. comm. values	
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)
Kinship tightness	1.50***	1.27***	-1.55***	-1.09***	1.35***	1.05**	0.49	0.15	0.80*	0.76*	0.80**	0.74**
	(0.30)	(0.28)	(0.50)	(0.39)	(0.43)	(0.45)	(0.43)	(0.42)	(0.48)	(0.44)	(0.38)	(0.36)
Avg. yrs. schooling	-0.23***	-0.21***	-0.084	-0.11	-0.12**	-0.19**	-0.26**	-0.14	-0.15*	-0.085	-0.045	0.0083
	(0.05)	(0.05)	(0.07)	(0.08)	(0.06)	(0.07)	(0.10)	(0.10)	(0.08)	(0.08)	(0.06)	(0.07)
EA controls	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Other controls	No	Yes	No	Yes	No	Yes	No	Yes	No	Yes	No	Yes
Continent FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Colonizer FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Observations	105	104	82	82	65	65	70	70	89	87	89	87
R^2	0.57	0.61	0.50	0.64	0.53	0.60	0.61	0.75	0.28	0.39	0.41	0.50

Notes. Country-level OLS estimates, robust standard errors in parentheses. In columns (1)–(2), the dependent variable is the fraction of jobs that is assigned based on kinship (Van de Vliert, 2011). In columns (3)–(4), it is general trust and in (5)–(6), the difference between in- and out-group trust, see Table 2. In columns (7)–(8), the dependent variable is belief in hell from the WVS. In columns (9)–(10) and (11)–(12), the dependent variables are in-group loyalty and the relative importance of communal moral values in the MFQ, compare Table 7. All dependent variables are expressed as z-scores. EA controls include dependence on agriculture, number of levels of jurisdictional hierarchies above the local level, and year of observation (all computed as pertaining to contemporary populations). Other controls include distance from the equator, log land suitability for agriculture, and ancestry-adjusted log population density in 1500. * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$.

Table 50: Country-level analyses: Controlling for education (2/2)

	Dependent variable:							
	Shame – guilt		Punishment		Institutions and social norms			
	Google		Δ [Altruistic – second-party]		Property rights		Imp. behave properly	
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Kinship tightness	1.35***	1.31**	-1.37*	-1.59**	-0.98***	-0.85***	1.18**	0.77*
	(0.49)	(0.51)	(0.71)	(0.77)	(0.36)	(0.28)	(0.49)	(0.42)
Avg. yrs. schooling	0.030	0.036	0.044	0.011	0.19***	0.16***	0.013	0.041
	(0.06)	(0.07)	(0.08)	(0.09)	(0.04)	(0.04)	(0.08)	(0.08)
Language FE	Yes	Yes	No	No	No	No	No	No
EA controls	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Other controls	No	Yes	No	Yes	No	Yes	No	Yes
Continent FE	No	No	Yes	Yes	Yes	Yes	Yes	Yes
Colonizer FE	No	No	Yes	Yes	Yes	Yes	Yes	Yes
Observations	55	55	71	71	138	133	66	66
R^2	0.57	0.57	0.40	0.42	0.48	0.64	0.48	0.59

Notes. Country-level OLS estimates, robust standard errors in parentheses. In columns (1)–(2), the dependent variable is the relative importance of shame versus guilt in ISEAR self-reports. In columns (3)–(4), it is the difference in Google searches for shame and guilt, see Table 9. In columns (5)–(6), it is a property rights index and in (7)–(8) the importance respondents in the WVS attach to behaving properly, compare Table 11. All dependent variables are expressed as z-scores. EA controls include dependence on agriculture, number of levels of jurisdictional hierarchies above the local level, and year of observation (all computed as pertaining to contemporary populations). Other controls include distance from the equator, log land suitability for agriculture, and ancestry-adjusted log population density in 1500. Additional geography include longitude, average temperature, average elevation, and the fraction of the population at risk of malaria. * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$.

Table 51: ESS analyses: Controlling for education

	European Social Survey													
	Dependent variable:													
					Important to:									
	Trust		Others unfair		Help people around self		Loyal to friends		Behave properly		Follow rules		Not draw attention	
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)
Kinship tightness	-0.080*	-0.11**	0.098**	0.12***	0.0030	0.0013	-0.021	-0.021	0.090*	0.12**	0.11**	0.14***	0.029	0.057
	(0.04)	(0.04)	(0.04)	(0.05)	(0.04)	(0.05)	(0.04)	(0.04)	(0.05)	(0.05)	(0.05)	(0.05)	(0.04)	(0.04)
Avg. yrs. schooling	0.019***	0.032***	-0.014***	-0.021***	-0.014**	-0.020***	0.0041	0.0056	-0.018***	-0.034***	-0.0099*	-0.023***	-0.021***	-0.030***
	(0.01)	(0.01)	(0.01)	(0.01)	(0.01)	(0.01)	(0.01)	(0.01)	(0.01)	(0.01)	(0.01)	(0.01)	(0.01)	(0.01)
Country FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Wave FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Individual-level controls	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Country of origin controls	No	Yes	No	Yes	No	Yes	No	Yes	No	Yes	No	Yes	No	Yes
Observations	18926	18904	18748	18726	18476	18454	18490	18468	18433	18411	18391	18369	18450	18428
R^2	0.10	0.10	0.12	0.11	0.09	0.09	0.07	0.07	0.06	0.06	0.09	0.09	0.10	0.10

Notes. Individual-level OLS estimates in the ESS, standard errors (clustered at the level of the country of birth of the father times the country of birth of the mother) in parentheses. The dependent variables are general trust (columns (1)–(2)), the belief that others will be selfish ((3)–(4)), the extent to which respondents deem helping people around the self ((5)–(6)), being loyal to friends ((7)–(8)), behaving properly ((9)–(10)), following rules ((11)–(12)), and not drawing attention ((13)–(14)) important. Individual level controls include gender, age, and age squared. Country of origin controls include dependence on agriculture, number of levels of jurisdictional hierarchies above the local level, and year of observation (all from the EA, but computed as pertaining to contemporary populations) as well as distance from the equator, log land suitability for agriculture, and ancestry-adjusted log population density in 1500. All dependent variables are expressed as z-scores. * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$.

D.9 Restrict Sample to Countries with at Least 80% Natives

Table 52: Country-level analyses: Restrict to countries with at least 80% native

	Dependent variable:												
	Cooperation		Trust		Moral values		Δ [Shame – guilt]		Δ Punishm.	Instit. and norms		Religious beliefs	
	Cheating	Favoritism	General	Δ [In vs. out]	Loyalty	Rel. imp. communal	Self-reports	Google	GPS	Property rights	Imp. behave	Hell	Heaven
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)
Kinship tightness	2.65***	1.65***	-1.27***	1.48***	1.31***	1.44***	1.47***	1.11***	-1.10***	-1.60***	1.64***	1.65***	1.33***
	(0.58)	(0.27)	(0.42)	(0.39)	(0.35)	(0.41)	(0.50)	(0.28)	(0.38)	(0.28)	(0.39)	(0.42)	(0.43)
Language FE	No	No	No	No	No	No	No	Yes	No	No	No	No	No
Observations	18	71	60	49	65	65	20	30	51	114	49	50	41
R^2	0.57	0.33	0.16	0.22	0.18	0.20	0.32	0.77	0.14	0.27	0.26	0.22	0.17

Notes. Country-level OLS estimates, robust standard errors in parentheses. The sample of observations is restricted to countries in which at least 80% are native according to the migration matrix of Putterman and Weil (2010). * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$.

D.10 Separate Kinship Tightness Proxies

This section presents a set of analyses that do not rely on the composite measure of kinship tightness, but rather on each component separately. To this end, Tables 53–58 in Appendix D.10 replicate one specification for each dependent variable from the analyses above. In all tables, each column corresponds to six separate regressions, i.e., one regression for each kinship tightness proxy. For ease of interpretation, I have coded the six dimensions such that they are increasing in kinship tightness.

Table 53: Country-level analyses: Separate kinship tightness proxies

	Dependent variable:														
	Cooperation			Trust		Religion	Moral values		Shame vs. guilt		Altruistic punishm.		Instit. + norms		
	PGG	Cheating	Nepotism	General	Δ [In – Out]	Belief hell	Loyalty	Comm. values	Self-rep.	Google	PGG	GPS	Property rights	Conform.	Behave prop.
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)	(15)
Extended family	-0.47	0.64	0.33	-0.30	0.65***	0.31	0.27	0.56**	0.82**	0.67**	-0.77	-0.72***	-0.40**	0.82	0.48*
	(0.58)	(0.47)	(0.21)	(0.24)	(0.24)	(0.24)	(0.23)	(0.22)	(0.36)	(0.29)	(0.47)	(0.24)	(0.19)	(0.61)	(0.26)
Joint residence	-1.28***	1.15**	0.63***	-0.55**	0.85***	0.48*	0.41*	0.65***	0.67*	0.63**	-0.78	-0.80***	-0.73***	1.00*	0.69**
	(0.41)	(0.41)	(0.21)	(0.25)	(0.23)	(0.24)	(0.22)	(0.21)	(0.36)	(0.28)	(0.45)	(0.27)	(0.20)	(0.52)	(0.26)
Cousin marriage	0.14	0.58	-0.18	0.28	0.40	0.38	0.16	0.18	0.058	0.60	0.62	0.48	0.081	0.36	-0.030
	(0.57)	(0.72)	(0.27)	(0.24)	(0.34)	(0.30)	(0.26)	(0.24)	(0.54)	(0.44)	(0.62)	(0.30)	(0.23)	(1.04)	(0.26)
Polygamy	-1.11**	1.38***	0.45**	-0.27	0.81***	1.40***	0.65***	0.98***	0.93**	0.94***	-0.98*	-1.08***	-0.70***	1.40**	1.03***
	(0.39)	(0.44)	(0.19)	(0.23)	(0.25)	(0.20)	(0.21)	(0.21)	(0.37)	(0.29)	(0.46)	(0.22)	(0.17)	(0.47)	(0.23)
Lineage	-1.20***	1.56***	0.63***	-0.37*	0.80***	0.91***	0.64***	0.91***	1.01***	0.42	-0.55	-0.68***	-0.86***	1.55***	0.92***
	(0.38)	(0.39)	(0.18)	(0.22)	(0.24)	(0.22)	(0.19)	(0.21)	(0.35)	(0.31)	(0.45)	(0.23)	(0.16)	(0.41)	(0.22)
Localized clans	-0.50	1.46***	0.58***	-0.49*	0.69*	0.37	0.72***	0.78**	1.60***	0.73*	-0.79	-0.35	-0.62***	2.14***	0.94***
	(0.37)	(0.51)	(0.22)	(0.27)	(0.35)	(0.29)	(0.21)	(0.33)	(0.37)	(0.37)	(0.59)	(0.26)	(0.18)	(0.46)	(0.29)
Language FE	No	No	No	No	No	No	No	No	No	Yes	No	No	No	No	No
Observations	15	23	114	94	74	79	104	104	35	59	15	75	175	15	75

Notes. Country-level OLS estimates, robust standard errors in parentheses. Each regression coefficient corresponds to a separate regression, i.e., a given column reports the results of six different regressions. The dependent variables are public goods game contributions (NOP) in column (1), experimental cheating (column (2)), nepotism in the business domain (column (3)), general trust (column (4)), the difference between in- and out-group trust (column (5)), belief in hell (column (6), MFQ in-group loyalty (column (7)), the relative importance of communal MFQ moral values (column (8)), the importance of shame over guilt in ISEAR self-reports (column (9)) and Google searches (column (10)), the relative importance of altruistic punishment in public goods game and GPS, respectively (columns (11) and (12)), property rights (column (13)), experimental conformity (column (14)), and the importance of behaving properly (column (15)). * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$.

Table 54: EA analyses: Separate kinship tightness proxies

	Dependent variable:					
	Beliefs & values		Institutions			
	Moral. god	Loyalty	Global	Local	Local enf.	Obedience
	(1)	(2)	(3)	(4)	(5)	(6)
Extended family	-0.079**	0.15	0.097	0.90***	0.77***	0.12
	(0.04)	(0.26)	(0.07)	(0.06)	(0.25)	(0.18)
Joint residence	-0.079*	0.79**	-0.14	0.30***	0.46*	0.40**
	(0.04)	(0.35)	(0.10)	(0.09)	(0.27)	(0.20)
Cousin marriage	0.14***	0.023	0.23***	0.10	0.23	-0.0073
	(0.04)	(0.29)	(0.08)	(0.08)	(0.23)	(0.20)
Polygamy	-0.21***	0.47	-0.34***	0.081	-0.34	0.15
	(0.05)	(0.34)	(0.11)	(0.09)	(0.26)	(0.22)
Lineage	-0.093**	0.22	-0.050	0.68***	0.69***	0.37**
	(0.04)	(0.30)	(0.09)	(0.08)	(0.24)	(0.18)
Localized clans	-0.16***	0.36	-0.27***	0.43***	0.51**	0.017
	(0.04)	(0.25)	(0.07)	(0.07)	(0.23)	(0.18)
Continent FE	Yes	Yes	Yes	Yes	Yes	Yes
Observations	656	82	919	928	88	157

Notes. Historical ethnicity-level OLS estimates, robust standard errors in parentheses. Each regression coefficient corresponds to a separate regression, i.e., a given column reports the results of six different regressions. The dependent variables are the presence of a moralizing god (column (1)), loyalty to the local community (column (2)), the number of jurisdictional hierarchies above the community level (column (3)) and at the community level (column (4)), the strength of local enforcement (column (5)), and the extent to which obedience is instilled into children (column (6)). * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$.

Table 55: Within-country WVS analyses: Separate kinship tightness proxies

	Dependent variable:				
	Trust		Important to:		Religious beliefs
	General	Δ [In – Out]	Help people nearby	Behave properly	Belief in hell
	(1)	(2)	(3)	(4)	(5)
Extended family	-0.045	0.16**	0.052	0.0078	0.099***
	(0.03)	(0.07)	(0.05)	(0.05)	(0.02)
Joint residence	-0.050	0.18**	0.12***	0.090*	0.099***
	(0.04)	(0.09)	(0.04)	(0.05)	(0.03)
Cousin marriage	0.019	-0.16	0.00091	-0.17***	-0.086*
	(0.06)	(0.16)	(0.13)	(0.05)	(0.05)
Polygamy	-0.0073	0.21*	0.088**	0.072	0.12***
	(0.05)	(0.10)	(0.04)	(0.05)	(0.03)
Lineages	0.084	0.21	0.0090	0.065	-0.042
	(0.05)	(0.13)	(0.06)	(0.04)	(0.07)
Localized clans	-0.11***	0.41***	-0.0034	0.11**	0.051
	(0.03)	(0.11)	(0.05)	(0.05)	(0.03)
Country FE	Yes	Yes	Yes	Yes	Yes
Wave FE	Yes	Yes	Yes	Yes	Yes
Individual level controls	Yes	Yes	Yes	Yes	Yes
Observations	44827	21871	15459	25522	29674

Notes. Individual-level OLS estimates in the WVS, robust standard errors (clustered at ethnicity level) in parentheses. Each regression coefficient corresponds to a separate regression, i.e., a given column reports the results of six different regressions. The dependent variables are general trust (column (1)), the difference between in- and out-group trust (column (2)), and the importance people attach to helping people nearby (column (3)) and behaving properly (column (4)). In column (5), the dependent variable is belief in hell. Individual-level controls include age, age squared, and gender. * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$.

Table 56: Within-country ESS analyses: Separate kinship tightness proxies

	Dependent variable:						
			Important to:				
	Trust	Others unfair	Help people	Be loyal to friends	Behave properly	Follow rules	Not draw attention
	(1)	(2)	(3)	(4)	(5)	(6)	(7)
Extended family	-0.038	0.027	0.022	-0.0029	0.041	0.037	0.034
	(0.03)	(0.02)	(0.02)	(0.02)	(0.03)	(0.02)	(0.02)
Joint residence	-0.081***	0.075***	0.038*	-0.012	0.097***	0.066***	0.091***
	(0.02)	(0.02)	(0.02)	(0.02)	(0.03)	(0.02)	(0.02)
Cousin marriage	-0.019	-0.0045	0.042*	-0.016	-0.0064	0.055*	-0.0035
	(0.03)	(0.03)	(0.02)	(0.02)	(0.04)	(0.03)	(0.03)
Polygamy	-0.14***	0.13***	0.071***	-0.033	0.12***	0.094**	0.098***
	(0.03)	(0.03)	(0.02)	(0.03)	(0.04)	(0.04)	(0.03)
Lineages	-0.12***	0.11***	0.084***	-0.0099	0.14***	0.11***	0.12***
	(0.03)	(0.02)	(0.02)	(0.03)	(0.03)	(0.03)	(0.03)
Localized clans	-0.053	0.027	0.10***	0.014	0.090**	0.037	0.094**
	(0.04)	(0.03)	(0.03)	(0.03)	(0.04)	(0.04)	(0.04)
Country FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Wave FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Individual-level controls	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Observations	20572	20362	20086	20099	20033	19991	20051

Notes. Individual-level OLS estimates in the ESS, robust standard errors (clustered at the level of the country of birth of the father times the country of birth of the mother) in parentheses. Each regression coefficient corresponds to a separate regression, i.e., a given column reports the results of six different regressions. The dependent variables are general trust (column (1)), a belief that others mostly take advantage of oneself (column (2)) as well as the importance people attach to helping people around oneself (column (3)), being loyal to friends (column (4)), behaving properly (column (5)), following rules (column (6)), and not drawing attention (column (7)). Individual-level controls include age, age squared, and gender. * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$.

Table 57: Within-country MFQ analyses: Separate kinship tightness proxies

	Dependent variable:	
	In-group loyalty	Communal values
	(1)	(2)
Extended family	0.30***	0.23***
	(0.07)	(0.05)
Joint residence	0.31***	0.24***
	(0.06)	(0.04)
Cousin marriage	0.035	0.0086
	(0.10)	(0.06)
Polygamy	0.34***	0.24***
	(0.07)	(0.04)
Lineages	0.38***	0.30***
	(0.06)	(0.04)
Localized clans	0.42***	0.34***
	(0.12)	(0.10)
Country FE	Yes	Yes
Individual-level controls	Yes	Yes
Observations	26450	24990

Notes. Individual-level OLS estimates in the MFQ, robust standard errors (clustered at country of birth) in parentheses. Each regression coefficient corresponds to a separate regression, i.e., a given column reports the results of six different regressions. The dependent variables are in-group loyalty (column (1)) and the relative importance of communal moral values (column (2)). Individual-level controls include age, age squared, and gender. * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$.

Table 58: Within-country GPS analyses: Separate kinship tightness proxies

	Dependent variable:	
	Δ Punishment [Altruistic – Second-party]	
	(1)	(2)
Extended family	-0.19***	-0.19***
	(0.06)	(0.06)
Joint residence	-0.16***	-0.15***
	(0.06)	(0.06)
Polygamy	-0.27***	-0.25***
	(0.07)	(0.07)
Lineages	-0.18***	-0.16**
	(0.06)	(0.06)
Localized clans	-0.11	-0.096
	(0.08)	(0.08)
Country FE	Yes	Yes
Individual level controls	No	Yes
Observations	2306	2296

Notes. Individual-level OLS estimates in the GPS, robust standard errors (clustered at country of birth) in parentheses. Each regression coefficient corresponds to a separate regression, i.e., a given column reports the results of six different regressions. Individual-level controls include age, age squared, and gender. * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$.

E Kinship, Agriculture and Development

Anthropologists have long argued that the relationship between kinship ties and development changed over time (see Blumberg and Winch, 1972, for an early account). In essence, their argument has two ingredients. First, they assert that tight kinship ties optimally evolved when societies transitioned from hunter-gatherer subsistence to agricultural production. According to these accounts, hunter-gatherers largely did not live in tight clans because their subsistence style required an enormeous amount of geographical and organizational mobility: when food resources become scarce, sub-populations repeatedly broke apart from existing bands and later connected with other bands. In contrast, the argument goes, agricultural subsistence lead to the emergence of tight kinship systems because (i) agriculture implies an enhanced need for small-scale cooperation for the sake of planting or harvesting crop under time pressure, or controlling and defending territory to protect fields in the timeframe between harvesting and planting, that can be achieved in extended families (Johnson and Earle, 2000; Talhelm et al., 2014; Gowdy and Krall, 2016), (ii) sedentary agriculture often implies de facto moving restrictions because farmers' wealth is "tied to the soil", implying that people are less likely to mingle with geographically distant groups and thereby weaken local kinship structures (Fei et al., 1992), and (iii) agricultural subsistence often comes with increased pathogen prevalence, against which one mode of protection is to reduce outgroup interaction (Fincher et al., 2008; Fincher and Thornhill, 2012). In line with these hypotheses, recent small-scale anthropological evidence suggests that farming societies are indeed especially prone to marry within clan (Walker, 2014). In contrast, recent anthropological work has shown that both contemporary and ancient hunter-gatherers predominantly have large social networks and largely reside with genetically unrelated individuals (Hill et al., 2011; Sikora et al., 2017).

This paper investigates these theories on a correlational basis. The left panel of Figure 11 presents a histogram of average kinship tightness across six categories of agricultural intensity of societies in the EA. According to this classification, agricultural practices vary from no agriculture, to casual, to extensive, and eventually to intensive and intensive irrigated agriculture. Here, intensive agriculture should be thought of as technologically more advanced production techniques including fertilization, crop rotation, or other techniques to shorten or eliminate fallow periods.

The histogram reveals that kinship tightness indeed significantly increases by almost 30% as the subsistence mode changes from a hunter-gatherer lifestyle (first two categories) to extensive agriculture. However, as the agricultural production technology becomes more advanced, kinship tightness decreases again. Table 59 analyzes this pattern more rigorously through OLS regressions and confirms that the relationship be-

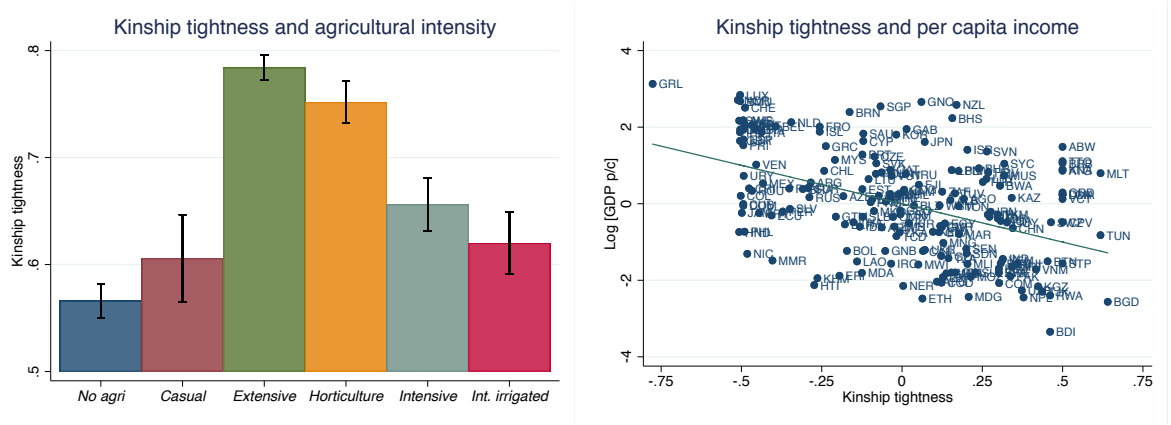


Figure 11: The left panel depicts average kinship tightness and corresponding standard errors for each of six levels of agricultural intensity. The right panel visualizes the partial correlation between kinship tightness and per capita income conditional on the vector of "EA controls", see, e.g., column (5) of Table 4.

tween kinship tightness and agricultural intensity is indeed hump-shaped. At the same time, the variance explained in these regressions is fairly small (10%). In other words, while there appears to be systematic covariation of kinship tightness and agricultural production modes, the data exhibit large heterogeneity on top of this mechanism. For example, the large difference in kinship structures between Western Europe and large parts of Asia cannot be "explained" by agricultural intensity: after all, many East and Southeast Asian ethnicities employed advanced intensive irrigated production modes that – according to the classification in the EA – are at least as advanced as the subsistence style of early Western Europeans.

In any case, the data presented in this section evidently do not lend themselves to a straightforward (causal) interpretation: even if it was true that agricultural subsistence caused the emergence of tight kinship structures, it is not obvious whether the decreasing part of the relationship between kinship tightness and agricultural intensity reflects the causal negative effect of kinship tightness on technological progress, or, e.g., a by-product of more general social change (e.g., Greenfield, 2009, 2013).

Table 59: Kinship tightness and agricultural intensity: Evidence from the EA

	Dependent variable: Kinship tightness						
	Full sample			No vs. ext. agric.		Ext. vs. int. agric.	
	(1)	(2)	(3)	(4)	(5)	(6)	(7)
Intensity of agriculture	0.22***	0.063**	0.076**	0.048***	0.064***	-0.030***	-0.033***
	(0.02)	(0.03)	(0.03)	(0.02)	(0.02)	(0.01)	(0.01)
Intensity of agriculture sqr.	-0.031***	-0.011***	-0.012***				
	(0.00)	(0.00)	(0.00)				
Continent FE	No	Yes	Yes	Yes	Yes	Yes	Yes
Historical controls	No	No	Yes	No	Yes	No	Yes
Observations	937	937	926	582	580	694	683
R^2	0.10	0.36	0.36	0.40	0.42	0.39	0.38

Notes. Ethnicity-level OLS estimates in the EA, robust standard errors in parentheses. The dependent variable is kinship tightness in the EA. In columns (4)–(5), the sample is restricted to levels of agricultural intensity of 1–3. In columns (6)–(7), the sample is restricted to levels of agricultural intensity of 3–6. Historical controls include year of observation, distance from the equator, longitude, and average elevation. * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$.

Table 60: Kinship tightness and historical population density over time

	Dependent variable: Log [Population density] in:								
	1000	1500	1600	1700	1750	1800	1850	1900	1950
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
Kinship tightness	-0.23	-0.46	-0.38	-0.47	-0.47	-0.84**	-1.13***	-1.33***	-1.25***
	(0.25)	(0.29)	(0.32)	(0.32)	(0.32)	(0.34)	(0.34)	(0.34)	(0.35)
Observations	127	127	127	127	127	127	127	127	127
R^2	0.01	0.02	0.01	0.02	0.02	0.05	0.09	0.12	0.10

Notes. Country-level OLS estimates in the EA, robust standard errors in parentheses. The sample is restricted to countries in which at least 50% of the population in 2010 are native to their current location. * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$.

F Data Description

F.1 Ethnographic Atlas

F.1.1 Construction of Kinship Tightness Index

See Section F.3.1

F.1.2 Dependent Variables

Moralizing god. Q34. Binary variable coded as one if a High Gods is present and supportive of human morality, and zero otherwise.

Number of levels of jurisdictional hierarchy above local level. Q33. Five-step categorical variable that describes the number of levels of jurisdictional hierarchies above the local level (0-4 levels).

Number of levels of jurisdictional hierarchy at local level. Q32. Three-step categorical variable that describes the number of levels of jurisdictional hierarchies at the local level (2-4 levels).

F.1.3 Covariates

Dependence on agriculture. Q5. Ranges from 2.5% to 92.5% by taking midpoint of respective interval.

Dependence on animal husbandry. Q4. Ranges from 2.5% to 92.5% by taking midpoint of respective interval.

Agricultural intensity. Q28. Categorical variable that characterizes the intensity of agriculture production modes, ranging from 1 to 6. The categories are: 1 for no agriculture, 2 for casual agriculture, incidental to other subsistence modes, 3 for extensive or shifting agriculture, long fallow, and new fields cleared annually, 4 for horticulture, vegetal gardens or groves of fruit trees, 5 for intensive agriculture, using fertilization, crop rotation, or other techniques to shorten or eliminate fallow period, and 6 for intensive irrigated agriculture.

Year of observation. Q101 and Q102. Year of observation in EA.

Settlement complexity. Q30. Eight-step categorical variable that describes settlement patterns as: 1 for nomadic or fully migratory, 2 for seminomadic, 3 for semisedentary, 4 for compact but impermanent settlements, 5 for neighborhoods of dispersed geamily homesteads, 6 for separated hamlets that form a single community, 7 for compact and relatively permanent settlements, and 8 for complex settlements.

Distance from equator, longitude. Q103, Q104.

Average elevation. Calculated based on Global 30 Arc-Second Elevation provided by USGS. For ethnicities, elevations aggregated across grid cells within a 200km radius centered at the coordinates specified in the EA.

F.2 Standard Cross-Cultural Sample

Strength of local enforcement. Based on Q776 and Q777 in SCCS. Q776 measures the presence of formal sanctions and enforcement for community decisions as a three-step variable (great sanctioning power available, some, little or none). Q777 measures the presence of enforcement specialists as a three-step variable (present, Not specialized but done by leaders who do other things as well, absent or carried out by social pressure of wider community). Summary statistic constructed as average of corresponding z-scores.

Obedience in children. Q322-Q325. Describes the extent to which societies inculcate obedience into young boys, old boys, young girls, and old girls, respectively. Categorical variables ranging from 0 to 9, with 0 representing “no inculcation or opposite trait” and 9 “extremely strong inculcation”. The final score of obedience is computed as unweighted average of the z-scores of the four separate obedience variables.

Loyalty to community. Describes the extent to which members of society feel loyal to their local community. Categorical variable ranging from 0 to 3 (“especially high”, “high”, “moderate”, and “low”).

Trust in children. Q335. Describes the extent to which societies inculcate trust in their children. Categorical variable ranging from 0 to 9, with 0 representing “no inculcation or opposite trait” and 9 “extremely strong inculcation”.

Acceptability of violence against people from other societies. Q783 in SCCS. (Un) Acceptability of Violence toward people in other societies (valued, acceptable, tolerated, disapproved).

Acceptability of violence against people from same society. Q781 and Q782 in SCCS. Average of z-scores of two items: (Un)Acceptability of violence toward members of the local community and (Un)Acceptability of violence toward members of the same society, but outside the local community (valued, acceptable, tolerated, disapproved).

Δ Acceptability of violence against members from other societies and own society. Difference of z-scores of the two preceeding variables.

Strength of local enforcement. Q776 and Q777. Q776 describes the extent to which societies made use of formal sanctions and enforcement for community decisions (2: "great sanctioning power available", 1: "some", 0: "little or none"). Q777 encodes the presence of enforcement specialists (1: "present" or "not specialized but done by leaders who do other things as well", 0: "absent, or carried out by social pressure of wider community"). The final score of strength of local enforcement is computed as first principal component of these two variables.

F.3 Cross-Country Data

F.3.1 Construction of Country-Level Kinship Tightness Index

Giuliano and Nunn (2017) develop a method to match ancestral ethnicity-level characteristics in the EA to contemporary populations. They do so by matching each of 7,000 contemporary language groups in the 16th edition of the Ethnologue manually to one of the ethnicities in the EA (through the language spoken by the historical ethnicities). The Ethnologue maps the current geographic distribution of languages, so that after matching historical ethnicities to language groups, average ancestral traits based on the EA can be computed at various different levels of aggregation. The analysis in this paper only relies on a country-level summary statistic. Thus, the country-level kinship tightness indexis computed by first constructing kinship tightness at the ethnicity level as described above, and then applying Giuliano and Nunn's (2017) matching procedure. My country-level variables from the EA including the kinship tightness index were constructed by Giuliano and Nunn using their original coding system.

F.3.2 Dependent Variables

Public goods game contribution: Initial NOP. Average initial contribution levels in treatment without availability of punishment in the cross-cultural public goods experiments of Herrmann et al. (2008).

Public goods game contribution: Initial P. Average initial contribution levels in treatment with availability of punishment in the cross-cultural public goods experiments of Herrmann et al. (2008).

Public goods game contribution: Average. Average contribution levels across treatments and rounds in the cross-cultural public goods experiments of Herrmann et al. (2008).

Cheating: Lying game Average monetary payout reported in the lying game of Gächter and Schulz (2016).

In-group favoritism: Management jobs based on kin. Index reported in Van de Vliert (2011), summarizing the results of a cross-cultural survey by the World Economic Forum that asks top executives to what extent senior management positions in their country are held by relatives.

General trust. Answers to WVS question: do you agree that most people can be trusted (A165). Country level results calculated as means of all individual level responses across waves.

Out-group trust. Based on answers to three WVS questions on how much one trusts people that one meets for the first time (G007_34), people of another nationality (G007_01) and people of another religion (G007_35). Country level variable constructed as average across individuals and waves, averaged across the three different trust variables.

In-group trust Based on answers to three WVS questions on how much one trusts one's family (D001), neighbors (G007_18) and people known personally (G007_33). Country level variable constructed as average across individuals and waves, averaged across the three different trust variables.

Trust [In-group – Out-group]. Difference between in-group and out-group trust.

In-group loyalty. Based on data in the online version of the Moral Foundations Questionnaire, www.yourmorals.org. The in-group loyalty index is based on answers to six questions. First, people are asked to assess to which extent the following behaviors are morally relevant: Whether or not someone cared for someone weak or vulnerable (q3), Whether or not someone did something to betray his or her group (q9), Whether or not someone did something disgusting (q14). Second, respondents are asked to indicate their agreement or disagreement with the following statements: It is more important to be a team player than to express oneself (q19), I am proud of my countryś history (q25) and People should be loyal to their family members, even when they have done something wrong (q30). All of these questions have response options between zero and five. The in-group loyalty score is then computed as sum of responses across the six questions. The country score is obtained as average in-group loyalty of all respondents in the MFQ in a given country of residence.

Relative importance of communal moral values. Based on data in the online version of the Moral Foundations Questionnaire, www.yourmorals.org. This composite index measures the relative importance of the moral dimensions of "fairness / reciprocity" and "harm / care" (which constitute individualizing moral principles) over "in-group / loyalty" and "authority / respect", which are "comunal" or "groupish" values. The full Moral Foundations Questionnaire can be accessed here: http://www.moralfoundations.org/questionnaires. The score of the relative importance of communal moral values is computed through the following procedure: First, at the individual level, normalize each moral foundation by dividing it through the sum of all four dimensions to express the importance of values relative to each other rather than in absolute terms. Second, conduct a principal component analysis. Here, the resulting weights in the index of the relative importance of communal moral values are -0.60 for harm / care, -0.33 for fairness / reciprocity, 0.53 for ingroup / loyalty and 0.50 for authority / respect. Finally, compute the average of this index by country of residence.

Google searches for shame and guilt. First, I restricted the set of languages to those that are an official language in at least two countries (since otherwise no within-language variation can be exploited) and that are included in Jaffe et al. (2014) so I have access to the most apt translations for shame and guilt. This is the case for English, Arabic, French, German, Portuguese, Russian, Spanish, Persian, and Slovakian. Second, for each remaining language, access the relative search frequency of "shame" and "guilt", respectively, on Google Trends, restricting attention to countries in which the respective language is an official language. Note that this procedure implies that those countries with multiple official languages appear multiple times in the resulting

dataset. Second, rescale the Google Trends output such that the maximum in the consideration set of countries is always 100 (Google Trends sclaes their data to be between 0 and 100. I need to adjust these data in cases in which the maximum of 100 is a country outside of the consideration set, e.g., a country in which the respective language is not an official language.) Finally, for each country-language-pair, compute the difference between the search frequency index for shame and guilt.

ISEAR self-reports of shame and guilt. The ISEAR is a multi-national psychological study led by Klaus Scherer and Harald Wallbott. In 36 countries, researchers distributed questionnaires among university students. These questionnaires contained questions on seven emotions (joy, fear, anger, sadness, disgust, shame, and guilt). Respondents were first asked to describe a situation in which they experienced an emotion. Then, for each emotion, they were asked to describe how long-lasting (1=minutes, 2=an hour, 3=several hours, 4=a day or more) and how intense (1=not very, 2=moderately, 3=intense, 4=very) the feeling was. For each of these categories, I compute the difference between shame and guilt, standardize these differences, and then average these two standardized differences to arrive at a summary statistic of the relative strength of shame over guilt. For details and data access see http://www.affective-sciences.org/en/home/research/materials-and-online-research/research-material/.

Altruistic punishment in PGG. Relative prevalence of altruistic over antisocial punishment in the public goods game of Herrmann et al. (2008). This variable is computed based on the data presented in Figure 1 in Herrmann et al. (2008). Specifically, I compute average altruistic punishment as average punishment in cases in which the punisher contributed weakly more than the punished participant. Average antisocial punishment is analogously computed as average punishment in cases in which the punisher contributed strictly more than the punished subject. The dependent variable of interest is then the difference between altruistic and antisocial punishment.

Punishment in GPS. Relative prevalence of altruistic over second-party punishment, based on data in the GPS Falk et al. (2016). To construct this variable, I first combine two survey items that were intended to measure second-party punishment. These questions asked respondents to assess themselves regarding the statement "If I am treated very unjustly, I will take revenge at the first occasion, even if there is a cost to do so." and to indicate "How willing are you to punish someone who treats you unfairly, even if there may be costs for you?". I aggregate these two variables by computing the average of their z-scores. Altruistic punishment, on the other hand, is the z-score of responses to the question "How willing are you to punish someone who treats others unfairly, even

if there may be costs for you?". The dependent variable is then the difference between the measures of altruistic and second-party punishment.

Property rights. Property rights index from the Quality of Government dataset. From the codebook: "This factor scores the degree to which a country's laws protect private property rights and the degree to which its government enforces those laws. It also accounts for the possibility that private property will be expropriated. In addition, it analyzes the independence of the judiciary, the existence of corruption within the judiciary, and the ability of individuals and businesses to enforce contracts."

Conformity. Measure of conformity based on a meta-analysis of Asch's conformity game by Bond and Smith (1996) that covers 133 studies across 17 countries. The variable is the average fraction of errors people make in the conformity game, i.e., the fraction of times respondents give the same (wrong) response as the experimental confederates, across experimental studies within a given country.

Importance of behaving properly. Based on answers to WVS question: It is important to this person to always behave properly (A196). Aggregate to country level based on country where the interview was conducted.

Belief in hell. Binary variable from WVS that describes whether respondent believes in hell. Average within country of residence.

Belief in heaven. Binary variable from WVS that describes whether respondent believes in heaven. Average within country of residence.

Individualism. Variable generated by Hofstede (1984) and taken from `https://geert-hofstede.com/countries.html`. The data are available at the country level and are based on qualitative questionnaires conducted with IBM employees. According to Hofstede, this measure is meant to capture the following: "The high side of this dimension, called individualism, can be defined as a preference for a loosely-knit social framework in which individuals are expected to take care of only themselves and their immediate families. Its opposite, collectivism, represents a preference for a tightly-knit framework in society in which individuals can expect their relatives or members of a particular in-group to look after them in exchange for unquestioning loyalty. A society's position on this dimension is reflected in whether people's self-image is defined in terms of "I" or "we"."

Family ties. Following Alesina and Giuliano (2013), defined as first principal component of answers to three World Values Survey questions: how important is family in life (A001), one should respect and love parents (A025) and parents have responsibilities towards their children (A026). Larger values correspond to stronger agreement to the statement. Country level results calculated as means of all individual level responses across waves.

Pronoun drop. Following Tabellini (2008a), this variable measures whether a given language allows to drop the pronoun. The argument is that languages that forbid dropping the first-person pronoun give more emphasis to the individual as opposed to the group. The score is computed by applying the classification in the World Atlas of Languages, supplemented by Kashima and Kashima (1998). To arrive at a country-level score, I compute a weighted average across languages, weighted by the fraction of speakers according to Ethnologue. The analysis is restricted to countries in which I could classify at least 75% of the population.

F.3.3 Development Indicators

Log population density from 1000-1900. Computed based on grid cell level population density from the History Database of Global Environment (HYDE) data. Country average calculated as average population within contemporary boundaries of the country.

Ancestry-adjusted log population density from 1000-1900. Computed as above, but ancestry-adjusted using Migration matrix of Putterman and Weil (2010).

Urbanization rate from 1000 to 1900. Computed based on grid cell level urban and total population from the History Database of Global Environment (HYDE) data. Country average calculated as average population within contemporary boundaries of the country.

Log GDP per capita. GDP per capita in current US dollar in 2010, reported by the World Bank's World Development Indicators.

F.3.4 Covariates

Log population density in 1500 AD, ancestry adjusted. Population density (in persons per square km) for a 1500 AD is calculated as population in that year, as reported by McEvedy and Jones (1978), divided by total land area, as reported by the World

Bank's World Development Indicators. Ancestry adjusted with World Migration Matrix by Putterman and Weil (2010).

Average Temperature. For countries, average of annual mean temperature from 1961 to 1990 based on FAO's GAEZ dataset. Mean temperature first calculated at grid cell level and then aggregated with current country boundaries.

Average elevation. Calculated based on Global 30 Arc-Second Elevation provided by USGS. For countries, elevations aggregated across grid cells within countries' current boundaries.

Fraction of population of European descent. Percentage of population of European descent, taken from Ashraf and Galor (2013).

Log land suitability for agriculture. Composite agriculture suitability index computed using FAO GAEZ dataset. Suitability measured for post-Columbian Exchange (1500) where all crops are assumed to be available. For each grid cell, we compute the average overall potential yields of all crops in the GAEZ data (unit measured in T/ha). For country level measure, aggregate across all cells within country's boundary.

Fraction of population at risk of contracting malaria. The percentage of a country's population in 1994 residing in regions of high malaria risk, multiplied by the proportion of national cases involving the fatal species of the malaria pathogen (as opposed to other largely non-fatal species). Taken from Ashraf and Galor (2013).

Colonizer fixed effects. This is a set of dummies for the following colonial powers: Spain, England, France, Portugal, other European.

F.4 World Values Survey

Important help people nearby. Based on agreement with statement "It is important to this person to help the people nearby; to care for their well-being."

Education. 8-step variable: Inadequately completed elementary education, Completed (compulsory) elementary education, Incomplete secondary school / vocational, Complete secondary school: technical/vocational, Incomplete secondary: university-preparation, Complete secondary: university-preparation, Some university without degree / higher education, University with degree / higher education.

Income. Categorical 10-step variable.
Other variables coded as in cross-country analyses.

F.5 European Social Survey

Important help people around self. Based on agreement with statement "It's very important to her/him to help the people around her/him. She/he wants to care for their well-being".

Important to be loyal to friends. Based on agreement with statement "It is important to her/him to be loyal to her/his friends. She/he wants to devote herself/himself to people close to her/him.".

Important to help in-group. Average of the z-scores of the "helping people around self" and "be loyal to friends" questions.

Important to behave properly. Based on agreement with statement "It is important to her/him always to behave properly. She/he wants to avoid doing anything people would say is wrong".

Important to follow rules. Based on agreement with statement "She/he believes that people should do what they're told. She/he thinks people should follow rules at all times, even when no-one is watching".

Important to not draw attention. Based on agreement with statement "It is important to her/him to be humble and modest. She/he tries not to draw attention to herself/himself".

Important to follow social norms. Average of the z-scores of the "behave properly", "follow rules", and "not draw attention" questions above.

F.6 Global Preference Survey

Diff. between altruistic and second-party punishment. Coded as in cross-country case.

Education category. Three-step variable: primary, secondary, tertiary education.

F.7 Moral Foundations Questionnaire

In-group / loyalty and rel. importance of communal values. Coded as in cross-country case.

Education category. Three-step variable: 1 = (in) high school, 2 = (in) college, 3 = (in) graduate school.