NBER WORKING PAPER SERIES

KINSHIP, COOPERATION, AND THE EVOLUTION OF MORAL SYSTEMS

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Working Paper 23499
http://www.nber.org/papers/w23499

NATIONAL BUREAU OF ECONOMIC RESEARCH
1050 Massachusetts Avenue
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June 2017, Revised October 2018

Previously circulated as "Kinship Systems, Cooperation and the Evolution of Culture." I am grateful to Jesse Graham, Jonathan Haidt, and Nathan Nunn for generous data sharing. An editor and referees provided extremely helpful comments. This paper would not have been possible without the inspiration provided by my conversations with Joe Henrich. I further thank Anke Becker, Filipe Campante, Ed Glaeser, Raquel Fernandez, Jeff Frieden, Paola Giuliano, Sara Lowes, Stelios Michalopoulos, Nathan Nunn, Gerard Roland, Raul Sanchez de la Sierra, Jesse Shapiro, Guido Tabellini, and many seminar audiences for helpful comments. Patricia Sun provided outstanding research assistance. The views expressed herein are those of the author and do not necessarily reflect the views of the National Bureau of Economic Research.

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JEL No. D0,O0

ABSTRACT

Across the social sciences, a key question is how societies manage to enforce cooperative behavior in social dilemmas such as public goods provision or bilateral trade. According to an influential body of theories in psychology, anthropology, and evolutionary biology, the answer is that humans have evolved moral systems: packages of functional psychological and biological mechanisms that regulate economic behavior, including a belief in moralizing gods; moral values; negative reciprocity; and emotions of shame, guilt, and disgust. Based on a stylized model, this paper empirically studies the structure and evolution of these moral traits as a function of historical heterogeneity in extended kinship relationships. The evidence shows that societies with a historically tightly-knit kinship structure regulate behavior through communal moral values; revenge taking; emotions of external shame; and notions of purity and disgust. In loose kinship societies, on the other hand, cooperation appears to be enforced through universal moral values; internalized guilt; altruistic punishment; and an apparent rise and fall of moralizing religions. These patterns point to the presence of internally consistent, but culturally variable, functional moral systems. Consistent with the model, the relationship between kinship ties, economic development, and the structure of the mediating moral systems amplified over time.

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1 Introduction

Social and economic life are pervaded by social dilemmas – situations that are characterized by a conflict between collective and individual interests. Be it in the contexts of the tragedy of the commons, bilateral trade, stealing, team production, or mutual aggression, people could in principle effectively cooperate with each other, yet basic game theory tells us that defecting on others is often a rational strategy for self-interested individuals. Given the ubiquitous presence of social dilemmas, psychologists and anthropologists argue that this "fundamental problem of human existence" (Greene, 2014) is of such importance that it has induced societies to build its entire social organization around solving this problem (Henrich, n.d.).

In these theories, researchers point to the existence of variation in societal structures, as they are induced by differences in kinship systems. Some societies are said to consist of multiple, disjoint, tightly knit and cohesive in-groups that form dense social networks of kith and kin. Here, these social groups form the basic unit of society. People are believed to effectively cooperate with in-group members, yet everybody outside the in-group is considered an enemy, which effectively partitions society into "us" and "them". In other societies, in contrast, the individual is the basic unit of society. Here, people are said to have weaker personal relationships, but presumably also engage in mutually beneficial interactions with members of society at large because they have less pronounced in-group vs. out-group notions (see, e.g., Hofstede, 1984; Shweder, 1991; Markus and Kitayama, 1991; Triandis, 1995; Nisbett, 2003). Loosely in line with these accounts, experimental games have revealed that cooperation behavior indeed varies widely across societies (Henrich et al., 2001, 2010; Herrmann et al., 2008).

Economists, psychologists, and anthropologists alike have long worked towards an understanding of which mechanisms sustain and enforce cooperative behavior. However, if societies exhibit different scopes of cooperation, then they should also employ different tools to incentivize people to behave cooperatively. While economists typically emphasize institutions and social norms, psychologists, anthropologists and evolutionary human biologists have recently started to argue that certain psychological and biological facets have specifically evolved to support effective cooperation, so that cross-cultural variation can be rationalized as reflecting differential needs for "internal police officers", i.e., psychological punishment devices (e.g., Haidt, 2012; Greene, 2014; Norenzayan et al., 2016; Henrich, 2015, n.d.). The key argument is that maintaining cooperation within in-groups that typically depend on repeated interaction requires a different set of psychological or biological adaptations as well as formal or informal institutions than regulating behavior in societies that largely rely on impersonal exchange. According to this literature, key mechanisms for sustaining cooperation in the latter

type of society are hypothesized to be (i) "moralizing" gods that are actively concerned with and supportive of human morality (Norenzayan and Shariff, 2008; Norenzayan, 2013; Botero et al., 2014), (ii) an emphasis on universal moral values versus "tribalistic" values such as in-group loyalty (Fei et al., 1992; Shweder et al., 1997; Haidt, 2012; Greene, 2014), (iii) a prevalence of emotions of internal guilt relative to external shame (Dodds, 1957; Benedict, 1967; Bowles and Gintis, 2003; Henrich, n.d.), and (iv) widespread altruistic punishment (Fehr and Gächter, 2002; Boyd et al., 2003). On the other hand, enforcing behavior in a kith-and-kin based society is hypothesized to rely on "tribalistic" moral values, an emphasis on second-party punishment (revenge-taking), external shaming of wrongdoings, strong local institutions, and conformity to social norms, including values related to norm adherence.

This paper presents a unified empirical analysis of this large body of psychological and anthropological theories. The contribution is twofold. First, the paper develops a novel measure of the tightness of historical kinship systems as proxy for social organization, which builds directly on observable societal characteristics and can be used to study variation across a large number of historical and contemporary societies. Second, by linking kinship tightness to various cross-cultural datasets from economics, psychology, and anthropology, the empirical analysis documents the presence of a continuum of social cooperation systems that are associated with fundamentally different enforcement devices, including aspects of human psychology and biology. At one end of the spectrum, societies with weak kinship ties cooperate and trust broadly, but do not place special emphasis on helping in-group members in need. Such cooperation patterns appear to be enforced through a belief in moralizing gods, universal moral values, internalized guilt, altruistic punishment, and large-scale institutions. At the other extreme, societies with tight kinship structures are readily willing to support in-group members, but cheat on and deeply distrust the out-group. This cooperation system of in-group favoritism tends to be regulated within the group through strong local institutions, conformity to social norms, relationship-specific "tribalistic" moral values such as in-group loyalty, revenge-taking, and emotions of shame.

According to cultural anthropologists, the structure of kinship systems is the most important determinant of social organization. Kinship describes the system of procreative relationships in society, i.e., patterns of relatedness as they arise through mating and birth. This concept is much broader than Western notions of the nuclear family. Kinship is relevant in the present context because cohesive and tight kinship systems are believed to give rise to "clannish" social structures (Henrich, n.d.), and are hence directly related to the scope of people's cooperation patterns. This paper develops a measure of the historical tightness of kinship systems that is 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). Anthropological textbook knowledge prescribes that kinship systems can be classified along three dimensions, i.e., family structure, marriage patterns, and descent systems (Parkin, 1997; Haviland, 2002; Schultz and Lavenda, 2005; Henrich, n.d.). Closely following prior anthropological work, for each of these dimensions, I identify two variables in the Ethnographic Atlas that measure the respective dimensions of kinship, and aggregate them through a factor analysis. The resulting score of kinship tightness loads positively on the presence of extended versus nuclear family systems, negatively on neolocal post-marital residence (family structure), positively on the presence of both cousin marriage and polygamy (marriage patterns), and positively on the presence of lineages and localized clans (descent systems). Thus, the score intuitively corresponds to what anthropologists consider tight kinship systems. This composite index can be used to study variation (i) within the Ethnographic Atlas, i.e., across historical ethnicities, (ii) across contemporary countries by matching historical ethnicities to contemporary populations (Giuliano and Nunn, 2017), (iii) across contemporary ethnicities within countries in the World Values Survey by linking historical ethnicities to contemporary ethnicities, (iv) across contemporary second-generation migrants in the European Social Survey by linking migrants to the characteristics of their ancestors from their country of origin, and (v) across contemporary first-generation migrants in the Global Preference Survey (Falk et al., 2016) and the Moral Foundations Questionnaire (Haidt and Joseph, 2004; Graham et al., 2012).

The empirical analysis begins at the country level, by investigating the relationship between kinship tightness and the radius of trust. The analysis documents that 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. In addition, 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 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. In a final step of the analysis of trust patterns, I exploit ethnographic records that code the extent to which historical ethnicities in the Ethnographic Atlas inculcated trust into their children. The results reveal that the negative relationship between kinship tightness and trust was already present in pre-industrial times.

The strong distinction between trust towards in-group and out-group members in

tight kinship societies is mirrored in people's cooperation behavior. Across countries, ancestral kinship tightness is strongly negatively correlated with out-group cooperation, measured by contributions in an experimental public goods game that was conducted among students across countries (Herrmann et al., 2008). In addition, ancestral kinship tightness is positively correlated with cheating on an out-group member in the cross-cultural experiments of 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 across second-generation migrants in the World Values and European Social Surveys, 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 other covariates.

Next, the paper analyzes the relationship between kinship tightness and the structure of psychological, biological, and institutional enforcement devices, i.e., religious beliefs, moral values, shame versus guilt, altruistic versus second-party punishment, formal institutions, and social norms. First, the analysis uncovers that historical ethnicities with strong kinship ties were less likely to honor a moralizing god, consistent with the idea that moralizing gods are more beneficial in regulating behavior when interactions are mostly not of a repeated nature.

Second, the analysis documents that kinship tightness is positively related to the relative importance of "communal" or "tribalistic" over universal moral values. For example, tight kinship societies highly value in-group loyalty, also relative to moral values that emphasize concepts such as individual harm, rights, and justice. These relationships hold (i) across historical ethnicities by exploiting variation in ethnographic records of societies' moral values, (ii) across contemporary countries, and (iii) in within-country analyses across migrants in the Moral Foundations Questionnaire.

Third, extending the analysis to partly biological aspects, I study the relationship between kinship tightness and the relative importance of internalized guilt versus external shame. Based on the idea that online searches reveal the subjective importance of psychological phenomena (Stephens-Davidowitz, 2014), the analysis employs the frequency with which people across countries searched for "shame" or "guilt" on Google in their respective language as proxy for the relative prominence of these two concepts in daily life. The results document that, exploiting variation within languages, kinship tightness is positively related to the relative frequency of googling shame. Moreover, self-reports contained in cross-cultural psychological questionnaires reveal that people

in tight kinship societies perceive emotions of shame as significantly more intense and long-lasting than feelings of guilt, again in line with the notion that biology is part of the coevolutionary process that is at the heart of this paper (Wallbott and Scherer, 1995; Sapolsky, 2017).

Fourth, the analysis relates kinship tightness to the relative prevalence of altruistic (third-party) and second-party punishment. Consistent with the notion that altruistic punishment is akin to contributing to an impersonal public good, and should hence be more prevalent in loose kinship societies, the results document that members of societies with weak kinship ties are significantly more likely to incur personal costs to sanction wrongdoing, even without having a personal stake in the issue. In tight kinship societies, on the other hand, direct revenge-taking is relatively more pronounced.

Fifth, turning to an analysis of institutional structures, the analysis provides evidence that – across historical ethnicities – 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, including jurisdictional hierarchies at the village level.

Sixth, the analysis illuminates the role of conformity to social norms. In contemporary cross-country data, ancestral kinship tightness is strongly related to experimentally measured norm compliance or conformity (Bond and Smith, 1996). In addition, kinship tightness is positively correlated with the importance of values that mandate norm adherence: across contemporary countries, within countries across ethnicities in the World Values Survey, within countries across second-generation migrants in the European Social Survey, and across historical ethnicities is tight kinship associated with the importance people attach to proper behavior or rule-following.

In sum, the structure of enforcement devices closely corresponds to the observed cooperation and trust patterns, hence pointing to a coevolution of kinship structures, cooperation regimes, institutions, and psychological or biological traits. These results propose a new explanation both for the existence of large cultural variation ("culture" enforces different cooperation regimes) and for Alesina and Giuliano's (2015) observation that cultural traits are often correlated (some of them jointly enforce the same cooperation systems).

The final part of the paper sheds light on the origins of tight kinship and its relation to economic development. Anthropologists have long argued that kinship tightness is hump-shaped in societal complexity (Blumberg and Winch, 1972). The gist of the argument is twofold. First, tight kinship is believed to have evolved to serve a functional role in enabling effective cooperation within suitably defined in-groups for the purposes

of agricultural (as opposed to hunter-gatherer) subsistence (Johnson and Earle, 2000; Gowdy and Krall, 2016). Second, however, tight kinship is believed to have turned into a sticky disadvantage once technological change required increased specialization, geographic mobility, and trade with strangers (Henrich, n.d.). While examining the causal relationships in these accounts is inherently difficult, I provide a series of correlational tests. Consistent with the anthropological narrative, historical ethnicities that subsisted on agriculture exhibit tighter kinship systems than hunter-gatherers. On the other hand, ancestral kinship tightness is strongly negatively correlated with contemporary per capita income, and this relation first emerged during the Industrial Revolution.

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 analysis starts in Section 5 with the relationships between kinship tightness and coperation, cheating, and trust. Section 6 presents evidence on how kinship tightness is associated with enforcement devices. Section 7 reports robustness checks. Section 8 discusses the emergence of tight kinship and its relationship to development. Section 9 concludes.

2 Related Literature

Behavioral and experimental economists have invested massive efforts into studying cooperation behavior in different contexts (e.g. Fehr and Gächter, 2000), yet despite exceptions (Herrmann et al., 2008), understanding the cultural variation in coperation behavior and enforcement devices has not attracted much attention in this literature.

In cultural economics and political economy, research on social organization and cooperation started with the classic theoretical treatment of Greif (1994) and Tabellini (2008b), yet empirical work on cooperation and corresponding enforcement devices is limited. Instead, research on social structures has focused on the cross-country relationships between contemporary cousin marriages and corruption levels or democracy (Akbari et al., 2016; Schulz, 2016), analyses of how segmentary lineage organization shapes civil conflict and trust in Africa (Moscona et al., 2017a,b), the relationship between matrilineal kinship systems and intra-household bargaining (Lowes, 2017), or studies of the relationship between survey measures of individualism and per capita income (Gorodnichenko and Roland, 2016). Recent work on (nuclear) family ties (Bertrand and Schoar, 2006; Alesina and Giuliano, 2013) shares this paper's focus on social structures, but differs greatly in terms of substantive focus and measurement.[1]

[1]Research on the relationship between agriculture and social structures includes Olsson and Paik's (2012; 2016) analysis of the role of collectivism in an "agricultural reversal" as well as the contemporary work by Buggle (2017).

More broadly, this paper is part of the literature on cultural variation in economic preferences and attitudes (Guiso et al., 2009; Algan and Cahuc, 2010; Voigtländer and Voth, 2012; Chen, 2013; Falk et al., 2016; Dohmen et al., 2016; Desmet et al., Forthcoming), in particular papers that highlight the endogeneity or evolution of cultural traits (Bisin and Verdier, 2001, 2017; Fernández, 2007; Doepke and Zilibotti, 2014; Becker et al., 2016; Galor and Özak, 2016; Litina, 2016; Buggle and Durante, 2017).

Finally, the paper is also related to various literatures in moral and cultural psychology and anthropology. While the various – often disjoint – narratives that were developed in these fields serve as basis for my analysis, my results contribute to this literature by proposing an explicit measurement of kinship tightness as well as a rigorous and quantitative investigation of the topic in a unified empirical framework.

3 Research Hypothesis and Background

The various literatures in psychology and anthropology that deal with human cooperation share one aspect in common: they emphasize that enforcing cooperation is not achieved by any single mechanism, but rather by an entire package of tools. The goal of this paper is to understand the relationship between kinship systems, cooperation and corresponding enforcement devices as broadly as possible. Thus, the paper does not focus on highlighting a single variable or mechanisms, but rather on presenting a comprehensive pattern of correlations that integrate variables and hypotheses from across the social sciences. This analysis is based on large literatures in cultural psychology and anthropology.

3.1 Tight Kinship, Cooperation and Trust

For cultural psychologists, the idea that societies exhibit heterogeneity in basic social organization regarding how deeply people are embedded in cohesive in-groups, is as basic as the idea that markets equilibrate supply and demand to an economist (Triandis, 1995). In some societies, economic and social life is organized around dense, tightly structured in-groups that form the basic unit of society. Here, 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. Outsiders to their group (be it the family, extended family, ethnicity, or village) 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". Such individuals are said to have weaker personal relationships with in-group members and cannot rely on unconditional loyalty, but at the same

time enter productive relationships with people outside their own group. Thus, one expects a negative correlation between kinship tightness and cooperation with (or trust in) out-group members, but a postive 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 also conceivable that they have developed different devices to sustain and enforce such cooperation. Across the social sciences, researchers have proposed various mechanisms to enforce cooperative behavior, including religious beliefs, moral values, basic emotions and their physiological consequences, formal institutions, and social norms, some of which predominantly apply to enforcing cooperation *within* an in-group, or *across* groups of people. Excellent overviews of (various subsets) of the hypotheses outlined below can be found in Boyd and Richerson (1988); Fei et al. (1992); Boyd and Richerson (2009); Greene (2014); Henrich (n.d.). To clarify any potential ambiguity, the hypotheses below are not intended to suggest that kinship systems *cause* the emergence of certain institutional or cultural structures – the argument is merely about the *coevolution* of social organization, cooperation schemes, and enforcement devices.

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 (Roes and Raymond, 2003; Norenzayan and Shariff, 2008; Norenzayan, 2013; Botero et al., 2014). 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 the vast 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, moralizing gods are hypothesized to have evolved to solve human social dilemma problems. In large-scale anonymous societies in which direct enforcement and punishment is difficult, belief in a moralizing god is helpful because it functions as an internal "policeman" who punishes human wrongdoing even in the absence of wordly punishment. But this logic makes it clear that societies with tight kinship ties are in

[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).

less need of a moralizing god: because people predominantly interact within their 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.

Moral values. Moral and evolutionary psychologists argue that human morality partly evolved to solve social dilemma problems by imbuing principles that prevent people from defecting on others (e.g., Haidt, 2012; Greene, 2014). However, if true, this implies that moral principles *should* vary across societies: societies with tight kinship should have evolved "tribalistic" or "communal" moral values such as in-group loyalty that sustain in-group cooperation. Those societies with low kinship tightness, on the other hand, should develop moral principles that apply universally, i.e., equally to everyone. In line with this, moral psychologists have indeed documented cross-cultural variation in the moral principles people employ, in particular with respect to whether moral reasoning emphasizes universal moral values or relationship-specific obligations that predominantly apply to in-groups (Shweder, 1991; Shweder et al., 1997; Fei et al., 1992; Haidt, 2012). 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."[3]

Shame versus guilt. Basic emotions and their physiological consequences are conceptually very similar to moralizing gods and moral values in that they are internal to an individual In contrast to these "psychological police officers", emotions are both psychological and biological in nature. In a by now classic cultural psychology paper, Markus and Kitayama (1991) argue that cultural contexts that are characterized by cohesive in-groups emphasize emotions that occur *between* individuals, rather than within a certain person. In particular, 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; Gintis, 2003; Wong and Tsai, 2007; Henrich, n.d.) to draw attention to the notion that societies inculcate different emotional responses to wrongdoing into their children. In this terminology, guilt refers to something that is internalized and can be evoked even when nobody knows about the event. Shame, on the other hand, describes an emotion that is invoked in front of others, presumably in particular those one cares about (in economics terminology, this distinction is reminiscent of the difference between social and self image). In impersonal exchange societies, the argument goes, people often engage in anonymous one-shot interactions,

[3]Haidt (2012) refers to these two different types of values as "individualizing" and "binding", respectively, because the communal values are said to bind people together into moral groups.

so that instilling feelings of shame is less effective than 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 also have physiological consequences, this hypothesis implies a coevolution of psychology and biology (Sapolsky, 2017).

Altruistic punishment. Across the social sciences, researchers have emphasized the important role of negative reciprocity in sanctioning wrongdoings. The probably most important conceptual distinction in the discussion of such punishment patterns is the extent to which punishment reflects *altruistic* motives, i.e., the extent to 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 it requires that the punisher give up private resources to contribute to a common good, i.e., preventing the villain from future misbehavior. From this discussion, it follows immediately that altruistic punishment should be higher in loose kinship societies. After all, if an individual in a tight kinship society is unconcerned with the well-being of an out-group member, then why would they incur personal costs to sanction someone who mistreated them? In contrast, punishment patterns in tight kinship societies should be characterized by a higher prevalence of direct punishment and revenge-taking, i.e., second-party punishment.

Institutions and social norms. Differences in social organization should go hand in hand with the development of institutions and social norms, where I will speak of norms simply as a less formal way to regulate behavior than through laws and courts. If people mainly interact with in-group members and everybody outside of that group is considered an enemy, then there is less of a need to bear the cost of setting up large-scale formal enforcement institutions that supersede each separate group. Instead, such societies have incentives to develop strong institutions at the *local* level. That is, 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, including the strength of and conformity to informal social norms.

To sum up the discussion, Table 1 presents an overview of the hypotheses underlying the empirical analysis.

Table 1: Overview of hypotheses

	Tight kinship	*Loose kinship*
Behavior	Cheat on out-group; In-group favoritism Strong care for in-group members	Cooperate with out-group; Equal treatment of in- and out-group
Trust	High in in-group; Low in out-group	Uniformly high
Enforcement devices	Tribalistic moral values pertaining to relationship-specific obligations; Shame; Second-party punishment; Local institutions; Strong social norms and values of norm adherence	Universal moral values; Moralizing god; Guilt; Altruistic punishment; Global institutions

4 Data

4.1 Measure of Kinship Tightness

Cultural psychologists and anthropologists agree that the single most important aspect of people's in-group ties are their kin relations. 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). Accordingly, this paper measures social organization by developing an index of historical kinship tightness. In contrast to the more qualitative survey-based approach of psychologists, this measure is based on observable characteristics and is hence arguably amenable to direct interpretation.

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. 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.[4] Following work in ethnography, Giuliano and Nunn (2017) extend this dataset by additionally including

[4]The year of observation is only weakly and insignificantly correlated with the index of kinship tightness that I develop below ($\rho = 0.04$).

46 ethnicities to broaden coverage in Europe. 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]

The dimensions that cultural anthropologists use to classify the nature of kinship systems are textbook knowledge. This paper closely follows the – largely overlapping – discussions in Parkin (1997), Haviland (2002), Schultz and Lavenda (2005), and Henrich (n.d.). At a broad level, kin relations describe patterns of relatedness as they arise through mating and birth. Dimensions of kinship can hence be partitioned into (i) family structure, (ii) marriage patterns, and (iii) descent systems (Parkin, 1997; Schultz and Lavenda, 2005). For each of these categories, I identify those two variables in the EA that are closest to the presentations in Haviland (2002) and Henrich (n.d.); this is straightforward given that these discussions are based on the terminology or even data in the EA:

1. Family structure

   (a) *Domestic organization.* A key distinction in anthropological research is the presence of independent nuclear versus extended families. 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 close 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

[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 cultural 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.

case of this is cousin marriage (also see Schulz, 2016). 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.[6]

(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 groups. Unilineal descent systems track descent primarily through one line as opposed to through both lines, and are said to induce particularly strong and cohesive in-groups because they make people feel close to a particular part of the family. A lineage is hence a group of people who trace descent to a known common ancestor (alive or dead), i.e., people who can specify the links that unite them. Such groups are typically much larger than Western notions of "the family" and can be composed of more than 1,000 people. In contrast, bilateral systems such as in large parts of Western Europe are ego-oriented, meaning that everybody relates to a different family, which is 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).

[6]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. All main results in the paper are robust to excluding cousin marriage from the construction of the kinship tightness index altogether.

(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 a clan takes the form of localized clans that live as segmented communities in, e.g., clan barrios, and zero otherwise (Q15).

In sum, this paper characterizes kinship systems through a set of six variables. To aggregate these dimensions of kinship tightness, I compute the first principal component.[7] 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.[8] 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 (0.34), negatively on bilateral descent (0.54), and positively on the presence of segmented communities or clans (0.50).[9] The resulting Kinship Tightness Index (KTI) is normalized to be in $[0, 1]$. Figure 7 in Appendix B depicts the distribution of the kinship tightness index at the level of 989 historical ethnicities for which data on all six dimensions are available.[10]

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. To facilitate a comprehensive analysis of cooperation patterns and enforcement devices,

[7]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.

[8]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.

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

[10]Table 14 in Appendix A documents that the country-level index of kinship tightness is positively correlated with measures of collectivism (vs. individualism) that people have previously 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).

the analysis links the kinship tightness index to various cross-cultural datasets such as experiments, surveys, and ethnographic records. Thus, most of the dependent variables are independent from the sampling and coding scheme in the EA. Appendix C 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 populations using the language people speak. Appendix C.3.1 provides a desciption of this matching procedure. Following their methodology, Figure 1 depicts the country-level distribution of historical kinship tightness, as it applies to contemporary populations.[11] 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. 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 average kinship tightness index across the country of origin of father and mother (where the country-level data are computed as described above). That is, in these analyses, the sample is restricted to respondents who were born in the country

[11] 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 9 in Appendix B provides a map of the kinship tightness index that accounts for these populations.

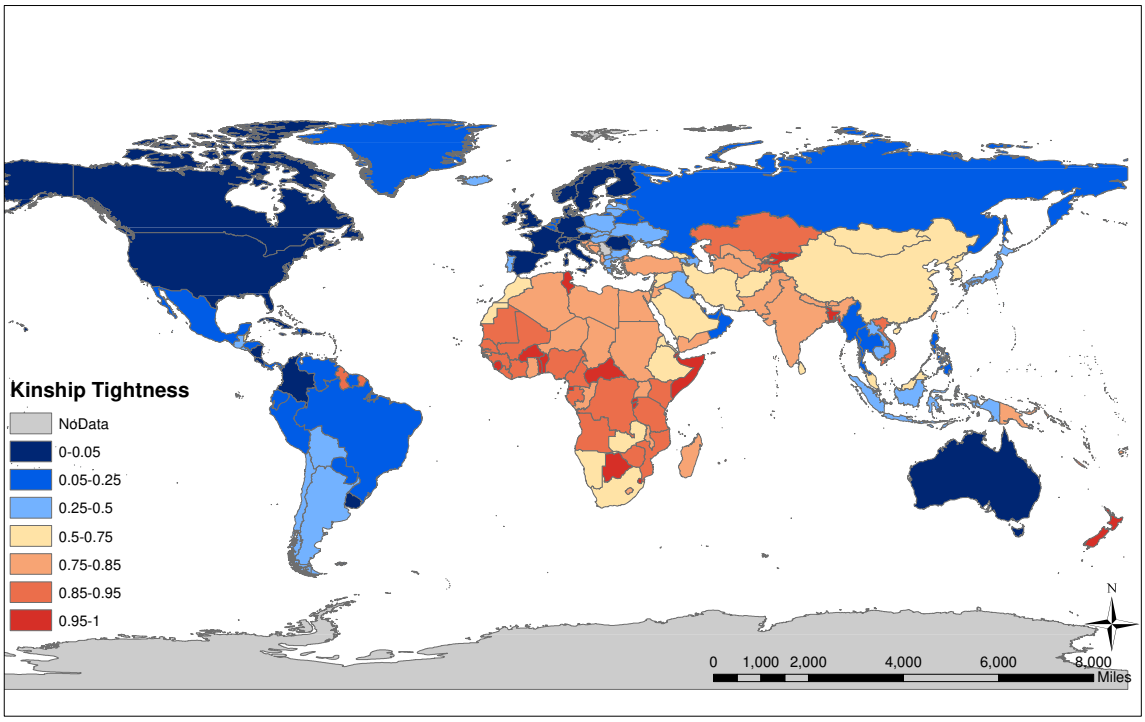

Figure 1: Distribution of kinship tightness across countries

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 total, I can make use of 319,137 respondents in 32 countries of residence. Of these, 42,962 people are second-generation migrants (with respect to at least one parent); their fathers and mothers migrated from 184 and 186 countries of birth, respectively.

Global Preference Survey and Moral Foundations Questionnaire: Migrants. 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 people's preferences to the ancestral kinship tightness in their country of birth. In total, I can make use of 68,601 respondents in 66 countries of residence for which information on migration background is available. Of these people, 3,341 are migrants from 148 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.yourmorals.org` in 2008, where thousands of people have completed the question-

naire 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. 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 285,792 respondents from 206 countries of residence, of which 26,657 are immigrants from 199 different 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. For each concept, I will work at one or more levels of analysis, depending on data availability.

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 7 reports robustness checks.

Contemporary Within-Country. The contemporary within-country analyses are all based on large-scale surveys. Here, I control for both individual-level variables (age, age squared, gender, and education) 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 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 all analyses, unless noted otherwise, the dependent variable is transformed into a z-score, so that OLS 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

Researchers in economics have long used beliefs about whether "people in general" can be trusted to measure the extent to which people are likely to effectively cooperate with others (Knack and Keefer, 1997; Glaeser et al., 2000). I hence start by considering this well-known and commonly used proxy for societal cooperation, before moving on to study less widely used, but more direct, data on cooperation behavior.

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.[12] To disaggregate this result and develop deeper insights into people's trust radius, I consider levels of trust in specific groups. I omit "trust in family" due to a ceiling effect: on a four-point scale, the average trust in family across countries is 3.80. But while all societies seem to trust their own family, systematic patterns hold regarding the other groups. Columns (4) through (8) show that kinship tightness is *positively* correlated with trust in neighbors, but negatively with trust in all other groups. Also, as the analysis successively moves to more "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.

[12]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, $\rho = -0.25$, $p < 0.05$.

Table 2: Trust across countries

	Dependent variable:										
	Trust in:										
	People in general			Neighbors	People know	First time	Other religion	Foreigner	Δ [In-group – out-group]		
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)
Kinship tightness	-0.60*	-0.63*	-1.04***	0.74**	-0.59	-0.68*	-0.81**	-1.19***	0.31***	0.37***	0.38***
	(0.33)	(0.36)	(0.36)	(0.34)	(0.37)	(0.35)	(0.36)	(0.33)	(0.09)	(0.09)	(0.11)
EA controls	No	Yes	Yes	No	No	No	No	No	No	Yes	Yes
Other controls	No	No	Yes	No	No	No	No	No	No	No	Yes
Continent FE	No	No	Yes	No	No	No	No	No	No	No	Yes
Colonizer FE	No	No	Yes	No	No	No	No	No	No	No	Yes
Observations	94	94	93	75	75	74	75	74	74	74	73
R^2	0.04	0.10	0.61	0.06	0.04	0.05	0.08	0.17	0.16	0.27	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 (family, neighbors, and people one knows) and out-group (groups in columns (6)–(8)). 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 Parents' countries of birth	
	Dependent variable:					
	General trust		Δ Trust [In- vs. out-group]		General trust	
	(1)	(2)	(3)	(4)	(5)	(6)
Kinship tightness	-0.067	-0.013	0.51***	0.50**	-0.22***	-0.16***
	(0.06)	(0.11)	(0.09)	(0.22)	(0.05)	(0.04)
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
Ethnicity-level controls	No	Yes	No	Yes	No	No
Country of origin controls	No	No	No	No	No	Yes
Observations	42038	37950	21104	20872	288519	277186
R^2	0.08	0.08	0.09	0.09	0.17	0.15

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 trust between family, neighbors and people one knows on the one hand, and all other three groups on the other hand, compare Table 2. The standard errors are clustered at the ethnicity level. Individual level controls include gender, age, age squared, and educational attainment. 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)–(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, age squared, years of education, and a second-generation migrant dummy. 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. * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$.

To draw out the distinction between trust in in-group and out-group even more clearly, I construct a variable of difference in trust between in- and out-group. For this purpose, I add up trust in family, neighbors and people one knows and then subtract trust in all other groups. As columns (9)–(11) show, kinship tightness is strongly and significant correlated with this measure of the radius of trust. The left panel of Figure 2 visualizes the relationship between kinship tightness and the difference between in-group and out-group trust.

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 again make use of variation (i) across ethnicities in the WVS and (ii) across second-generation migrants in the ESS. Table 3 presents the results, which mirror those established in the cross-country analysis. In the WVS, columns (1)–(4), the point estimates suggest that people 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 15 in Appendix A 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) and (6) show that similar results obtain in the ESS using the general trust question. Here, an individual's trust is strongly and significantly negatively correlated with the average ancestral kinship tightness of the countries of birth of father and mother, conditional on a large set of 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.

In a final step, the analysis provides evidence that tight kinship ties were already negatively correlated with trust levels in historical ethnicities. For a subset of societies in the Ethnographic Atlas, the so-called Standard Cross-Cultural Sample (SCCS), very detailed information on the practices and values of historical ethnicities are available, 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. 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 am not aware of reasons to expect that they are somehow biased in favor of the research hypothesis. To conserve space, I present these results as part of Table 6 below. Columns (1) and (2) provide evidence that the trust variable is negatively correlated with kinship tightness, which is reminiscent of the correlations found in contemporary data.

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 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.[13] My dependent variables are (i) initial contribution

[13]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).

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 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 conditions 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. * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$.

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. I use average 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

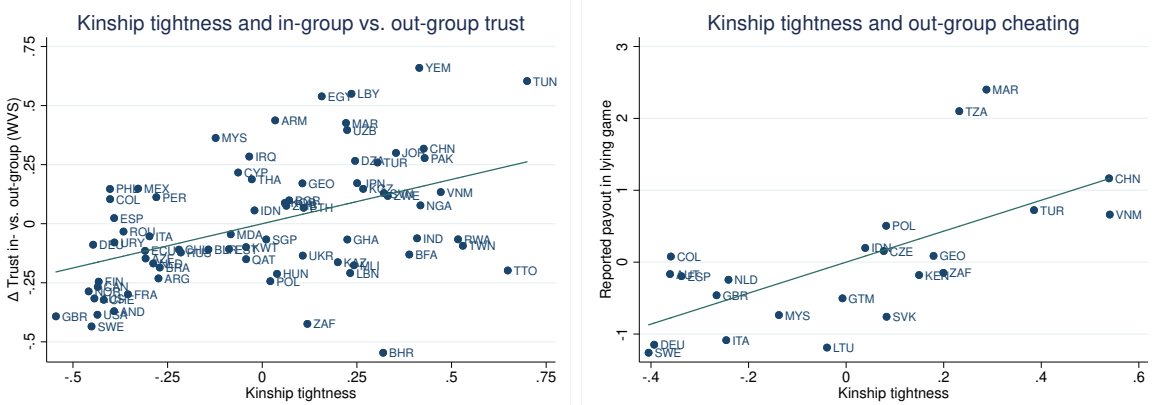

Figure 2: Relationship between kinship tightness and the difference between in-group and out-group trust in the WVS (left panel) and between kinship tightness and cheating in a lying game (Gächter and Schulz, 2016, left panel). Both plots are partial correlation plots conditional on the vector of "EA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

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 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 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 assigned (i) based on the ethnicity of the respondent (WVS) or (ii) based on the respondents' parents' countries of birth (ESS).

Both the WVS and the ESS ask respondents how important it is for them to help people around them and to care for their well-being. I interpret these survey questions as asking about respondents' attitudes towards their in-group.[14] 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 (age, age squared, gender, and education) as well as historical ethnicity-level controls from the EA, including dependence on agricul-

[14]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 Parents' countries of birth	
	Dependent variable:			
	Important help people nearby		Important help people around self	
	(1)	(2)	(3)	(4)
Kinship tightness	0.39***	0.63***	0.18***	0.10**
	(0.11)	(0.21)	(0.03)	(0.04)
Country FE	Yes	Yes	Yes	Yes
Wave FE	Yes	Yes	Yes	Yes
Individual-level controls	Yes	Yes	Yes	Yes
Ethnicity-level controls	No	Yes	No	No
Country of origin controls	No	No	No	Yes
Observations	14755	14534	278775	267547
R^2	0.06	0.07	0.07	0.07

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 helping others nearby. The standard errors are clustered at the ethnicity level. Individual level controls include gender, age, age squared, and educational attainment. 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)–(4), 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, age squared, years of education, and a second-generation migrant dummy. 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. * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$.

ture, number of jurisdictional hierarchies above the local level, and year of observation. Columns (3) and (4) show that similar results obtain in the ESS. Here, the importance individuals attach to "helping people around him or her" and to "care for their well-being" is significantly positively correlated with the average ancestral kinship tightness of the countries of birth of father and mother. Again, this relationship holds conditional on individual-level covariates as well as country of origin controls that control for the (average) characteristics of the country of birth of father and mother. These controls include 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 in the EA. In addition, the country of origin controls include distance from the equator, log land suitability for agriculture, and ancestry-adjusted log population density in 1500.

In sum, the cross-country and within-country results on people's experimental behaviors, willingness to help others, and trust beliefs draw a consistent picture. Tight

Table 6: Beliefs and moral values of historical ethnicities

	Dependent variable:					
	Trust		Religion		Moral values	
	Inculcate trust children		Moralizing god		Loyalty to community	
	(1)	(2)	(3)	(4)	(5)	(6)
Kinship tightness	-0.65*	-0.69*	-0.74***	-0.53***	1.09**	1.09**
	(0.38)	(0.40)	(0.17)	(0.14)	(0.45)	(0.53)
Continent FE	Yes	Yes	Yes	Yes	Yes	Yes
Historical controls	No	Yes	No	Yes	No	Yes
Observations	129	126	656	635	82	81
R^2	0.05	0.11	0.20	0.48	0.10	0.15

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 columns (3)–(4) is an indicator for whether the ethnicity had a moralizing god. In columns (5)–(6), the dependent variable is the extent to which people are loyal towards their local community. All dependent variables are expressed as z-scores. In column (4), the historical controls include dependence on agriculture, dependence on animal husbandry, year of observation, settlement complexity, number of jurisdictional hierarchies above the local level, distance from the equator, longitude, and average elevation. Due to the smaller number of observations, the historical controls in columns (2) and (6) only include distance from the equator, longitude, average elevation, and number of jurisdictional hierarchies above the local level. * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$.

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. The analysis now turns to studying the enforcement devices that are associated with these two different systems.

6 Enforcement Devices

6.1 Moralizing Gods

The relationship between the presence of a moralizing god and kinship tightness cannot be meaningfully studied in contemporary data because – due to the spread of Christianity and Islam – the vast majority of human societies today honor a moralizing god. However, in the EA, only 26% of historical ethnicities are coded as believing in a moralizing god.

Columns (3) and (4) of Table 6 study the relationship between religious beliefs and kinship tightness in the EA. The dependent variable is a (standardized) 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. This result holds up against a large and comprehensive vector of control variables that account for pre-industrial heterogeneity in subsistence style, settlement patterns, year of observation in the EA, geography, as well as continent fixed effects.[15]

6.2 Moral Values: Tribalistic vs. Universal Moral Principles

6.2.1 Moral Values: Evidence from Historical Ethnicities

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 (5)–(6) of Table 6 present the results. Loyalty to the local community is significantly increasing in kinship tightness, both with and without covariates.

6.2.2 Moral Values: Contemporary Evidence

In a second step, the analysis investigates the relationship between ancestral kinship tightness and contemporary values, both across and within countries. For this purpose, I exploit variation in universal vs. tribalistic moral principles 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 noticed that while the previously mentioned dimensions are moral principles that are meant to apply universally to everyone, other moral principles such as in-group loyality or submitting to authorities refer to relationship-specific obligations, i.e., to moral rules that differ depending on the person concerned. The latter types of values have also been referred to as "communal" or "tribalistic". 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 C for details.

[15] Table 16 in Appendix A 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 (Christianity, Islam, Judaism), i.e., the Americas and Oceania.

Table 7: Moral values across countries

	Dependent variable:					
	In-group loyalty			Rel. imp. tribalistic 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 universally applicable values by adding the MFQ dimensions of fairness / reciprocity and harm / care and subtracting in-group loyalty and submission to authority. The sample is restricted to countries with at least 18 respondents in the MFQ, which corresponds to the 25th percentile of the distribution. Table 18 in Appendix A 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. * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$.

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 universal values *relative* to the more "communal" 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 – the index loads positively on the first two values and negatively on the latter two, see Appendix C for details. Since purity relates to the religious domain, it is not directly related to the research question pursued here.[16] I compute country-level scores by averaging responses by country of residence of respondents.

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 tribalistic vs. universal moral values. The left panel of Figure 3 depicts the relationship between

[16]However, including the purity dimension in the construction of the index leaves the results unaffected.

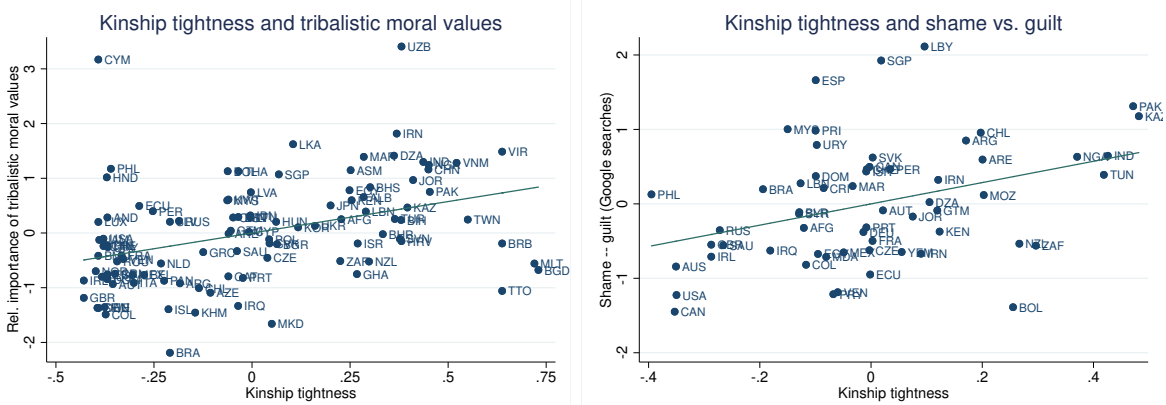

Figure 3: The left panel depicts the relationship between kinship tightness and the relative importance of universally applicable moral principles (Haidt, 2012). The right panel illustrates the correlation between kinship tightness and the relative importance of shame over guilt on Google. Both plots 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.

ancestral kinship tightness and the relative importance of tribalistic values.

Table 8 presents analogous within-country analyses in the MFQ. 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 (age, age squared, gender, education) and country of origin controls. Across specifications and dependent variables, kinship tightness is significantly correlated with moral values.

6.3 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.[17] I convert responses to these questions to 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

[17]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. 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.

Table 8: Universal vs. tribalistic moral values: Within-country evidence (MFQ)

	Dependent variable:					
	In-group loyalty			Rel. imp. tribalistic values		
	(1)	(2)	(3)	(4)	(5)	(6)
Kinship tightness	0.53***	0.52***	0.45***	0.33***	0.34***	0.35***
	(0.07)	(0.07)	(0.07)	(0.06)	(0.06)	(0.05)
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	285647	279142	277954	269814	263819	262693
R^2	0.01	0.07	0.07	0.01	0.03	0.03

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 tribalistic values by computing the 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 C for details. All dependent variables are expressed as z-scores. Individual level controls include gender, age, age squared, an immigrant dummy, and education fixed effects (seven categories). 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. * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$.

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.[18]

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 concept in the last five years. I repeated the same procedure for each language in the

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

Table 9: Shame, guilt, and altruistic punishment 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***	1.03**	1.43***	1.21**	-1.36*	-1.26***	-1.32***	-1.35**
	(0.43)	(0.49)	(0.40)	(0.45)	(0.52)	(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	0.42	0.45	0.58	0.17	0.18	0.21	0.41

Notes. Country-level OLS estimates, robust standard errors in parentheses. In columns (1)–(3), 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 C. 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 altruistic and second-party punishment in the Global Preference Survey, see Appendix C for details. All dependent variables are expressed as z-scores. In columns (1)–(3), 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. * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$.

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.[19] 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 3 visualizes this correlation.

[19] See Appendix C for details.

6.4 Altruistic 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 as dependent variable 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 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. I again compute the difference between these variables, see Appendix C 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 using punishment data in the PGG and in the GPS. The latter result is visualized in the left panel of Figure 4.

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, yet the analysis exploits individual-level variation in ancestral kinship tightness across countries of residence, holding fixed respondents' 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.

6.5 Institutions

To understand the relationship between the development of institutional structures and kinship tightness, I consider variation across ethnicities in the EA. As outlined above, this 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 data contain 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 ethnicities in the EA (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. Local levels of hierarchy include nuclear family, extended family, clan,

Table 10: Altruistic punishment within countries

	Dependent variable:		
	Δ Punishment [Altruistic – Second-party]		
	(1)	(2)	(3)
Kinship tightness	-0.11*	-0.099	-0.29***
	(0.06)	(0.07)	(0.10)
Country FE	Yes	Yes	Yes
Individual level controls	No	Yes	Yes
Country of origin controls	No	No	Yes
Observations	65199	64217	63758
R^2	0.06	0.06	0.06

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 C for details. Individual level controls include gender, age, age squared, self-reported cognitive skills, and educational attainment fixed effects (three categories). 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. * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$.

and village. These institutional structures are arguably not just more "local", but also more informal than the jurisdictional hierarchies above the local level.

Columns (1)–(4) of Table 11 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, conditional on the 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 findings 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 and consider the power these local institutions had in terms of spelling out sanctions and enforcement for community decisions[20] 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.

[20]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 C for details.

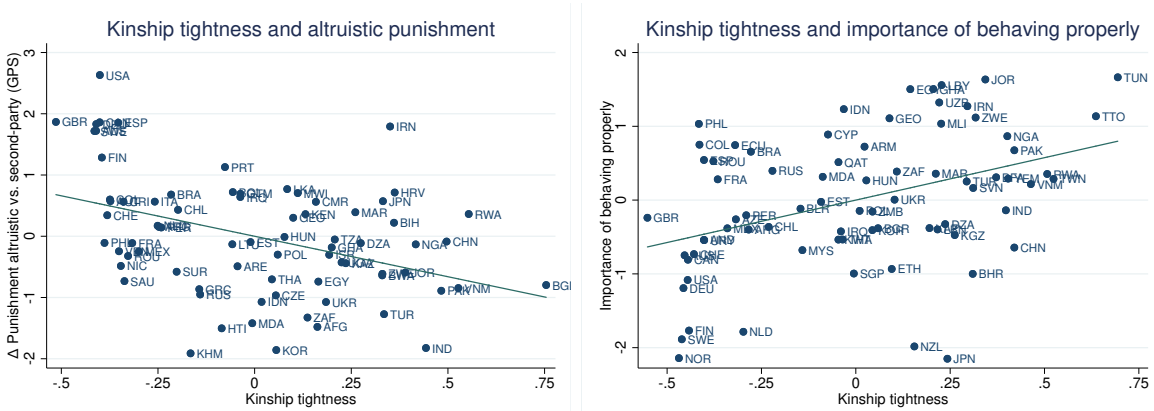

Figure 4: Relationship between kinship tightness and the relative importance of altruistic punishment in the GPS (left panel) and the subjective importance of behaving properly in the WVS (right panel). Both figures are partial correlation plots conditional on the vector of "EA controls", compare, e.g., column (5) of Table 4.

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 ethnicities 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 settlements as proxy for local development, and (iii) the year of observation in the EA. In a further robustness check, Table 17 in Appendix A shows that very similar results hold if I exclude all hunter-gatherers from the sample.

6.6 Social Norms

Social norms can be thought of as informal institutions, i.e., a set of rules that regulates behavior without elaborate formal enforcement structures. The study of norms can be partitioned into people's *behavioral* conformity to social norms, and their intrinsic *values* related to norm adherence.[21]

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 confeder-

[21]The cultural psychologist 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: Historical institutions and norm adherence

	Dependent variable:							
	Global institutions		Local institutions				Norm adherence	
	# Levels jurisdictional hierarchy				Strength of local		Inculcate obedience	
	Above local level		Local level		enforcement		in children	
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Kinship tightness	-0.35**	-0.32**	1.57***	1.53***	1.17**	0.83*	0.62*	0.75**
	(0.18)	(0.16)	(0.13)	(0.13)	(0.48)	(0.45)	(0.35)	(0.29)
Continent FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Historical controls	No	Yes	No	Yes	No	Yes	No	Yes
Observations	919	908	928	917	88	87	157	154
R^2	0.26	0.39	0.27	0.32	0.30	0.43	0.11	0.26

Notes. Historical ethnicity-level OLS estimates in the 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 extent to which there is local enforcement and sanctioning for community decisions. The dependent variable in columns (7)–(8) 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. All dependent variables are expressed as z-scores. In columns (1)–(4), the historical controls include dependence on agriculture, dependence on animal husbandry, year of observation, settlement complexity, distance from the equator, longitude, and average elevation. Due to the smaller number of observations, the historical controls in columns (6) and (8) only include distance from the equator, longitude, average elevation, and number of jurisdictional hierarchies above the local level. * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$.

ates uniformly point to the same wrong line to make the subject feel like they "have to" 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 12 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 is also significantly positively related to kinship tightness. The right panel of Figure 4 depicts the cross-country relationship between kinship tightness and valuing proper behavior.

In a next step, the analysis provides within-country evidence for the relationship between social norm adherence and kinship tightness. For this purpose, I exploit variation in values related to norm adherence in the WVS and ESS, see Table 13. Columns (1)–

Table 12: Social norms across countries

	Dependent variable:			
	Conformity	Important behave properly		
	(1)	(2)	(3)	(4)
Kinship tightness	1.93***	1.20***	1.15***	1.16***
	(0.55)	(0.30)	(0.31)	(0.43)
EA controls	No	No	Yes	Yes
Other controls	No	No	No	Yes
Continent FE	No	No	No	Yes
Colonizer FE	No	No	No	Yes
Observations	15	75	75	74
R^2	0.48	0.17	0.29	0.56

Notes. Country-level OLS estimates, robust standard errors in parentheses. The dependent variable in column (1) 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 (2)–(4), the dependent variable is the average importance respondents in the WVS place on behaving properly. 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. * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$.

(2) exploit variation across native ethnicities within countries in the WVS to show that valuing proper behavior is positively related to kinship tightness. Similarly, 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 valuing proper behavior, rule-following, and not drawing attention.[22]

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 is 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 (7) and (8) of Table 11 show that obedience is positively correlated with kinship tightness in historical ethnicities. In sum, across contemporary countries, ethnicities, and migrants as well as historical ethnicities, kinship tightness is positively related to the importance

[22]Similar results hold when I use the importance of inculcating obedience into children from the WVS in the within-country analyses.

Table 13: Attitudes related to norm adherence: Within-country evidence (WVS and ESS)

Variation in KTI is across:	World Values Survey Ethnicities		European Social Survey Parents' countries of birth					
	Dependent variable: Important to:							
	Behave properly		Behave properly		Follow rules		Not draw attention	
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Kinship tightness	0.15**	0.14	0.34***	0.26***	0.20***	0.20***	0.23***	0.100
	(0.06)	(0.15)	(0.04)	(0.06)	(0.05)	(0.06)	(0.05)	(0.06)
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
Ethnicity-level controls	No	Yes	No	No	No	No	No	No
Country of origin controls	No	No	No	Yes	No	Yes	No	Yes
Observations	24575	24333	278021	266816	277190	266018	278493	267296
R^2	0.08	0.08	0.08	0.08	0.10	0.10	0.12	0.11

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, age squared, and educational attainment. 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 following rules, behaving properly, and not drawing attention important. Individual level controls include gender, age, age squared, years of education, and a second-generation migrant dummy. 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. * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$.

of norm adherence.

Taken together, the analysis in this section has brought to light that the two extreme poles of cooperation systems are associated with fundamentally different enforcement schemes. On the one hand, the broad cooperation and trust patterns of loose kinship societies are supported by large-scale institutions and "internal police officers" that broadly sanction wrongdoing even outside of the in-group, including moralizing gods, universal 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, tribalistic 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.

7 Further Robustness Checks

7.1 Additional Covariates

The empirical analysis accounted for a number of geographic, climatic and historical control variables. This section assesses the extent to which the contemporary cross-country and migrant-level results are robust against the inclusion of further covariates.

Further geographic covariates. Tables 19 and 20 in Appendix A replicate all cross-country analyses (with a sufficiently large number of observations), but additionally control for longitude, average elevation, average temperature and the fraction of the population at risk of malaria. Tables 21 and 22 conduct analogous analyses by replicating the migrant-level analyses in the ESS and MFQ, respectively. All results are robust to these additional covariates.

Fraction of the population of European descent. Second, Tables 23 and 24 in Appendix A 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). This control variable is of particular interest because many European ethnicities have relatively low kinship tightness. Still, the results remain almost unchanged when the fraction of Europeans is accounted for. Tables 25 and 26 conduct analogous analyses by replicating the migrant-level analyses in the ESS and MFQ, respectively. Again, controlling for the fraction of Europeans in migrants' country of birth leaves the results unaffacted.

National income and human capital. Next, I control for national income per capita and the average years of schooling in a given country. These variables are arguably "bad controls" in the sense that the hypothesized coevolution of kinship structures and cooperation systems that is at the heart of this paper might plausibly also affect these proxies for comparative development. Still, Tables 26–32 in Appendix A show that a large majority of both the cross-country and the within-country results reported above hold up when controlling for income per capita or average years of schooling.

7.2 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 arguably very much in line

with how anthropologists think about these issues, 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 33–38 in Appendix A replicate one specification for each dependent variable from the above analyses 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 kinshop tightness variables appear to have "explanatory" power for the different outcome variables.

8 Tight Kinship, Agriculture and Development

Anthropologists have long argued that – correlationally – kinship tightness is hump-shaped in economic development (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, 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 out-group 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, hunter-gatherers predominantly have large social networks and reside with genetically unrelated individuals (Hill et al., 2011).

Second, in contrast to the hypothesized positive association between kinship tightness and development at very early stages in the development process, anthropologists hold that tight kinship might have been detrimental 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.).

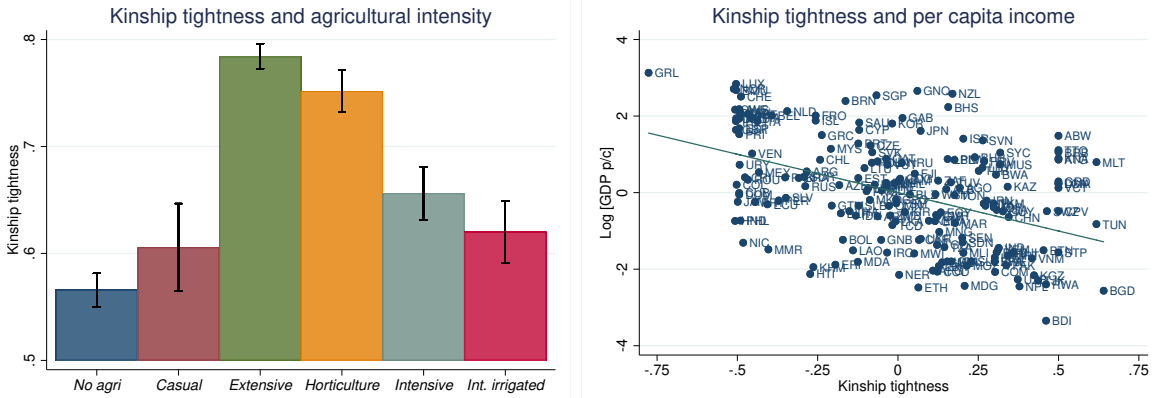

Figure 5: The left panel depicts average kinship tightness and corresponding standard errors for each of six levels of agricultural intensity. The right panel visualizes the partial correlation between kinship tightness and per capita income conditional on the vector of "EA controls", compare, e.g.,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

This paper investigates these theories on a correlational basis. The left panel of Figure 5 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, which is reminiscent of the "curvilinear hypothesis" in anthropology (Blumberg and Winch, 1972). Table 41 in Appendix A analyzes this pattern more rigorously through OLS regressions and confirms that the relationship between 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 subsis-

tence 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).

Given that contemporary societies consist of few hunter-gatherer groups, the anthropological theory of a hump-shaped relationship between development and kinship tightness predicts that contemporary income and kinship tightness are negatively correlated. The right panel of Figure 5 shows that this is indeed the case, $\rho = -0.53$.[23] However, this strong negative correlation appears to have emerged relatively recently. To make this point, 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 meaningful in light of the changes in the structure of populations in the course of 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 6 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.[24]

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 brings to light 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 6 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.

[23]Table 40 in Appendix A investigates this correlation more thoroughly through multiple regression analysis and shows that the correlation is robust to the standard control variables that are commonly used in the literature. While the hump-shaped relationship between kinship tightness and agricultural intensity is statistically significant and in line with prior anthropological work, it should be emphasized that this relationship per se does not account for the contemporary cross-country correlation between per capita income and ancestral kinship tightness. For example, in an OLS regression of per capita income on kinship tightness and ancestral agricultural intensity, the former is statistically highly significant, compare Table 40 in Appendix A.

[24]Table 39 in Appendix A shows the regressions results underlying the construction of Figure 6.

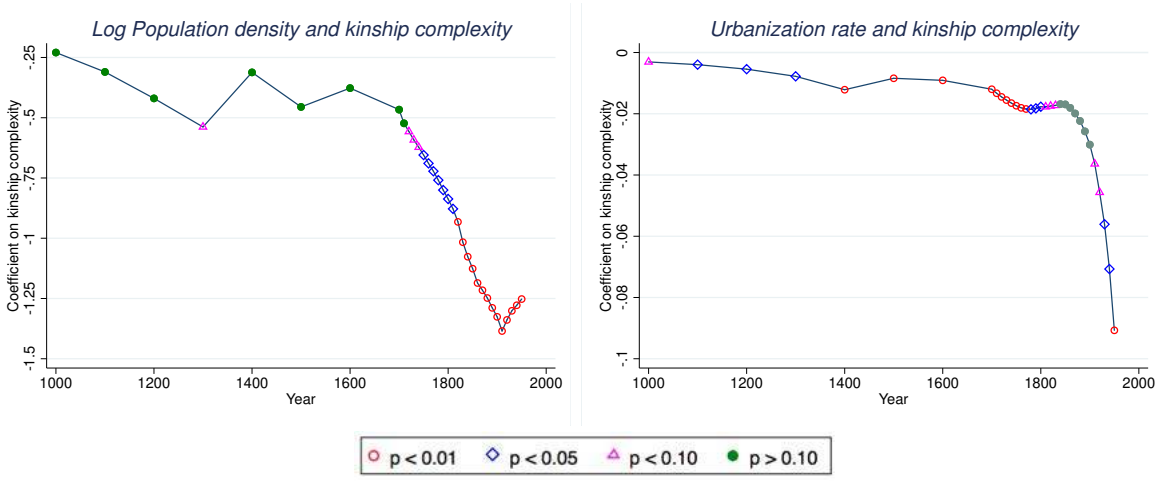

Figure 6: Kinship tightness and development over time. The left panel shows the results of OLS regressions in which I regress log population density in a given year on kinship tightness. Each dot then represents the OLS point estimate for the regression in the respective year, and the color coding denotes 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.

9 Conclusion

Based on prominent narratives in cultural psychology and anthropology, this paper has presented an analysis of cultural variation in cooperation patterns and corresponding enforcement devices. The results suggest that social organization matters: it is 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.

The key insight of the analysis is that – in line with prominant accounts in psychology and anthropology (Greene, 2014; Henrich, 2015, n.d.) – basic aspects of human psychology and biology including the structure of religious beliefs, moral values, social preferences, and basic emotions, seem to have adapted to serve the functional role of enforcing cooperation within specific social structures. Indeed, the results suggest that maintaining cooperation in society necessitates the coevolution of an entire bundle of tools including institutions, psychology, and biology. These results shed light on two prominent puzzles in cross-cultural research.

First, the results provide a rationale why we observe such a large cultural variation in such dimensions: because some cultural traits regulate different cooperation regimes, they necessarily 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 and Giuliano, 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 prosocialbehavior in similar ways.

A key open question concerns the origins of the large heterogeneity in ancestral kinship systems. The analysis has taken a first step in this direction by discussing the relationship between agricultural subsistence and kinship ties, yet – as discussed in Section 8 – this does not explain, e.g., the stark difference between Western Europe and many other parts of the world. Historians and anthropologists have put forward a number of potential *proximate* mechanisms through which European local kinship structures got dismantled (most prominenently the Roman Catholic Church, Goody, 1983; Henrich, n.d.; Schulz, 2016), yet what ultimately set these social changes in motion is beyond our current understanding.

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ONLINE APPENDIX

A Additional Tables

Table 14: 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***	0.37***	0.32**	0.52***	1.07**	1.33**	1.67***
	(0.27)	(0.28)	(0.31)	(0.12)	(0.12)	(0.17)	(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 C. 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 15: Trust patterns: Within-country evidence

	Dependent variable:									
	Trust in:									
	Neighbors		People know		Meet first time		Other religion		Foreign nationality	
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
Kinship tightness	0.25***	0.20	-0.010	0.24	-0.12***	0.044	-0.43***	-0.44	-0.41***	-0.21
	(0.06)	(0.26)	(0.04)	(0.24)	(0.04)	(0.15)	(0.09)	(0.27)	(0.08)	(0.26)
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	22261	22011	22273	22023	22100	21852	21523	21283	21533	21296
R^2	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. All dependent variables are expressed as z-scores. Individual level controls include gender, age, age squared, and educational attainment. 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 16: 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	-1.29***	-0.81***	-0.58**	-0.34**
	(0.25)	(0.20)	(0.25)	(0.17)
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, expressed as z-score. 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 17: 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***	-0.62**	-0.49**
	(0.25)	(0.25)	(0.17)	(0.17)	(0.24)	(0.22)
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. * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$.

Table 18: Moral values across countries: WLS regressions

	Dependent variable:					
	In-group loyalty			Rel. imp. tribalistic 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 universally applicable values by adding the MFQ dimensions of fairness / reciprocity and harm / care and subtracting in-group loyalty and submission to authority. The sample includes all countries, and 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. * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$.

Table 19: Country-level analyses: Controlling for geography (1/2)

	Dependent variable:									
	In-group favoritism		General trust		Δ Trust [In-group – Out-group]		In-group loyalty		Rel. imp. tribalistic values	
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
Kinship tightness	1.10***	1.14***	-1.40***	-1.10***	0.45***	0.46***	1.05**	1.02**	1.26**	1.21**
	(0.30)	(0.31)	(0.42)	(0.38)	(0.11)	(0.12)	(0.48)	(0.47)	(0.48)	(0.48)
EA controls	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Other controls	No	Yes	No	Yes	No	Yes	No	Yes	No	Yes
Additional geography controls	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Continent FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Colonizer FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Observations	110	109	91	91	71	71	93	92	93	92
R^2	0.55	0.56	0.56	0.65	0.68	0.70	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) and (9)–(10), the dependent variables are in-group loyalty and the relative importance of tribalistic 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 20: Country-level analyses: Controlling for geography (2/2)

	Dependent variable:					
	Shame – Guilt (Self-reports)		Shame – Guilt (Google)		Important behave properly	
	(1)	(2)	(3)	(4)	(5)	(6)
Kinship tightness	0.70	1.06	1.56***	1.66***	1.40***	1.37***
	(1.07)	(0.98)	(0.53)	(0.58)	(0.47)	(0.48)
Language FE	No	No	Yes	Yes	No	No
EA controls	Yes	Yes	Yes	Yes	Yes	Yes
Other controls	No	Yes	No	Yes	No	Yes
Additional geography controls	Yes	Yes	Yes	Yes	Yes	Yes
Continent FE	Yes	Yes	No	No	Yes	Yes
Colonizer FE	Yes	Yes	No	No	Yes	Yes
Observations	35	35	59	59	72	72
R^2	0.73	0.77	0.51	0.52	0.61	0.62

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 12. 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 21: ESS analyses: Controlling for geography

	European Social Survey									
	Dependent variable:									
			Important to:							
	Trust		Help people around self		Behave properly		Follow rules		Not draw attention	
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
Kinship tightness	-0.14***	-0.14***	0.078*	0.085**	0.20***	0.21***	0.15***	0.18***	0.10	0.10
	(0.04)	(0.04)	(0.04)	(0.04)	(0.05)	(0.06)	(0.05)	(0.05)	(0.07)	(0.07)
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
Country of origin controls	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
Observations	278388	277110	268707	267472	267965	266741	267164	265943	268451	267221
R^2	0.15	0.15	0.07	0.07	0.08	0.08	0.10	0.10	0.11	0.11

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)) and the extent to which respondents deem helping people around the self ((3)–(4)), behaving properly ((5)–(6)), following rules ((7)–(8)), and not drawing attention ((9)–(10)) important. Individual level controls include gender, age, age squared, years of education, and a second-generation migrant dummy. 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 22: MFQ analyses: Additional geography controls

	Dependent variable:					
	In-group loyalty			Rel. imp. tribalistic values		
	(1)	(2)	(3)	(4)	(5)	(6)
Kinship tightness	0.25***	0.27***	0.36***	0.18***	0.19***	0.26***
	(0.08)	(0.08)	(0.07)	(0.05)	(0.05)	(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	284659	278214	277536	268883	262942	262298
R^2	0.01	0.07	0.07	0.01	0.03	0.03

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 tribalistic 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 C for details. All dependent variables are expressed as z-scores. Individual level controls include gender, age, age squared, an immigrant dummy, and education fixed effects (seven categories). 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 23: Country-level analyses: Controlling for fraction Europeans (1/2)

	Dependent variable:									
	In-group favoritism		General trust		Δ Trust [In-group – Out-group]		In-group loyalty		Rel. imp. tribalistic values	
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
Kinship tightness	1.22***	1.24***	-1.08**	-0.81**	0.25*	0.25*	0.88**	0.87**	1.01**	0.99**
	(0.34)	(0.31)	(0.51)	(0.39)	(0.13)	(0.15)	(0.41)	(0.40)	(0.42)	(0.44)
% of European descent	-1.01***	-0.47	0.90***	0.49**	-0.35***	-0.27**	-0.86**	-0.039	-1.21***	-0.81*
	(0.28)	(0.34)	(0.27)	(0.24)	(0.10)	(0.13)	(0.37)	(0.40)	(0.42)	(0.47)
EA controls	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Other controls	No	Yes	No	Yes	No	Yes	No	Yes	No	Yes
Continent FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Colonizer FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Observations	111	111	92	92	72	72	94	94	94	94
R^2	0.48	0.52	0.51	0.62	0.54	0.56	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) and (9)–(10), the dependent variables are in-group loyalty and the relative importance of tribalistic 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 24: Country-level analyses: Controlling for fraction Europeans (2/2)

	Dependent variable:					
	Shame – Guilt (Self-reports)		Shame – Guilt (Google)		Important behave properly	
	(1)	(2)	(3)	(4)	(5)	(6)
Kinship tightness	0.23	0.81	1.24**	1.17*	0.78	0.82*
	(1.07)	(1.00)	(0.56)	(0.65)	(0.47)	(0.42)
% of European descent	-0.21	-0.58	-0.27	-0.33	-1.04***	-0.55
	(1.61)	(2.01)	(0.63)	(0.82)	(0.28)	(0.44)
Language FE	No	No	Yes	Yes	No	No
EA controls	Yes	Yes	Yes	Yes	Yes	Yes
Other controls	No	Yes	No	Yes	No	Yes
Continent FE	Yes	Yes	No	No	Yes	Yes
Colonizer FE	Yes	Yes	No	No	Yes	Yes
Observations	35	35	59	59	73	73
R^2	0.69	0.74	0.45	0.46	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 12. 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 25: ESS analyses: Controlling for fraction Europeans

	European Social Survey									
	Dependent variable:									
			Important to:							
	Trust		Help people around self		Behave properly		Follow rules		Not draw attention	
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
Kinship tightness	-0.15***	-0.14***	0.11**	0.063	0.27***	0.24***	0.15**	0.16***	0.070	0.068
	(0.05)	(0.05)	(0.05)	(0.05)	(0.06)	(0.06)	(0.06)	(0.06)	(0.06)	(0.06)
% of European descent	0.045	0.042	-0.079*	-0.077*	-0.047	-0.033	-0.043	-0.078	-0.13***	-0.066
	(0.05)	(0.06)	(0.04)	(0.04)	(0.05)	(0.06)	(0.05)	(0.05)	(0.05)	(0.06)
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
Country of origin controls	No	Yes	No	Yes	No	Yes	No	Yes	No	Yes
Observations	277184	277184	267545	267545	266814	266814	266016	266016	267294	267294
R^2	0.15	0.15	0.07	0.07	0.08	0.08	0.10	0.10	0.11	0.11

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)) and the extent to which respondents deem helping people around the self ((3)–(4)), behaving properly ((5)–(6)), following rules ((7)–(8)), and not drawing attention ((9)–(10)) important. Individual level controls include gender, age, age squared, years of education, and a second-generation migrant dummy. 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 26: MFQ analyses: Additional controls

	Dependent variable:											
	In-group loyalty						Rel. imp. tribalistic values					
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)
Kinship tightness	0.26***	0.34***	0.24***	0.24***	0.22***	0.25***	0.17***	0.22***	0.23***	0.29***	0.27***	0.34***
	(0.09)	(0.08)	(0.07)	(0.08)	(0.07)	(0.07)	(0.05)	(0.04)	(0.06)	(0.07)	(0.06)	(0.06)
% of European descent	-0.36***	-0.22***					-0.22***	-0.25***				
	(0.06)	(0.08)					(0.04)	(0.04)				
Log [GDP p/c]			-0.11***	-0.096***					-0.046***	-0.032**		
			(0.01)	(0.01)					(0.01)	(0.01)		
Avg. yrs. of schooling					-0.059***	-0.049***					-0.015*	-0.0037
					(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	278132	277635	278488	277595	277784	277076	262869	262392	263200	262355	262535	261861
R^2	0.07	0.07	0.07	0.07	0.07	0.07	0.03	0.03	0.03	0.03	0.03	0.03

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 tribalistic 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 C for details. All dependent variables are expressed as z-scores. Individual level controls include gender, age, age squared, an immigrant dummy, and education fixed effects (seven categories). 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 27: Country-level analyses: Controlling for income p/c (1/2)

	Dependent variable:									
	In-group favoritism		General trust		Δ Trust [In-group – Out-group]		In-group loyalty		Rel. imp. tribalistic values	
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
Kinship tightness	0.61**	0.65**	-0.94*	-0.96**	0.25*	0.23	0.96*	1.25**	0.85*	1.00**
	(0.26)	(0.26)	(0.49)	(0.45)	(0.14)	(0.15)	(0.56)	(0.56)	(0.44)	(0.48)
Log [GDP p/c]	-0.52***	-0.50***	0.20	0.018	-0.11***	-0.10**	-0.028	0.25	-0.26*	-0.10
	(0.07)	(0.06)	(0.13)	(0.13)	(0.03)	(0.04)	(0.16)	(0.19)	(0.14)	(0.16)
EA controls	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Other controls	No	Yes	No	Yes	No	Yes	No	Yes	No	Yes
Continent FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Colonizer FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Observations	112	111	93	92	73	72	99	94	99	94
R^2	0.63	0.64	0.48	0.62	0.60	0.60	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) and (9)–(10), the dependent variables are in-group loyalty and the relative importance of tribalistic 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 28: Country-level analyses: Controlling for income p/c (2/2)

	Dependent variable:					
	Shame – Guilt (Self-reports)		Shame – Guilt (Google)		Important behave properly	
	(1)	(2)	(3)	(4)	(5)	(6)
Kinship tightness	0.37	0.69	2.04***	2.01***	0.62	0.63
	(1.08)	(1.04)	(0.68)	(0.62)	(0.48)	(0.48)
Log [GDP p/c]	0.058	-0.11	0.28	0.34*	-0.35***	-0.25*
	(0.25)	(0.23)	(0.17)	(0.17)	(0.12)	(0.14)
Language FE	No	No	Yes	Yes	No	No
EA controls	Yes	Yes	Yes	Yes	Yes	Yes
Other controls	No	Yes	No	Yes	No	Yes
Continent FE	Yes	Yes	No	No	Yes	Yes
Colonizer FE	Yes	Yes	No	No	Yes	Yes
Observations	35	35	58	58	74	73
R^2	0.69	0.74	0.50	0.52	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 the importance respondents in the WVS attach to behaving properly, compare Table 12. 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 29: ESS analyses: Controlling for income p/c

	European Social Survey									
	Dependent variable:									
			Important to:							
	Trust		Help people around self		Behave properly		Follow rules		Not draw attention	
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
Kinship tightness	-0.18***	-0.17***	0.14***	0.10**	0.23***	0.21***	0.15**	0.17***	0.080	0.073
	(0.05)	(0.05)	(0.04)	(0.04)	(0.05)	(0.06)	(0.07)	(0.07)	(0.06)	(0.06)
Log [GDP p/c]	0.0066	-0.0086	-0.012	0.0022	-0.031**	-0.037	-0.012	-0.021	-0.043***	-0.023
	(0.02)	(0.02)	(0.01)	(0.02)	(0.02)	(0.02)	(0.01)	(0.02)	(0.01)	(0.02)
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
Country of origin controls	No	Yes	No	Yes	No	Yes	No	Yes	No	Yes
Observations	278382	277051	268708	267419	267966	266688	267164	265890	268451	267168
R^2	0.15	0.15	0.07	0.07	0.08	0.08	0.10	0.10	0.11	0.11

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)) and the extent to which respondents deem helping people around the self ((3)–(4)), behaving properly ((5)–(6)), following rules ((7)–(8)), and not drawing attention ((9)–(10)) important. Individual level controls include gender, age, age squared, years of education, and a second-generation migrant dummy. 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 30: Country-level analyses: Controlling for education (1/2)

	Dependent variable:									
	In-group favoritism		General trust		Δ Trust [In-group – Out-group]		In-group loyalty		Rel. imp. tribalistic values	
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
Kinship tightness	1.50***	1.27***	-1.55***	-1.09***	0.37***	0.28**	0.80*	0.76*	0.80**	0.74**
	(0.30)	(0.28)	(0.50)	(0.39)	(0.11)	(0.12)	(0.48)	(0.44)	(0.38)	(0.36)
Avg. yrs. schooling	-0.23***	-0.21***	-0.084	-0.11	-0.036**	-0.055***	-0.15*	-0.085	-0.045	0.0083
	(0.05)	(0.05)	(0.07)	(0.08)	(0.02)	(0.02)	(0.08)	(0.08)	(0.06)	(0.07)
EA controls	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Other controls	No	Yes	No	Yes	No	Yes	No	Yes	No	Yes
Continent FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Colonizer FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Observations	105	104	82	82	65	65	89	87	89	87
R^2	0.57	0.61	0.50	0.64	0.54	0.62	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) and (9)–(10), the dependent variables are in-group loyalty and the relative importance of tribalistic 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 31: Country-level analyses: Controlling for education (2/2)

	Dependent variable:					
	Shame – Guilt (Self-reports)		Shame – Guilt (Google)		Important behave properly	
	(1)	(2)	(3)	(4)	(5)	(6)
Kinship tightness	-0.23	0.16	1.70***	1.66***	1.18**	0.77*
	(1.12)	(1.18)	(0.58)	(0.58)	(0.49)	(0.42)
Avg. yrs. schooling	-0.012	-0.012	0.054	0.068	0.013	0.041
	(0.11)	(0.12)	(0.07)	(0.08)	(0.08)	(0.08)
Language FE	No	No	Yes	Yes	No	No
EA controls	Yes	Yes	Yes	Yes	Yes	Yes
Other controls	No	Yes	No	Yes	No	Yes
Continent FE	Yes	Yes	No	No	Yes	Yes
Colonizer FE	Yes	Yes	No	No	Yes	Yes
Observations	33	33	55	55	66	66
R^2	0.70	0.74	0.45	0.46	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 the importance respondents in the WVS attach to behaving properly, compare Table 12. 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 32: ESS analyses: Controlling for education

	European Social Survey									
	Dependent variable:									
			Important to:							
	Trust		Help people around self		Behave properly		Follow rules		Not draw attention	
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
Kinship tightness	-0.14***	-0.14***	0.13***	0.087**	0.23***	0.22***	0.15**	0.19***	0.10*	0.096
	(0.05)	(0.05)	(0.04)	(0.04)	(0.05)	(0.06)	(0.06)	(0.06)	(0.06)	(0.07)
Avg. yrs. schooling	0.012	0.014	-0.011**	-0.014**	-0.021***	-0.028***	-0.011*	-0.017***	-0.020***	-0.016*
	(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
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
Country of origin controls	No	Yes	No	Yes	No	Yes	No	Yes	No	Yes
Observations	277117	275888	267460	266269	266727	265547	265926	264749	267211	266025
R^2	0.15	0.15	0.07	0.07	0.08	0.08	0.10	0.10	0.11	0.11

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)) and the extent to which respondents deem helping people around the self ((3)–(4)), behaving properly ((5)–(6)), following rules ((7)–(8)), and not drawing attention ((9)–(10)) important. Individual level controls include gender, age, age squared, years of education, and a second-generation migrant dummy. 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 33: Country-level analyses: Separate kinship tightness proxies

	Dependent variable:												
	Cooperation			Trust		Moral values		Shame vs. guilt		Altruistic punishm.		Social norms	
	PGG	Cheating	Nepotism	General	Δ [In – Out]	Loyalty	Trib. values	Self-reports	Google	PGG	GPS	Conformity	Behave prop.
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)
Nuclear family	0.47	-0.64	-0.33	0.30	-0.17***	-0.27	-0.56**	-0.82**	-0.79**	0.77	0.72***	-0.82	-0.48*
	(0.58)	(0.47)	(0.21)	(0.24)	(0.07)	(0.23)	(0.22)	(0.36)	(0.33)	(0.47)	(0.24)	(0.61)	(0.26)
Neolocal residence	1.28***	-1.15**	-0.63***	0.55**	-0.23***	-0.41*	-0.65***	-0.67*	-0.73**	0.78	0.80***	-1.00*	-0.69**
	(0.41)	(0.41)	(0.21)	(0.25)	(0.06)	(0.22)	(0.21)	(0.36)	(0.32)	(0.45)	(0.27)	(0.52)	(0.26)
Cousin marriage	0.14	0.58	-0.18	0.28	0.12	0.16	0.18	0.058	0.67	0.62	0.48	0.36	-0.030
	(0.57)	(0.72)	(0.27)	(0.24)	(0.09)	(0.26)	(0.24)	(0.54)	(0.52)	(0.62)	(0.30)	(1.04)	(0.26)
Polygamy	-1.11**	1.38***	0.45**	-0.27	0.22***	0.65***	0.98***	0.93**	1.08***	-0.98*	-1.08***	1.40**	1.03***
	(0.39)	(0.44)	(0.19)	(0.23)	(0.07)	(0.21)	(0.21)	(0.37)	(0.34)	(0.46)	(0.22)	(0.47)	(0.23)
Bilateral descent	1.20***	-1.56***	-0.63***	0.37*	-0.22***	-0.64***	-0.91***	-1.01***	-0.48	0.55	0.68***	-1.55***	-0.92***
	(0.38)	(0.39)	(0.18)	(0.22)	(0.07)	(0.19)	(0.21)	(0.35)	(0.36)	(0.45)	(0.23)	(0.41)	(0.22)
Localized clans	-0.50	1.46***	0.58***	-0.49*	0.18*	0.72***	0.78**	1.60***	0.86**	-0.79	-0.35	2.14***	0.94***
	(0.37)	(0.51)	(0.22)	(0.27)	(0.09)	(0.21)	(0.33)	(0.37)	(0.43)	(0.59)	(0.26)	(0.46)	(0.29)
Language FE	No	No	No	No	No	No	No	No	Yes	No	No	No	No
Observations	15	23	114	94	74	104	104	35	59	15	75	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)), MFQ in-group loyalty (column (6)), the relative importance of tribalistic MFQ moral values (column (7)), the importance of shame over guilt in ISEAR self-reports (column (8)) and Google searches (column (9)), the relative importance of altruistic punishment in public goods game and GPS, respectively (columns (10) and (11)), experimental conformity (column (12)), and the importance of behaving properly (column (13)). * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$.

Table 34: EA analyses: Separate kinship tightness proxies

	Dependent variable:						
	Beliefs & values			Institutions			
	Trust	Moral. god	Loyalty	Global	Local	Local enf.	Obedience
	(1)	(2)	(3)	(4)	(5)	(6)	(7)
Nuclear family	0.27	0.18**	-0.15	-0.097	-0.90***	-0.77***	-0.12
	(0.20)	(0.08)	(0.26)	(0.07)	(0.06)	(0.25)	(0.18)
Neolocal residence	-0.056	0.18*	-0.79**	0.14	-0.30***	-0.45*	-0.40**
	(0.26)	(0.10)	(0.35)	(0.10)	(0.09)	(0.27)	(0.20)
Cousin marriage	-0.36	0.32***	0.023	0.23***	0.10	0.21	-0.0073
	(0.22)	(0.10)	(0.29)	(0.08)	(0.08)	(0.23)	(0.20)
Polygamy	-0.093	-0.49***	0.47	-0.34***	0.081	-0.38	0.15
	(0.22)	(0.12)	(0.34)	(0.11)	(0.09)	(0.28)	(0.22)
Bilateral descent	0.53**	0.21**	-0.22	0.050	-0.68***	-0.69***	-0.37**
	(0.22)	(0.10)	(0.30)	(0.09)	(0.08)	(0.25)	(0.18)
Localized clans	-0.040	-0.37***	0.36	-0.27***	0.43***	0.35	0.017
	(0.23)	(0.08)	(0.25)	(0.07)	(0.07)	(0.23)	(0.18)
Continent FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Observations	129	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 trust (column (1)), the presence of a moralizing god (column (2)), loyalty to the local community (column (3)), the number of jurisdictional hierarchies above the village level (column (4)) and at the village level (column (5)), the strength of local enforcement (column (6)), and the extent to which obedience is instilled into children (column (7)). * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$.

Table 35: Within-country WVS analyses: Separate kinship tightness proxies

	Dependent variable:			
	Trust		Important to	
	General	Δ [In – Out]	help people	behave
	(1)	(2)	(3)	(4)
Nuclear family	0.035	-0.15*	-0.056	-0.015
	(0.03)	(0.08)	(0.06)	(0.05)
Neolocal residence	0.051	-0.18*	-0.13***	-0.088*
	(0.03)	(0.09)	(0.04)	(0.05)
Cousin marriage	0.018	-0.15	0.029	-0.16***
	(0.06)	(0.17)	(0.14)	(0.06)
Polygamy	-0.020	0.22**	0.13***	0.065
	(0.04)	(0.11)	(0.04)	(0.05)
Bilateral descent	-0.072	-0.24*	-0.0059	-0.073
	(0.05)	(0.13)	(0.08)	(0.05)
Localized clans	-0.094***	0.44***	0.034	0.11**
	(0.03)	(0.10)	(0.03)	(0.05)
Country FE	Yes	Yes	Yes	Yes
Wave FE	Yes	Yes	Yes	Yes
Individual level controls	Yes	Yes	Yes	Yes
Observations	42038	21104	14755	24575

Notes. Individual-level OLS estimates, 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)). * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$.

Table 36: Within-country ESS analyses: Separate kinship tightness proxies

	Dependent variable:				
			Important to:		
	Trust	Help people	Behave properly	Follow rules	Not draw attention
	(1)	(2)	(3)	(4)	(5)
Nuclear family	0.038	-0.067***	-0.13***	-0.072***	-0.066**
	(0.03)	(0.02)	(0.03)	(0.03)	(0.03)
Neolocal residence	0.096***	-0.095***	-0.15***	-0.070*	-0.086**
	(0.03)	(0.02)	(0.03)	(0.04)	(0.04)
Cousin marriage	-0.022	0.072***	0.012	-0.0010	0.0095
	(0.02)	(0.03)	(0.04)	(0.03)	(0.04)
Polygamy	-0.21***	0.12***	0.25***	0.16***	0.19***
	(0.03)	(0.03)	(0.03)	(0.04)	(0.04)
Bilateral descent	0.18***	-0.12***	-0.25***	-0.17***	-0.19***
	(0.03)	(0.02)	(0.03)	(0.03)	(0.04)
Localized clans	-0.051	0.14***	0.16***	0.069	0.15***
	(0.05)	(0.03)	(0.06)	(0.05)	(0.06)
Country FE	Yes	Yes	Yes	Yes	Yes
Wave FE	Yes	Yes	Yes	Yes	Yes
Individual-level controls	Yes	Yes	Yes	Yes	Yes
Observations	288519	278775	278021	277190	278493

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. 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)) as well as the importance people attach to helping people around oneself (column (2)), behaving properly (column (3)), following rules (column (4)), and not drawing attention (column (5)). * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$.

Table 37: Within-country MFQ analyses: Separate kinship tightness proxies

	Dependent variable:	
	In-group loyalty	Tribalistic values
	(1)	(2)
Nuclear family	-0.37***	-0.24***
	(0.06)	(0.04)
Neolocal residence	-0.37***	-0.23***
	(0.05)	(0.04)
Cousin marriage	-0.10	-0.046
	(0.11)	(0.06)
Polygamy	0.40***	0.24***
	(0.06)	(0.04)
Bilateral descent	-0.43***	-0.29***
	(0.06)	(0.04)
Localized clans	0.50***	0.36***
	(0.13)	(0.10)
Country FE	Yes	Yes
Individual level controls	Yes	Yes
Observations	279142	263819
R^2	0.07	0.03

Notes. Individual-level OLS estimates, 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 tribalistic moral values (column (2)). * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$.

Table 38: Within-country GPS analyses: Separate kinship tightness proxies

	Dependent variable:	
	Δ Punishment [Altruistic – Second-party]	
	(1)	(2)
Nuclear family	0.13***	0.13***
	(0.04)	(0.04)
Neolocal residence	0.080**	0.062
	(0.04)	(0.05)
Polygamy	-0.042	-0.034
	(0.05)	(0.06)
Bilateral descent	0.026	0.017
	(0.05)	(0.05)
Localized clans	-0.080	-0.10
	(0.07)	(0.07)
Country FE	Yes	Yes
Individual level controls	No	Yes
Observations	65199	64217

Notes. Individual-level OLS estimates, 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 tribalistic moral values (column (2)). * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$.

Table 39: 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. * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$.

Table 40: Contemporary development and kinship tightness

	Dependent variable: Log [GDP p/c]				
	(1)	(2)	(3)	(4)	(5)
Kinship tightness	-2.32***	-2.01***	-1.15***	-2.36***	-1.36***
	(0.27)	(0.30)	(0.40)	(0.28)	(0.42)
Intensity of agriculture				-0.025	-0.022
				(0.07)	(0.07)
EA controls	No	Yes	Yes	No	No
Other controls	No	No	Yes	No	No
Continent FE	No	No	Yes	No	Yes
Colonizer FE	No	No	Yes	No	Yes
Observations	189	187	157	189	189
R^2	0.30	0.31	0.67	0.30	0.56

Notes. Country-level OLS estimates, robust standard errors in parentheses. The dependent variable is per capita income. 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 41: 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 and IV 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. * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$.

B Additional Figures

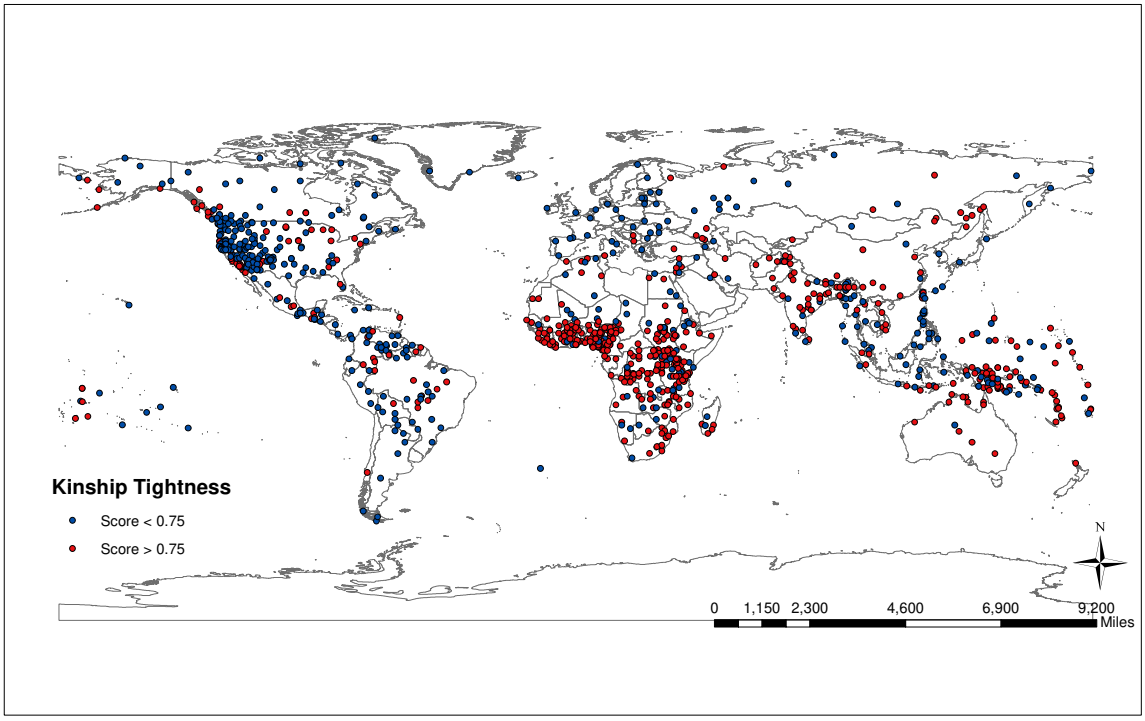

Figure 7: Distribution of kinship tightness index in the EA

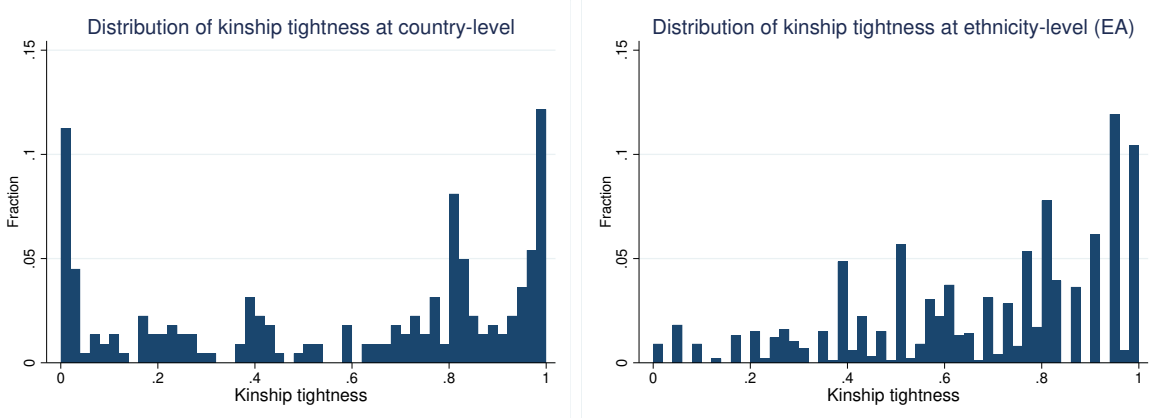

Figure 8: Distribution of kinship tightness at country level (left panel) and ethnicity level (right panel).

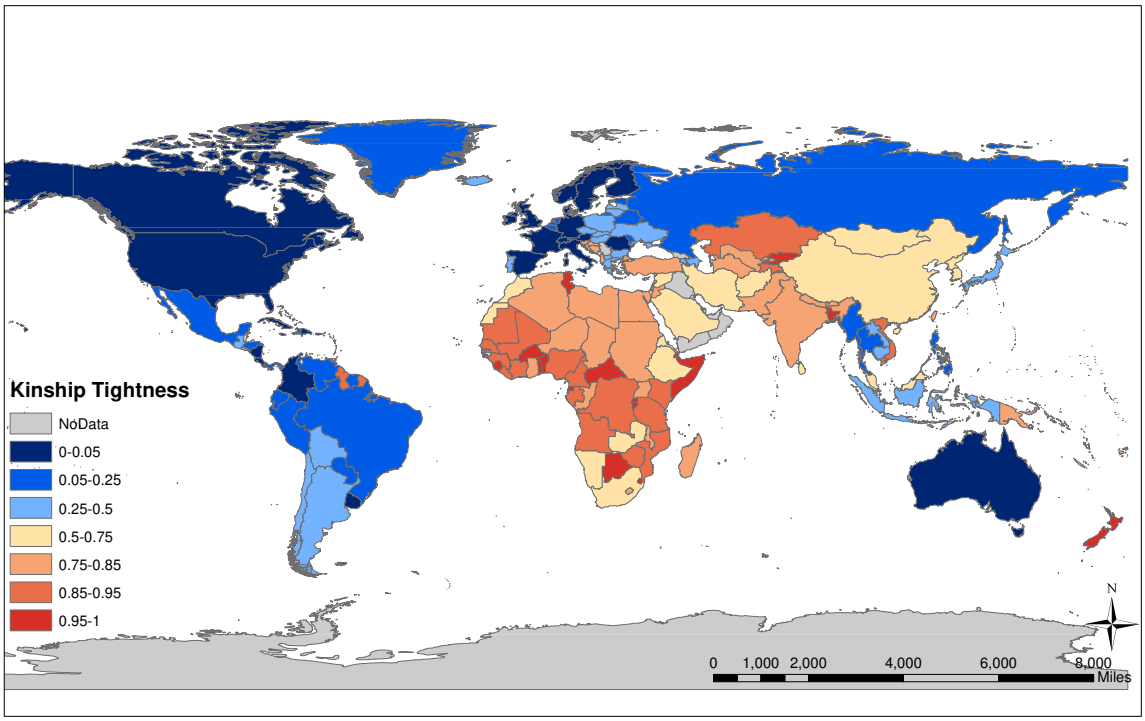

Figure 9: Distribution of kinship tightness across countries. In this map, a country is set to missing if some of the variables underlying the kinship tightness index are based on a relatively small fraction of the population.

C Data Description

C.1 Ethnographic Atlas

C.1.1 Construction of Kinship Tightness Index

Extended vs. nuclear family. Q8. Binary variable that takes on value of zero if domestic organization is around nuclear families (1 and 2), and one otherwise.

Post-wedding residence. Q11. Binary variable coded as 1 if couples can live with either the husband's or the wife's family or have neolocal residence (3) or no common residence (8), and zero otherwise.

Kin terminology. Q27. Binary variable coded as zero if the kin terminology (q27) is "Eskimo' (3) or "Hawaiian' (4), and one otherwise.

Cousin marriage. Q24. Three-step variable that takes on value of zero if no first or second cousins can be married (8), 0.5 if second cousins can be married (5-7), and one otherwise. Whenever Q24 is missing, the cousin marriage variable is imputed from the kin terminology variable. 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 value of zero if monogamous (1) and zero otherwise.

Lineages. Q43. Binary variable that takes on the value zero if descent is bilateral and one otherwise.

Segmented communities and localized clans. Q15. Binary variable that takes value of one in the presence of segmented communities or localized clans (2, 5 and 6) and zero otherwise.

Kinship tightness. First principal component of extended vs. nuclear family, post-wedding residence, cousin marriage, polygamy, lineages, and segmented communities and clans.

C.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).

C.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.

C.2 Standard Cross-Cultural Sample

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".

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").

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.

C.3 Cross-Country Data

C.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.

C.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.

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, and then average these two differences to arrive at a summary statistic of the relative strength of shame. 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 com-

puted 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.

Altruistic 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.

Tightness of social norms. Index measuring the strength of social norms developed by Uz (2015). The index computes the standard deviation in responses for various morally disputable behaviors in the WVS. The underlying reasoning is that the presence of strong social norms should induce people to give *similar* responses, irrespective of what that response may be. Data taken rom Uz (2015).

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.

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 tribalistic 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 universally applicable moral principles) over "ingroup / loyalty" and "authority / respect", which are relationship-specific obligations, i.e., "groupish" or "tribalistic" values. The full Moral Foundations Questionnaire can be accessed here: http://www.moralfoundations.org/questionnaires. The score of the relative importance of universal 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 universal 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.

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 Value 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.

C.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.

C.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).

C.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."
Other variables coded as in cross-country analyses.

C.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 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".

C.6 Global Preference Survey

Coded as in cross-country case.

C.7 Moral Foundations Questionnaire

Coded as in cross-country case.