Herding, Warfare, and a Culture of Honor: Global Evidence*

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Abstract: According to the widely known 'culture of honor' hypothesis from social psychology, traditional herding practices have generated a value system conducive to revenge-taking and violence. We test the economic significance of this idea at a global scale using a combination of ethnographic and folklore data, global information on conflicts, and multinational surveys. We find that the descendants of herders have significantly more frequent and severe conflict today, and report being more willing to take revenge in global surveys. We conclude that herding practices generated a functional psychology that plays a role in shaping conflict across the globe.

Keywords: Culture of honor, conflict, punishment, revenge.

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1. Introduction

A culture of honor is a bundle of values, beliefs, and preferences that induce people to protect their reputation by answering threats and unkind behavior with revenge and violence. According to a widely known hypothesis, that was most fully developed by Nisbett (1993) and Nisbett and Cohen (1996), a culture of honor is believed to reflect an economically-functional cultural adaptation that arose in populations that depended heavily on animal herding (pastoralism).[1] The argument is that, relative to farmers, herders are more vulnerable to exploitation and theft because their livestock is a valuable and mobile asset. In such an environment, it can be useful to develop a reputation for being violent and willing to take revenge. As Nisbett and Cohen (1996, p. 5) put it: "a stance of aggressiveness and willingness to kill... is useful in announcing a herder's determination to defend his animals."

The culture of honor hypothesis has attracted much attention across the social sciences. However, empirical evidence for the hypothesis is limited to specific contexts (often the U.S. South) and usually covers small-scale elements of aggression.[2] As a result, it is still unknown whether (*i*) the culture of honor hypothesis holds true at a global scale and (*ii*) it also matters for the onset and severity of medium- and large-scale conflict events. Indeed, despite the many studies on the economic determinants of civil wars and conflict, relatively little is known about their cultural determinants (Blattman and Miguel, 2010).

Addressing these questions is challenging because it requires various types of rich data. First, we need detailed information on how much the ancestors of today's populations relied on herding versus other modes of subsistence. Second, as a validation and plausibility check, we need historical evidence that populations that subsisted on herding actually developed a culture in which conflict, punishment and retaliation played a salient role. Third, rich and geographically fine-grained global data on contemporary conflicts are needed that can be linked to historical information on herding. Fourth, a convincing analysis of mechanisms requires detailed global data on the psychological tendencies that plausibly mediate the link between herding and conflict,

[1] Components of the hypothesis were developed prior in a number of studies such as Peristiany (1965), Gastil (1971), Black-Michaud (1975), Ayers (1984), Wyatt-Brown (1982), and Fischer (1989). For a recent summary on the history of the literature see Uskul, Cross, Günsoy and Gul (2019).

[2] Evidence for the U.S. South comes from Nisbett and Cohen (1996), Nisbett, Polly and Lang (1995), Cohen (1998), Hayes and Lee (2004), Grosjean (2014). For work outside the U.S. see Black-Michaud (1975), who documents the importance of honor and vengeance among the traditional herding societies of the Mediterranean and the Middle East.

in particular, a desire to take revenge and more generally reciprocate unfair behavior. Fifth, to be able to rule out concerns about confounds that typically pervade cross-cultural and cross-country analyses, we require data that allow us to observe fine-grained variation across individuals or groups that reside within the same country but differ in their ancestral tradition of herding.

Our paper achieves these objectives by linking a recently constructed index on the quantitative importance of herding in a large number of pre-industrial ethnic groups to the world's most comprehensive contemporaneous datasets on both organized violence and individual propensities to seek revenge and punish unfair behavior. Following Becker (2019), we construct an ethnicity-level measure of traditional reliance on herding using information contained in the *Ethnographic Atlas* (Murdock, 1967).

This historical herding measure has two attractive features. First, because it is defined at the level of historical ethnic groups, we can link it to contemporaneous conflict and survey data to analyze variation within countries, not just between countries. This has the important advantage that it allows us to significantly reduce the scope of omitted variable bias by holding constant factors such as the institutional environment, economic development, and general cultural heritage. Second, as documented by Becker (2019), a group's historical dependence on herding observed in the *Ethnographic Atlas* is strongly correlated with the suitability of the group's territory for pastoralism. This suggests that the vast majority of variation in herding has deep ecological origins, so that any relationship between herding and violence is unlikely to be driven by reverse causality.

Our analysis proceeds in three steps. In a first step, we develop an understanding of whether pre-industrial ethnic groups that relied more strongly on herding did indeed develop a culture that emphasizes violence, punishment and retaliation. The analysis is both of direct interest and provides a plausibility check for our analyses of contemporary data. We make use of a recently released dataset on historical folklore that provides rich information on the traditional beliefs, customs, and stories of a community that were passed through the generations by word of mouth in the form of tales, narratives etc. We show that the folklore of ethnic groups in the *Ethnographic Atlas* that relied more strongly on animal herding is much more likely to contain concepts that are related to a culture of honor. Specifically, we find that traditional herding is strongly correlated with the frequency of motifs related to violence, punishment, and retaliation. These results suggest that, historically, groups of herders were indeed more likely to develop a

culture of honor and violence.

Our analysis then seeks to understand whether these cultural tendencies have persisted and continue to shape conflict, warfare, and revenge taking today. To study the link between a tradition of herding and contemporaneous conflict, we leverage the detailed information on the location and incidence of conflicts from the *Uppsala Conflict Data Program* (UCDP), the world's main provider of data on organized violence.

Our main analysis compares contemporaneous ethnolinguistic groups that reside within the same country but potentially differ in their historical reliance on herding. Our results show that populations that historically relied on herding to a greater extent have more conflicts today. This is true for all types of conflict covered by the database: state conflicts, non-state conflicts, and localized conflicts, which involve one-sided aggression by armed groups. We also find that historical herding is predictive of the *intensity* of conflict: ethnolinguistic groups whose ancestors relied more strongly on herding don't just have more conflict events, they also see more deaths and spend longer periods in conflict.

To delve deeper into the relationship between herding and a psychology of punishment, we leverage the recently-constructed *Global Preferences Survey*, or GPS (Falk, Becker, Dohmen, Enke, Huffman and Sunde, 2018), a globally representative survey dataset that includes rich information on respondents' willingness to take revenge and punish other people for unfair behavior. Because of their global scope, representativeness and tailored, experimentally validated survey measures, these data provide an ideal basis for an investigation of the global psychological variation in inclinations to seek revenge and punish others. Looking both within and across countries, we find that the degree of traditional herding is strongly predictive of individuals' willingness to take revenge and punish others for unfair behavior in the GPS.

In all, the culture of honor hypothesis finds considerable evidence in our global analyses: historical herding groups developed an oral tradition in which violence, punishment and retaliation feature saliently; traditional herding practices are strongly related to the onset and severity of contemporary conflicts; and people's willingness to take revenge and reciprocate unkind behavior is significantly related to their ancestors' dependence on herding. These results suggest that the theory that was initially largely focused on explaining violence in the U.S. South is applicable much more broadly across a diverse set of cultures, and helps explain both significant conflicts and global psychological variation in punishment and revenge-taking, arguably one of most

prominent behavioral mechanisms in understanding social cooperation.

2. Historical measure of economic dependence on herding

Data. Our analysis uses information on pre-industrial reliance on herding from the *Ethnographic Atlas*, a worldwide ethnicity-level database constructed by George Peter Murdock that contains ethnographic information for 1,265 ethnic groups (Murdock, 1967). Information for societies in the sample has been coded for the earliest period for which satisfactory ethnographic data are available or can be reconstructed. The earliest observation dates are for groups in the Old World where early written evidence is available. For the parts of the world without a written history, the first recorded information could be from the 20th century. The data capture as much as possible the characteristics of the group prior to industrialization and European contact.

The *Ethnographic Atlas* has recently seen widespread use in economic history, cultural economics, and cultural psychology (e.g. Alesina, Giuliano and Nunn, 2013, Michalopoulos and Papaioannou, 2013, 2014, 2016, Giuliano and Nunn, 2018, Schulz, Bahrami-Rad, Beauchamp and Henrich, 2019, Enke, 2019). A large-scale validation study has also recently documented strong correlations between historical ethnic-group level characteristics in the *Ethnographic Atlas* and contemporaneous ethnic-group level measures of those same traits (Bahrami-Rad, Becker and Henrich, 2020).

Herding refers to the breeding, care, and use of herd animals such as sheep, goats, camels, cattle and horses (also referred to as pastoralism). Herding involves taking the herds out to natural pasture, which increases the risk of theft. We follow Becker (2019) and quantify an ethnic group's economic reliance on herding as the share of a society traditional subsistence that was from herded animals.[3]

In total, we have herding data on 1,127 historical ethnic groups in the *Ethnographic Atlas*. The distribution of the dependence on herding measure across ethnic groups is shown in Appendix Figure A1. Figure A2 maps the spatial distribution. Societies vary substantially in their historical dependence on herding. About one-third of societies have very little or no herding production (less than 5%). Similarly, few societies depend on herding by more than 50% (about 5%). Most societies have intermediate shares of herding production, with an average dependence of 14%.

[3]The finer details of the construction of the variable are provided in Appendix C.

In our analyses, we link this index of historical economic dependence on herding to contemporary data on conflict, violence, and revenge-taking. Many of our analyses control for a number of other characteristics of ethnic groups, including their economic development, degree of political and institutional sophistication, and their geography. These are captured by measures of settlement complexity (1-8 scale), the number of levels of jurisdictional hierarchy beyond the local community (0-4 scale), distance from the equator, and longitude.[4]

Ecological determinants of herding. In our empirical analyses, the historical dependence on herding is an explanatory variable. In principle, it is possible that groups that were more violent to begin with tended to pick up herding. This would create a reverse causality problem. However, a society's subsistence mode is largely determined by deep ecological factors. Indeed, certain ecological conditions are highly favorable for herding, whereas others make pastoralism impossible. To quantify this, we follow Becker (2019) and empirically investigate the relationship between observed dependence on herding and land suitability for herding (vs. agriculture). Building on suitability data constructed by Beck and Sieber (2010) through maximum entropy modeling, Becker (2019) documents that land suitability for herding and observed subsistence on herding are strongly correlated across ethnic groups ($\rho = 0.59$). In Appendix Figures A3 and A4, we replicate this analysis. It is worth pointing out that the data reveal such a high correlation between suitability and actual herding *despite* the random measurement error that is typically entailed in both ethnographic records and the construction of land suitability measures. Therefore, the data suggests that the environment determined which societies herded.

Hypotheses. Based on the culture of honor hypothesis, we state the following predictions to be investigated below:

1. In pre-industrial societies, dependence on herding is predictive of the cultural salience of violence- and punishment-related themes.

2. In contemporary populations, the dependence on herding of people's ancestors is predictive of the frequency and severity of armed conflicts.

3. In contemporary populations, the economic dependence on herding of people's ancestors is predictive of a psychology of punishment.

[4]For the full details of the construction of these variables, see Appendix E.

3. Herding and a historical culture of honor

In a first step of the empirical analysis, we investigate whether in the past herding societies were more likely to develop a culture of honor. To this effect, we rely on two data sources that quantify the cultural traits of historical societies and can be matched with the ethnic groups in the *Ethnographic Atlas*: (i) recently released folklore data and (ii) ethnographic records from the *Standard Cross Cultural Sample*.

Historical folklore data. We follow Michalopoulos and Xue (2019, 2021) in quantifying ethnic groups' cultural beliefs and practices using textual data on folklore.[5] The data are designed to capture a society's traditional beliefs, customs and culture as they are transmitted from generation to generation through word-of-mouth, often in the form of folktales and narratives.

Most importantly for our purposes, the data contain many concepts that are related to the culture of honor hypothesis. Michalopoulos and Xue (2019) study the association between herding and a culture of honor by examining words associated with 'anger' and 'retaliation'. Following the same basic logic, we hand-select those concepts from the catalog that appear related to the culture of honor. These are:

1. Violence and conflict concepts: violence, violent, battle, fighting, attack, soldier, guard, troop, army, enemy, fighter, invasion, invade, defender

2. Punishment and revenge concepts: punishment, punish, penalty, revenge, retaliate, retaliation

For each of the concepts, we generate a binary indicator that equals one if the concept appears in the folklore of an ethnic group. We then average across all concepts within a given domain (violence/ conflict and psychology of punishment/ revenge) to arrive at a summary measure that captures the fraction of concepts in the domain that are present in a society's folklore. In addition to measures for both domains, we also compute an overall summary measure of a culture of honor by taking the average across all concepts. Since the probability that a given concept is mentioned in a society's folklore will mechanically be higher in societies that have a larger folklore corpus,

[5]Details on the dataset and procedure are provided in Appendix D.

we always include a control for the natural log of the total number of motifs in a society in our regressions.[6]

Table 1 reports the regression results. For each folklore variable, we show two specifications: one in which we only control for the total number of motifs in a society, and a second one that additionally conditions on the controls discussed above plus country fixed effects. Standard errors are clustered at the country level. The estimated effects are very similar across dependent variables and suggest that an increase in dependence on herding by one standard deviation increases culture-of-honor folklore by about 11–18% of a standard deviation. The estimated coefficient is always statistically significant except in column (6), where the inclusion of country fixed effects renders the relationship insignificant. It is worth pointing out that this is a relatively demanding specification because much of the variation across ethnic groups in the *Ethnographic Atlas* is not within contemporaneous country borders. Figure 1 shows binscatter partial correlation plots between a dependence on herding and folklore motifs related to the culture of honor.[7] We further confirm that historically herding societies were more prone to violence using information on the acceptability of violence in a small representative and independent subset of the groups in the *Ethnographic Atlas*, obtained from the *Standard Cross Cultural Sample* (Murdock and White, 1969).[8] In all, our analyses of the two historical datasets reveal that traditional herding societies were more likely to accept violence and emphasize notions related to revenge-taking in their folklore. We now turn to investigating whether this culture of honor is still visible in conflict and revenge-taking data today.

4. Traditional herding and contemporary conflict

Conflict data and linkage to pre-industrial ethnic groups. Our data on conflict stem from the *Uppsala Conflict Data Program* (UCDP), the world's main provider of data on organized violence. The dataset covers the whole world (with the exception of Syria) for the period 1989–2016. The unit of observation in the dataset is a conflict event, defined as an "incident where armed force was used by an organized actor against another organized actor, or against civilians, resulting

[6]As reported in Appendix Table B5, our results are very similar when we control for fixed effects for the total number of motifs.

[7]The figure is constructed controlling for the natural log of the total number of motifs in a society, settlement complexity, jurisdictional hierarchy, distance from the equator, and longitude. The results are robust to controlling only for the natural log of the total number of motifs in a society.

[8]The results are reported in Appendix Figure A5

in at least one direct death at a specific location and a specific date." For each conflict event, the dataset reports the starting and ending dates, the conflict location's geographic coordinates, the conflict type, and the number of deaths. As an example, one entry in the dataset records that there was a conflict event between the Government of Iraq and Islamic State in Mosul town, starting and ending on September 24, 2016, which caused the death of 11 civilians.

Our research hypothesis requires us to link the frequency of contemporary conflicts to historical economic dependence on herding. Because the conflict data are tied to a specific location – rather than ethnic groups – we cannot directly match conflict events to the historical groups in the *Ethnographic Atlas*. Following Giuliano and Nunn (2018), we circumvent this problem by using UCDP's detailed geographic information to associate the conflict events with the global distribution of languages and dialects as mapped in the *Ethnologue: Languages of the World* (Gordon, 2009) database. That is, we match each conflict event to the ethnolinguistic (i.e., language) groups that – according to the *Ethnologue* – resides in the location that contains the location of the conflict event.[9]

To summarize, we take as the unit of observation a language group in the *Ethnologue*. We then match each group to two types of data. First, we link each language group to the most closely related historical ethnic group from the *Ethnographic Atlas* to gauge their ancestors' dependence on herding. Second, we assign to each language group the conflict events that took place in the language group's area of residence.

For each language group, we aggregate the UCDP data into four types of conflict events, over the entire 1989–2016 period covered by the data:

1. Total conflicts: an aggregate measure that includes all conflict events in the database.

2. State-based conflicts: an aggregate of violence between two organized actors of which at least one is the government of a given state.

3. Non-state conflicts: an aggregate of violence between actors of which neither party is the government of a state.

4. Localized conflicts (or one-sided conflicts): an aggregate of violence against unarmed civilians perpetrated by organized non-state groups or governments.

[9]Appendix E describes this procedure in greater detail.

Our main measure of interest consists of the *number of conflict events* within each of these categories.

Estimation strategy and covariates. To take into account that the conflict data have a very long right tail (large outliers), we use as our main outcome variable the natural log of one plus the number of conflict events. We conduct two types of analyses. First, we report cross-country estimates of the relationship between the frequency of conflict and ancestral dependence on herding. Second, in our main analyses, we link the frequency of conflict to historical dependence on herding across language groups in the *Ethnologue*, including country fixed effects.[10]

Throughout the analysis, we will present two types of empirical specifications. In the first one, we only control for country fixed effects. In a second one, we additionally control for the vector of historical ethnicity-level covariates described above (settlement complexity, jurisdictional hierarchy, distance from the equator, and longitude). These controls serve to ensure that our results indeed reflect a tradition of herding rather than differences in economic development or institutional sophistication.

While the inclusion of country fixed effects captures most of the determinants of conflict that have been examined in the literature, there are additional factors that vary subnationally, that could be correlated with herding, and have been found to be important determinants of conflicts. One is terrain ruggedness, which tends to be associated with suitability for herding (Buhaug and Gates, 2002, Fearon and Laitin, 2003). Motivated by this, we also include a control for the average terrain ruggedness of a language group in our language-level analysis (Nunn and Puga, 2012). The other factor is the population size and land area of a language group. Population size tends to be negatively associated with herding and land area positively associated. Together the two measures captured population density, which has been argued to be an important factor leading to conflicts in many settings. Thus, we include the natural log of a group's population and the natural log of its land area. This also captures the mechanical fact that conflict is more likely when there are more people. Standard errors are aways clustered at the level of the *Ethnographic Atlas ethnic group*.

[10]Country fixed effects allow to control for the determinants of conflict, including cross-country differences in real per capita GDP, the quality of domestic institutions, ethnic polarization, resource endowments, and international geo-political characteristics (e.g., Collier and Hoeffler, 1998, 2004, Fearon and Laitin, 2003, Ross, 2004, Esteban, Mayoral and Ray, 2012). Appendix G provides an overview of countries with variation and corresponding sample sizes.

Main results. The cross-country correlation between historical dependence on herding and frequency of conflict is $\rho = 0.26$, $p < 0.01$. To investigate whether this cross-country difference reflects differences in historical traits other than dependence on herding, we control for historical settlement complexity, jurisdictional hierarchy, distance from the equator, and longitude. The partial correlation conditional on these covariates is given by $\rho = 0.21$, $p < 0.01$ (Figure A6 and A7 shows the partial and raw correlation plots. While we view this cross-country evidence merely as suggestive given the many factors that drive differences in conflict across countries, the patterns are prima facie consistent with the culture of honor hypothesis: countries whose populations descend from ancestors that relied more strongly on herding have more conflict.

To tighten this analysis, we turn to within-country estimates in which the unit of observation is a language group. Table 2 reports the full set of regression coefficients. For each type of conflict category, we show the results from two specifications, one with country fixed effects and one with the additional controls discussed above. The estimated effects are strikingly similar for the different types of conflict. They suggest that an increase in dependence on herding by one standard deviation increases the frequency of log armed conflict by about 10% of a standard deviation. This corresponds to about 0.13 conflict events over the course of 27 years. Figure 2 further visualizes these results by showing binned scatter plots.[11]

Conflict intensity. Thus far, all analyses were based on the *frequency* of conflict. In the Appendix, we analyze the link between a tradition of herding and the *intensity* of conflict. For this purpose, we leverage UCDP data on (*i*) the number of deaths and (*ii*) the number of months during which conflict took place. We find a robust positive relationship between a traditional reliance on animal herding and both total number of deaths and lengths of conflicts, across all four conflict categories (Appendix Figures A9 and A10). This suggests that a culture of honor – as induced through herding practices – manifests in both more frequent and more intensive conflict.

We present the results of three additional exercises to test the robustness of our results. First, because the dependence-on-herding variable has a skewed distribution, one might be worried about the extent to which our results are driven by the few language groups with extremely high dependence on herding. To alleviate this concern, we winsorize the herding variable at the 95th

[11] We also examined the relationship between herding and conflict at its extensive margin (the probability of having any conflict) and intensive margin (the frequency of conflict conditional on having any conflict) and find a positive effect at both margins. The results are available upon request.

percentile (0.405). Thus, any values of the variable greater than 0.405 are recoded as being 0.405 (Appendix Table B6).

Second, to take into account the potential non-independence of the ethnic groups in the *Ethnographic Atlas*, we again present estimates in which we cluster the standard errors at the linguistic affiliation level (Appendix Table B7).

Third, a potential concern with the conflicts analysis is that it reflects that herding societies are often less sedentary than agricultural societies, which could trigger more conflicts. To control for this Appendix Table B8 controls for whether a pre-industrial society was (semi-) sedentary or nomadic. This does not affect the results.

5. Traditional herding and a contemporary psychology of punishment

Punishment and revenge-taking data. We next turn to the psychological and cultural factors that have been hypothesized to be associated with a culture of honor and conflict. Our data are from the *Global Preferences Survey* (GPS), which is a recently constructed global dataset, measuring the economic preferences of a representative sample of 80,000 people from 76 countries (Falk et al., 2018).

The survey measured attitudes toward punishment and revenge-taking in three questions:

1. How much do you agree with the following statement: If I am treated very unjustly, I will take revenge at the first occasion, even if there is a cost to do so. (0–10)

2. How willing are you to punish someone who treats you unfairly, even if there may be costs for you? (0–10)

3. How willing are you to punish someone who treats others unfairly, even if there may be costs for you? (0–10)

We view this set of questions as ideal for our purposes because they directly get at the key psychological mechanism that underlies the culture of honor hypothesis: revenge taking and punishing behavior that is perceived as unfair.[12] In our analysis, we use the summary measure

[12] A potential conjecture is that a culture of honor also pertains to *positive* reciprocity as opposed to negative reciprocity (punishment). However, it is well-known in the behavioral economics literature that while positive and negative reciprocity appear related theoretically, they are empirically almost orthogonal concepts. For example, Falk et al. (2018) find that, in the global GPS sample, positive and negative reciprocity are uncorrelated. We therefore focus on the main emphasis of a culture of honor on negative reciprocity.

constructed by Falk et al. (2018) as a weighted average of the three survey questions normalized to have mean 0 and standard deviation 1. We also consider each survey question separately. At the individual level, the correlations among the three survey items range between 0.45 and 0.71.

Linkage to historical ethnic groups. Similar to the global conflict analysis, we need to link individual-level responses in the GPS to historical ethnic groups to get an estimate of how much an individual's ancestors practiced herding. Naturally, this needs to take into account population movements: for example, in computing the average ancestral reliance on herding of contemporary U.S. Americans, the herding practices of historical European populations are more relevant than those of Native Americans.

Because the GPS does not contain information on respondents' ethnic backgrounds, we link the data using geographic subnational region identifiers in the GPS, which are usually states or provinces. Therefore, we require data on the extent to which the ancestors of today's population in a given subnational region depended on herding. Recently, Giuliano and Nunn (2018) developed a technique to match the historical information in the *Ethnographic Atlas* to any geographic boundaries, which we follow here.In the end, we were able to assign 73,949 respondents from the GPS, living in 951 subnational regions and 75 countries, to a measure of the ancestral herding index of their region or country. The ancestral herding index gives the population-weighted average dependence on herding of the ancestors of those currently residing in the respondent's region or country.[13] It is important to note that this procedure takes into account population movements, including the large-scale movements that occurred followed the Columbian Exchange.

Estimation strategy and covariates. As for the case of conflict, we present two types of analyses. First, we report simple cross-country correlations. Second, in our within-country analyses, we compare GPS respondents that live in different subnational regions within the same country.

We again present an additional within-country specification that includes further controls. Here, we control for two sets of variables. First, as in the conflicts analysis, we control for historical measures of settlement complexity, jurisdictional hierarchy, distance from the equator, and longitude, all of which are assigned to respondents using the same procedure as for the herding index. Second, we control for observable characteristics of the respondent, including age, age squared, and gender.

[13]See Appendix F and Giuliano and Nunn (2018) for the finer details.

Main results. Figure A11 shows a partial correlation scatter plot at the country level for the relationship between ancestral herding and punishment that controls for historical settlement complexity, jurisdictional hierarchy, distance from the equator, and longitude. The partial correlation is $\rho = 0.32$, $p < 0.01$. The raw correlation is $\rho = 0.24$, $p < 0.05$. Appendix Figure A12 presents the raw scatter plot. These correlations provide the first piece of evidence that a tradition of herding affects basic psychological tendencies related to reciprocating unkind actions.

To tighten these cross-country analyses, we again conduct within-country comparisons, as described above. Table 3 summarizes the results. We present regressions with four dependent variables: the summary measure and its three components. All regression coefficients are again expressed as standardized beta coefficients. Across all survey questions, our results show that a tradition of herding is linked to a higher willingness to punish unfair behavior and willingness to take revenge. A one-standard-deviation increase in reliance on herding increases a psychology of punishment by about 8% of a standard deviation. This quantitative magnitude appears to be very stable across regression specifications and outcome variables.[14]

Robustness checks. First, we examine whether the estimates are driven by individuals residing in regions with extremely high dependence on herding. We follow our previous strategy by winsorizing the herding variable at the 95th percentile (0.505) such that values of the variable greater than 0.505 are recoded as 0.505. The estimates, which are reported in Appendix Table B14, show that our results are not driven by extreme values.

Second, to take into account the possibility that the error terms might be correlated across subnational regions, in Appendix Table B15, we also present estimates in which we cluster the standard errors at the country level. This does not meaningfully affect the statistical significance of our estimates.

6. Discussion

We test the hypothesis that ancestral involvement in herding led to the development of a culture of honor and that this has persisted until today, shaping the distribution of conflict around the globe. We start by documenting that historical herding societies have folklore in which

[14] A different way to visualize these results is again by presenting binscatter plots. This is done in Appendix Figure A14.

concepts related to violence, punishment and revenge-taking are more salient. We procede by showing that historical reliance on herding is significantly related to current differences in a psychology of punishment and conflict. Our results hold not only across countries, but also among ethnolinguistic groups and subnational regions.

Arguably, the strengths of our analysis are that we are able to study the culture of honor hypothesis (*i*) at a global scale, rather than in specific contexts or groups; (*ii*) by considering a large set of real and meaningful conflict events; (*iii*) by shedding light on plausible underlying mechanisms by investigating the origins of the global variation in punishment and revenge-taking as recently measured in the *Global Preferences Survey*; (iv) by providing evidence in both historical and contemporaneous data; and (*v*) by comparing individuals or groups within the same countries, which reduces the plausibility of omitted variable and reverse causality concerns.

Our findings suggest that the culture of honor hypothesis also sheds light on the emergence, duration, and severity of economically meaningful armed conflicts, rather than only small-scale elements of aggression as usually studied in the psychology literature. This is relevant because the occurrence of civil war has traditionally been viewed as a puzzle among scholars in the social sciences that take a rational perspective (e.g., Fearon, 1995, Powell, 2006). Our results, which show the importance of a culture of honor, provide evidence that cultural values are important factors in explaining the incidence and severity of conflict. Thus, our findings provide valuable evidence linking culture traits to contemporary conflicts.

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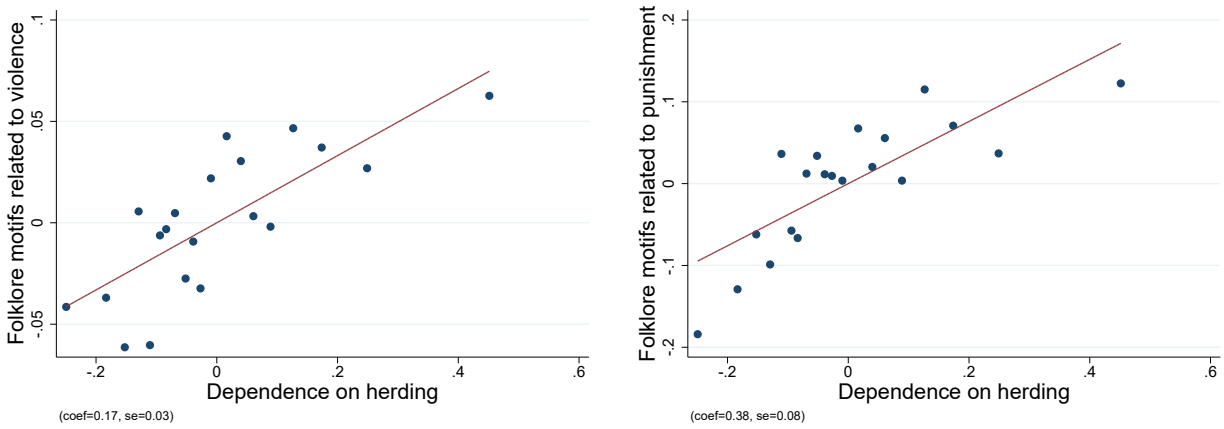
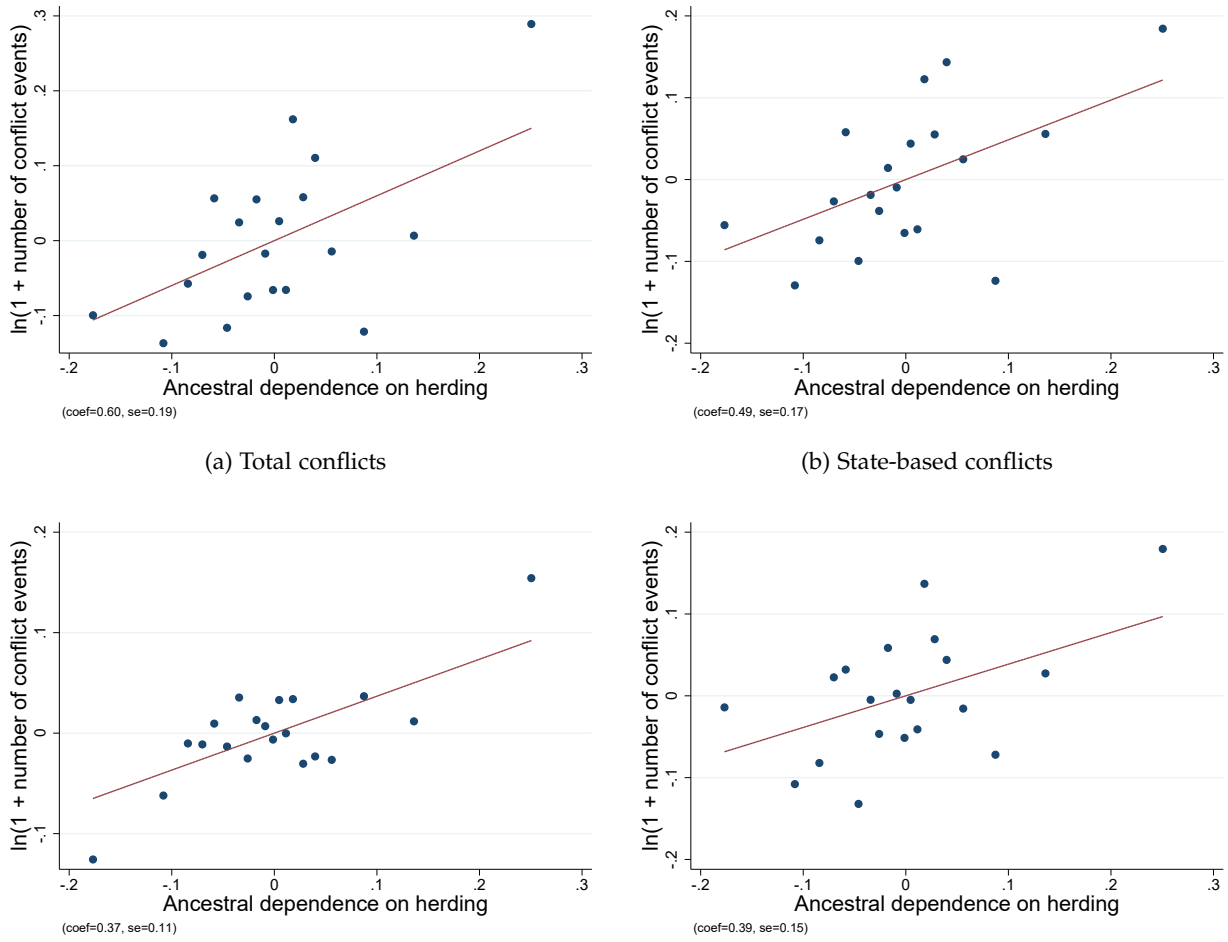


(a) Violence and conflict measure

(b) Psychology of punishment measure

Figure 1: Binscatter partial correlation plots for the relationship between culture-of-honor related folklore motifs and dependence on herding. In each plot, a unit of observation is an ethnic group in the *Ethnographic Atlas*, $N = 1{,}107$. Each dot shows the average of the dependent variable for a given range of values of dependence of herding. Each binscatter is constructed controlling for ln(total number of motifs), settlement complexity, jurisdictional hierarchy, distance from the equator, and longitude.



(a) Total conflicts

(b) State-based conflicts

(c) Non-state conflicts

(d) Localized conflicts

Figure 2: Binscatter partial correlation plots for the relationship between contemporary conflict and a tradition of herding. In each plot, a unit of observation is a country-language group in the *Ethnologue*, $N = 6{,}240$. Each dot shows the average of (the natural log) conflict events for a given range of values of dependence of herding. Each binscatter is constructed after first partialing out country fixed effects. As a result, the estimates directly correspond to the ones in Figure A8.

Table 1: Culture-of-honor related folklores in Ethnographic Atlas societies

	Dependent variable					
			Folklore motifs related to ...			
	Summary measure		Violence		Punishment	
	(1)	(2)	(3)	(4)	(5)	(6)
Dependence on herding	0.18***	0.11***	0.11**	0.11***	0.35***	0.10
	(0.041)	(0.035)	(0.053)	(0.039)	(0.058)	(0.092)
ln(number of motifs)	0.25***	0.23***	0.24***	0.21***	0.26***	0.27***
	(0.0069)	(0.010)	(0.0075)	(0.0099)	(0.015)	(0.021)
Settlement complexity		0.0013		0.0029		-0.0023
		(0.0027)		(0.0022)		(0.0072)
Jurisdictional hierarchy		-0.0016		-0.0015		-0.0020
		(0.0061)		(0.0066)		(0.010)
Distance from equator		2.96***		2.98***		2.92
		(0.79)		(0.79)		(2.47)
Longitude		-0.049		0.45		-1.22
		(0.36)		(0.56)		(1.11)
Country FE	No	Yes	No	Yes	No	Yes
Beta coef. for Herding	0.13	0.079	0.078	0.081	0.18	0.051
Mean of dependent var	0.53	0.53	0.46	0.46	0.68	0.68
SD of dependent var	0.26	0.26	0.26	0.26	0.37	0.37
Adj. R-squared	0.76	0.80	0.70	0.76	0.43	0.54
Number of Obs.	1,135	1,107	1,135	1,107	1,135	1,107
Number of Countries	149	148	149	148	149	148
Number of Clusters	149	148	149	148	149	148

Note. The unit of observation is a society from the *Ethnographic Atlas*. The dependent variables are based on the motifs of folklores from Michalopoulos and Xue (2021), indicating whether any of the motifs in the society is tagged by terms related to the keywords. Coefficients are reported with standard errors in parentheses clustered at the country level. *, **, and *** indicate significance at the 10, 5, and 1% levels.

Table 2: Traditional herding and contemporary conflict

	Dependent variable (in log form)							
	All conflicts		State conflicts		Non-state conflicts		Localized conflicts	
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Dependence on herding	0.83***	0.60***	0.63***	0.49***	0.47***	0.37***	0.51***	0.39***
	(0.26)	(0.19)	(0.21)	(0.17)	(0.13)	(0.11)	(0.19)	(0.15)
Settlement complexity		0.014		0.011		-0.0060		0.0095
		(0.013)		(0.012)		(0.0072)		(0.0093)
Jurisdictional hierarchy		-0.0046		-0.00078		0.0070		0.018
		(0.020)		(0.017)		(0.012)		(0.015)
Distance from equator		0.40		-0.94		0.41		0.64
		(4.70)		(3.93)		(2.41)		(3.42)
Longitude		0.89		0.49		0.46		0.56
		(0.96)		(0.70)		(0.57)		(0.64)
Population (ln)		0.12***		0.078***		0.034***		0.080***
		(0.012)		(0.0096)		(0.0053)		(0.0087)
Land size (ln)		0.12***		0.096***		0.053***		0.071***
		(0.014)		(0.012)		(0.0077)		(0.0098)
Ruggedness		-0.000024		-0.00010		-0.000057		-0.00012
		(0.00015)		(0.00014)		(0.000065)		(0.00011)
Country FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Beta coef. for Herding	0.10	0.074	0.092	0.071	0.12	0.095	0.090	0.067
Mean of dependent var	0.53	0.53	0.36	0.36	0.14	0.15	0.29	0.29
SD of dependent var	1.25	1.26	1.06	1.06	0.58	0.60	0.88	0.88
Adj. R-squared	0.28	0.45	0.29	0.41	0.19	0.28	0.22	0.35
Number of Obs.	7,036	6,240	7,036	6,240	7,036	6,240	7,036	6,240
Number of Countries	211	211	211	211	211	211	211	211
Number of Clusters	1,104	985	1,104	985	1,104	985	1,104	985

Note. The unit of observation is a within-country language group from the *Ethnologue*. The dependent variables are based on information from the *Uppsala Conflict Data Program* (UCDP) about conflict events around the globe for the period 1989-2016. They are measured as the natural log of one plus the value. Coefficients are reported with standard errors in parentheses clustered at the ethnicity level. *, **, and *** indicate significance at the 10, 5, and 1% levels.

Table 3: The historical origins of a psychology of punishment: Individual-level analysis

	Dependent variable							
			Punish if ... treated unfairly				Willingness to	
	Summary measure		Self		Others		take revenge	
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Dependence on herding	0.45**	0.52**	1.34**	1.52**	1.37***	1.42***	0.81*	1.05*
	(0.18)	(0.22)	(0.52)	(0.63)	(0.48)	(0.54)	(0.49)	(0.56)
Settlement complexity		0.013		0.035		0.016		0.044
		(0.019)		(0.057)		(0.049)		(0.049)
Jurisdictional hierarchy		0.024		0.069		0.027		0.080
		(0.024)		(0.067)		(0.067)		(0.062)
Distance from equator		-1.76		-2.27		-14.6		0.88
		(4.56)		(11.8)		(14.4)		(13.0)
Longitude		-1.58		-4.73		-2.49		-4.35
		(1.35)		(3.24)		(4.02)		(4.01)
Age		-0.43***		-0.56		-0.25		-2.20***
		(0.13)		(0.39)		(0.38)		(0.38)
Age squared		-0.43***		-1.86***		-2.01***		0.29
		(0.14)		(0.41)		(0.40)		(0.40)
Female indicator		-0.16***		-0.43***		-0.38***		-0.41***
		(0.0089)		(0.028)		(0.025)		(0.026)
Country FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Beta coef. for Herding	0.067	0.076	0.065	0.074	0.066	0.069	0.040	0.052
Mean of dependent var	-0.0031	-0.0031	4.20	4.20	4.35	4.35	3.63	3.63
SD of dependent var	1.00	1.00	3.04	3.04	3.04	3.04	3.00	3.00
Adj. R-squared	0.071	0.095	0.050	0.070	0.061	0.078	0.080	0.096
Number of Obs.	74,182	73,949	74,264	74,030	74,252	74,018	75,024	74,781
Number of Countries	75	75	75	75	75	75	75	75
Number of Clusters	951	951	951	951	951	951	951	951

Note. The unit of observation is an individual from the *Global Preference Survey* (GPS). The dependent variables are based on information from the GPS, elicited through three self-assessments to measure people's propensity for altruistic punishment and for second-party punishment. Coefficients are reported with standard errors in parentheses clustered at the district level. *, **, and *** indicate significance at the 10, 5, and 1% levels.

Online Appendix

A. Appendix figures

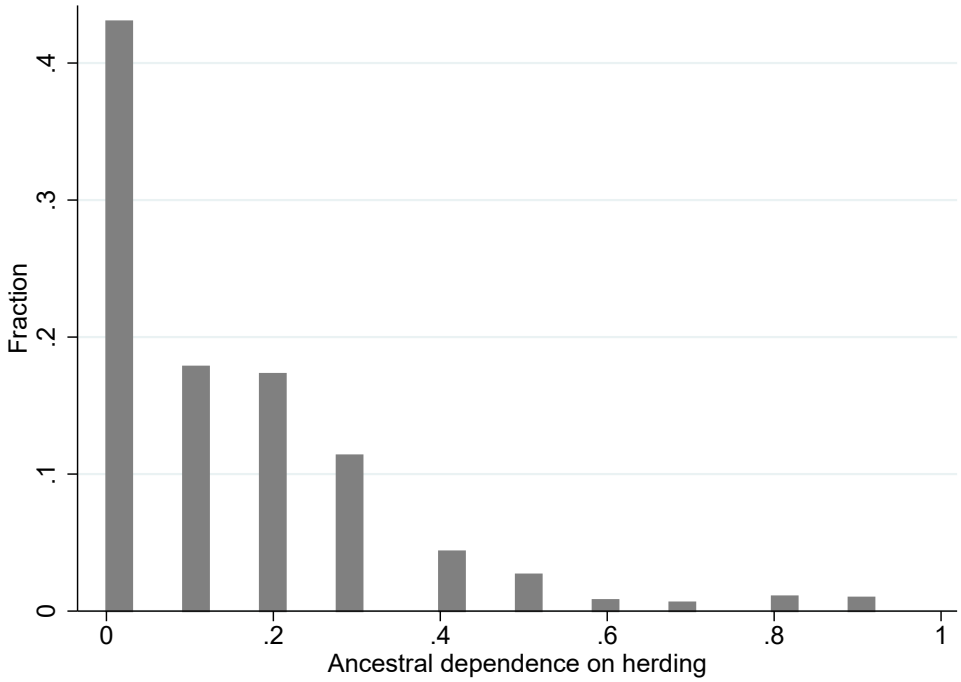


Figure A1: Distribution of herding in the *Ethnographic Atlas*.

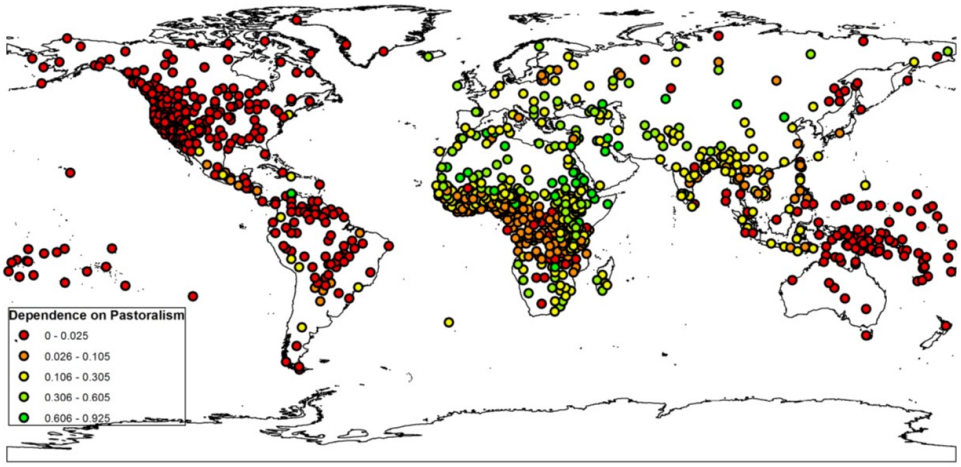


Figure A2: Map of herding in the *Ethnographic Atlas*. The data apply to the pre-colonial period and therefore capture the subsistence mode of local natives. Source: Becker (2019).

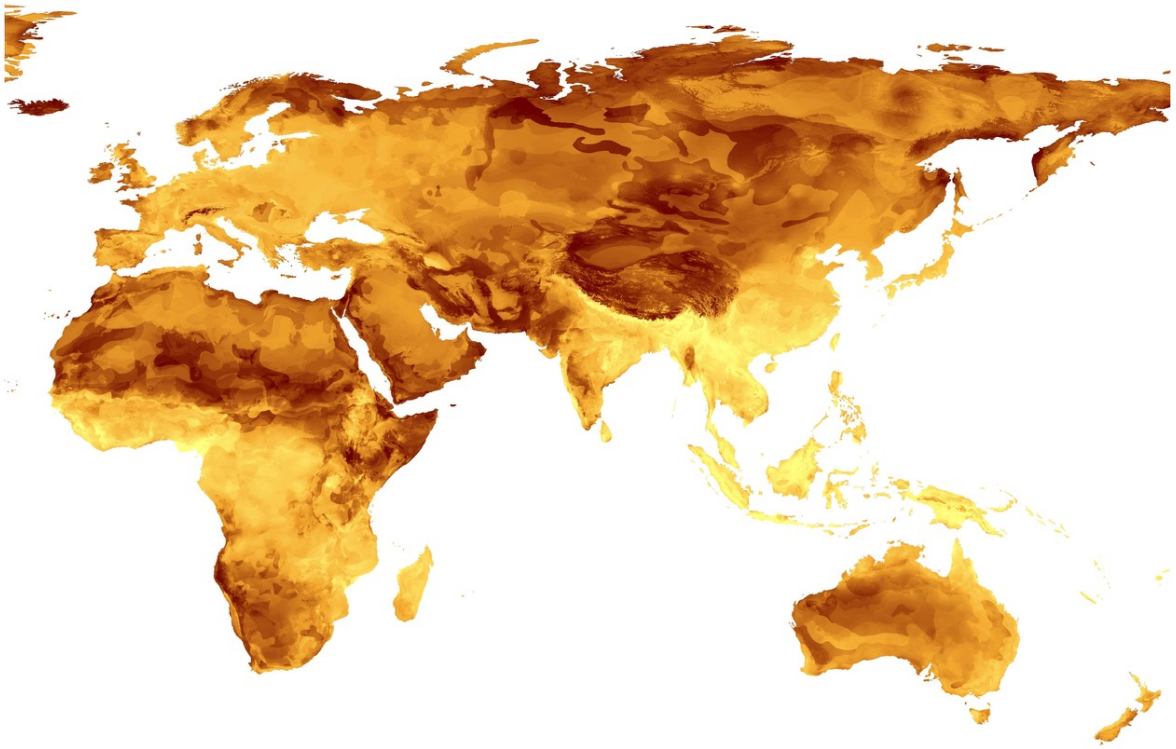


Figure A3: Land suitability for herding vs. agriculture, constructed by Becker (2019) based on data from Beck and Sieber (2010). Darker areas indicate higher suitability for herding relative to agriculture. Data are available only for Africa, Europe, Asia, and Australia.

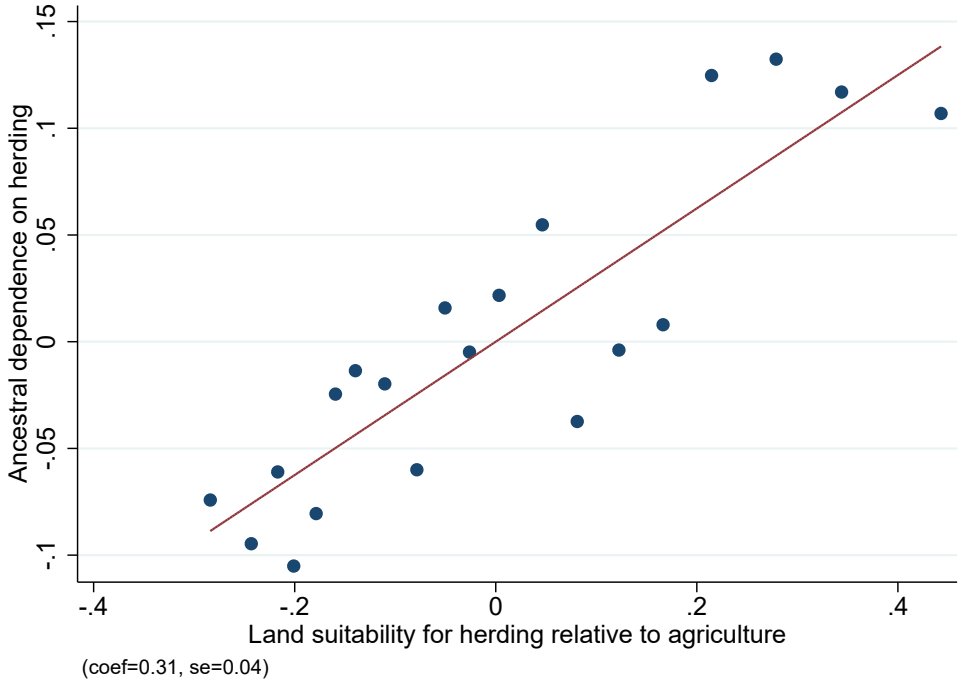


Figure A4: Binscatter plot: dependence on herding and land suitability for herding relative to agriculture for 637 societies in the *Ethnographic Atlas*. The plot controls for continent fixed effects.

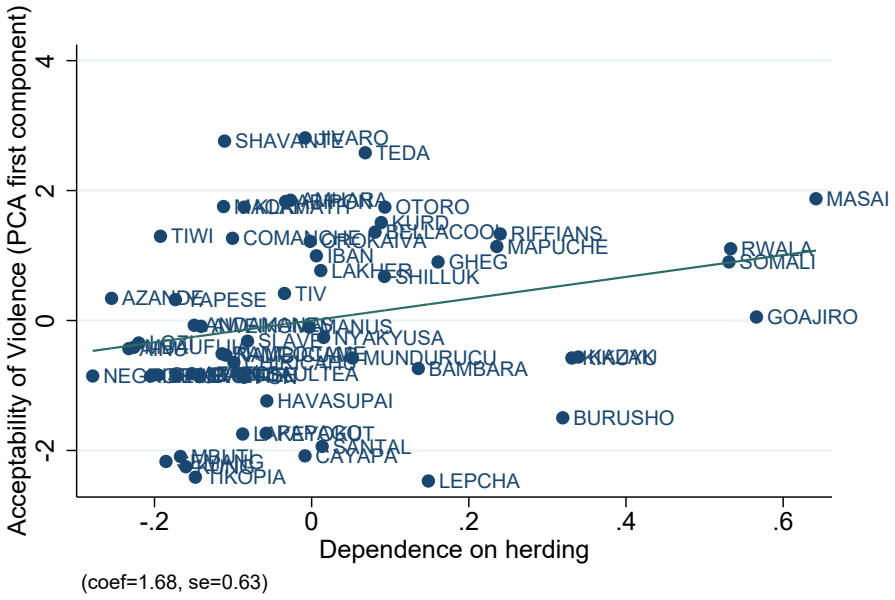


Figure A5: Acceptability of violence and herding in pre-industrial societies. The figure shows a partial correlation plot between acceptability of violence and dependence on herding, controlling for settlement complexity, jurisdictional hierarchy, distance from the equator, and longitude. Each observation is an ethnic group in the SCCS. The partial correlation is $\rho = 0.257$, $p < 0.1$ and the raw correlation $\rho = 0.247$, $p < 0.1$.

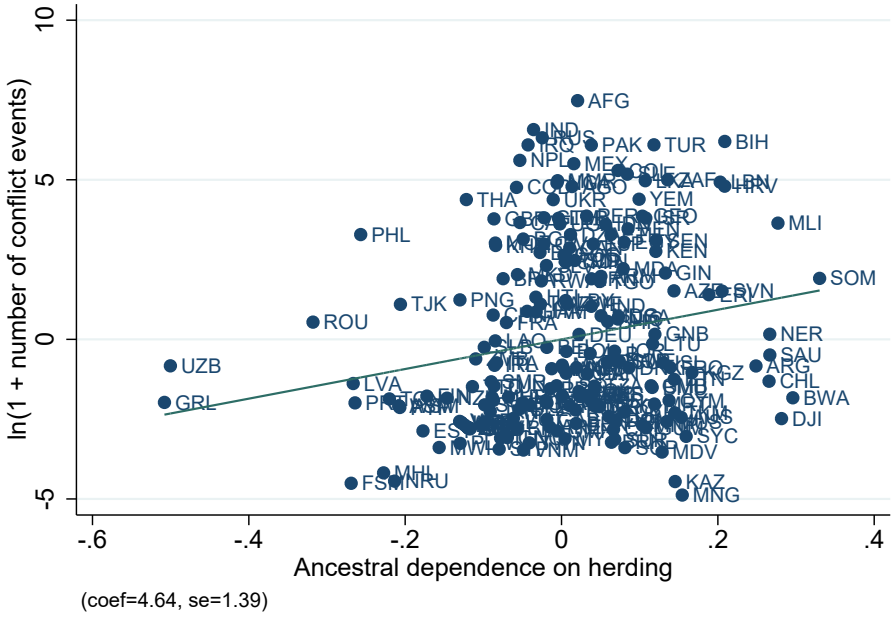


Figure A6: Country-level partial correlation scatter plot between frequency of conflict and ancestral dependence on herding. The figure is constructed based on 203 countries and controls for historical settlement complexity, jurisdictional hierarchy, distance from equator, and longitude. The partial correlation is $\rho = 0.21$, $p < 0.01$. The raw correlation is $\rho = 0.26$, $p < 0.01$.

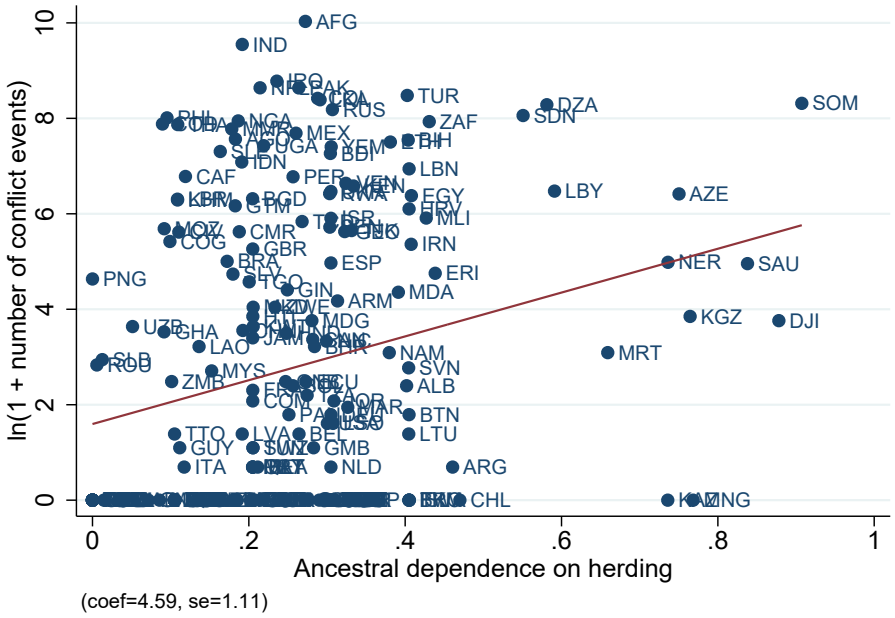


Figure A7: Country-level scatter plot between frequency of conflict and ancestral dependence on herding. The figure is constructed based on 203 countries.

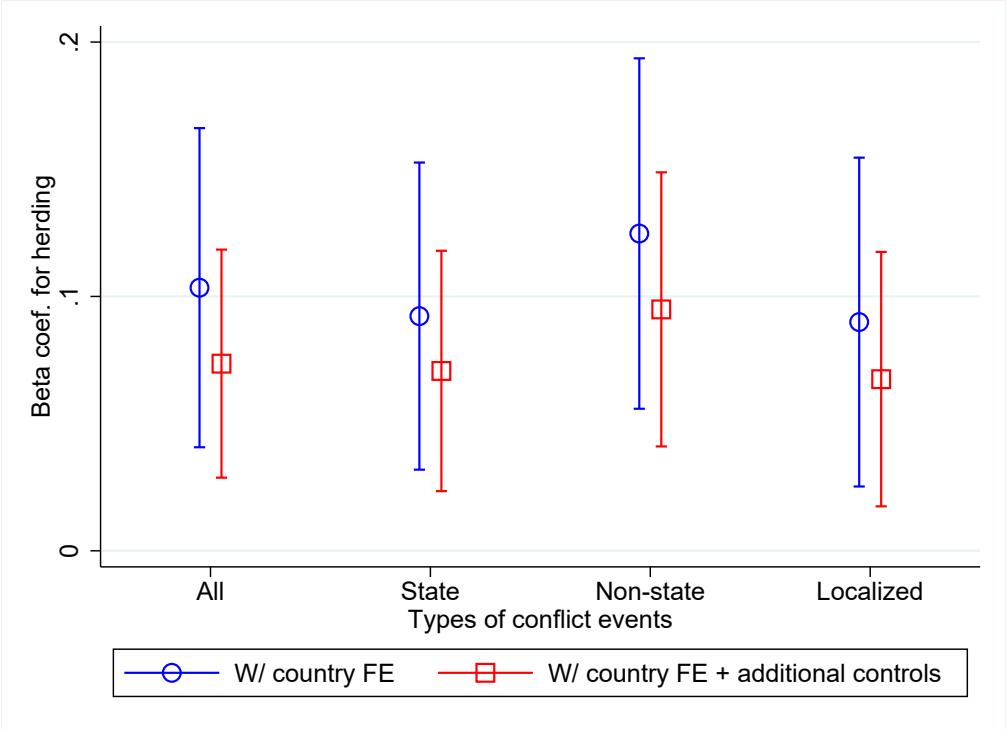


Figure A8: Contemporary conflict and a tradition of herding: within-country analysis. The figure shows the standardized beta coefficient from language-group-level regressions of the frequency of conflict (computed as $\ln(1+x)$) on historical dependence on herding, controlling for country fixed effects. Error bars show 95% confidence intervals, computed based on clustering at the ethnic-group level. The additional controls include historical settlement complexity, jurisdictional hierarchy beyond the local community, distance from the equator, longitude, ln population, ln land area, and terrain ruggedness. The figure is constructed based on 7,036 country-language groups.

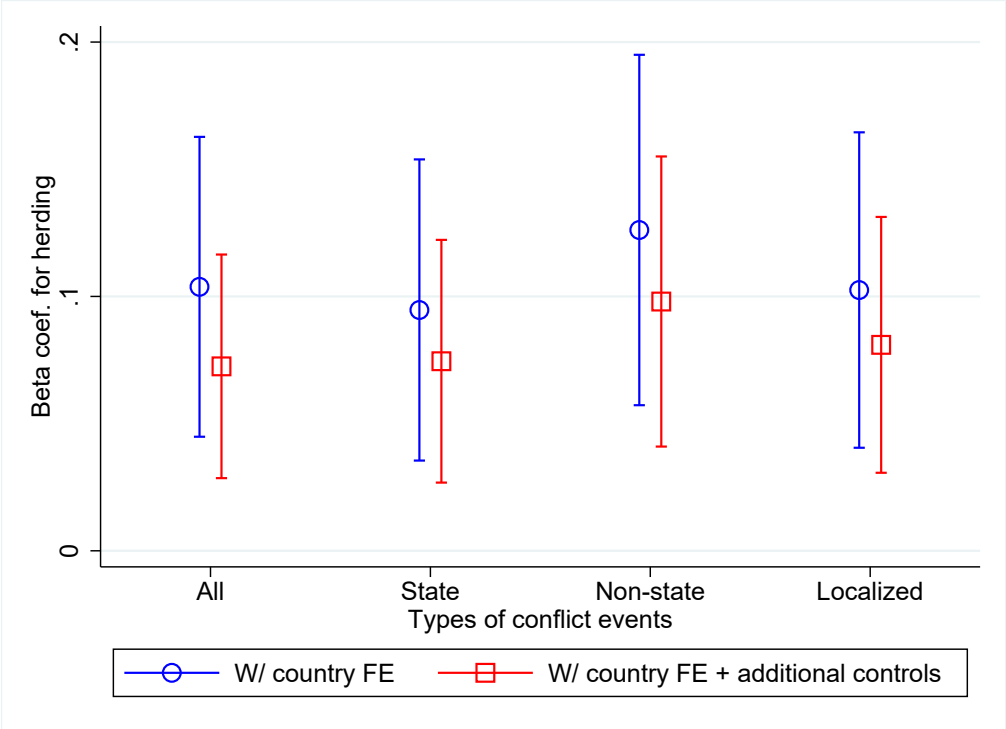


Figure A9: Contemporary conflict (number of deaths) and a tradition of herding: within-country analysis. The figure shows the standardized beta coefficient from language-group-level regressions of the total number of deaths (computed as $\ln(1+x)$) on historical dependence on herding, controlling for country fixed effects. Error bars show 95% confidence intervals, computed based on clustering at the ethnic-group level. The additional controls include historical settlement complexity, jurisdictional hierarchy beyond the local community, distance from the equator, longitude, log population, log land area, and terrain ruggedness. The figures are constructed based on 7,036 country-language groups. See Appendix Table B12 for the full estimates.

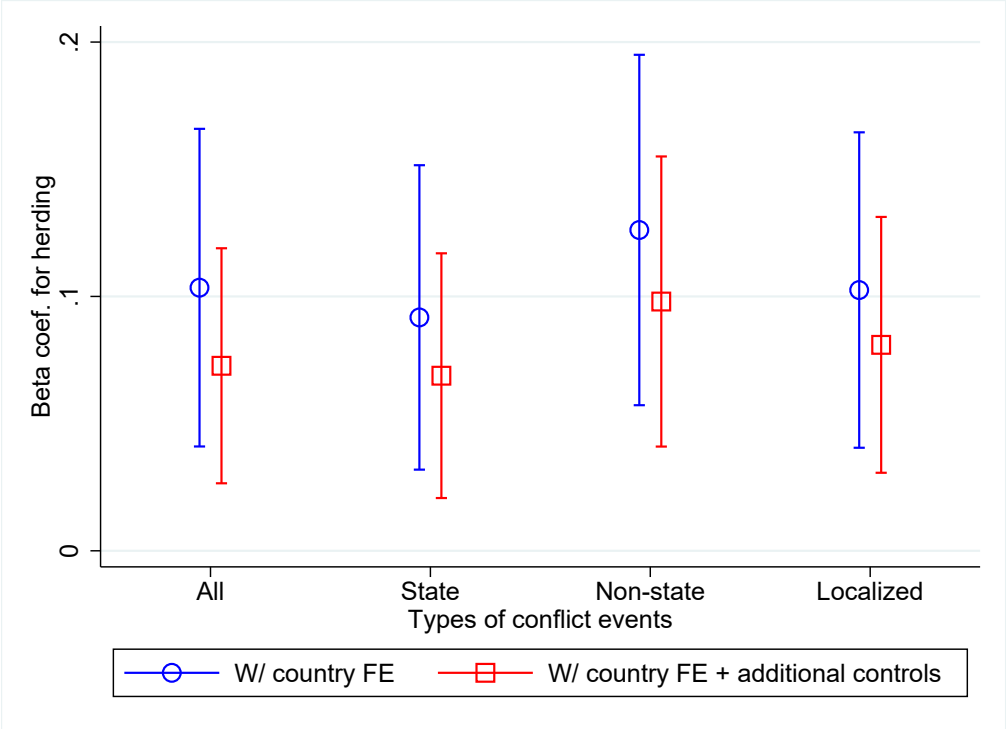


Figure A10: Contemporary conflict (length in months) and a tradition of herding: within-country analysis. The figure shows the standardized beta coefficient from language-group-level regressions of lengths of conflicts (computed as $\ln(1+x)$) on historical dependence on herding, controlling for country fixed effects. Error bars show 95% confidence intervals, computed based on clustering at the ethnic-group level. The additional controls include historical settlement complexity, jurisdictional hierarchy beyond the local community, distance from the equator, longitude, log population, log land area, and terrain ruggedness. The figures are constructed based on $N = 7{,}036$ country-language groups. Appendix Table B13 reports the full estimates.

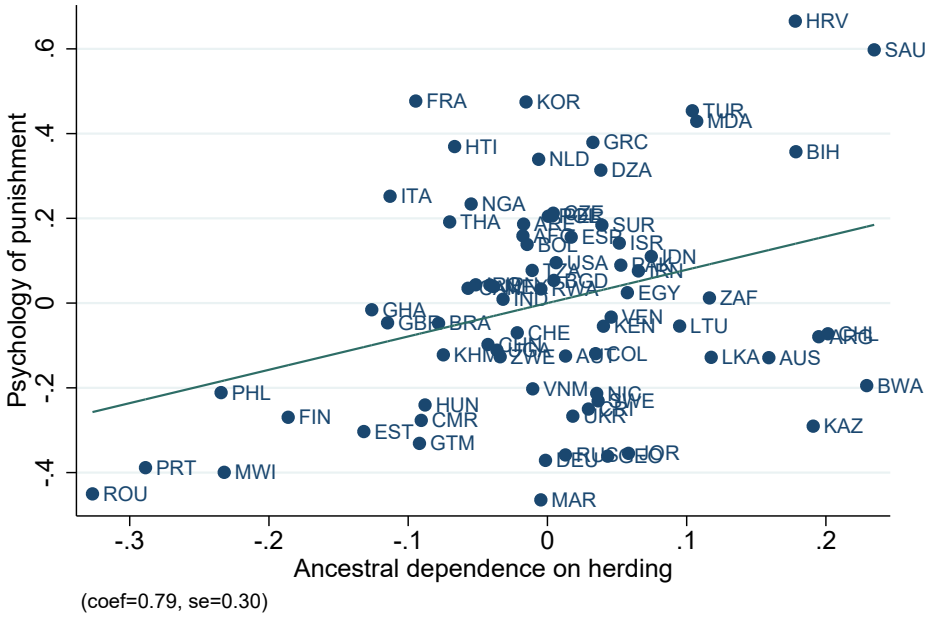


Figure A11: Country-level partial correlation scatter plot between a country's average psychology of punishment and its ancestral dependence on herding. The figure is constructed based on 75 countries and controls for historical settlement complexity, jurisdictional hierarchy, distance from the equator, and longitude. The partial correlation is $\rho = 0.32$, $p < 0.01$. The raw correlation is $\rho = 0.24$, $p < 0.05$.

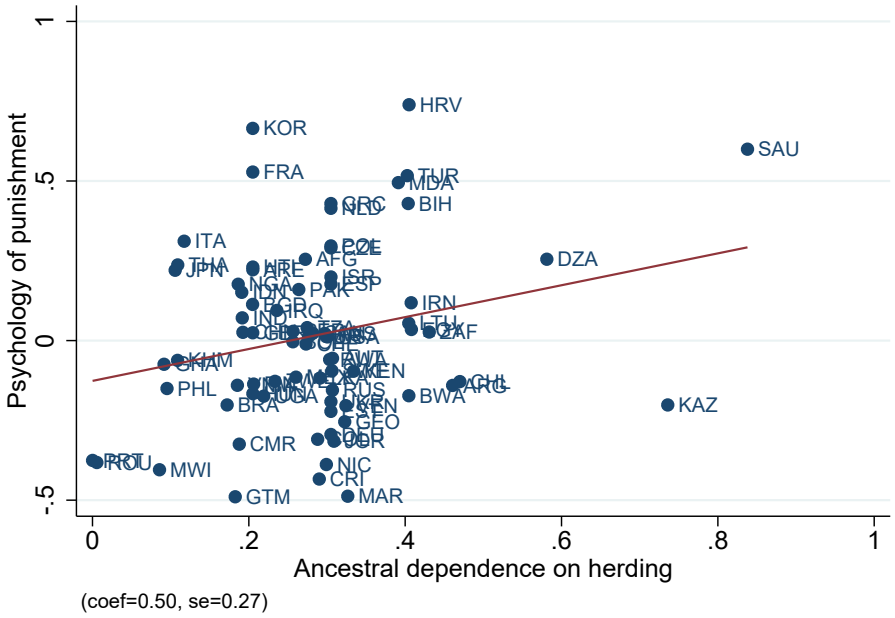


Figure A12: Country-level bivariate scatter plot between psychology of punishment and ancestral dependence on herding. Psychology of punishment is computed as a weighted average of the three survey questions in the GPS. The figure is constructed based on 75 countries.

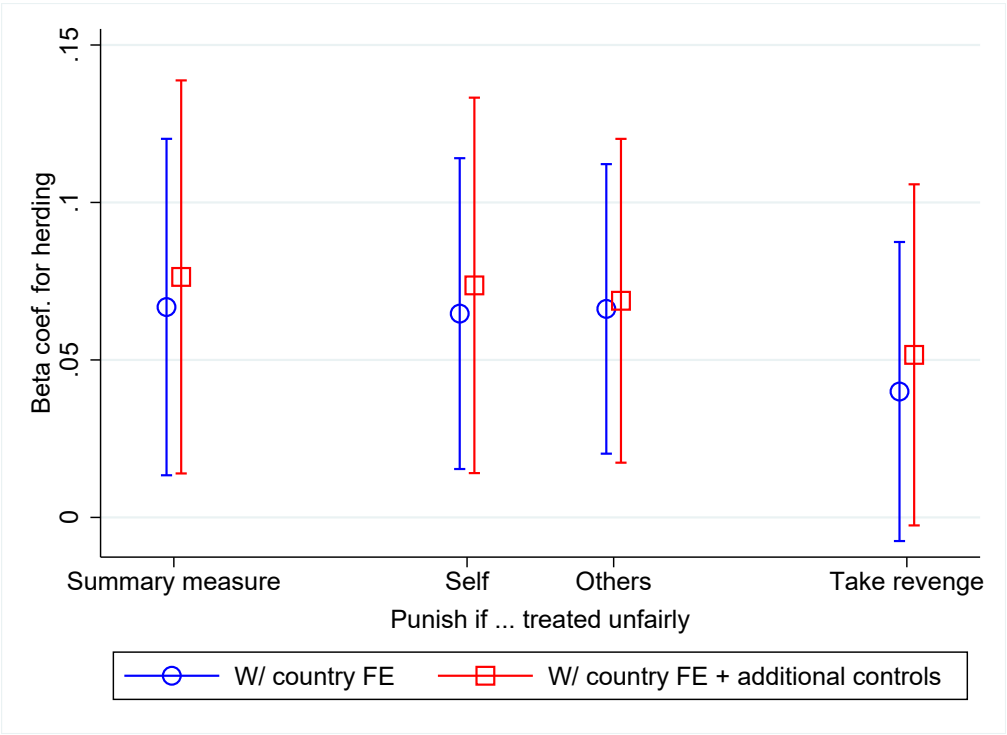
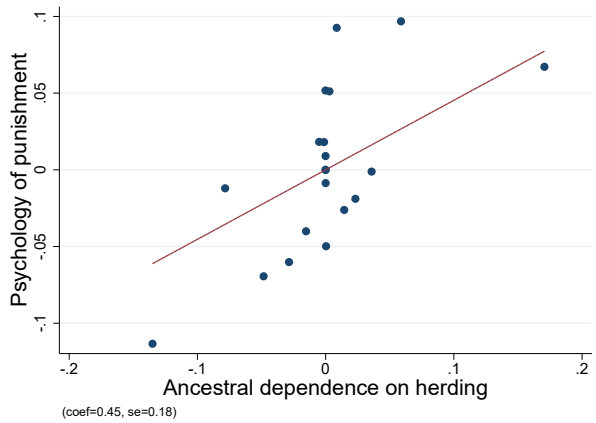
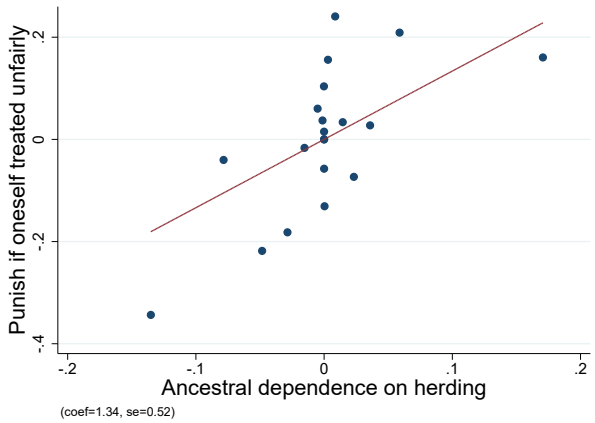


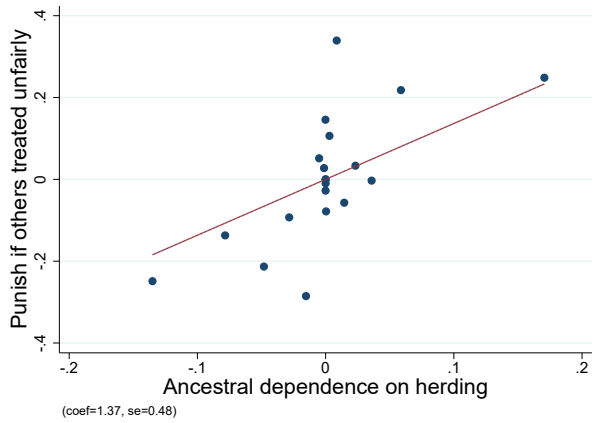
Figure A13: Contemporary psychology of punishment and a tradition of herding: within-country estimates. The figure shows the standardized beta coefficient from individual-level regressions of the weighted average and each of the relevant survey questions on historical dependence on herding, controlling for country fixed effects. Error bars show 95% confidence intervals, computed based on clustering at the subnational region level. The additional controls include historical settlement complexity, jurisdictional hierarchy beyond the local community, distance from the equator, longitude, age, age squared, and gender. The figure is constructed based on 73,949 respondents from 951 subnational regions in 75 countries in the GPS data. See Table 3 for the full estimates.



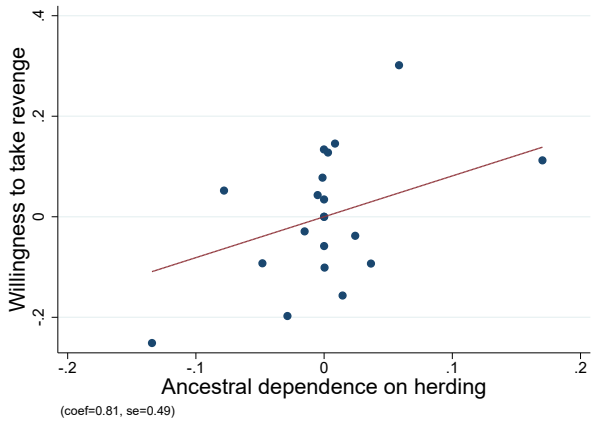
(a) Psychology of punishment (first p.c.)



(b) Punish if treated unfairly



(c) Punish if others treated unfairly



(d) Willingness to take revenge

Figure A14: Binscatter partial correlation plots for the relationship between a contemporary psychology of punishment and a tradition of herding. In each plot, a unit of observation is a respondent in the GPS, $N = 73{,}949$. Each dot shows the average of the dependent variable for a given range of values of dependence of herding. Each binscatter is constructed after first partialing out country fixed effects. As a result, the estimates directly correspond to the ones in Figure A13. The large mass of dots that is concentrated around the center of each plot mechanically corresponds to individuals that reside in countries that do not have much within-country variation in the herding index. That is, these observations do not all have the same level of dependence on herding, but the inclusion of country fixed effects implicitly transforms them into observations with an average herding index. Therefore, all dots to the left and right of the mass around 0 correspond to individuals that live in countries in which the herding index is not approximately the same across all individuals.

B. Appendix tables

Table B1: Descriptive statistics

	Obs.	Mean	S.D.	Max.	Min.
Panel A: the *Standard Cross Cultural Sample* (SCCS)					
Acceptability of violence (summary measure)	60	0.0035	1.38	2.57	-2.35
Acceptability of violence against:					
Other society	63	2.37	0.96	3	0
Same society	76	1.33	1.12	3	0
Same local comm.	85	0.38	0.64	2	0
Dependence on herding	86	0.16	0.23	0.92	0
Settlement complexity	86	4.43	2.45	7	1
Jurisdictional hierarchy	85	1.93	1.08	5	1
Distance from equator	86	22.6	17.9	71	0.064
Longitude	86	9.99	91.2	178.6	-171.8
Panel B: the ethnic group level sample from *Ethnographic Atlas*					
Folklore motifs (summary measure)					
Folklore motifs related to:					
Folklore motifs (summary measure)	1,135	0.53	0.26	1	0
Violence	1,135	0.46	0.26	1	0
Punishment	1,135	0.68	0.37	1	0
Dependence on herding	1,135	0.15	0.19	0.92	0
Settlement complexity	1,135	5.11	2.21	8	1
Jurisdictional hierarchy	1,107	1.90	1.04	5	1
Distance from equator	1,135	20.8	17.2	78	0
Longitude	1,135	-0.17	84.6	179.5	-178.1
Panel C: the country-level sample					
Number of conflict events	203	640.3	2,148.8	22,722	0
Psychology of punishment (summary measure)	75	0.014	0.28	0.74	-0.49
Punish if. . . treated unfairly:					
Self	75	4.26	0.74	6.80	2.85
Others	75	4.39	0.78	6.78	3.11
Willingness to take revenge	75	3.67	0.85	6.18	2.15
Dependence on herding	203	0.25	0.17	0.91	0
Settlement (1-Nomadic 8-Complex)	203	6.45	1.40	8	1.09
Jurisdictional Hierarchy	203	3.48	0.91	5	1
Distance to equator	203	25.1	17.3	74.7	0.45
Longitude	203	17.3	70.5	178.1	-174.8
Population (ln)	186	12.8	2.08	18.4	7.70
Land size (ln)	203	8.68	2.92	14.3	0.69
Panel D: The within-country sample from *Ethnologue*					
Number of events, all conflicts	7,038	18.5	234.7	14,877	0
Number of deaths, all conflicts	7,038	272.9	6,649.8	520,610	0
Number of months, all conflicts	7,038	4.24	19.9	323	0
Number of events, state-based conflicts	7,038	13.0	208.3	14,178	0
Number of deaths, state-based conflicts	7,038	143.6	2,190.3	112,025	0
Number of months, state-based conflicts	7,038	2.96	16.8	319	0
Number of events, non-state conflicts	7,038	1.59	31.3	1,931	0
Number of deaths, non-state conflicts	7,038	19.7	295.8	17,956	0
Number of months, non-state conflicts	7,038	0.57	4.77	165	0
Number of events, localized conflicts	7,038	3.89	34.4	1,339	0
Number of deaths, localized conflicts	7,038	109.6	6,136.8	514,038	0
Number of months, localized conflicts	7,038	1.69	9.85	216	0
Dependence on herding	7,036	0.13	0.16	0.92	0
Settlement complexity	6,502	5.93	1.78	8	1
Jurisdictional hierarchy	6,319	2.01	1.23	5	1
Distance from equator	7,038	14.4	12.9	72	0
Longitude	7,038	50.5	78.7	179	-178
Population (ln)	6,952	9.50	2.96	20.4	0
Land size (ln)	6,995	20.4	2.27	29.7	13.1
Ruggedness	6,995	153.0	181.2	1,485.1	0
Panel E: The individual-level sample from the *Global Preference Survey* (GPS)					
Psychology of punishment (summary measure)	74,182	-0.0031	1.00	2.33	-1.59
Punish if ... treated unfairly:					
Self	74,264	4.20	3.04	10	0
Others	74,252	4.35	3.04	10	0
Willingness to take revenge	75,024	3.63	3.00	10	0
Dependence on herding	75,176	0.28	0.15	0.92	0
Settlement complexity	75,176	6.34	1.73	8	0
Jurisdictional hierarchy	75,176	3.67	1.06	5	0
Distance from equator	75,176	31.9	15.5	64.0	0.050
Longitude	75,176	27.3	51.1	137.8	-156
Age	74,931	0.42	0.17	0.99	0.15
Age squared	74,931	0.20	0.16	0.98	0.023
Female indicator	75,176	0.54	0.50	1	0
Subj. cognitive skills	74,401	5.15	2.82	10	0
Log [Household income p/c]	74,701	7.89	1.52	14.8	-4.44
Education level (1-3)	74,847	1.86	0.67	3	1

Table B2: Culture-of-honor related folklores in Ethnographic Atlas societies: winsorizing top 5% herding

	Dependent variable					
			Folklore motifs related to ...			
	Summary measure		Violence		Punishment	
	(1)	(2)	(3)	(4)	(5)	(6)
Dependence on herding	0.22***	0.11**	0.11	0.11**	0.45***	0.11
	(0.056)	(0.046)	(0.072)	(0.049)	(0.081)	(0.10)
ln(number of motifs)	0.25***	0.23***	0.24***	0.21***	0.25***	0.27***
	(0.0072)	(0.010)	(0.0076)	(0.0099)	(0.015)	(0.021)
Settlement complexity		0.00019		0.0017		-0.0033
		(0.0026)		(0.0023)		(0.0067)
Jurisdictional hierarchy		-0.00099		-0.00076		-0.0015
		(0.0060)		(0.0065)		(0.010)
Distance from equator		2.97***		2.99***		2.93
		(0.80)		(0.80)		(2.47)
Longitude		-0.064		0.43		-1.23
		(0.36)		(0.57)		(1.10)
Country FE	No	Yes	No	Yes	No	Yes
Beta coef. for Herding	0.13	0.065	0.069	0.063	0.19	0.046
Mean of dependent var	0.53	0.53	0.46	0.46	0.68	0.68
SD of dependent var	0.26	0.26	0.26	0.26	0.37	0.37
Adj. R-squared	0.76	0.80	0.70	0.76	0.43	0.54
Number of Obs.	1,135	1,107	1,135	1,107	1,135	1,107
Number of Countries	149	148	149	148	149	148
Number of Clusters	149	148	149	148	149	148

Note. The unit of observation is a society from the *Ethnographic Atlas*. The dependent variables are based on the motifs of folklores from Michalopoulos and Xue (2021), indicating whether any of the motifs in the society is tagged by terms related to the keywords. Coefficients are reported with standard errors in parentheses clustered at the country level. *, **, and *** indicate significance at the 10, 5, and 1% levels.

Table B3: Culture-of-honor related folklores in Ethnographic Atlas societies: larger clusters

	Dependent variable					
			Folklore motifs related to ...			
	Summary measure		Violence		Punishment	
	(1)	(2)	(3)	(4)	(5)	(6)
Dependence on herding	0.18***	0.11**	0.11**	0.11**	0.35***	0.099
	(0.035)	(0.045)	(0.047)	(0.048)	(0.070)	(0.082)
ln(number of motifs)	0.25***	0.23***	0.24***	0.21***	0.25***	0.27***
	(0.0064)	(0.0081)	(0.0073)	(0.0094)	(0.016)	(0.018)
Settlement complexity		0.0014		0.0029		-0.0020
		(0.0041)		(0.0038)		(0.0077)
Jurisdictional hierarchy		-0.0018		-0.0016		-0.0022
		(0.0058)		(0.0064)		(0.0086)
Distance from equator		2.98**		2.98**		2.97
		(1.18)		(1.24)		(2.27)
Longitude		-0.055		0.45		-1.24
		(0.38)		(0.46)		(0.91)
Country FE	No	Yes	No	Yes	No	Yes
Beta coef. for Herding	0.13	0.078	0.078	0.080	0.18	0.050
Mean of dependent var	0.53	0.53	0.46	0.46	0.68	0.68
SD of dependent var	0.26	0.26	0.26	0.26	0.37	0.37
Adj. R-squared	0.76	0.80	0.70	0.76	0.43	0.54
Number of Obs.	1,131	1,103	1,131	1,103	1,131	1,103
Number of Countries	149	148	149	148	149	148
Number of Clusters	115	114	115	114	115	114

Note. The unit of observation is a society from the *Ethnographic Atlas*. The dependent variables are based on the motifs of folklores from Michalopoulos and Xue (2021), indicating whether any of the motifs in the society is tagged by terms related to the keywords. Coefficients are reported with standard errors in parentheses clustered at the language affiliation level. *, **, and *** indicate significance at the 10, 5, and 1% levels.

Table B4: Culture-of-honor related folklores in Ethnographic Atlas societies: folklore group clusters

	Dependent variable					
			Folklore motifs related to ...			
	Summary measure		Violence		Punishment	
	(1)	(2)	(3)	(4)	(5)	(6)
Dependence on herding	0.18***	0.11**	0.11**	0.11**	0.35***	0.10
	(0.034)	(0.044)	(0.042)	(0.047)	(0.066)	(0.093)
ln(number of motifs)	0.25***	0.23***	0.24***	0.21***	0.26***	0.27***
	(0.0074)	(0.0092)	(0.0086)	(0.010)	(0.014)	(0.018)
Settlement complexity		0.0013		0.0029		-0.0023
		(0.0036)		(0.0036)		(0.0071)
Jurisdictional hierarchy		-0.0016		-0.0015		-0.0020
		(0.0058)		(0.0060)		(0.011)
Distance from equator		2.96***		2.98**		2.92
		(1.13)		(1.24)		(2.25)
Longitude		-0.049		0.45		-1.22
		(0.50)		(0.48)		(1.16)
Country FE	No	Yes	No	Yes	No	Yes
Beta coef. for Herding	0.13	0.079	0.078	0.081	0.18	0.051
Mean of dependent var	0.53	0.53	0.46	0.46	0.68	0.68
SD of dependent var	0.26	0.26	0.26	0.26	0.37	0.37
Adj. R-squared	0.76	0.80	0.70	0.76	0.43	0.54
Number of Obs.	1,135	1,107	1,135	1,107	1,135	1,107
Number of Countries	149	148	149	148	149	148
Number of Clusters	584	575	584	575	584	575

Note. The unit of observation is a society from the *Ethnographic Atlas*. The dependent variables are based on the motifs of folklores from Michalopoulos and Xue (2021), indicating whether any of the motifs in the society is tagged by terms related to the keywords. Coefficients are reported with standard errors in parentheses clustered at the folklore group level. *, **, and *** indicate significance at the 10, 5, and 1% levels.

Table B5: Culture-of-honor related folklores in Ethnographic Atlas societies: number of motifs FE

	Dependent variable					
			Folklore motifs related to ...			
	Summary measure		Violence		Punishment	
	(1)	(2)	(3)	(4)	(5)	(6)
Dependence on herding	0.20***	0.11***	0.098**	0.11**	0.42***	0.11
	(0.030)	(0.036)	(0.042)	(0.046)	(0.050)	(0.10)
Settlement complexity		0.00053		0.0011		-0.00072
		(0.0025)		(0.0032)		(0.0077)
Jurisdictional hierarchy		0.0075		0.0025		0.019**
		(0.0049)		(0.0058)		(0.0083)
Distance from equator		2.85***		2.88***		2.77
		(0.90)		(0.80)		(2.96)
Longitude		-0.25		-0.18		-0.42
		(0.56)		(0.65)		(1.09)
Number of motifs FE	Yes	Yes	Yes	Yes	Yes	Yes
Country FE	No	Yes	No	Yes	No	Yes
Beta coef. for Herding	0.14	0.080	0.072	0.079	0.22	0.054
Mean of dependent var	0.53	0.51	0.46	0.44	0.68	0.67
SD of dependent var	0.26	0.24	0.26	0.24	0.37	0.37
Adj. R-squared	0.83	0.86	0.79	0.82	0.59	0.67
Number of Obs.	1,135	997	1,135	997	1,135	997
Number of Countries	149	89	149	89	149	89
Number of Clusters	149	89	149	89	149	89

Note. The unit of observation is a society from the *Ethnographic Atlas*. The dependent variables are based on the motifs of folklores from Michalopoulos and Xue (2021), indicating whether any of the motifs in the society is tagged by terms related to the keywords. Coefficients are reported with standard errors in parentheses clustered at the country level. *, **, and *** indicate significance at the 10, 5, and 1% levels.

Table B6: Traditional herding and contemporary conflict: winsorizing top 5% herding

	Dependent variable (in log form)							
	All conflicts		State conflicts		Non-state conflicts		Localized conflicts	
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Dependence on herding	0.88***	0.64***	0.63**	0.49**	0.44***	0.36***	0.53**	0.43**
	(0.34)	(0.24)	(0.26)	(0.19)	(0.17)	(0.14)	(0.24)	(0.18)
Settlement complexity		0.0071		0.0049		-0.011		0.0049
		(0.013)		(0.012)		(0.0075)		(0.0095)
Jurisdictional hierarchy		-0.0030		0.00095		0.0086		0.019
		(0.020)		(0.017)		(0.012)		(0.015)
Distance from equator		0.34		-0.87		0.53		0.55
		(4.72)		(3.95)		(2.38)		(3.41)
Longitude		0.88		0.49		0.46		0.55
		(0.96)		(0.70)		(0.57)		(0.64)
Population (ln)		0.12***		0.078***		0.034***		0.080***
		(0.012)		(0.0096)		(0.0054)		(0.0087)
Land size (ln)		0.13***		0.097***		0.053***		0.072***
		(0.014)		(0.012)		(0.0078)		(0.0098)
Ruggedness		-0.000025		-0.00010		-0.000054		-0.00012
		(0.00015)		(0.00014)		(0.000065)		(0.00011)
Country FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Beta coef. for Herding	0.091	0.066	0.077	0.059	0.099	0.077	0.078	0.062
Mean of dependent var	0.53	0.53	0.36	0.36	0.14	0.15	0.29	0.29
SD of dependent var	1.25	1.26	1.06	1.06	0.58	0.60	0.88	0.88
Adj. R-squared	0.28	0.45	0.29	0.41	0.18	0.28	0.22	0.35
Number of Obs.	7,036	6,240	7,036	6,240	7,036	6,240	7,036	6,240
Number of Countries	211	211	211	211	211	211	211	211
Number of Clusters	1,104	985	1,104	985	1,104	985	1,104	985

Note. The unit of observation is a within-country language group from the *Ethnologue*. The dependent variables are based on information from the *Uppsala Conflict Data Program* (UCDP) about conflict events around the globe for the period 1989-2016. They are measured as the natural log of one plus the value. Coefficients are reported with standard errors in parentheses clustered at the ethnicity level. *, **, and *** indicate significance at the 10, 5, and 1% levels.

Table B7: Traditional herding and contemporary conflict: alternative clustering

	Dependent variable (in log form)							
	All conflicts		State conflicts		Non-state conflicts		Localized conflicts	
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Dependence on herding	1.04***	0.60**	0.79***	0.48**	0.55***	0.37**	0.65***	0.39**
	(0.32)	(0.26)	(0.25)	(0.21)	(0.17)	(0.16)	(0.22)	(0.18)
Settlement complexity		0.014		0.011		-0.0060		0.0094
		(0.014)		(0.013)		(0.0089)		(0.0100)
Jurisdictional hierarchy		-0.0041		0.00020		0.0065		0.018
		(0.028)		(0.023)		(0.017)		(0.016)
Distance from equator		0.42		-0.99		0.47		0.68
		(5.22)		(3.98)		(3.05)		(3.77)
Longitude		0.89		0.49		0.46		0.56
		(0.86)		(0.54)		(0.65)		(0.57)
Population (ln)		0.12***		0.078***		0.035***		0.081***
		(0.019)		(0.014)		(0.0081)		(0.016)
Land size (ln)		0.12***		0.096***		0.053***		0.071***
		(0.026)		(0.022)		(0.014)		(0.017)
Ruggedness		-0.000028		-0.00011		-0.000056		-0.00012
		(0.00020)		(0.00016)		(0.000075)		(0.00014)
Country FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Beta coef. for Herding	0.13	0.073	0.12	0.071	0.15	0.095	0.12	0.068
Mean of dependent var	0.53	0.53	0.36	0.36	0.14	0.15	0.30	0.30
SD of dependent var	1.26	1.26	1.06	1.06	0.59	0.60	0.88	0.89
Adj. R-squared	0.28	0.45	0.29	0.41	0.19	0.28	0.22	0.35
Number of Obs.	6,590	6,216	6,590	6,216	6,590	6,216	6,590	6,216
Number of Countries	211	211	211	211	211	211	211	211
Number of Clusters	110	107	110	107	110	107	110	107

Note. The unit of observation is a within-country language group from the *Ethnologue*. The dependent variables are based on information from the *Uppsala Conflict Data Program* (UCDP) about conflict events around the globe for the period 1989-2016. They are measured as the natural log of one plus the value. Coefficients are reported with standard errors in parentheses clustered at the ethnicity level. *, **, and *** indicate significance at the 10, 5, and 1% levels.

Table B8: Traditional herding and contemporary conflict: Nomadic controls

	Dependent variable (in log form)			
	All conflicts	State conflicts	Non-state conflicts	Localized conflicts
	(1)	(2)	(3)	(4)
Dependence on herding	0.57***	0.46***	0.36***	0.37**
	(0.18)	(0.16)	(0.11)	(0.15)
Settlement complexity	0.046	0.047*	0.0078	0.029
	(0.031)	(0.027)	(0.014)	(0.022)
Jurisdictional hierarchy	-0.0073	-0.0036	0.0061	0.017
	(0.020)	(0.017)	(0.012)	(0.015)
Distance from equator	-0.073	-1.45	0.25	0.34
	(4.71)	(3.90)	(2.46)	(3.45)
Longitude	0.89	0.49	0.46	0.55
	(0.97)	(0.71)	(0.57)	(0.64)
Population (ln)	0.12***	0.079***	0.035***	0.081***
	(0.012)	(0.0095)	(0.0054)	(0.0087)
Land size (ln)	0.12***	0.095***	0.052***	0.071***
	(0.014)	(0.012)	(0.0076)	(0.0098)
Ruggedness	-0.000012	-0.000090	-0.000053	-0.00011
	(0.00015)	(0.00013)	(0.000065)	(0.00011)
Nomadic indicator	0.24	0.27*	0.096	0.15
	(0.18)	(0.16)	(0.093)	(0.12)
Sedentary indicator	0.085	0.11	0.050	0.054
	(0.13)	(0.11)	(0.065)	(0.093)
Country FE	Yes	Yes	Yes	Yes
Beta coef. for Herding	0.070	0.067	0.093	0.064
Mean of dependent var	0.53	0.36	0.15	0.29
SD of dependent var	1.26	1.06	0.60	0.88
Adj. R-squared	0.45	0.41	0.28	0.35
Number of Obs.	6,240	6,240	6,240	6,240
Number of Countries	211	211	211	211
Number of Clusters	985	985	985	985

Note. The unit of observation is a within-country language group from the *Ethnologue*. The dependent variables are based on information from the *Uppsala Conflict Data Program* (UCDP) about conflict events around the globe for the period 1989-2016. They are measured as the natural log of one plus the value. Coefficients are reported with standard errors in parentheses clustered at the ethnicity level. *, **, and *** indicate significance at the 10, 5, and 1% levels.

Table B9: Traditional herding and contemporary conflict: negative binomial estimates

	Dependent variable							
	All conflicts		State conflicts		Non-state conflicts		Localized conflicts	
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
main								
Dependence on herding	6.14***	1.44**	5.43***	1.68**	5.30***	0.40	5.14***	1.62**
	(1.03)	(0.59)	(1.01)	(0.65)	(1.10)	(0.94)	(0.93)	(0.64)
Settlement complexity		0.081*		0.0096		-0.061		0.11**
		(0.048)		(0.060)		(0.067)		(0.050)
Jurisdictional hierarchy		-0.083		-0.077		-0.32***		0.00070
		(0.072)		(0.085)		(0.10)		(0.069)
Distance from equator		26.3		42.2		38.1		2.44
		(19.3)		(25.8)		(24.6)		(19.0)
Longitude		8.93		-2.81		15.5*		9.28
		(5.74)		(8.21)		(8.53)		(5.79)
Population (ln)		0.71***		0.69***		0.85***		0.74***
		(0.048)		(0.059)		(0.085)		(0.059)
Land size (ln)		0.24***		0.19***		0.11		0.23***
		(0.056)		(0.063)		(0.10)		(0.068)
Ruggedness		0.0024***		0.0023***		0.0026***		0.0019***
		(0.00052)		(0.00056)		(0.00084)		(0.00061)
Country FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Mean of dependent var	18.5	19.4	13.0	13.6	1.59	1.74	3.89	4.10
SD of dependent var	234.7	246.3	208.4	218.6	31.3	33.2	34.4	36.2
Pseudo R-squared	0.10	0.21	0.13	0.23	0.14	0.26	0.13	0.25
Number of Obs.	7,036	6,240	7,036	6,240	7,036	6,240	7,036	6,240
Number of Countries	211	211	211	211	211	211	211	211
Number of Clusters	1,104	985	1,104	985	1,104	985	1,104	985

Note. The unit of observation is a within-country language group from the *Ethnologue*. The dependent variables are based on information from the *Uppsala Conflict Data Program* (UCDP) about conflict events around the globe for the period 1989-2016. Coefficients are reported with standard errors in parentheses clustered at the ethnicity level. *, **, and *** indicate significance at the 10, 5, and 1% levels.

Table B10: Traditional herding and contemporary conflict: number of deaths

	Dependent variable (in log form)							
	All conflicts		State conflicts		Non-state conflicts		Localized conflicts	
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Dependence on herding	1.32***	0.94***	1.02***	0.81***	0.91***	0.73***	0.93***	0.75***
	(0.38)	(0.29)	(0.32)	(0.26)	(0.25)	(0.22)	(0.29)	(0.24)
Settlement complexity		0.023		0.020		-0.020		0.018
		(0.019)		(0.018)		(0.014)		(0.015)
Jurisdictional hierarchy		-0.017		-0.018		0.013		0.021
		(0.030)		(0.027)		(0.022)		(0.022)
Distance from equator		1.64		-0.024		-2.32		0.46
		(6.11)		(5.71)		(3.77)		(4.40)
Longitude		1.52		1.40		0.39		1.08
		(1.36)		(1.11)		(0.81)		(0.91)
Population (ln)		0.18***		0.13***		0.071***		0.12***
		(0.018)		(0.016)		(0.010)		(0.013)
Land size (ln)		0.19***		0.14***		0.095***		0.12***
		(0.021)		(0.018)		(0.014)		(0.015)
Ruggedness		0.00014		0.000051		-0.000065		-0.00012
		(0.00022)		(0.00020)		(0.00011)		(0.00016)
Country FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Beta coef. for Herding	0.10	0.073	0.095	0.075	0.13	0.098	0.10	0.081
Mean of dependent var	0.87	0.89	0.60	0.60	0.29	0.30	0.48	0.48
SD of dependent var	1.97	1.99	1.66	1.68	1.12	1.15	1.41	1.42
Adj. R-squared	0.30	0.44	0.30	0.41	0.16	0.25	0.25	0.36
Number of Obs.	7,036	6,240	7,036	6,240	7,036	6,240	7,036	6,240
Number of Countries	211	211	211	211	211	211	211	211
Number of Clusters	1,104	985	1,104	985	1,104	985	1,104	985

Note. The unit of observation is a within-country language group from the *Ethnologue*. The dependent variables are based on information from the *Uppsala Conflict Data Program* (UCDP) about conflict events around the globe for the period 1989-2016. They are measured as the natural log of one plus the value. Coefficients are reported with standard errors in parentheses clustered at the ethnicity level. *, **, and *** indicate significance at the 10, 5, and 1% levels.

Table B11: Traditional herding and contemporary conflict: number of months

	Dependent variable (in log form)							
	All conflicts		State conflicts		Non-state conflicts		Localized conflicts	
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Dependence on herding	0.69***	0.49***	0.52***	0.39***	0.40***	0.31***	0.44***	0.34***
	(0.21)	(0.16)	(0.17)	(0.14)	(0.11)	(0.094)	(0.16)	(0.13)
Settlement complexity		0.0097		0.0075		-0.0050		0.0077
		(0.010)		(0.0097)		(0.0060)		(0.0081)
Jurisdictional hierarchy		-0.0069		-0.0026		0.0053		0.016
		(0.017)		(0.014)		(0.0099)		(0.012)
Distance from equator		-0.12		-1.28		0.44		0.29
		(3.70)		(3.19)		(2.05)		(2.86)
Longitude		0.75		0.39		0.47		0.46
		(0.75)		(0.57)		(0.45)		(0.55)
Population (ln)		0.099***		0.067***		0.028***		0.069***
		(0.0096)		(0.0081)		(0.0045)		(0.0074)
Land size (ln)		0.098***		0.077***		0.044***		0.060***
		(0.011)		(0.0099)		(0.0064)		(0.0083)
Ruggedness		-0.000017		-0.000080		-0.000050		-0.00013
		(0.00013)		(0.00012)		(0.000054)		(0.000095)
Country FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Beta coef. for Herding	0.10	0.073	0.092	0.069	0.13	0.098	0.092	0.071
Mean of dependent var	0.45	0.45	0.31	0.31	0.12	0.12	0.25	0.25
SD of dependent var	1.03	1.03	0.89	0.88	0.48	0.49	0.75	0.75
Adj. R-squared	0.29	0.45	0.29	0.42	0.18	0.27	0.22	0.35
Number of Obs.	7,036	6,240	7,036	6,240	7,036	6,240	7,036	6,240
Number of Countries	211	211	211	211	211	211	211	211
Number of Clusters	1,104	985	1,104	985	1,104	985	1,104	985

Note. The unit of observation is a within-country language group from the *Ethnologue*. The dependent variables are based on information from the *Uppsala Conflict Data Program* (UCDP) about conflict events around the globe for the period 1989-2016. They are measured as the natural log of one plus the value. Coefficients are reported with standard errors in parentheses clustered at the ethnicity level. *, **, and *** indicate significance at the 10, 5, and 1% levels.

Table B12: The historical origins of a psychology of punishment: Individual-level analysis, winsorizing top 5% herding

	Dependent variable							
			Punish if ... treated unfairly				Willingness to	
	Summary measure		Self		Others		take revenge	
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Dependence on herding	0.56**	0.59**	1.67**	1.75**	1.81***	1.87***	0.88	0.98
	(0.25)	(0.26)	(0.72)	(0.76)	(0.64)	(0.67)	(0.67)	(0.67)
Settlement complexity		0.0059		0.015		-0.00084		0.028
		(0.017)		(0.051)		(0.045)		(0.045)
Jurisdictional hierarchy		0.027		0.078		0.033		0.088
		(0.024)		(0.067)		(0.067)		(0.063)
Distance from equator		-2.47		-4.34		-16.3		-0.68
		(4.66)		(12.2)		(14.5)		(13.2)
Longitude		-1.51		-4.54		-2.54		-4.00
		(1.36)		(3.25)		(4.01)		(4.05)
Age		-0.43***		-0.55		-0.25		-2.20***
		(0.13)		(0.39)		(0.38)		(0.38)
Age squared		-0.43***		-1.87***		-2.02***		0.28
		(0.14)		(0.41)		(0.40)		(0.40)
Female indicator		-0.16***		-0.43***		-0.38***		-0.41***
		(0.0089)		(0.028)		(0.025)		(0.026)
Country FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Beta coef. for Herding	0.065	0.069	0.064	0.067	0.069	0.071	0.034	0.038
Mean of dependent var	-0.0031	-0.0031	4.20	4.20	4.35	4.35	3.63	3.63
SD of dependent var	1.00	1.00	3.04	3.04	3.04	3.04	3.00	3.00
Adj. R-squared	0.071	0.095	0.050	0.070	0.061	0.078	0.080	0.096
Number of Obs.	74,182	73,949	74,264	74,030	74,252	74,018	75,024	74,781
Number of Countries	75	75	75	75	75	75	75	75
Number of Clusters	951	951	951	951	951	951	951	951

Note. The unit of observation is an individual from the *Global Preference Survey* (GPS). The dependent variables are based on information from the GPS, elicited through three self-assessments to measure people's propensity for altruistic punishment and for second-party punishment. Coefficients are reported with standard errors in parentheses clustered at the district level. *, **, and *** indicate significance at the 10, 5, and 1% levels.

Table B13: The historical origins of a psychology of punishment: Individual-level analysis, larger clusters

	Dependent variable							
			Punish if ... treated unfairly				Willingness to	
	Summary measure		Self		Others		take revenge	
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Dependence on herding	0.45*	0.52*	1.34**	1.52**	1.37**	1.42**	0.81	1.05
	(0.25)	(0.26)	(0.64)	(0.72)	(0.68)	(0.65)	(0.60)	(0.69)
Settlement complexity		0.013		0.035		0.016		0.044
		(0.019)		(0.057)		(0.046)		(0.050)
Jurisdictional hierarchy		0.024		0.069		0.027		0.080
		(0.030)		(0.083)		(0.081)		(0.076)
Distance from equator		-1.76		-2.27		-14.6		0.88
		(6.76)		(14.8)		(27.9)		(14.2)
Longitude		-1.58		-4.73		-2.49		-4.35
		(1.60)		(3.96)		(5.40)		(4.47)
Age		-0.43**		-0.56		-0.25		-2.20***
		(0.19)		(0.57)		(0.52)		(0.54)
Age squared		-0.43**		-1.86***		-2.01***		0.29
		(0.19)		(0.54)		(0.52)		(0.57)
Female indicator		-0.16***		-0.43***		-0.38***		-0.41***
		(0.012)		(0.038)		(0.030)		(0.036)
Country FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Beta coef. for Herding	0.067	0.076	0.065	0.074	0.066	0.069	0.040	0.052
Mean of dependent var	-0.0031	-0.0031	4.20	4.20	4.35	4.35	3.63	3.63
SD of dependent var	1.00	1.00	3.04	3.04	3.04	3.04	3.00	3.00
Adj. R-squared	0.071	0.095	0.050	0.070	0.061	0.078	0.080	0.096
Number of Obs.	74,182	73,949	74,264	74,030	74,252	74,018	75,024	74,781
Number of Countries	75	75	75	75	75	75	75	75
Number of Clusters	75	75	75	75	75	75	75	75

Note. The unit of observation is an individual from the *Global Preference Survey* (GPS). The dependent variables are based on information from the GPS, elicited through three self-assessments to measure people's propensity for altruistic punishment and for second-party punishment. Coefficients are reported with standard errors in parentheses clustered at the district level. *, **, and *** indicate significance at the 10, 5, and 1% levels.

Table B14: The historical origins of a psychology of punishment: additional individual-level controls

	Dependent variable			
		Punish if ... treated unfairly		Willingness to
	Summary measure	Self	Others	take revenge
	(1)	(2)	(3)	(4)
Dependence on herding	0.47**	1.42**	1.30**	0.93*
	(0.21)	(0.63)	(0.53)	(0.56)
Settlement complexity	0.0088	0.026	0.0035	0.035
	(0.019)	(0.056)	(0.048)	(0.049)
Jurisdictional hierarchy	0.021	0.061	0.019	0.076
	(0.024)	(0.066)	(0.066)	(0.062)
Distance from equator	-0.50	1.74	-10.6	3.25
	(4.35)	(11.3)	(13.9)	(12.6)
Longitude	-2.13*	-6.24**	-4.23	-5.57
	(1.29)	(3.13)	(3.93)	(3.82)
Age	-0.38***	-0.52	-0.26	-1.94***
	(0.13)	(0.40)	(0.38)	(0.38)
Age squared	-0.40***	-1.68***	-1.72***	0.067
	(0.14)	(0.42)	(0.40)	(0.39)
Female indicator	-0.13***	-0.35***	-0.29***	-0.35***
	(0.0089)	(0.028)	(0.026)	(0.026)
Subj. cognitive skills	0.040***	0.097***	0.10***	0.11***
	(0.0027)	(0.0074)	(0.0076)	(0.0077)
Log [Household income p/c]	0.014**	0.039**	0.049***	0.023
	(0.0065)	(0.019)	(0.018)	(0.018)
Education level (1-3)	-0.0053	0.046*	0.11***	-0.16***
	(0.0080)	(0.023)	(0.024)	(0.024)
Country FE	Yes	Yes	Yes	Yes
Beta coef. for Herding	0.070	0.069	0.063	0.046
Mean of dependent var	-0.00053	4.21	4.36	3.64
SD of dependent var	1.00	3.04	3.04	3.00
Adj. R-squared	0.11	0.078	0.088	0.11
Number of Obs.	72,538	72,601	72,596	73,300
Number of Countries	75	75	75	75
Number of Clusters	951	951	951	951

Note. The unit of observation is an individual from the *Global Preference Survey* (GPS). The dependent variables are based on information from the GPS, elicited through three self-assessments to measure people's propensity for altruistic punishment and for second-party punishment. Coefficients are reported with standard errors in parentheses clustered at the district level. *, **, and *** indicate significance at the 10, 5, and 1% levels.

C. Construction of herding index

Herding

We follow Becker (2019) to define pre-industrial reliance on herding using information from the *Ethnographic Atlas*. The measure is defined as the product of two parts: (1) the degree to which a society depended on animal husbandry (0–100%), and (2) an indicator taking the value of 1 if the predominant animal in a society is a herding animal. The first part (dependence on animal husbandry) is based on v4 of the *Ethnographic Atlas*, which takes the following values: 0–5%, 6–15%, 16–25%, 26–35%, 36–45%, 46–55%, 66–75%, 76–85%, 86–100%. We take the median value of each category (i.e., 2.5%, 10.5%, 20.5%, 30.5%, 40.5%, 50.5%, 60.5%, 70.5%, 80.5%, and 92%). The second part is based on v40 of the *Ethnographic Atlas*, which documents the predominant animal in a society. The indicator we construct takes a value of one if the predominant animal is one of the following herding animals: sheep, cattle, horses, reindeer, alpacas, or camels. These animals take categorical values 3–7 in variable v40 of the *Ethnographic Atlas*. The dependence on herding is constructed by multiplying these two parts, which can be then interpreted as the dependence on animal husbandry when the predominant animal is a herding animal.

We define herding at the finest possible levels for each of our analyses. For our historical analysis of acceptance of violence, herding is defined at the ethnicity level. For the country level analysis of a psychology of punishment, herding is defined at the country level. For the individual analysis of a psychology of punishment, herding is defined at the district level. For the analysis of modern conflicts, herding is defined at the dialect group level.

D. Data description for Folklore analysis

a. Data construction

We follow Michalopoulos and Xue (2019, 2021) in quantifying ethnic groups' cultural beliefs and practices using textual data on folklore. The anthropologist and folklorist Yuri Berezkin assembled a dataset that codes the presence of 2,564 motifs across nearly 1,000 ethnolinguistic groups. A motif reflects a combination of images, episodes, or structural elements found in two or more texts.[15] The data are designed to capture a society's traditional beliefs, customs and culture as they are transmitted from generation to generation through word-of-mouth, often in the form of folktales and narratives.[16] Based on this catalog of motifs, Michalopoulos and Xue (2019, 2021) use text analyses to construct a folklore dataset. For a large number of economic, psychological, and cultural concepts, this dataset codes whether a given concept appears in a given motif.[17] In these text analyses, a concept is said to appear in a motif if the text mentions either the seed word itself or one of the 50 most closely related terms according to the knowledge representation project ConceptNet.[18] Based on this approach, the authors construct the intensity of each concept in the folklore of a given group.

Most importantly for our purposes, the data contain many concepts that are related to the culture of honor hypothesis. Michalopoulos and Xue (2019) study the association between herding and a culture of honor by examining words associated with 'anger' and 'retaliation'. Following the same basic logic, we hand-select those concepts from the catalog that appear related to the culture of honor. These are:

1. Violence and conflict concepts: violence, violent, battle, fighting, attack, soldier, guard, troop, army, enemy, fighter, invasion, invade, defender

[15] As described in detail in Michalopoulos and Xue (2019, 2021), Berezkin constructed this dataset by consulting a large number of books and journal articles. These primary sources were written by anthropologists, adventurers and missionaries who had visited an ethnolinguistic group. Berezkin systematized these accounts into a consistent catalog. Each motif in Berezkin's catalogue is associated with a title and a short description of an image or an episode. These can be analyzed using text analyses. The median group in Berezkin's data has 62 motifs, and there is large variation across groups in which types of motifs appear in the records.

[16] A potential concern that the data are more reflective of the biases of the individual who coded the primary sources rather than of the genuine folklore of a group. To address this concern, Michalopoulos and Xue (2019, 2021) extensively validate the catalog by documenting that the presence of objectively verifiable motifs is strongly correlated with real circumstances. For example, the presence of earthquake-related motifs is significantly higher in earthquake regions. Similar associations are found for other environmentally-determined variables such the presence of storms and lightnings, or information about different modes of economic production.

[17] The data are available at: `https://sites.google.com/site/steliosecon/folklore-catalogue?authuser=0`

[18] ConceptNet originated from the MIT Media Lab. To costruct a ConcenpNet-based list of related terms Michalopoulos and Xue (2019, 2021) retrive the top-50 list for each seed word.

2. Punishment and revenge concepts: punishment, punish, penalty, revenge, retaliate, retaliation

For each of the concepts, we generate a binary indicator that equals one if the concept appears in the folklore of an ethnic group. We then average across all concepts within a given domain (violence/ conflict and psychology of punishment/ revenge) to arrive at a summary measure that captures the fraction of concepts in the domain that are present in a society's folklore. In addition to measures for both domains, we also compute an overall summary measure of a culture of honor by taking the average across all concepts. Since the probability that a given concept is mentioned in a society's folklore will mechanically be higher in societies that have a larger folklore corpus, we always include a control for the natural log of the total number of motifs in a society in our regressions.[19]

E. Data description for UCDP analysis

a. Data construction

We use data from the *Uppsala Conflict Data Program* (UCDP) to construct measures of contemporary conflict at the *Ethnologue* language group level. We use the *UCDP Georeferenced Event Dataset (GED) Global version 17.1*, which covers the whole world (with the exception of Syria) for the period 1989–2016. This dataset is UCDP's most disaggregated dataset, covering individual events of organized violence (phenomena of lethal violence occurring at a given time and place). These events are sufficiently fine-grained to be geo-coded down to the level of individual villages, with temporal durations disaggregated to single, individual days. The dataset also encodes each individual conflict event into one of the three types (variable *type_of_violence*): (*i*) state-based conflict, (*ii*) non-state conflict, and (*iii*) one-sided violence.

In order to construct language group level measures of contemporary conflict, we first use a spatial join algorithm to match the geographic location (using the latitude and longitude) of each conflict event to shapefile polygons of the language groups in *Ethnologue*. In the second step, we aggregate all conflict events matched to each language group to calculate the total number of conflict events that took place within the boundary of a language group during the period

[19] As reported in Appendix Table B5, our results are very similar when we control for fixed effects for the total number of motifs.

1989–2016. We also aggregate the total number of conflict events separately for each of the three types of conflicts.

In addition to the number of conflict events, we also construct two additional measures of the intensity or severity of the conflict: (*i*) the number of conflict deaths and (*ii*) the number of months during which a conflict took place.

The number of conflict deaths is reported in the variable *best_est*, which gives the best (most likely) estimate of total fatalities resulting from an event. It is calculated as the sum of deaths sustained by each side of the conflict, dead civilians in the event, and deaths of persons of unknown status. We aggregate the number of deaths at the ethnic group level for all conflict events as well as for each of the three types.

We also leverage the disaggregated temporal duration of conflict events in the dataset to construct the number of months during which a conflict took place. We start by extracting the year-month in which the conflict event started (variable *date_start*). In the next step, we again aggregate the conflict events at the ethnic group level, but this time considering only the first observed event in each year-month. We use similar procedures to construct this intensity measure for each of the three conflict types.

b. Definitions of variables

Number of conflict events, all conflicts. The total number of all conflict events in the UCDP database, aggregated at the dialect group level over the 1989–2016 period. Log number of events is computed as ln(1+number of events).

Number of deaths, all conflicts. The total number of deaths from all conflict events in the UCDP database, aggregated at the dialect group level over the 1989–2016 period. Log number of deaths is computed as ln(1+number of deaths).

Number of months, all conflicts. The total number of months during the sample period that experienced a conflict incidence, aggregated at the dialect group level over the 1989–2016 period. Log number of months is computed as ln(1+number of months).

Number of conflict events, state-based conflicts. The total number of state based conflict events in the UCDP database, aggregated at the dialect group level over the 1989–2016 period. State-based

conflict refers to violence between two organized actors of which at least one is the government of a given state. Log number of events is computed as ln(1+number of events).

Number of deaths, state-based conflicts. The total number of deaths from all state-based conflict events in the UCDP database, aggregated at the dialect group level over the 1989–2016 period. State based conflict refers to violence between two organized actors of which at least one is the government of a given state. Log number of deaths is computed as ln(1+number of deaths).

Number of months, state-based conflicts. The total number of months during the sample period that experienced a state-based conflict incidence, aggregated at the dialect group level over the 1989–2016 period. State-based conflict refers to violence between two organized actors of which at least one is the government of a given state. Log number of months is computed as ln(1+number of months).

Number of conflict events, non-state conflicts. The total number of non-state conflict events in the UCDP database, aggregated at the dialect group level over the 1989–2016 period. Non-state conflict refers to violence between actors of which neither party is the government of a state. Log number of events is computed as ln(1+number of events).

Number of deaths, non-state conflicts. The total number of deaths from all non-state conflict events in the UCDP database, aggregated at the dialect group level over the 1989–2016 period. Non-state conflict refers to violence between actors of which neither party is the government of a state. Log number of deaths is computed as ln(1+number of deaths).

Number of months, non-state conflicts. The total number of months during the sample period that experienced a non-state conflict incidence, aggregated at the dialect group level over the 1989–2016 period. Non-state conflict refers to violence between actors of which neither party is the government of a state. Log number of months is computed as ln(1+number of months).

Number of conflict events, localized conflicts. The total number of localized (or one-sided) conflict events in the UCDP database, aggregated at the dialect group level over the 1989–2016 period. Localized conflict refers to violence against unarmed civilians perpetrated by organized non-state groups or governments. Log number of events is computed as ln(1+number of events).

Number of deaths, localized conflicts. The total number of deaths from all localized (or one-sided) conflict events in the UCDP database, aggregated at the dialect group level over the 1989–2016 period. Localized conflict refers to violence against unarmed civilians perpetrated by organized non-state groups or governments. Log number of deaths is computed as ln(1+number of deaths).

Number of months, localized conflicts. The total number of months during the sample period that experienced a localized (or one-sided) conflict incidence, aggregated at the dialect group level over the 1989–2016 period. Localized conflict refers to violence against unarmed civilians perpetrated by organized non-state groups or governments. Log number of months is computed as ln(1+number of months).

Settlement complexity. The measure comes from variable *v30* of the *Ethnographic Atlas*. Each ethnic group is categorized into one of the following categories describing their pattern of settlement: (1) nomadic or fully migratory, (2) semi-nomadic, (3) semi-sedentary, (4) compact but not permanent settlements, (5) neighborhoods of dispersed family homesteads, (6) separate hamlets forming a single community, (7) compact and relatively permanent settlements, and (8) complex settlements. The variable takes on the listed values of 1 to 8, with 1 indicating fully nomadic groups and 8 groups with complex settlements. It is defined at the ethnicity level for our historical analysis, at the country level for our country level analysis of a psychology of punishment, at the district level for our individual analysis of a psychology of punishment, and at the dialect group level for our analysis of modern conflict.

Jurisdictional hierarchy. We use the number of jurisdictional hierarchies beyond the local community to quantify the pre-industrial political sophistication of an ethnic group. The original measure, taken from variable *v33* of the *Ethnographic Atlas*, takes on the values of 1 to 5, with 1 indicating no levels of hierarchy beyond the local community and 5 indicating four levels. Since the local community represents one level of authority, we interpret the variable as measuring the total number of jurisdictional hierarchies in the society. It is defined at the ethnicity level for our historical analysis, at the country level for our country level analysis of a psychology of punishment, at the district level for our individual analysis of psychology of punishment, and at the dialect group level for our analysis of modern conflict.

Distance from equator. We construct a measure indicating the average historical distance from the equator. This information is taken using the variable *v104* of the *Ethnographic Atlas*, which reports the latitude of the centroid of each ethnic group (or country, or district, or dialect group, depending on the specific levels of analyses). We use the absolute value of the measure, which is the distance from the equator measured in decimal degrees. It is defined at the ethnicity level for our historical analysis, at the country level for our country level analysis of psychology of punishment, at the district level for our individual analysis of psychology of punishment, and at the dialect group level for our analysis of modern conflict.

Longitude. We measure historical longitude using the variable *v106* of the *Ethnographic Atlas*, which reports the longitude of the centroid of each ethnic group (or country, or district, or dialect group, depending on the specific levels of analyses). It is defined at the ethnicity level for our historical analysis, at the country level for our country level analysis of psychology of punishment, at the district level for our individual analysis of psychology of punishment, and at the dialect group level for our analysis of modern conflict.

Population We construct a population measure at the country-language group level using the raster file from Landscan 2006, which is "the finest resolution ($30'' \times 30''$ grid cells) global population distribution data available and represents an ambient population (average over 24 hours)". We take the grid-cell level estimates and aggregate the total population size within each of the country-language group polygons in the *Ethnologue* shapefile. This variable is included as a control in our analysis of modern conflict at the country-language group level.

Land size We construct a measure of land size at the country-language group level using the raster file from Landscan 2006, which provides the global cell areas in kilometers at the $30'' \times 30''$ resolution. We take the grid-cell level land area and aggregate the total land size within each of the country-language group polygons in the *Ethnologue* shapefile. This variable is included as a control in our analysis of modern conflict at the country-language group level.

Ruggedness We construct a measure of average land ruggedness at the country-language group level following the procedure suggested by Nunn and Puga (2012). We first compute the ruggedness index at the grid cell level, which is defined as "the square root of the sum of the

squared differences in elevation between one central grid cell and the eight adjacent cells" (Riley, DeGloria and Elliot, 1999). The data for elevation (meters) are from GTOPO30, a âĂIJglobal digital elevation model (DEM) with a horizontal grid spacing of 30 arc secondsâĂİ, which can be accessed at: `https://lta.cr.usgs.gov/GTOPO30`. We then take the grid-cell level ruggedness index and aggregate the average land ruggedness within each of the country-language group polygons in the *Ethnologue* shapefile. This variable is included as a control in our analysis of modern conflict at the country-language group level.

F. Data description for GPS analysis

a. Data construction

For the analysis, we link the contemporary individual-level GPS data to the historical ethnographic data using the region of residence of the respondent in the GPS and district-level measures of the ethnographic data which are taken from the *Ancestral Characteristics Database* (ACD) (Giuliano and Nunn, 2018).[20] To construct the ACD, Giuliano and Nunn (2018) first combine the grid-cell level population estimates from *Landscan* and the shapefile of the language groups in *Ethnologue* to associate each grid cell to a specific language group in *Ethnologue*. Next, they calculate the average ancestral characteristics of populations in each subnational region using the shapefile of global administrative boundaries provided by ESRI. The ancestral traits are taken from *Ethnographic Atlas*, and Giuliano and Nunn (2018) manually matched them to the language groups in *Ethnologue*.

However, the regions reported in ACD do not overlap exactly with the regions in the GPS data. Because the GPS does not include shapefiles at the subnational level, we manually link regions in the GPS data to regions in the ACD by combining various sources of information, taking into account potential name changes and merges and splits. The GPS data report 1,146 distinct regions. Of these, 823 regions in the ACD (72%) match exactly. For 246 GPS regions (21%), the GPS regions are smaller than the ACD regions. For these, the measures from the larger ACD region are used. For 44 of the GPS regions (3.8%), the GPS region is larger than the ACD region. For these, we use the same methodology as in Giuliano and Nunn (2018) to construct ethnographic measures at the larger GPS region level. Lastly, for 33 GPS regions (2.9%), the GPS regions did not nest the ACD regions or vice versa, so that a clean match was not possible. We omit these regions from the analysis. In doing so, we obtain 951 subnational regions over which the dependence on herding are cleanly defined.

b. Definitions of variables

Psychology of punishment. We use data from the Global Preference Survey (GPS) — both the country-level and individual-level versions — to measure psychology of punishment. The measure is constructed by Falk et al. (2018) as a weighted average of three questions that elicits

[20]The version we use is the extension that includes Easternmost Europe, Siberia and the World Ethnographic Sample. The results are similar using any other version of their data.

people's propensity for altruistic punishment and for second-party punishment, each rated on a scale of 1 to 10. The questions are: (i) how willing are you to punish someone who treats others unfairly, even if there may be costs for you? (ii) how willing are you to punish someone who treats you unfairly, even if there may be costs for you? (iii) if I am treated very unjustly, I will take revenge at the first occasion, even if there is a cost to do so. The measure is normalized to have mean 0 and standard deviation 1. For robustness, we also use the responses to these three questions separately.

Age. The age of the respondent is measured in years and is from the GPS individual level dataset. This variable is included as a control in our individual level analysis of psychology of punishment.

Female indicator. An indicator for female respondent is included in the GPS individual level dataset. This variable is included as a control in our individual level analysis of psychology of punishment.

Subjective cognitive skills. We measure subjective cognitive skills using the respondent's self-assessment of math skills, which is included in the GPS individual-level dataset. The question is: *"How well do the following statement describe you as a person? — I am good at math."* The measure takes values from 0 to 10, with 0 means *"does not describe me at all"* and 10 means *"describes me perfectly"*. This variable is included as a control in our individual level analysis of psychology of punishment.

Education level. The measure of the respondent's education level is taken from *Gallup World Poll 2012*, which can be linked to the GPS individual level dataset using the personal identifiers contained in both data. The measure takes four values: (1) completed elementary education or less (up to 8 years of basic education), (2) Secondary - 3 year tertiary education and some education beyond secondary education (9–15 years of education), and (3) completed four years of education beyond high school and / or received a 4-year college degree. This variable is included as a control in our individual level analysis of psychology of punishment.

Household income. The measure of household income per capita is taken from *Gallup World Poll 2012*, which can be linked to the GPS individual level dataset using the personal identifiers contained in both data. The respondents are asked to report their household income in local currency. The measure is constructed by converting local currency to international Dollars (ID) using purchasing power parity (PPP) ratios. Log household income is computed as ln(1+household income). This variable is included as a control in our individual level analysis of psychology of punishment.

G. Countries with variation in herding

Table B15: Countries and territories in *Ethnologue* that provide within-country variations in herding

Country	Obs.	Avg.	S.D.	C.V.	Country	Obs.	Avg.	S.D.	C.V.
Australia	151	0.005	0.034	7.186	Guinea	28	0.180	0.108	0.598
New Caledonia	35	0.006	0.035	5.916	Saudi Arabia	3	0.643	0.384	0.597
Canada	72	0.011	0.043	4.105	Algeria	15	0.285	0.170	0.596
Venezuela	29	0.035	0.141	4.042	Iraq	9	0.338	0.200	0.591
Solomon Islands	67	0.015	0.054	3.548	Benin	46	0.160	0.095	0.590
Colombia	74	0.030	0.102	3.350	Niger	12	0.431	0.249	0.578
Suriname	11	0.028	0.092	3.317	Nigeria	466	0.156	0.090	0.576
Brazil	166	0.017	0.046	2.715	Sudan	120	0.263	0.149	0.566
Guyana	12	0.034	0.090	2.648	Gabon	38	0.080	0.045	0.565
Panama	11	0.037	0.094	2.528	Eritrea	8	0.530	0.296	0.559
United States	144	0.022	0.055	2.523	Oman	10	0.325	0.175	0.539
Paraguay	18	0.040	0.100	2.508	Libya	5	0.365	0.195	0.534
Cook Islands	5	0.061	0.136	2.236	Thailand	55	0.137	0.073	0.532
Costa Rica	8	0.051	0.109	2.125	Armenia	3	0.505	0.265	0.524
Mexico	286	0.042	0.082	1.946	Ethiopia	83	0.303	0.154	0.508
Brunei	8	0.051	0.095	1.852	Mauritania	6	0.472	0.234	0.496
El Salvador	3	0.102	0.176	1.732	Italy	18	0.222	0.110	0.495
Bolivia	32	0.055	0.094	1.711	Congo	57	0.081	0.039	0.477
Indonesia	696	0.058	0.093	1.617	Iran	38	0.421	0.197	0.467
Malaysia	110	0.066	0.094	1.427	Bosnia and Herzegovina	2	0.305	0.141	0.464
Honduras	9	0.091	0.129	1.417	Ireland	2	0.305	0.141	0.464
Portugal	2	0.153	0.216	1.414	Tajikistan	11	0.405	0.185	0.458
Spain	2	0.153	0.216	1.414	Latvia	2	0.155	0.071	0.456
French Guiana	10	0.052	0.073	1.405	Somalia	9	0.750	0.338	0.451
Taiwan	12	0.060	0.082	1.351	Myanmar	87	0.145	0.064	0.444
Mozambique	39	0.093	0.116	1.238	Syria	10	0.385	0.169	0.438
Philippines	160	0.061	0.075	1.233	South Africa	13	0.359	0.156	0.435
Argentina	20	0.109	0.128	1.175	Nepal	102	0.306	0.130	0.426
Peru	88	0.094	0.108	1.142	Hungary	3	0.272	0.115	0.425
Guatemala	52	0.056	0.063	1.121	Sierra Leone	14	0.155	0.065	0.420
Ghana	67	0.183	0.205	1.118	Finland	5	0.465	0.195	0.419
Kazakhstan	3	0.370	0.406	1.098	Turkey	15	0.378	0.158	0.418
Ecuador	22	0.107	0.112	1.042	Burkina Faso	58	0.198	0.079	0.400
Macedonia	3	0.203	0.203	0.996	Uganda	36	0.255	0.100	0.394
Togo	33	0.231	0.229	0.989	Cote dIvoire	67	0.120	0.047	0.393
Sri Lanka	5	0.143	0.137	0.956	Senegal	29	0.198	0.076	0.385
Namibia	18	0.259	0.247	0.955	Gambia	8	0.243	0.092	0.378
Romania	5	0.324	0.296	0.915	Switzerland	5	0.225	0.084	0.372
Nicaragua	5	0.124	0.111	0.895	Viet Nam	88	0.167	0.059	0.355
Belize	7	0.161	0.142	0.881	Afghanistan	34	0.355	0.124	0.350
Chile	7	0.204	0.175	0.860	Western Sahara	2	0.405	0.141	0.349
Kuwait	2	0.505	0.424	0.840	Egypt	6	0.355	0.122	0.345
Lithuania	2	0.255	0.212	0.832	United Kingdom	6	0.238	0.082	0.343
Uzbekistan	7	0.446	0.367	0.821	Botswana	4	0.380	0.126	0.331
Cameroon	257	0.141	0.116	0.818	Moldova	3	0.305	0.100	0.328
Equatorial Guinea	11	0.067	0.053	0.793	Madagascar	10	0.325	0.103	0.318
Central African Republic	59	0.116	0.091	0.786	Cambodia	19	0.221	0.069	0.312
Democratic Republic of the Congo	186	0.097	0.075	0.771	Azerbaijan	14	0.455	0.140	0.308
Mongolia	10	0.454	0.349	0.768	Pakistan	47	0.314	0.095	0.304
Chad	119	0.195	0.149	0.762	Austria	4	0.330	0.096	0.290
Kyrgyzstan	3	0.438	0.321	0.733	Georgia	7	0.419	0.121	0.290
Angola	36	0.175	0.126	0.720	Laos	72	0.183	0.051	0.279
Malawi	12	0.120	0.085	0.709	Bahrain	2	0.255	0.071	0.277
Kenya	55	0.331	0.230	0.692	United Arab Emirates	2	0.255	0.071	0.277
Guadeloupe	2	0.205	0.141	0.690	Israel	4	0.305	0.082	0.268
Albania	4	0.279	0.192	0.688	Slovakia	6	0.288	0.075	0.261
Guinea-Bissau	16	0.198	0.135	0.685	Norway	5	0.545	0.134	0.246
China	198	0.214	0.146	0.684	Liberia	26	0.113	0.027	0.241
Tanzania	107	0.251	0.168	0.671	Sweden	6	0.555	0.122	0.221
India	300	0.204	0.137	0.671	Cyprus	2	0.355	0.071	0.199
East Timor	17	0.215	0.143	0.665	Denmark	2	0.355	0.071	0.199
Bulgaria	6	0.355	0.235	0.661	Belgium	4	0.280	0.050	0.179
Russian Federation	87	0.331	0.216	0.652	Lesotho	4	0.355	0.058	0.163
Zambia	35	0.130	0.085	0.651	Morocco	5	0.325	0.045	0.138
Zimbabwe	13	0.200	0.128	0.640	Turkmenistan	3	0.438	0.058	0.132
Jordan	2	0.555	0.354	0.637	Yemen	7	0.291	0.038	0.130
Japan	12	0.145	0.092	0.634	Djibouti	2	0.863	0.081	0.094
Bangladesh	8	0.154	0.095	0.617	Bhutan	23	0.401	0.021	0.052
Mali	30	0.275	0.168	0.611					

Invariantcountries: Singapore,Germany,NetherlandsAntilles,Netherlands,CzechRepublic,Dominica,Comoros,Ukraine,TrinidadandTobago,SaoTomeePrincipe,Liechtenstein,Serbia,Poland,Tu
Singletoncountries: Iceland,FalklandIslands,Montserrat,NorfolkIsland,Haiti,Korea,North,Swaziland,Lebanon,Malta,Bermuda,Bahamas,SaintLucia,Rwanda,Mayotte,Greenland,Qatar,Antigu

Table B16: Countries and territories in GPS that provide within-country variations in herding

Country	Obs.	Avg.	S.D.	C.V.	Country	Obs.	Avg.	S.D.	C.V.
Romania	994	0.007	0.024	3.335	Vietnam	1,000	0.186	0.027	0.143
Cameroon	1,000	0.134	0.133	0.986	Chile	1,003	0.471	0.066	0.140
Ghana	1,000	0.070	0.054	0.769	Algeria	1,022	0.657	0.075	0.115
Philippines	1,000	0.100	0.070	0.705	Sri Lanka	1,000	0.291	0.027	0.091
Nigeria	992	0.160	0.085	0.532	Morocco	1,000	0.326	0.027	0.082
Tanzania	1,000	0.280	0.147	0.524	Costa Rica	1,000	0.289	0.023	0.081
Guatemala	1,000	0.180	0.087	0.482	Canada	1,001	0.282	0.023	0.081
Afghanistan	1,000	0.255	0.106	0.415	Saudi Arabia	1,035	0.832	0.067	0.080
China	2,574	0.178	0.071	0.396	Thailand	1,000	0.106	0.006	0.056
Iran	2,507	0.405	0.155	0.383	Nicaragua	1,000	0.299	0.015	0.051
India	2,539	0.191	0.063	0.328	Turkey	1,000	0.401	0.017	0.044
Egypt	1,020	0.405	0.125	0.308	United States	1,072	0.301	0.012	0.040
Uganda	1,000	0.228	0.065	0.282	Australia	1,002	0.297	0.011	0.039
Iraq	1,000	0.238	0.067	0.282	Austria	1,001	0.307	0.005	0.016
Russia	1,498	0.324	0.089	0.275	Sweden	1,000	0.306	0.005	0.016
Venezuela	999	0.328	0.088	0.269	Finland	248	0.208	0.003	0.016
Kenya	1,000	0.341	0.091	0.266	Rwanda	848	0.303	0.003	0.010
Indonesia	1,000	0.191	0.051	0.266	Georgia	1,000	0.312	0.002	0.007
South Africa	1,000	0.408	0.107	0.263	United Arab Emirates	1,000	0.205	0.001	0.002
Malawi	1,000	0.092	0.024	0.258	Hungary	1,004	0.205	0.000	0.002
Mexico	1,000	0.256	0.065	0.254	Japan	1,000	0.105	0.000	0.002
Brazil	1,003	0.173	0.044	0.252	Bangladesh	999	0.205	0.000	0.002
Italy	1,004	0.116	0.029	0.252	Haiti	504	0.205	0.000	0.002
Zimbabwe	1,000	0.225	0.052	0.229	Botswana	1,000	0.405	0.000	0.001
Pakistan	1,004	0.272	0.056	0.206	Ukraine	1,000	0.305	0.000	0.001
Kazakhstan	801	0.737	0.146	0.198	Israel	999	0.305	0.000	0.001
Suriname	504	0.290	0.056	0.192	Jordan	1,000	0.305	0.000	0.000
Switzerland	1,000	0.271	0.050	0.185	France	990	0.205	0.000	0.000
Argentina	1,000	0.474	0.076	0.160	Spain	1,000	0.305	0.000	0.000
Colombia	1,000	0.292	0.045	0.153	Germany	996	0.305	0.000	0.000
Cambodia	984	0.110	0.016	0.149	Greece	872	0.305	0.000	0.000
Bolivia	998	0.256	0.038	0.148					

Invariant countries: Estonia 1, Moldova 1, Serbia 1, Czech Republic 1, South Korea 2, Poland 1, United Kingdom 2, Netherlands 1, Bosnia Herzegovina 1, Lithuania 1, Peru 1, Portugal 1