The Social and Cultural Effects of Markets and Capitalism: Evidence from Folklore and Ethnography

Abstract

The social and cultural consequences of economic systems have long been debated by social and economic theorists. In this paper, I employ global folklore text (from the Berezkin catalogue of folklore motifs) and ethnographic text (from the eHRAF World Cultures database) as data to analyze the social and cultural effects of markets and capitalism. I construct indices for social, cultural, and economic characteristics based on the textual prevalence of relevant words and themes and apply regression analysis to these indices. The results suggest that markets and capitalism are associated with decreased ecocentrism and increased stratification and that, in folklore, markets are associated with increased moral content. Additionally, while markets are weakly associated with increased prosociality, capitalism is associated with decreased prosociality, implying that Montesquieu and Marx could both have been correct. I also estimate the markets coefficients using distance from historic trade route as an instrument, providing some support for a causal interpretation.

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1. Introduction

How do economic systems shape the ways we behave, interact, and understand the world? Do the relations and tasks of a capitalist society produce a set of preferences and beliefs about the world distinct from those of a hunter-gatherer society? Do the social and cultural effects of capitalism differ from those of markets? In this paper, I analyze the effects of markets and capitalism on prosociality, morality, ecocentrism, and stratification using folklore and ethnographic text as data. Building off the work of Michalopoulos and Xue (2021), I sharpen the technique of constructing indices of societal characteristics from folklore text, assemble an analogous dataset of indices based on ethnographic text from the electronic Human Relations Area Files (eHRAF) World Cultures database, and extend the analysis of the economic determinants of culture and social structure to ecocentrism and stratification. The social and cultural effects of markets and capitalism evidenced by the results imply that non-economic consequences should be taken into account when designing economic policy. This aligns with the literature on moral crowding out, which shows that the market setting can alter the behavioral expression of social and moral preferences (Bowles, 2016; Gneezy & Rustichini, 2000).

The nature of the dynamic relationships between economic systems and social, cultural, and political systems constitutes a perennial question for social theorists. Although it has, in the past century, fallen somewhat out of vogue to theorize across disciplinary boundaries, the heirs of classical traditions of grand social theory persist in various forms today. Modern scholars of cultural evolution and endogenous preferences (Bowles, 1998; Boyd & Richerson, 2005; Gintis, 2016; Henrich, 2021), political economy (Acemoglu et al., 2001; Darity et al., 2006; Harvey, 2020; Wood, 1991), cultural economics (Michalopoulos et al., 2018; Michalopoulos & Xue, 2021; Nunn & Wantchekon, 2011), economic sociology (Beckert, 2003), economic anthropology (Graeber, 2014; Graeber & Wengrow, 2021), complex social systems (Bettencourt et al., 2007; Romanowska et al., 2021), and cliodynamics (Currie et al., 2020; Turchin, 2011; Turchin et al., 2022) carry on the discourse of Montesquieu, Smith, Tocqueville, Marx, Durkheim, Weber, Polanyi, Parsons, and the like, integrating social, cultural, political, and economic dimensions into their analysis of the structure and dynamics of society.

Of the many frameworks conjectured to approximate the laws of motion of society, the theories of historical and cultural materialism are particularly relevant to this paper's inquiry into the social and cultural effects of economic systems. Proponents of historical and cultural

materialism hold that while the economic, social, cultural, and political spheres of a society co-evolve, the effect of the economic system (the "base") on the sociocultural system (the "superstructure") dominates its converse (Engels, 1972; M. Harris, 2001). Applications of evolutionary frameworks to explaining human behavior, culture, and history also implicitly reflect this perspective through the assumption that the fitness of cultural and behavioral traits derives from the material payoffs they yield (Bowles & Gintis, 2011; Boyd & Richerson, 2005; Henrich, 2021; Nunn, 2021). The mechanism underlying the social and cultural effects of economic systems might be both evolutionary and contextual—i.e. economic systems might shape preferences, beliefs, and behaviors by influencing which learned traits spread and persist as well as through context and constraints on the expression of our genetic and cultural inheritance. And economic systems may influence cultural evolution both by shaping who interacts with whom (i.e. the transmission network) and by selecting for certain traits (i.e. as part of the adaptive landscape). For example, in "Trade and Geography in the Spread of Islam," Michalopoulos, Naghavi, and Prarolo show how trade routes promoted the spread of Islam by exposing more people to the religion and by increasing the incentives of conversion (2018).

The debate over the social and cultural effects of markets and capitalism has a long history from Montesquieu and Marx to Henrich and Graeber. Some argue that markets and capitalism encourage prosociality, harmony, and moral universalism (from Montesquieu (1748) to Henrich et al. (2004; 2010), Schilpzand & de Jong (2023), Harris et al. (2023), and Enke (2023)) while others argue that markets and capitalism erode community and moral responsibility and encourage greed, selfishness, individualism, and materialism (from, e.g., Marx & Engels (1906), to Polanyi (1944), Weber (1978), Lane (2000), Marglin, (2008), Falk & Szech (2013), and Graeber (2014)). Many also claim that markets and capitalism shape the way we think and feel about nature and our relationship to it, pushing us away from ecocentrism (a nature-centered worldview) and toward anthropocentrism (a human-centered worldview) (Abram, 2012; Kimmerer, 2013; Worster, 1987). Whereas many traditional Indigenous knowledge systems assign sacredness and personhood to the more-than-human world, the dominant framework in modern market societies conceptualizes nature solely as an object for human use (Abram, 2012; Kimmerer, 2013). The inequality produced by markets and capitalism is also often tied to the creation and maintenance of social hierarchies. A number of scholars of social and economic stratification argue that racist, sexist, classist, and xenophobic myths arise alongside group-based economic disparities as a means of justifying and

thus stabilizing this inequality (Bright et al., 2025; Folbre, 2023; Mason et al., 2022; Zinn, 2015). In this paper, I contribute to this literature by employing folklore and ethnographic text as data to explore the effects of markets and capitalism on prosociality, morality, ecocentrism, and stratification.

It's important to note that although markets and capitalism are often conflated, they are not synonymous. The historical and cross-cultural prevalence of markets is not evidence of universal capitalism. Capitalism is a historically specific economic system characterized by private ownership of the means of production and the wage-labor relation (Wood, 2002). Markets occupy a specific niche in capitalism (Polanyi, 1944), where they become essential for social reproduction—i.e. most people in a capitalist society must sell their labor for a wage to provide for their own subsistence (Wood, 2002). The roles, relations, tasks, contexts endemic to capitalism may produce different social and cultural forms than markets, money, and trade more broadly. I therefore distinguish between markets and capitalism in my analysis.

Cross-cultural collections of folklore and ethnography lend themselves to the analysis of the social and cultural effects of economic systems through their depictions of societies with wide-ranging social, cultural, and economic characteristics. And the perspectives provided by these dual sources complement each other. In fact, folklore is often considered an essential part of ethnography (Bascom, 1953) or a kind of autobiographical ethnography (Dundes, 1969). Since folklore consists of the stories a people tell about themselves and the world and ethnographies—i.e. observations of a people—are usually written by out-group anthropologists, folklore and ethnography present, respectively, emic (insider) and etic (outsider) perspectives of a culture (Dundes, 1969). And whereas folklore allows a glimpse into the worldview of a people—their ontology, their epistemology, their values (Toelken, 1996)—ethnography recounts the observable social structure, cultural norms, and behavior in a society.

But what is folklore exactly? And what does it reveal about its carriers? In this paper, I use the term folklore as Yuri Berezkin does to refer simply to the traditional stories of a people (2015). As the definition suggests, folklore is primarily transmitted vertically from generation to generation within a group. Consequently, folktales spread when a group migrates or proliferates (Berezkin, 2015; Michalopoulos & Xue, 2021). They may also spread via horizontal transmission, passing from one group to another (Berezkin, 2015; Boas, 1916; Michalopoulos & Xue, 2021, Online Appendix). Different stories persist and spread with differential success. Thus, their

dispersal might be modelled in an evolutionary manner (Tehrani, 2023; Toelken, 1996; Wilson, 1976). And through the selective transmission of stories, folklore comes to reflect social, cultural, political, economic, and natural conditions. If a story ceases to be relevant, useful, insightful, relatable, or entertaining, it may not be passed on, or it may be altered (Bascom, 1953; Dundes, 1969). The fitness (propensity to persist and spread) of specific stories is thus a function of their relevance, usefulness, insightfulness, relatability, and entertainment value as well as their carriers' own capacities to persist and spread themselves and their cultural influence. And folklore can affect the group's fitness by conveying preferences, beliefs, and behavior adapted to their specific human ecology. Stories serve as vessels for education and enculturation by describing the patterns of the natural world, instilling a sense of meaning and sacredness, inculcating and maintaining social and moral norms, and developing a sense of group identity (Akerlof & Snower, 2016; Bascom, 1954; Michalopoulos & Xue, 2021, Online Appendix; Witzel, 2012). Stories may also aim to legitimize the status quo (Akerlof & Snower, 2016; Bascom, 1953; Wrenn, 2021), or they may provide spaces for challenging the status quo (Marshall, 2012). In short, folklore is both a reflection of society and a societal force.

The method of using folklore text as data to analyze the relationship between culture and economic systems was pioneered by Michalopoulos and Xue in their paper, "Folklore" (2021), where they transform Berezkin's catalogue of folklore motifs (2015) into a dataset of the textual prevalence of different concepts in each folklore tradition. By applying regression analysis to these data, Michalopoulos and Xue show that geographical, political, cultural, and economic conditions are reflected in folklore. A number of subsequent papers have employed their data to explore the economic determinants of culture (Becker, 2024; Enke, 2023; Eruchimovitch et al., 2024; Fan et al., 2024). I derive indices to measure market exposure, capitalist relations, prosociality, morality, ecocentrism, and stratification from Michalopoulos and Xue's data based on the presence of relevant words in each culture's folklore motifs. I also extend this method to ethnographic text from the eHRAF World Cultures database, developing an analogous dataset of social, cultural, and economic indices based on the prevalence of relevant words and subjects in the collected ethnographies of each culture. I test the economic indices for validity using historic trade route data (from Michalopoulos et al., 2018) and the eHRAF subsistence type categories (Table 4). I then employ the text-based indices in regressions to analyze the social and cultural effects of markets and capitalism (Tables 5-7). I also conduct an instrumental variable analysis of the effects

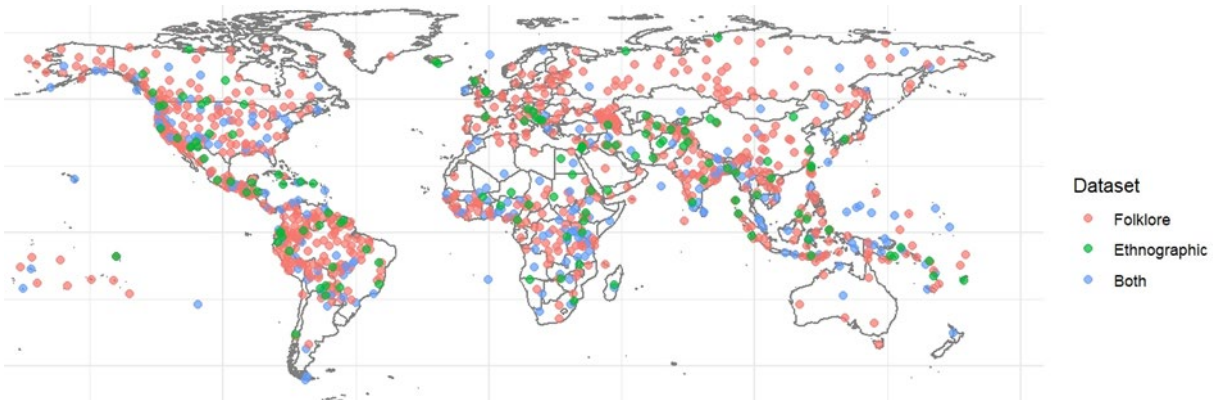
of markets, using proximity to historic trade routes as an instrument for my text-based markets indices (Tables 5 and 6).

In the rest of this paper, I describe the assembly of data from folklore and ethnographic text, the construction of social, cultural, and economic indices from these data, and the empirical strategy (Data and Method); I then report the regression results (Results); finally, I discuss the implications of the results, the limitations of the method, and further avenues of research (Discussion).

2. Data and Method

To explore the effects of markets and capitalism on prosociality, morality, ecocentrism, and stratification, I develop social, cultural, and economic indices based on the textual prevalence of relevant themes and words in folklore and ethnography and employ these indices in OLS and IV regression analyses. I construct folklore indices using the dataset (2021) Michalopoulos and Xue assembled from Berezkin's catalogue of folklore motifs (2015). I construct ethnographic indices using the electronic Human Relations Area Files (eHRAF) World Cultures database. The sample of societies represented in these two datasets span the globe (Figure 1). In this section, I describe the process of assembling the folklore and ethnographic data, the method of index construction and validation, and the empirical strategy.

Figure 1: Map of cultures in folklore and ethnographic datasets



Notes: The societies in the folklore and ethnographic datasets span the globe. Pink points represent cultures present only in the folklore data; green points represent cultures present only in the ethnographic data; and blue points represent cultures present in both folklore and ethnographic data.

2.1 Folklore data

2.1.1 Berezkin's catalogue of folklore motifs (2015)

The folklore text used in this paper comes from the catalogue of 2,564 folklore motifs from 958 folklore traditions that Yuri Berezkin compiled from over 6,000 sources (2015)[1]. A folklore motif, according to Berezkin, is an episode or an image that appears in multiple folklore traditions (2015, p. 37). Anthropologists and folklorists have long noted the redundancy of images and episodes across different folklore traditions, and several efforts have been made to catalogue these motifs and their spatial and cultural distribution, but Berezkin's catalogue is by far the most extensive and globally representative. The source texts include books and articles published mostly in the 20th century (though the age of the stories they record cannot be determined). In the catalogue, each motif has a reference ID, a title, and a one or two sentence description. The contents range from mythological representations of the sun and moon to etiologies of natural phenomena to tales of tricksters. Table 1 presents some descriptive statistics on the folklore motifs and sources. In accordance with Michalopoulos and Xue's precedent, I drop the 15 cultures that are associated with fewer than 5 motifs. Table 2 presents two example motifs from the catalogue and a sample of the folklore traditions the motifs appear in.

[1] This catalogue first became available in 2015 and has been updated several times, the latest time being in 2022. Currently, it contains 2,945 motifs associated 999 folklore traditions. I use the Michalopoulos and Xue's dataset which they derive from the 2019 version of the catalogue.

Table 1: Summary of folklore data

Continent	*Cultures*	*Motifs per culture*		*Sources per culture*		*Publication year*	
Africa	137	55.1	(51.3)	12.9	(9.7)	1961.5	(16.4)
Asia	286	111.6	(99.6)	18.2	(15.2)	1960.9	(18.7)
Europe	54	257.8	(144.4)	33.9	(18.4)	1964.0	(13.5)
North America	246	74.2	(47.5)	12.0	(9.8)	1951.9	(20.3)
Oceania	55	41.3	(21.5)	9.9	(5.8)	1944.6	(16.9)
South America	165	58.4	(41.2)	9.7	(8.6)	1965.8	(19.4)
World	943	88.6	(88.1)	14.8	(13.2)	1958.7	(19.5)

Notes: This table summarizes the global distribution of folklore motifs in Berezkin's catalogue, including the number of cultures, the average number of motifs and sources per culture, and the average publication year of the sources. Standard deviations are in parentheses.

2.1.2 Michalopoulos and Xue's data (2021)

In the 2021 paper, "Folklore," Michalopoulos and Xue transform Berezkin's catalogue of folklore motifs into a dataset of the prevalence of various concepts in the folklore traditions. This dataset consists of 958 culture observations and 9,005 concept variables. To create the concept variables, they use a semantic network project called ConceptNet to amass a list of 9,005 common words (the 10,000 most common words minus NLTK stop words like "a" and "the"); for each of these "concepts," they obtain a list of the 50 most closely related words according to ConceptNet, and they count the number of motifs in each culture that contain any of these related words in the motif title or description. In short, each society is associated with a number of folklore motifs, and each motif is associated with a number of concepts. Michalopoulos and Xue's concept variables count the number of motifs in each folklore tradition associated with each concept. For example, 16 out of the 152 folklore motifs of the Arapaho people are tagged with words relating to "earth," so the "earth" concept variable has a value of 16 for the Arapaho observation. Table 2 shows a sample of the concepts associated with motifs I11 and M91b.

Table 2: Folklore motifs and concepts

ID	*Motif title*	*Motif description*	*Cultures*	*Concepts tagged*
I11	Cosmic turtle or toad	A turtle, toad, or frog supports the earth or is its embodiment	• Arapaho • Aztec • Bengali • Bulgarians • Buryat • Cheyenne • Chinese *… and 55 other cultures*	• aid • aspect • assist • assistance • backer • backing • behalf *... and 50 other concepts*
M91b	Sold ashes	A person manages to fraudulently sell or exchange ash for gold and money. Others are unsuccessfully offering ash for sale.	• Amhara • Assamese • Bashkir • Bengali • Buryat • Georgians • Kazakh *... and 45 other cultures*	• accept • accomplish • accomplishment • achievement • acquisition • administer • allegedly *... and 159 other concepts*

Notes: These two folklore motifs from Berezkin's catalogue (2015) exemplify how each of the 2,564 folklore motifs is tied to multiple cultural traditions and multiple concepts (Michalopoulos and Xue, 2021). The concept variables created by Michalopoulos and Xue (2021) are then derived by counting the number of motifs in each culture tagged with the concept.

2.2 Ethnographic data

The ethnographic text used in this paper comes from the Human Relations Area Files World Cultures database, which is an online collection of over 770,000 pages of ethnographies describing over 360 cultures. This ethnographic collection originated as a project in the 1930s and 40s meant to aggregate ethnographic sources from many cultures and classify the topics of those texts, thereby expediting the process of cross-cultural research (Fischer & Ember, 2018). The collection has been indexed by subjects at the paragraph level based on the Outline of Cultural Materials (Murdock et al., 2008). There are more than 700 different subjects in this classification scheme which cover a vast range of topics from kinship patterns to religious beliefs and from modes of production to technology. Using the search engine on eHRAF, I can specify any combination of OCM subjects and/or keywords, and it will return the number of paragraphs containing the specified subjects/keywords in the collected ethnographies of each culture. For example, by searching "subject: ritual," I find that there are 13 paragraphs in the collected Maasai ethnographies that are tagged with the OCM subject, "ritual," and by searching "text: wage OR profit," I find that there are 29 paragraphs in the collected Kazakh ethnographies that contain one of these words. This search feature allows me to extract the textual prevalence of different themes and assemble an ethnographic dataset analogous to Michalopoulos and Xue's folklore dataset (2021).

The eHRAF World Cultures database also classifies the cultures by subsistence type. These categories do not necessarily characterize the state of each society today or throughout all the coverage time of the ethnographies; rather, the categories are meant to capture the mode of subsistence that predominates in the ethnographies (eHRAF User Guide). This classification includes a "commercial economy" category for societies that rely primarily on the medium of markets for subsistence (rather than directly on agriculture, pastoralism, or hunting and gathering).

Table 3 presents some descriptive statistics on the eHRAF World Cultures database from which I derive the ethnographic data. Note that I drop the 16 societies that are associated with fewer than 50 pages.

Table 3: Summary of ethnographic data

Region	*Cultures*	*Pages per culture*		*Documents per culture*		*Author birth year*	
Africa	70	1920.0	(1752.1)	17.9	(14.2)	1920.5	(12.5)
Asia	71	2290.9	(2255.9)	18.1	(15.5)	1915.0	(19.4)
Europe	17	2965.9	(2302.5)	22.8	(22.1)	1897.7	(102.3)
Middle America and the Caribbean	18	2387.7	(1761.5)	15.6	(7.9)	1912.4	(23.8)
Middle East	11	2435.6	(1922.2)	20.4	(19.0)	1925.5	(14.8)
Native North America	60	2722.8	(3978.8)	26.6	(34.4)	1902.8	(14.2)
non-Native North America	20	3287.1	(2313.1)	25.1	(16.9)	1935.0	(8.7)
Oceania	32	2180.4	(1838.6)	21.2	(20.9)	1910.3	(16.9)
South America	44	1201.1	(925.6)	11.0	(8.0)	1907.5	(42.2)
World	343	2241.9	(2430.6)	19.5	(20.4)	1913.1	(31.6)

eHRAF subsistence type	*Cultures*
Commercial economy	28
Intensive agriculturalists	75
Horticulturalists	59
Agro-pastoralists	25
Pastoralists	18
Primarily hunter-gatherers	29
Hunter-gatherers	59
Other subsistence combinations	50

Notes: The first table reports the average number of ethnography pages and documents and the average birth year of the ethnography authors. Standard deviations are in parentheses. The second table reports the number of cultures in each subsistence type category.

2.3 Index construction

From the concept variables in Michalopoulos and Xue's folklore data (2021) and from the subject and keyword search results in the eHRAF World Cultures database, I construct indices to measure the social, cultural, and economic characteristics of each society. This method rests on the assumption that the stories a people tell and the accounts of their ethnographers reflect their social, cultural, and economic realities and that these societal characteristics imprinted in text can be quantified based on the distribution of words and subjects. In other words, people more exposed to markets tell more stories about markets, and their ethnographies contain more market-related content as well. I test the validity of the markets and capitalism indices using data on historic trade route (Michalopoulos et al., 2018) and the eHRAF commercial economy subsistence type category (Table 4). In Appendix A, I report the constituent terms in every index (Table A1), discuss the methodological choices of index construction further, map out the global variance of each index, and present examples of the folklore motifs and ethnography paragraphs from which the indices are derived.

2.3.1 Constructing the folklore indices

To construct indices for markets, prosociality, morality, ecocentrism, and stratification, I selected sets of concepts from Michalopoulos and Xue's data based on the related words tagged and the context in which they appear in the motifs (Table A1). In this selection process, I attempted to maximize coverage of relevant words, minimize inclusion of irrelevant words, and minimize redundancy of words (to reduce the number of times the same motif is counted). The market concepts tag words related to markets, trade, and money; the prosociality concepts I selected tag words related to caring, giving, helping, and sharing; the morality concepts tag words related to what a person should or shouldn't do; the ecocentrism concepts tag words related to the more-than-human world; the stratification concepts tag words related to hierarchy, rank, domination, and servitude. I do not construct a capitalism index from folklore because none of the folklore motifs in Berezkin's catalogue relate specifically to the economic system of capitalism (characterized by the wage-labor relation and concentrated, private ownership of the means of production).

To create the indices from these concept lists, I create indicator variables for every constituent concept (either present or not present in each folklore tradition). I then apply principal component analysis to the set of relevant indicator concept variables and use the standardized first

principal component as the index. I tested several different versions of the market index (and subsistence type indices) for validity using historic trade route data (Michalopoulos et al., 2018) and eHRAF subsistence type categories before choosing this particular PCA-indicator-concept method. Michalopoulos and Xue also apply principal component analysis to the folklore concepts in constructing their index for the presence of "high gods" (2021, pp. 2013-2014); and in "Market Exposure and Human Morality" (2023), Enke similarly constructs social, cultural, and economic indices based on the proportion of relevant concepts present each folklore tradition. For an extended methodological discussion of concept selection and index construction, see Appendix A.

2.3.2 Constructing the ethnographic indices

As with the folklore index construction, to create the ethnographic indices, I first select a list of relevant terms (Table A1). This can be done using OCM subjects and/or keywords. I construct the economic indices from keywords and the social and cultural indices from OCM subjects. The advantage of using keywords is that there are no constraints on my choice of terms, allowing me to derive indices based on the highly relevant terms.[2] The advantage of using subjects is that they capture more of the context of the terms since the paragraphs are tagged by ethnographers who read the texts. My objective in keyword/subject selection is to choose terms that correspond one-to-one with the societal characteristic of interest. I then obtain the indices from the standardized textual prevalence of relevant terms. The markets index derives from keywords related to markets, trade, and money; the capitalism index from keywords related to capitalism, employment, wages, and profit; the prosociality index from subjects related to giving, helping, and selfishness; the morality index from the "ethics" subject; the ecocentrism index from the co-occurrence of subjects related to sacredness and subjects related to cultural ideas about the more-than-human world; and the stratification index from the "social stratification" subject.

I contend that the term precision advantage of keywords outweighs the contextualization advantage of subjects for the economic indices (e.g. the presence of the word "market" clearly indicates markets and "capitalism" indicates capitalism, regardless of context), but the contextualization advantage of subjects outweighs the term precision advantage of keywords for the social and cultural indices (e.g. paragraphs describing ecocentrism are better identified via

[2] One issue with the keyword approach is that a small portion of the ethnographic documents are not written in English. To account for this, I include the prevalence of the word "the" in all regressions.

contextualized subject tags than any specific keywords). The reason I use textual prevalence of terms in ethnography and presence/absence of terms in folklore is simply the difference in quantity of text. The amount of text in the eHRAF World Cultures database (more than 700,000 pages of ethnography) far exceeds the amount of text in Berezkin's catalogue (2,564 folklore motifs).

2.3.3 The challenge of validating the indices

Many of the societies in the data have experienced significant social, cultural, and economic change since the historical period reflected in folklore and ethnography.[3] This makes index validation difficult. Michalopoulos and Xue (2021) and Enke (2023) compare their cultural indices to modern survey data on values, but a null result using this technique might indicate either an invalid index or cultural change. And while the degree of modern persistence of social, cultural, and economic traits apparent in folklore presents a promising avenue for future research, that is not the focus of this paper. Due to the lack of cross-cultural data that are contemporaneous with folklore and ethnography, I do not test the validity of the indices for prosociality, morality, ecocentrism, and stratification as measures of prosocial behavior, moral norms, ecocentric worldview, and social stratification and hierarchy, respectively. Thus, a conservative interpretation of my findings should focus on the social and cultural traits within the context of folklore and ethnography. I do, however, test the markets and capitalism indices for validity using cross-cultural, contemporaneous data.

To test the validity of the market indices, I regress them on the log distance of the societies from historic trade routes. This trade route data—from Michalopoulos et al. (2018)—only covers Africa, Asia, and Europe (Figure 2), so I exclude observations in the Americas and Oceania from these regressions. To test the validity of the capitalism index, I regress it on the eHRAF subsistence type category for commercial economies. I control for the quantity of text and the demographic characteristics of the ethnographer.[4] Table 4 reports the results of these regressions. The log

[3] The median coverage range in the ethnographic data is 1820 – 1987. The mean publication year of the folklore sources is 1959, but the folktales themselves may be hundreds, thousands, or even tens of thousands of years older (some folklore motifs in the Berezkin catalogue (such as the Cosmic Hunt) may be of paleolithic origin (d'Huy, 2013)).
[4] I use the same baseline controls here as in the main analysis: for folklore regressions, the number of motifs and its square, the number of sources, and the mean publication year of the source; for ethnography regressions, the number of ethnographic pages and documents, the mean birth year of the author, the modal gender of the author, an indicator for whether the author is American or British, the mean beginning and end dates of coverage, and the prevalence of the word "the."

distance from historic trade routes is negatively and statistically significantly correlated with the markets indices from folklore and ethnography, and the capitalism index of societies categorized in eHRAF as commercial economies is, on average, 1.760 standard deviations higher than societies of other subsistence types, holding constant baseline controls.

Table 4: Testing markets and capitalism indices for validity

	Markets (folklore)		Markets (ethnography)		Capitalism (ethnography)
	(1)	(2)	(3)	(4)	(5)
Log distance from trade (pre-600 CE)	−0.157***		−0.083*		
	(0.033)		(0.043)		
Log distance from trade (pre-1800 CE)		−0.157***		−0.217***	
		(0.048)		(0.047)	
eHRAF commercial economy category					1.760***
					(0.338)
Baseline controls	Yes	Yes	Yes	Yes	Yes
Observations	477	477	167	167	342
R2 Adj.	0.583	0.570	0.088	0.157	0.301

Notes: * p < 0.1, ** p < 0.05, *** p < 0.01. For trade route regressions (1-4), observations in the Americas and Oceania are dropped since trade route data only covers Africa, Asia, and Europe. For folklore regressions (1 and 2), standard errors are clustered by language family, and baseline controls include the number of motifs and its square, the number of sources, and the mean publication year of the source. For ethnography regressions (3-5), baseline controls include the number of ethnographic pages and documents, the mean birth year of the author, the modal gender of the author, an indicator for whether the author is American or British, the mean beginning and end dates of coverage, and the prevalence of the word "the."

2.4 Empirical strategy

To analyze the social and cultural effects of markets and capitalism, I apply regression analysis to the indices derived from folklore and ethnography. The general model specification for both folklore and ethnography regressions is as follows:

$$y_i = \mu + \alpha \cdot E_i + \boldsymbol{B'}_i\beta + \varepsilon_i \quad (1)$$

where i denotes the cultural group, y is the social/cultural index of interest (prosociality, morality, ecocentrism, or stratification), μ is the intercept, E is the economic index of interest (markets and/or capitalism), and $\boldsymbol{B}$ is the vector of baseline controls. α, the coefficient of interest, denotes the average change in the social/cultural index associated with a standard deviation increase in the economic index, holding constant baseline controls.

Following the precedent of Michalopoulos and Xue (2021) and Enke (2023), I cluster the standard errors of the folklore regressions by language family. Since folklore is a linguistic phenomenon, folklore index values are likely correlated with language family. The baseline

controls of the folklore regressions include the number of motifs and its square, the number of sources, and the mean publication year of the source. Controlling for the number of motifs is important because folklore traditions with more motifs are more likely to contain any given concept. For the ethnography regressions, the baseline controls include the number of ethnographic pages and documents, the mean birth year of the author, the modal gender of the author, an indicator for whether the author is American or British (as a majority are), the mean beginning and end dates of the coverage range of the documents, and the prevalence of the word "the." By controlling for the demographic characteristics of the "average" ethnographer of each cultural group, I try to account for ethnographer bias.

As my main analysis, I estimate the model using ordinary least squares for the global samples of societies. For folklore, I regress each social/cultural index on the markets index (Table 5, Panel A). For ethnography, I regress each social/cultural index on the markets index alone (Table 6, Panel A) then on the markets and capitalism indices together (Table 7, Panel A).

I also conduct a series of robustness checks (Figure 3) to explore whether subsistence types (agriculture, pastoralism, and hunting and gathering), urbanization, political states, or education system might be confounding the relationship between markets/capitalism and prosociality, morality, ecocentrism, and stratification. For example, if agriculture is related to both markets and stratification, the markets index coefficient would capture some of the effects of agriculture on stratification, or if hunting and gathering is related to both capitalism and ecocentrism, the capitalism index coefficient would capture some of the effects of hunting and gathering on ecocentrism. I also run the regressions with regional fixed effects to test whether the observed effects persist when comparing societies within the same region. The terms that comprise the indices for subsistence types, urbanization, political states, and education systems are reported in Table A1 in Appendix A.

In addition to calculating the OLS results, I employ the method of instrumental variables to try to parse the causal effects of markets on prosociality, morality, ecocentrism, and stratification. I use societal distance from historic trade routes as the instrument for the text-based markets indices, again following the precedent of Enke (2023).[5] The map of trade routes, which

[5] Enke also employs a variable for ecological polarization as an instrument for his text-based markets index based on the idea that societies that live in different ecological zones are more likely to trade with each other. However, I find it unlikely that ecology only influences social and cultural characteristics through markets. Social structure and culture

was assembled by Michalopoulos, Naghavi, and Prarolo (2018), consists of historic trade routes and ancient ports in the Old World in two periods: pre-600 CE and pre-1800 CE (Figure 2). As the index validation tests show (Table 4), the markets index from ethnography is more closely related to pre-1800 CE trade routes whereas the markets index from folklore is closely related to both. Therefore, I use the log distance from pre-1800 CE trade routes as the instrument for the ethnographic markets index and the log mean distance from trade routes in both periods as the instrument for the folklore markets index. For the exclusion restriction to be satisfied, distance from the historic trade route must be related to the social and cultural characteristics of a society only through the effects of markets. So, the social and cultural traits of a people apparent in folklore or ethnography must not have prompted them to move closer to or farther from ancient ports and trade routes or influenced the geographical development of these ports and trade routes.

Additionally, sampling bias could produce erroneous results if some groups are overrepresented in the map of historic trade routes. Of the sources that Michalopoulos, Naghavi, and Prarolo (2018) draw from to compile the historic trade route data (Brice & Kennedy, 2002; de Graauw et al., 2014; McCormick et al., 2013; O'Brien, 1999), Brice and Kennedy's *An Historical Atlas of Islam* (2002) and McCormick et al.'s network of Roman roads are explicitly focused on Islamic and Roman trade, respectively; even the sources that are not explicitly focused on specific cultures (de Graauw et al., 2014; O'Brien, 1999) may undersample trade routes that the cartographers' own (mostly Western) societies have been less exposed to. The correlations observed in the regression analysis, then, might reflect he characteristics of the Roman, European, and Islamic cultures rather than the social and cultural effects of markets.

Despite these limitations, I estimate and report the IV results alongside OLS results for the Old World (Tables 5 and 6, Panels B and C).[6]

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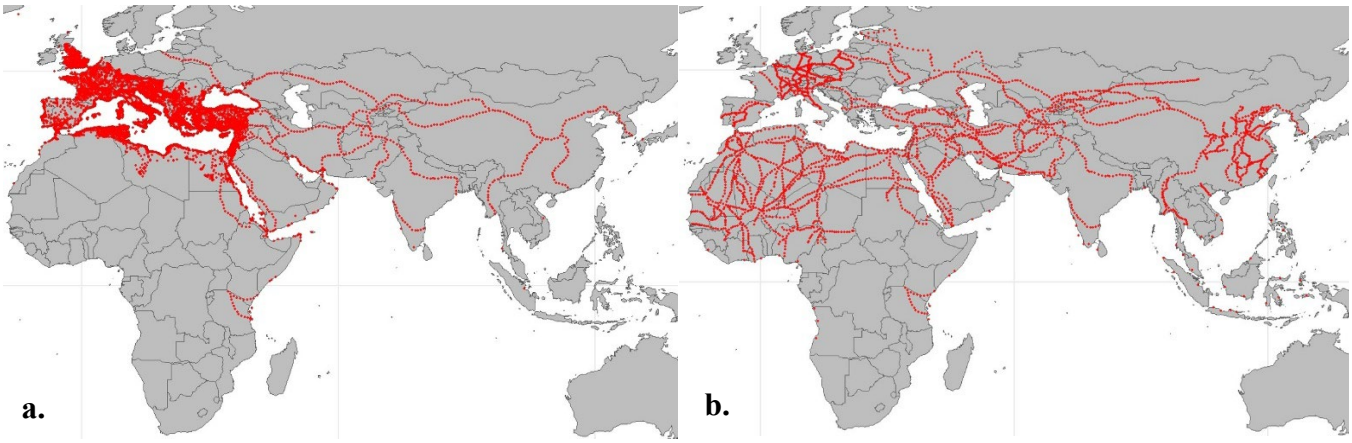
likely adapts to ecological constraints (e.g. in harsh environments, strict norms of cooperation may be essential to survival). So, I do not implement ecological polarization as an instrument for markets.

[6] Another difference between my method and Enke's (2023) is that I drop observations in the Americas and Oceania when I conduct the IV regression analysis. I believe that Enke's use of the distance from Old World trade routes as an instrument for the market exposure of New World societies is inappropriate. Trade networks did exist in the pre-Columbian Americas (Mann, 2005), so the degree of market exposure of Indigenous American societies is unlikely to be related to their distance around the earth to Old World trade routes.

Figure 2: Historic trade routes and ports in the Old World



Notes: **a.** Old World trade routes and ports from pre-600 CE. **b.** Old World trade routes and ports from pre-1800 CE. These data come from Michalopoulos, Naghavi, and Prarolo's 2018 paper, "Trade and Geography in the Spread of Islam.

3. Results

In this section, I present the results of the main regression analyses estimating the social and cultural effects of markets and capitalism. Table 5 reports the coefficient estimates from regressing prosociality, morality, ecocentrism, and stratification on markets, where independent and dependent variables are indices constructed from folklore text. Table 6 reports the corresponding estimates from ethnographic text. In both tables, Panel A reports the OLS regression coefficient estimates, using the global sample. Panel B reports the OLS regression coefficient estimates when the sample is restricted to Africa, Asia, and Europe (the "Old World"). Panel C reports the IV regression coefficient estimates for the Old World, where the log distance to historic trade routes in the Old World is employed as the instrument for the text-based market index.[7] Table 7 reports the coefficient estimates from regressing prosociality, morality, ecocentrism, and stratification indices on markets and capitalism indices in ethnography (Panel A) and on the eHRAF commercial economy subsistence category (Panel B). Figure 3 summarizes the regression results for a series of alternative regression specifications.

The regression results from applying OLS to the global folklore sample (Table 5, Panel A) indicate that a standard deviation increase in the markets index is associated with, on average, a 0.351 s.d. increase in the morality index ($p < 0.01$), a 0.136 s.d. decrease in the ecocentrism index

[7] For the IV estimates, all first stage regressions yield an F statistic far greater than 10, suggesting a strong instrument.

($p < 0.01$), and a 0.254 s.d. increase in the stratification index ($p < 0.01$), holding constant the number of motifs and sources and the mean publication year of the sources. There is no statistically significant relationship between markets and prosociality. Restricting the sample to the Old World (Panel B) weakens the results for morality, ecocentrism, and stratification but reveals a positive, statistically significant relationship between markets and prosociality for this subsample. The IV results (Panel C) suggest that market exposure decreases ecocentrism in folklore and increases prosociality, morality, and stratification in Old World folklore (if the exclusion restriction is satisfied).

The regression results from applying OLS to the global ethnography sample (Table 6, Panel A) indicate that a standard deviation increase in the markets index is associated with, on average, a 0.128 s.d. increase in the prosociality index ($p < 0.1$), a 0.279 s.d. decrease in the ecocentrism index ($p < 0.01$), and a 0.274 s.d. increase in the stratification index ($p < 0.01$), holding constant the amount of text, the demographic characteristics of the ethnographer, and the range of historical coverage. There is no statistically significant relationship between markets and morality. Restricting the sample to the Old World (Panel B) eliminates the relationship between markets and prosociality but strengthens the relationship between markets and ecocentrism and stratification. The IV results (Panel C) suggest that market exposure increases stratification in ethnography (if the exclusion restriction is satisfied).

Across both folklore and ethnography, markets are negatively correlated with ecocentrism and positively correlated with stratification. Both sources exhibit some evidence of a positive relationship between markets and prosociality. The strong positive relationship between markets and moral content in folklore is not clearly present in ethnography.

Table 5: The social and cultural effects of markets in folklore

	N	Prosociality	Morality	Ecocentrism	Stratification
		Panel A: OLS (World)			
Markets	943	0.032	0.351***	−0.136***	0.254***
		(0.042)	(0.028)	(0.038)	(0.049)
		Panel B: OLS (Old World)			
Markets	477	0.209***	0.281***	−0.047	0.246***
		(0.046)	(0.034)	(0.034)	(0.053)
		Panel C: IV (Old World)			
Markets	477	0.206**	0.356***	−0.154*	0.805***
		(0.100)	(0.118)	(0.089)	(0.138)
Baseline controls		Yes	Yes	Yes	Yes

Notes: * p < 0.1, ** p < 0.05, *** p < 0.01. Baseline controls include the number of motifs and its square, the number of sources, and the mean publication year of the source. Standard errors are clustered by language family. For the IV regressions in Panel C, log distance to Old World historic trade route is used as an instrument for the text-based market index, and all observations from the Americas and Oceania are dropped.

Table 6: The social and cultural effects of markets in ethnography

	N	Prosociality	Morality	Ecocentrism	Stratification
		Panel A: OLS (World)			
Markets	342	0.128*	0.058	−0.279***	0.274***
		(0.072)	(0.052)	(0.047)	(0.059)
		Panel B: OLS (Old World)			
Markets	167	0.024	0.100	−0.355***	0.345***
		(0.090)	(0.087)	(0.090)	(0.085)
		Panel C: IV (Old World)			
Markets	167	0.059	0.558*	−0.260	0.782***
		(0.261)	(0.315)	(0.203)	(0.269)
Baseline controls		Yes	Yes	Yes	Yes

Notes: * p < 0.1, ** p < 0.05, *** p < 0.01. Baseline controls include the number of ethnographic pages and documents, the mean birth year of the author, the modal gender of the author, an indicator for whether the author is American or British, the mean beginning and end dates of coverage, and the prevalence of the word “the.” For the IV regressions in Panel C, log distance to Old World historic trade route is used as an instrument for the text-based market index, and all observations from the Americas and Oceania are dropped.

Table 7 reports the coefficient estimates from regressing prosociality, morality, ecocentrism, and stratification on capitalism and markets in ethnography (Panel A) and on the eHRAF commercial economy subsistence category (Panel B). A standard deviation increase in the capitalism index is associated with, on average, a 0.205 s.d. decrease in the prosociality index ($p < 0.01$), a 0.185 s.d. decrease in the ecocentrism index, and a 0.260 s.d. increase in the stratification index, holding constant the market index, the amount of text, the ethnographer's demographic characteristics, and the range of historical coverage (Panel A). In these same regressions, markets are positively correlated with prosociality and stratification and negatively correlated with ecocentrism, holding constant the capitalism index and the baseline controls. Thus, the social and cultural correlates of markets are distinct and separable from those of capitalism in ethnography. Replacing the text-based indices for markets and capitalism with the eHRAF commercial economy category from the subsistence type classification in the World Cultures database yields results similar in sign and statistical significance to the text-based capitalism index (Panel B). Holding constant the baseline controls, societies categorized as commercial economies score, on average, 0.719 s.d. lower on prosociality ($p < 0.01$), 0.691 s.d. lower on ecocentrism ($p < 0.01$), and 0.607 s.d. higher on stratification ($p < 0.01$) than societies that depend primarily directly on agriculture, pastoralism, and hunting and gathering for subsistence. In line with the text-based index results, there is no statistically significant relationship between the commercial economy category and the moral content of ethnographies.

Table 7: The effects of markets versus capitalism in ethnography

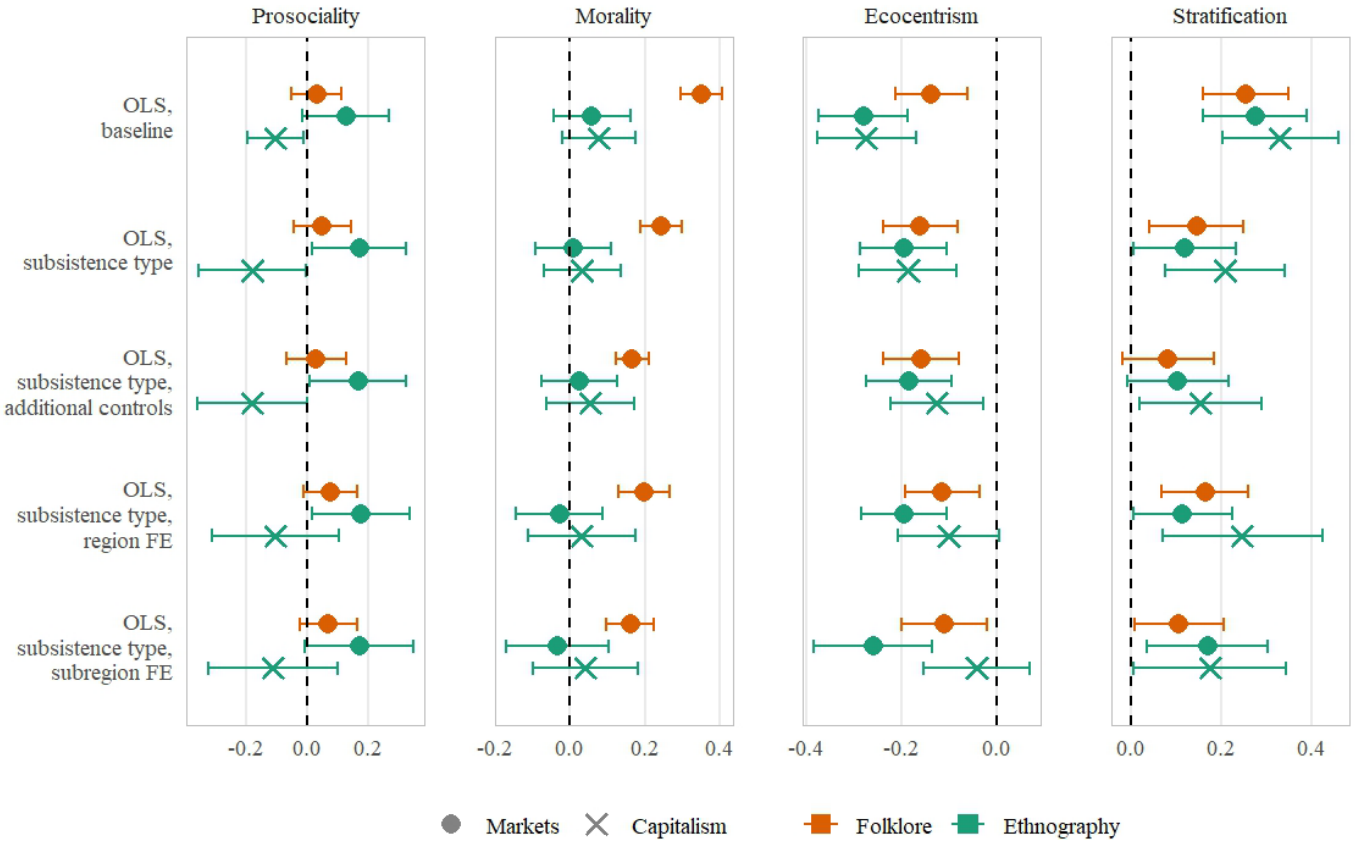
	N	Prosociality	Morality	Ecocentrism	Stratification
		Panel A: Text-based indices			
Capitalism	342	−0.205***	0.064	−0.185***	0.260***
		(0.077)	(0.051)	(0.048)	(0.069)
Markets		0.223**	0.028	−0.194***	0.153**
		(0.097)	(0.054)	(0.047)	(0.060)
		Panel B: eHRAF category			
Commercial economy	342	−0.719***	−0.159	−0.691***	0.607***
		(0.204)	(0.112)	(0.088)	(0.177)
Baseline controls		Yes	Yes	Yes	Yes

Notes: * p < 0.1, ** p < 0.05, *** p < 0.01. Panel A reports the results from regressing the text-based social and cultural indices on the text-based indices for capitalism and markets. Panel B reports the results from regressing the text-based social and cultural indices on the commercial economy subsistence type category as classified by eHRAF ethnographers. Baseline controls include the number of ethnographic pages and documents, the mean birth year of the author, the modal gender of the author, an indicator for whether the author is American or British, the mean beginning and end dates of coverage, and the prevalence of the word "the."

Figure 3 reports the OLS coefficient estimates from regressing prosociality, morality, ecocentrism, and stratification on capitalism and markets for five different specifications using the global samples of folklore ($N = 943$) and ethnography ($N = 342$). The error bars represent 95% confidence intervals. All regressions include baseline controls (the same as in the main analysis presented in Tables 5-7). In the baseline specification, the sole independent variable is markets or capitalism. The specifications labeled "subsistence type" include as covariates text-based indices for agriculture, pastoralism, and hunting and gathering. The specification labeled "additional controls" includes as covariates text-based indices for urbanization and political states in the folklore regressions and text-based indices for urbanization, political states, and education system in the ethnography regressions. The specification labeled "region FE" includes fixed effects for continent in the folklore regressions and fixed effects for region (see Table 3) in the ethnography regressions. The specification labeled "subregion FE" includes fixed effects for country in the folklore regressions and fixed effects for subregion (e.g. northern Africa, eastern Africa, …) in the ethnography regressions. These regional categories come from the data sources (Michalopoulos and Xue, 2021, and eHRAF World Cultures).

In general, the inclusion of additional controls dampens but does not eliminate the social and cultural effects of markets and capitalism observed in the main analysis. The effects observed in the main analysis cannot be entirely explained by the relationships between markets, capitalism, prosociality, morality, ecocentrism, and stratification on the one hand and agriculture, pastoralism, hunting and gathering, urbanization, political states, and education systems on the other. Nor can the effects be entirely explained by interregional variation.

Figure 3: Results for alternative regression specifications



Notes: This figure reports the OLS coefficient estimates from regressing prosociality, morality, ecocentrism, and stratification on markets and capitalism for five different specifications using the global samples of folklore ($N = 943$) and ethnography ($N = 342$). Coefficient estimate error bars represent 95% confidence intervals. All regressions include the baseline controls. Baseline specification: markets/capitalism is the only independent variable (aside from the baseline controls). Subsistence type: agriculture, pastoralism, and hunting/gathering indices. Additional controls: in folklore regressions, urbanization and political state indices; in ethnography regressions, urbanization, political state, and education system indices. Region FE: in folklore regressions, continent fixed effects; in ethnography regressions, region (see Table 3) fixed effects. Subregion FE: in folklore regressions, country fixed effects; in ethnography regressions, subregion (e.g. northern Africa, eastern Africa, …) fixed effects.

4. Discussion

A great deal has been written about the effects of markets and capitalism on prosociality, morality, ecocentrism, and stratification. My contribution in this paper is not to form any novel theory but rather to apply folklore and ethnographic text as evidence to weigh the contradicting hypotheses of these long debates and to separate markets and capitalism in this analysis. In this section, I interpret the results of the regression analyses, recount the limitations of the method, discuss the implications of the findings, and suggest several avenues for future research. Overall, the results suggest that markets and capitalism are associated with decreased ecocentrism and increased

stratification; that, in folklore, markets are associated with increased moral content; and that while markets are weakly associated with increased prosociality, capitalism is associated with decreased prosociality. The instrumental variable estimates of the social and cultural effects of markets provide some evidence to support a causal interpretation consistent with historical and cultural materialism—insofar as the exclusion restriction is satisfied. These findings imply that social and cultural consequences should be considered when evaluating economic policy.

4.1 Prosociality and morality

My results add to the mixed evidence on the effects of markets and capitalism on prosociality and morality. In the global sample of folklore, I find no relationship between markets and prosociality. This result contrasts with the strong evidence Enke finds in his folklore-based analysis (2023).[8] In the global sample of ethnography, I find a positive relationship between markets and prosociality but a negative relationship between capitalism and prosociality. This supports my hypothesis that the social and cultural consequences of capitalism differ from those of markets and introduces the possibility that both Montesquieu and Marx were correct.

The morality results differ across the text sources. I find no effects of markets and capitalism on the moral content of ethnography, but I find a strong effect of markets on the moral content of folklore. This incongruence does not, in and of itself, invalidate the indices or regression results because, as discussed in the introduction, folklore and ethnography offer complementary (not parallel) perspectives on societies. The moral content of folklore may differ from the prominence of moral behavior, and the morality of behavior from the emic perspective may differ from the morality of that same behavior from the etic perspective—ethnographers cannot entirely escape the framing of their own moral enculturation.

In the cases of both prosociality and morality, the relationship between folklore content and behavior is somewhat unclear. Stories about desirable behavior might be told in response to undesirable behavior. So are societies that tell more tales of prosociality and morality successfully maintaining higher levels of prosocial and moral behavior? Or does the prominence of these sorts of tales reflect a perpetual deficiency of desirable behavior? Are societies that tell fewer tales of

[8] This incongruity is attributable to the different sets of concepts included in the indices (see Appendix A). Enke also argues that market exposure is related to moral universalism, but once again, I disagree with his selection of concepts to include in this cultural index. I don't think the nuance of moral universalism can be captured by the prevalence of decontextualized words.

prosociality and morality simply neglecting the maintenance of such behavioral norms? Or does the lack of stories reflect a lack of need to enforce these norms—or an alternative mechanism of enforcement?

Folklore may simply occupy different functional roles in different societies. It may be more important to tell stories with moral lessons in large-scale anonymous market societies than in small, socially proximate societies, where our innate behavioral capacities—which evolved primarily in this human ecology (Boyd & Richerson, 2005)—may be sufficient to maintain societal coordination and cooperation. This relates to the argument that moralizing gods evolved to support the functioning of complex societies (e.g. Henrich et al., 2010).[9] But again, it does not necessarily follow that individuals behave more morally and prosocially in societies that worship moralizing gods. The moral norms inculcated through religion and folklore may serve only to compensate for the detrimental behavioral effects of social disembeddedness.

4.2 Ecocentrism

The results from both folklore and ethnographic regressions suggest that markets and capitalism diminish ecocentrism. This makes some intuitive sense. As we depend more on trade with other humans for our subsistence and less on direct interactions with the more-than-human world, we tend to tell fewer stories about the more-than-human world and assign less sacredness to nature. The relative prominence of humans/nature in our economic environments corresponds to the relative prominence of humans/nature in our conceptual framework of the world and what is considered sacred.

This relationship is demonstrated by folklore traditions even without atomizing them into regression-compatible concept variables. The stories we tell reflect our ecologies and define our ontologies, dividing the perceived world into named entities, describing relationships among these entities, and assigning sacredness to this system. Creation myths in particular exemplify how a people conceptualize themselves in relation to the more-than-human world (Kimmerer, 2013). Consider, for example, a creation story from the site of the earliest complex societies: In Genesis, God creates humans in his own image and grants them dominion over the earth and all non-human animals. This cosmogony formulates a hierarchy of nature in which humans hold a privileged and

[9] This argument has recently met with some pushback (Lightner et al., 2023).

separate status (White, 1967). In comparison, the mythologies of many Indigenous peoples grant personhood to the more-than-human world and conceptualize the relationship between humans and nature in terms of kinship, embedding humans not in a hierarchy of nature but in a web of coinciding material, social, and sacred relations, where humans are tasked not with dominion but with a responsibility of reciprocity (Kimmerer, 2013). And these different ontologies of nature apparent in mythology may manifest behaviorally in human-environment interactions (Campbell & Moyers, 2011; Kimmerer, 2013). Insofar as Indigenous mythologies are more ecocentric on average, the behavioral consequences of ecocentrism are evidenced by modern global spatial data which show that much of the remaining undegraded land on earth is managed by Indigenous peoples (Kennedy et al., 2023). Thus, markets and capitalism might have both direct and indirect effects on the natural environment: they might incentivize the (over)exploitation of natural resources for profit, and they might select for anthropocentric preferences that prioritize human material gain over the well-being of the more-than-human world.

4.3 Stratification

The folklore and ethnography regression results show a strong positive effect of markets on stratification, and in ethnography, capitalism is also strongly associated with stratification. The magnitude of the effects is somewhat lessened when subsistence type controls are added and again when urbanization and state controls are added, suggesting that some of the relationship between markets and stratification is explained by their association with agriculture, cities, and states, but some positive correlation persists even when these are controlled for (Figure 3).

The text-based indices for stratification may be capturing social, cultural, and/or economic forms of stratification in society. By social and cultural stratification, I mean the hierarchical partitioning of society in the external realm of social and political organization and in the internal realm of cultural concepts of otherness. By economic stratification, I refer to disparities in economic outcomes across different groups within a society. These dimensions of stratifications often move together. Social and political hierarchies may arise from and intensify economic inequality, and ideologies of hierarchical essentialism may be employed by an elite as a means to justify their position atop the pyramid of power and wealth and legitimize exploitative economic relations. The idea that markets and capitalism generate inequality and that this economic stratification is often accompanied by social and cultural stratification is hardly novel, but the

salience of the relationship observable in folklore and ethnography across a global sample is striking and so is the separability of the effects of markets, capitalism, agriculture, cities, and states.

A popular historical theory attributes stratification in complex society to the invention of agriculture (e.g. Diamond, 1999; Harari, 2015; Kaplan et al., 2009). The surplus generated through agriculture allows individuals to specialize in non-food production, and this specialization necessitates markets (so the individuals not producing food can obtain food) and promotes stratification when surplus is employed to expropriate the surplus produced by others. In other words, property confers power, and thus wealth begets wealth, and markets facilitate this inequality-augmenting feedback loop. And this economic stratification may occur both at the societal level through proletarianization and/or enslavement and at the household level through the gendered division of labor. And although wealth accumulation may not inevitably lead to a sociocultural dominance hierarchy, it seems to be a precondition (Gintis, 2016). Through this lens, markets and agriculture are jointly responsible for stratification in complex society, which aligns with the regression results shown in Figure 3.[10]

The relationship between capitalism and stratification might be explained by the accumulation, concentration, and centralization of capital and the impoverishment of the proletariat described by the Marxist school of thought (Marx, 1889, 1932; Sweezy, 1972). The profit imperative at the core of the logic of capitalism expands the wealth of the few through the exploitation of the wage-earning worker. While the Marxist tradition focuses on economic class, the traditions of feminist and stratification economics emphasize the role of gender and race in understanding stratification under capitalism. Patriarchal and racial ideologies and systems of oppression have been instrumental to the rise and development of capitalism (Folbre, 2023; Robinson, 2000; Williams, 1994), and they have been shaped and harnessed by capitalism to support its functioning and stability (via, e.g., unpaid care work maintaining the labor force, racial divide-and-conquer strategies inhibiting class-based collective action, and essentialist myths of race and gender rationalizing the racialized and gendered allocation of roles) (Bright et al., 2025; Folbre, 2023; Mason et al., 2022; Zinn, 2015).

[10] David Graeber also suggests that the rise of coinage in the Axial Age is intimately tied to slavery through war: coins were needed to pay soldiers on far-ranging military expeditions, and to meet this demand for coins, war captives were forced to mine for gold and silver as slaves (2014).

4.4 Limitations

There are several limitations of the method employed in this paper that are worth pointing out. First, the method I employ to transform text into data extracts terms from their context. Decontextualization limits the accuracy and precision of the indices (e.g. a passage describing a lack of X would be tagged as related to X). This limitation might be addressed by conducting validation tests, but this leads us to the second limitation: the challenge of validating the social and cultural indices. As discussed in Data and Methods, given the paucity of relevant contemporaneous, cross-cultural data on prosociality, morality, ecocentrism, and stratification, I do not test the text-based social and cultural indices for validity. This limits my confidence in generalizing the results of the text-based index regressions to the real-world social and cultural effects of markets. Third, the lack of timestamp on the cultural observations limits the sharpness of the indices and muddies the historical interpretation of the results. This is something of an innate issue with folklore since the stories and the motifs they contain are shaped continually as they are told and retold. And the collections of ethnography for each culture often span a wide coverage range, over which the economic and social structure of the societies may have changed drastically. Fourth, the content of the text may be skewed by the biases of the folklore transcribers and ethnographers. I have tried to address this concern by controlling for the mean publication date of the sources of each folklore tradition and the mean birth year and modal gender of each culture's ethnographers. Fifth, as discussed in Data and Methods, the historic trade route data used as an instrument for market exposure only covers the Old World, and may even in that range be unrepresentative. The sources of the trade route data appear to oversample the routes of Roman, Islamic, and European traders, and thus, proximity to these trade routes may also serve as a proxy for exposure to Roman, Islamic, and European culture. If this is the case, the exclusion restriction of the IV analysis is not satisfied.

4.5 Implications

In the 1998 paper, "Endogenous Preferences," Bowles suggests that markets and other economic institutions may influence preferences and their behavioral expression through context and through cultural transmission and evolution. The results of the text-as-data analysis here—like the findings of the literature on crowding out (Bowles, 2016; Gneezy & Rustichini, 2000)—provide evidence for these effects. Whereas crowding out may be explained predominantly in terms of the contextual

effects of markets on the behavioral expression of preferences, the cross-cultural analysis results presented here may reflect more the cultural transmission and evolution effects that Bowles describes.

Regardless of the underlying mechanism, the results imply that economic policies should be evaluated based not just on the economic outcomes they produce but also on their social and cultural consequences. If markets and capitalism shape prosociality, morality, ecocentrism, and stratification, then a society's collective decision regarding how to allocate resources and organize production must reckon with the first-order social and psychological effects and the second-order behavioral effects produced by these social and psychological characteristics.

In fact, if preferences are endogenous to economic system (as the results suggest), this presents a problem for the traditional method of generating actionable knowledge from economic models by maximizing a social welfare function with respect to a policy parameter. Endogenous preferences preclude the derivation of the social welfare function derived from the utility function of a representative agent since the very criterion for evaluating the outcome has become endogenous. In this context, the model may reveal multiple stable social-cultural-economic configurations which cannot be definitively ranked but rather must be evaluated by the actual constituents of the society in question. Thus, the normative ambiguity introduced by endogenous preferences necessitates the engagement of diverse stakeholders in deciding among the potential societal trajectories and equilibria illuminated by social science research.

4.5 Future research

The data and results of this paper open the door to many avenues for further research. First, the data and method of employing folklore and ethnographic text as data to explore the relationships among social, cultural, political, and economic traits and structures could be extended to other variables of interest. For example, the same approach could be applied to analyzing the effects of markets on states, cities, community structure, and gender norms or to exploring the social, cultural, and political effects of subsistence types (used in this paper as additional controls). Michalopoulos and Xue employ data on the caloric potential of the land to validate their index for agriculture (2021). This same variable could be used as an instrument to explore the causal effects of agriculture on, for instance, gender norms and stratification. Second, the IV analysis in this paper could be strengthened by assembling and employing a global map of cross-culturally

representative historic trade routes. Third, machine learning techniques might be employed as an alternative method for transforming folklore and ethnographic text into data (Michalopoulos, 2025). One advantage of using machine learning is that it might capture more of the contextual meaning of folklore and ethnography that is missed by prevalence measures; disadvantages of this technique include the opacity and stochasticity of the transformation process. Fourth, the causal and correlational evidence exhibited by the analysis offers an opportunity to explore potential causal mechanisms by developing theoretical models. Evolutionary game theory lends itself especially well to modeling endogenous preferences. Fifth, further empirical work might explore the relationship between the text-based social and cultural indices and modern-day attitudes and behaviors. The first challenge is to match the cultural groups in Berezkin's catalogue and eHRAF World Cultures to those in modern data on attitudes, values, preferences, and behavior. Then, there's the challenge of interpreting null results (did the preferences/behaviors change? Or are the indices invalid?). Nonetheless, where matching is possible, it could be insightful to compare the prosociality index to cross-cultural variance in experimental game behavior or to explore whether ecocentrism in folklore or ethnography can be tied to ecologically sustainable practices.

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Appendix A. Construction and attributes of indices

In this appendix, I report the lists of terms that I use to construct each folklore and ethnographic index (Table A1); I present heat maps and example passages of folklore and ethnography to illustrate, respectively, the global variation and textual foundations of the indices I use in my main analysis (Table A2); and I discuss in more depth my methodological decisions in folklore concept selection and index construction. In Table A1, I report the lists of relevant concepts from Michalopoulos and Xue's folklore data (2021) and the relevant OCM subjects and keywords from eHRAF World Cultures that I use to construct the folklore and ethnographic indices, respectively.

A.1 Understanding the indices: Maps and text samples

To better understand the nature of the social, cultural, and economic indices I employ in my main analysis, I plot out the geographical variation of each index as a global heat map, and I supply one example passage of folklore or ethnographic text that epitomizes each index (Table A2). Rather than mapping the indices themselves, I first regress each index on the relevant (folklore/ethnographic) baseline controls, and I plot the residuals of these regressions. This way, the heat map reflects the variation that drives the regression results—the variation that is not attributable to factors such as the quantity of text or the demographic characteristics of the ethnographer. To exemplify the text that the indices are derived from, I select folklore motifs (from Berezkin's catalogue (2015)) and ethnography paragraphs (from documents in eHRAF World Cultures) that score highly in each index. Specifically, for the folklore indices, I chose the motif that tags the highest number of relevant concepts (listed in Table A1); in the case of a tie, I chose the high-scoring motif that appears in the most folklore traditions. And for the ethnographic indices, I chose a paragraph from a document with a large number of paragraphs tagged with the relevant keywords/subjects (listed in Table A1). (The ethnographic passage selection process was more arbitrary due to the extremely large quantity of text that satisfied the search criteria for most of the indices.)

A.2 Methodological decisions for constructing indices from folklore

A.2.1 Concept selection

One way to choose relevant concepts would be to let the data speak for themselves via the LASSO shrinkage method. I explored this approach with the folklore concept data, but the concepts

selected by the algorithm to predict, for example, distance from historic trade route appeared unrelated to markets or trade. Michalopoulos and Xue also come up with mixed results when they experiment with this method (2021, Online Appendix). I therefore handpicked the set of relevant concepts to construct each index based on their related words and the context in which they appear in the folklore motifs. As mentioned earlier, I attempted, in my selection, to maximize coverage of relevant words, minimize inclusion of irrelevant words, and minimize redundancy of words. Michalopoulos and Xue's "Concepts Tagged Per Motif" dataset allows the recovery of the related words tagged for each concept and the motifs they appear in. The related words from ConceptNet are not always synonymous with the concept itself. For example, the concept variable "give" tags not only motifs with the word "give" but also those with the word "take." The concept variable "equitable" tags motifs which contain the words "fair" or "unfair," "just" or "unjust," "equal" or "unequal," etc. Additionally, linguistic proximity may muddy the interpretation of correlations. For example, the concept "reciprocal" tags motifs with the words "exchange" and "barter." Also, some words are homonyms—they have multiple different meanings. For example, the word "bear" refers to the animal but also is synonymous with "carry," and "bank" may refer to the financial institution or to the shore of a river (in the folklore motifs, it is only used in the latter sense). These ambiguities can cause problems if the concept variables are employed (alone or within indices) in regression analyses without first examining the list of related words and the contexts in which they appear in the folklore motifs. In Enke's 2023 paper, for example, the concepts included (such as "bank," "cooperate," "education," "equitable," "give," "reciprocal," and "tolerance") often tag irrelevant words and thus dilute the accuracy of his measures.

A.2.2 Methods for index construction

Given the sets of relevant concepts, the indices may be constructed a number of different ways. First, I construct prevalence indices by taking the mean of the prevalence of all relevant concepts in the collected motifs of each culture (thus measuring what proportion of motifs contain related words). Second, I construct standardized prevalence indices by taking the mean of all relevant standardized prevalence concept variables. These two versions differ because the latter weights every concept equally whereas the former weights concepts relative to their prevalence. Third, I construct proportion indices by taking the mean of indicator variables for all relevant concepts (thus measuring what proportion of relevant concepts appear in any of the motifs of a culture).

Fourth, I apply principal component analysis to each of these three versions, yielding three more types of indices from the first principal components. These indices should only be used if all constituent concepts load onto the first principal component with the same sign (which is not always the case for the PCA prevalence and the PCA standardized prevalence indices). Fifth, I log-transform the prevalence and the proportion indices to create two more versions. I then standardize all six level indices. Thus, I have constructed eight different versions of sociocultural and economic indices from the sets of relevant concepts in folklore. The PCA proportion versions of economic indices fare best when tested for validity against the historic trade route data in the Old World and the eHRAF subsistence type categories (using the 221 Ethnographic Atlas cultures that appear in both folklore and ethnographic datasets), so I employ these PCA proportion versions for the main analysis.

Table A1: Constituent terms of indices from folklore and ethnography

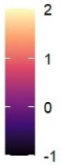
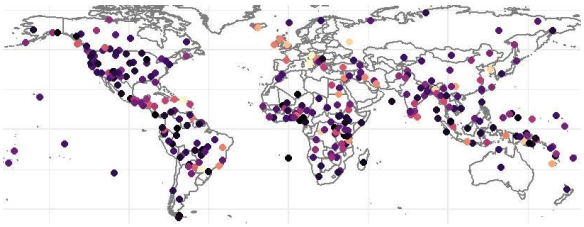
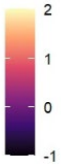
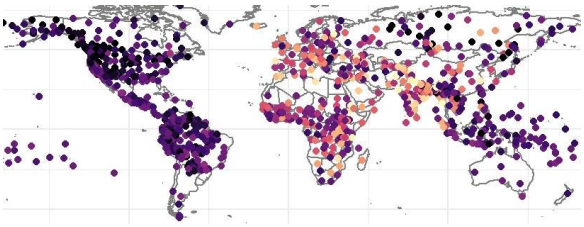
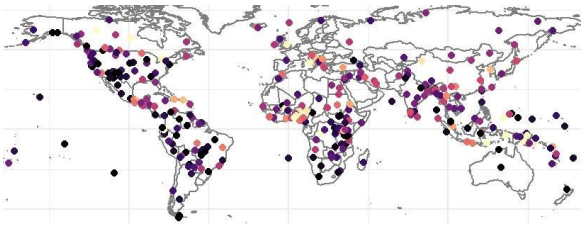
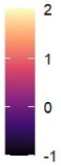
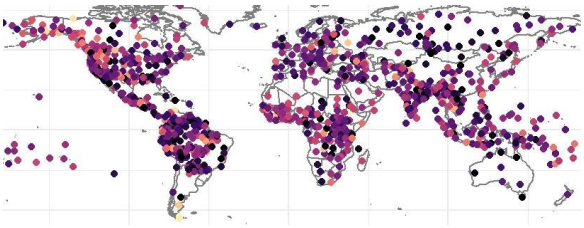
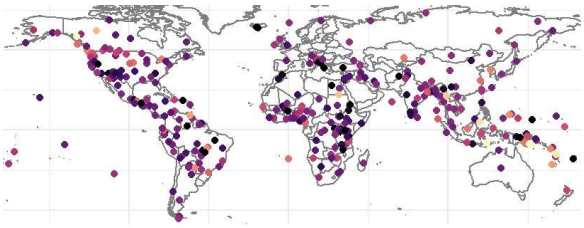
Index	*Folklore*			*Ethnography*	
	Concepts	Related words		OCM Subjects/*Keywords*	
Agriculture	• farmer • harvest • plow • rice • sow	• agricultural • agriculture • cereal • corn • crop • cultivate • farm • farmhand • fertilize	• furrow • grain • harvest • haymaking • maize • peasant • pig • plough • plow	• *agricultural* • *agriculture* • *crops* • *cultivate* • *cultivating* • *cultivation* • *farm* • *farmer* • *farming* • *garden*	• *gardening* • *harvest* • *harvesting* • *horticultural* • *horticulture* • *planting* • *sow* • *sowing* • *sown*
Capitalism	N/A	N/A		• *capitalism* • *capitalist* • *corporation* • *employee*	• *employer* • *employment* • *profit* • *wage*
Ecocentrism	• animal • buffalo • crow • fish • flower • forest • fox • grass • hill • insect • moon • ocean • plant • rabbit • rain • rat • reptile • river • season • sky • snow • soil • spider • star • sun • tree • turtle • wind • wolf	• arachne • animal • amphibian • beast • beetle • bird • bison • bloom • blossom • blizzard • brook • buffalo • bunny • buzzard • celestial • cliff • coniferous • crocodile • crow • cub • dam • deer • dirt • downriver • downhill • earth • elk • episode • era • finale • firmament • fish • flower • fox • grass • ground • hare • hawk • heaven • heavenly	• heliacal • heron • hill • horizon • hummock • insect • land • lion • lizard • lunar • magpie • mammal • mizar • moon • mosquito • mountain • mouse • moth • ocean • oceanic • orbit • owl • pet • plant • precipitation • rabbit • rain • rainwater • rainy • rat • raven • reptile • reptilian • ridge • river • rooster • season • sea • seawater • serpent	• shell • sky • snail • snake • snow • snowfall • soil • solar • sparrow • spider • spiderman • slope • spring • star • starman • stellar • stream • summer • sun • sunlight • sunny • sunrise • sunset • terrapin • thunderstorm • tortoise • tree • treelike • turtle • wasp • watercourse • weather • web • werewolf • wind • winter • wolf • year	Any of the following: • animism • mythology • sacred objects and places • spirits and gods together with any of the following: • ethnobotany • ethnogeography • ethnometeorology • ethnozoology	
Education	N/A	N/A		• education ◦ education system ◦ educational theory and methods ◦ elementary education ◦ liberal arts education ◦ students ◦ teachers ◦ vocational education	

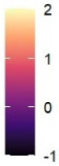
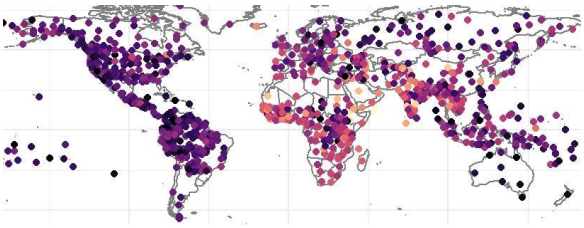
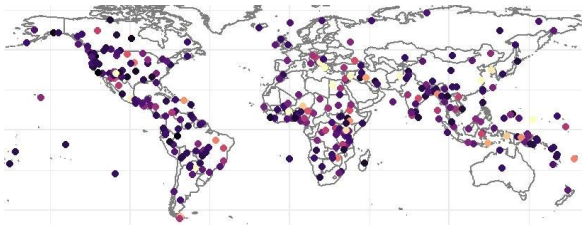
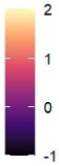
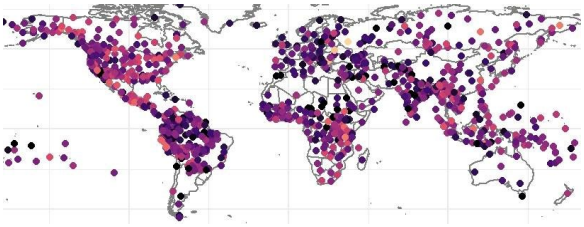
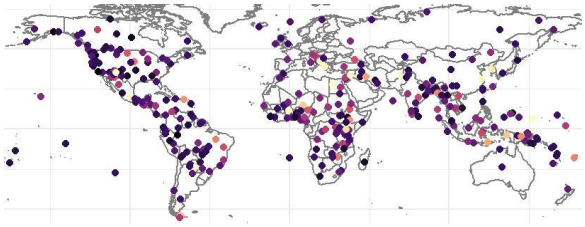
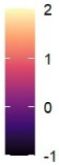
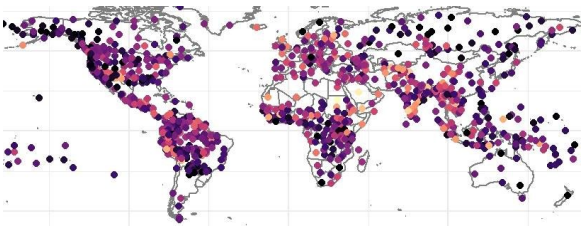
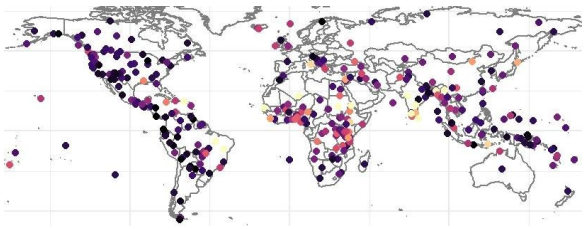
Hunting / gathering	• fisherman • hunter	• chase • chaser • deer • fish	• fisher • fisherman • hunt • hunter	• scavenger • stalker	• *fish* • *fisher* • *fishing* • *forage* • *forager* • *foraging*	• *gatherer* • *hunt* • *hunter* • *hunter-gatherer* • *hunting*
Markets	• cheap • income • market • money • seller • trade	• barter • bazaar • buy • bargain • buyer • cheap • cheaply	• cost • exchange • expensive • fund • income • market • merchant	• money • price • sale • sell • seller • swap • trader	• *bazaar* • *bought* • *buy* • *buyer* • *buying* • *coins* • *currency* • *exchange* • *exchanging* • *market* • *marketplace*	• *merchant* • *money* • *price* • *sale* • *sell* • *seller* • *selling* • *sold* • *trade* • *trader* • *trading*
Moral content	• deceive • deserve • duty • evil • forbid • forgive • guilty • injustice • justify • offend • ought • proper • punish • respect • rule • shame • sin • virtue • wrong • wrongdoing	• accuse • admire • annoy • appropriate • appropriately • ashamed • astray • award • ban • burden • cajole • cannot • chastity • cheat • confuse • convict • convince • correct • corrected • correctly • corruption • culprit • deceit • deceitful • deceiver • deception • decent • dishonor • disgrace • disappoint • disturb • duty • dupe • earn • endanger • esteem • error • evil • excuse • explain • forbid	• forgive • fraud • get • gratitude • grief • guilty • guideline • harm • honesty • honor • hoodwink • humiliation • hurt • improper • impede • inappropriate • injustice • injure • insult • inequality • incorrectly • justification • justify • law • mercy • mistake • mistakenly • molest • must • necessary • need • negligence • obligation • offend • ought • patience • person • pity • precise • pretext • prevent	• prohibit • prohibition • proper • properly • rationale • receive • regard • reign • repent • repentance • responsibility • respect • right • ruler • rule • scold • seduce • shame • shameful • sin • sinner • sinful • suitable • sympathy • task • threat • tormentor • torture • trick • unjust • unjustified • unworthy • violate • virtue • want • wife • worthy • wrong • wrongly	• ethics	
Pastoralism	• graze • herd • mule • pastoral	• camel • cattle • cow • donkey • flock • foal • graze	• herd • herder • herdsman • hoof • horse • livestock • mule	• nibble • ox • pasture • saddle • sheep • shepherd • swineherd	• *graze* • *grazing* • *herd* • *herder* • *herding* • *husbandry*	• *livestock* • *pastoral* • *pastoralism* • *pastoralist* • *pasture*

Prosociality	• caring • generosity • gift • given • help • sharing • sympathetic	• affectionate • aid • assistance • benevolent • care • caregiver • compassionate • contribute • donate • generosity	• generous • generously • gift • give • giver • goodwill • grant • gratitude • help • helper	• helpful • lend • present • relief • rescue • share • support • sympathize • sympathy	The (standardized) prevalence of • gift giving • mutual aid minus the (standardized) prevalence of • in-group antagonisms
Political state	• kingdom • political	• king • kingdom • kingship	• prince • princess • realm	• reign • ruler • political	• government activities ◦ government enterprises ◦ government regulation ◦ miscellaneous government activities ◦ public education ◦ public finance ◦ public welfare ◦ public works ◦ research and development ◦ taxation and public income • citizenship • administrative agencies
Stratification	• dominate • obedience • rank • servant	• comply • conquer • control • disobedience • dominate • domination • hierarchy	• housekeeper • lord • maid • maidservant • obedient • overtaken • rank	• seniority • servant • slave • status • subservient • supremacy • tier	• social stratification ◦ age stratification ◦ gender status ◦ ethnic stratification ◦ castes ◦ classes ◦ serfdom and peonage ◦ slavery
Urbanization	• urban	• city			• cities

Notes: All folklore indices are derived from Michalopoulos and Xue's concept variables (2021), which tag motifs that contain words related to the concepts. Both concepts and related words are reported in the table. Ethnographic indices are constructed either from the paragraph-level tagging of OCM subjects or from the keywords that appear in the text itself. In the table, keywords are italicized, and subjects are not.

Table A2: Global variation and example text for main indices

Index	*Folklore*	*Ethnography*
Capitalism 		 "Employment of wage labour is considered to be the main index of exploitative income: first, because it seems to be the most important and widespread source of expropriated labour among Nupe peasants; and second, because it is under the prevailing conditions the most direct and characteristic criterion of the rural capitalist development which is dawning at present in Nupeland." (Kohnert, 1979)
Markets 	 m91b1: Leather sold "A man is going to sell a pet skin. On the way, he gets big money by deception or by chance. Usually, upon return, a person says that he received money for the skin, after which others slaughter their livestock and try unsuccessfully to sell the skins for money they are not worth."	 "Almost every day some woman sets off with a basket or two of produce to sell in the markets of Bangkok. People buy a sewing machine to earn money by making clothing to order, or a portable gasoline motor that can be rented for cash up and down the canal." (Hanks, 1972)
Prosociality 	 k128a: The best apples for the princess "The princess will marry the one who brings her the best apples (figs, fish, etc.) or who brings enough to prevent her from eating everything. Along the way, the two brothers don't share with the magic assistant, their gift to the princesses is rejected. The youngest is divided and (after additional tests) gets a princess."	 "The son of another neighbor fixed this woman's lawn mower and helped her with yard work—again, jobs that the woman's daughter and son-in-law usually do. She tried to lure him close to slip a ten-dollar bill into his pocket, but he refused. Her initial plan for repayment was to send beer to the house, but she reasoned that only the young man's father would drink it. Instead, the woman had Hasegawa's General Store in Hana deliver a cake to the family as a Father's Day gift; this would be a present they could not refuse." (Linnekin, 1985)

Morality 	 l106a: A cut belly "Antagonist makes formally justified, but essentially unfair demands on the hero. The hero performs them or is punished by an antagonist. The antagonist then takes an object or animal belonging to the hero, but cannot return it and is punished equally or more severely."	 "In actuality, there is no rigid separation of esoteric and exoteric knowledge. Probably an intelligent layman among the Navahos picks up a good deal of esoteric knowledge during his lifetime. On the other hand, the fact that such knowledge is regarded as esoteric means that it is not cited in public moral discourses or in the teaching of children. The essential beliefs involved in ethical discourse are therefore entirely exoteric for the average Navaho. Ethics can be talked about freely." (Ladd, 1957)
Ecocentrism 	 m65: The trickster was pinched and the meat was eaten "Trickster bakes meat obtained by trick, deception; immobilized by sticking to a tree, ground, or stone; at this time, another character (fox, wolf, coyote, birds) eats all the meat."	 "Since for eons man has been advancing toward oneness with the universe, he identifies himself with all its parts. This world may be considered a functioning central world; others, left behind but remembered in myth, are underneath; there are others above. The number of worlds is hypothetical, there being little agreement about it; myth furnishes details of four underworlds, of the sky immediately above, and of one still higher, Land-beyond-the-sky." (Reichard, 1950)
Stratification 	 k67b: A deal not to be angry "A character of low social status (who does not have supernatural abilities) undertakes to work for a character of high social status (with supernatural abilities) abilities) on the condition that the owner does not get angry with the employee. By repeatedly annoying the owner, the employee makes him angry and, as a result, be severely punished or pay a lot of money."	 "In a sense the caste structure constituted the basis of traditional society. Tanjore District in particular has been known for the rigidity and complexity of its caste structure. In the village this structure not only divided the population into sections of unequal ritual status, but also dominated economic and political life. The fundamental importance of the caste structure to the social life of the village can be seen in its settlement pattern (chap. ii), which clearly segregates the three primary segments—Brahmins, Non-Brahmins, and Adi-Dravidas—from one another." (Béteille, 1971)

Notes: For each text-based index used in my main analysis, I plot out the global variation of the residuals obtained by regressing the index on the baseline controls, and I present examples of folklore motifs and ethnography paragraphs from which the index was derived. I exclude non-Indigenous American groups from the ethnographic maps so that they are comparable with the folklore maps (Berezkin's catalogue includes no non-Indigenous American groups). All folklore motifs come from Berezkin's catalogue (2015), and all ethnography passages were accessed through eHRAF World Cultures.