Folklore

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Introduction

- Folklore is the collection of traditional beliefs, customs, and stories of a community passed through the generations
- Purpose: Leverage a group's oral tradition to shed light on its cultural heritage and past social and economic structures, and how they can be used in the economist's toolset
- Paper outline:
  - Introduce and validate Yuri Berezkin's *Folklore and Mythology Catalog*
  - Use folklore to improve upon the ethnographic record
  - Quantify ancestral beliefs and attitudes from a group's oral tradition

Berezkin's Folklore and Mythology Catalog

- Mythology and folklore database for 958 groups worldwide
- Categorized 2,564 motifs; a combination of images, episodes, or structural elements found in two or more texts
  - Consulted 6,239 books (67%) and journal articles (33%) from 4,041 authors in 32 different languages
  - Median group has 62 motifs; Median motif spans 18 oral traditions
  - Two broad categories: adventures and tricks; cosmology and etiology
  - Each motif accompanied by a title and short description
  - Use dictionary-based method that breaks down text into words and connects word counts to attributes
  - Human classification of a motif's content

Empirical Analysis: Validation

ConceptNet

- Dictionary-based method that breaks down text into words and connects word counts to attributes
- ConceptNet is designed to help computers understand the meanings of words that people use
  - Classify motifs into different concepts, retrieve top-50 list for each seed word
  - Break down motif into individual words
  - Look up related words for each concept and tag motif
  - Each motif is assigned multiple concepts
  - Society-specific estimate of a keyword: add up all motifs tagged by at least one word related to this concept and divide by the total number of motifs within a group's oral tradition

Empirical Analysis: Validation

Folklore and the Natural Environment

$$\ln\left(0.01 + \frac{\#\text{ Concept-Specific Motifs}_{i,c}}{\#\text{ Motifs}_{i,c}}\right) = \mathbf{a}_c + \beta Geo_i + \gamma\, Baseline\ Controls_i + \varepsilon_i$$

- Y: share of motifs in a group's oral tradition mentioning a given keyword
- a_c: country-specific constants
- Geo_i: geographic traits
- Baseline controls: log number of publications consulted for a group and the log year of the earliest publication cited for group

Empirical Analysis: Validation

	Share of motifs on									
	Earthquake		Storm		Frozen		Crops		River	
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
ln(Distance to earthquake zones in 1,000 km)	−0.1559***	−0.1659***								
	(0.0338)	(0.0508)								
ln(Mean lightning flash density)			0.0206	0.0412*						
			(0.0195)	(0.0224)						
Mean yearly temperature 1900–2000					−0.0194***	−0.0152**				
					(0.0026)	(0.0060)				
ln(Optimal agricultural calories pre-1500)							0.0594***	0.0550***		
							(0.0140)	(0.0144)		
ln(Distance to rivers in km)									−0.0481*	−0.0536*
									(0.0244)	(0.0313)
Baseline controls	yes	yes	yes	yes	yes	yes	yes	yes	yes	yes
Continental FE	yes	no	yes	no	yes	no	yes	no	yes	no
Country FE	no	yes	no	yes	no	yes	no	yes	no	yes
Adjusted R^2	0.038	0.057	0.185	0.203	0.186	0.189	0.183	0.243	0.116	0.129
# of observations	943	943	942	942	913	913	942	942	943	943

Notes: This table reports OLS estimates. The unit of analysis is a group in Berezkin's catalog. Baseline controls include: ln(# of publications) and ln(Year of first publication). As a dependent variable we use the ln(0.01 + Share of concept-specific motifs). Standard errors are clustered at the language family level as recorded by Berezkin. ***, **, * denote significance at 1%, 5%, and 10% levels, respectively. See the main text for variable definition and Online Appendix Table II, Panel A for the summary statistics.

Figure: Folklore and the Physical Environment

- Ex.) Share of motifs tagged with words related to earthquakes
- An avg group has 0.16% of earthquake related episodes
- Those located within 100 km of an earthquake zone have 0.3% of such motifs

Empirical Analysis: Validation

Folklore and the Ethnographic Record

$$\ln\left(0.01 + \frac{\#\text{ Concept-Specific Motifs}_{i,c}}{\#\text{ Motifs}_{i,c}}\right) = \mathbf{a}_c + \beta EA\,Trait_i + \gamma\,Baseline\,Controls_i + \varepsilon_i$$

- Matched an oral tradition in Berezkin's database to 1,245 out of the 1,265 groups in the EA *Ethnographic Atlas*
- 339 groups: information on their folklore but no ethnographic records
- Establish empirical relationship between folklore images and ethnographic traits
- Use to reconstruct the ethnographic background missing
- $EATrait_i$ is the attribute of interest from the EA for group i located in continent/country c

Empirical Analysis: Validation

	Panel A: Share of motifs on:							
	Crops				Pastoralism			
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Share of subsistence from:								
Agriculture	0.0615***	0.0490***					−0.0765***	−0.0686***
	(0.0159)	(0.0124)					(0.0178)	(0.0211)
Animal husbandry			0.0275	0.0017	0.0722***	0.0685***		
			(0.0200)	(0.0154)	(0.0143)	(0.0176)		
Fishing			−0.0926***	−0.0593***			−0.0677***	−0.0655***
			(0.0215)	(0.0168)			(0.0121)	(0.0146)
Hunting and gathering			−0.0705***	−0.0546***			−0.0753***	−0.0749***
			(0.0173)	(0.0153)			(0.0154)	(0.0212)
R^2	0.167	0.339	0.175	0.318	0.282	0.449	0.284	0.45

Figure: Folklore and the Ethnographic Record

- Columns (1)–(4): Y is the intensity of crop-related motifs, the main predictor is the share of subsistence from agriculture
- Columns (5)–(8): Y is the share of motifs related to pastoralism
- Example: the share of subsistence from herding had a strong influence on folklore images related to pastoralism

Empirical Analysis: Validation

Family Structure and Political Centralization

- Explore whether groups organized along extended family lines are more likely to feature family members in their oral traditions
- Use words related to mother
  - Code groups according to EA as independent nuclear families (1) and (0) otherwise
  - 356 are classified as independent nuclear families, while 862 are polygynous and extended families
  - Mother related motifs show up 7.9% in polygynous and 6.7% in nuclear structure societies
- Explore whether the strength of political complexity in the EA predicts folklore-based measures of political hierarchy
  - Using the keyword king
  - Hierarchical groups during the precolonial era are systematically more likely to have king-related motifs

Filling in the Gaps in the Ethnographic Record

Political Centralization

- Use folklore to fill in information about the layers of jurisdictional hierarchy for 135 groups
- Regressing political complexity on the intensity of king-related motifs, predict the jurisdictional hierarchy levels across all groups
- On average, societies without ethnographic records on political centralization are predicted to be slightly more complex (not statistically significant)
- Analyze variables in the EA that correlate with the variable of interest
  - For the sample with missing values explore whether the imputed measure displays a correlation structure similar to the non missing sample
  - The folklore-imputed measure of centralization behaves in a qualitatively similar manner to that recorded by ethnographers

Filling in the Gaps in the Ethnographic Record

High Gods

- The variable which identifies the presence of moralizing gods is missing for more than 40% of groups in the EA
- Anthropologists claim crucial attribute of big god societies is the presence of supernatural entities that award and punish humans for their behavior
  - Use intensity of folklore episode to obtain a measure of moralizing gods where it is missing
- Conduct PCA to capture motifs tagged by "punishment," "award," and "supernatural" concepts

Empirical Analysis: Validation

	Share of motifs in a group's oral tradition related to:				
	Punishment (1)	Award (2)	Super-natural (3)	1st PC of ln(share of motifs related to punishment, award, and supernatural) (4)	(5)
High gods	0.1022***	0.0697*	0.0924*	0.1853***	0.1737***
	(0.0318)	(0.0371)	(0.0508)	(0.0490)	(0.0548)
Baseline controls	yes	yes	yes	yes	yes
Continental FE	yes	yes	yes	yes	no
Country FE	no	no	no	no	yes
Adjusted R^2	0.254	0.309	0.175	0.334	0.489
# of observations	733	733	733	733	733

Notes. This table reports OLS estimates. In all columns the unit of analysis is a group in the Ethnographic Atlas, which has been matched to an oral tradition in Berezkin's catalog. Baseline controls include: ln(# of publications) and ln(year of first publication). As a dependent variable we use the ln(0.01 + share of concept-specific motifs). Standard errors are clustered at the language family level as classified in the EA, v98. ***, **, * denote significance at 1%, 5%, and 10% levels, respectively. See the main text for the variable definition and Online Appendix Table II, Panel B for the summary statistics.

Figure: Folklore and the Ethnographic Record

- Groups with big gods are more likely to have an oral tradition that features images of supernatural entities, punishments, and awards
- Fill in values for by regressing high gods on the folklore intensity of "punishing and awarding supernaturals"

Filling in the Gaps in the Ethnographic Record

Using Folklore to Encode Nonextant, Group-Level Characteristics

- Use folklore to measure the importance of a market economy
- Use trade as the seed word
  - Look at the intensity of trade-related motifs as a function of a group's proximity to pre industrial trade routes
  - Test whether groups spanning different ecosystems are more likely to have an oral tradition rich in trade motifs
- Societies within 200 kilometers of ancient trade routes have an average of 1.4% of trade-related motifs, 2x as large compared to those located farther away
- Societies located along more ecologically polarized zones have a larger share of episodes in their folklore describing an exchange taking place

Folklore and Contemporary Beliefs and Attitudes

Constructing a Country-Level Catalog of Motifs

- Match oral traditions in Berezkin to the ethnic groups in the 1964 Atlas Narodov Mira (ANM)
- Use group's fraction in the country's population in 2000 as a weight in the aggregation of motifs at the country level
- Present a method to uncover a group's cultural heritage that involves reading and classifying motifs by multiple individuals
- Focus on trust, risk-taking, and gender norms

Folklore and Contemporary Beliefs and Attitudes

Trust

- Tricksters in folklore; deceiving character gets away with behavior or is punished
- Identify motifs that mention the word: cheat, deceive, and trick
- Workers from American Mechanical Turk (MTurk) categorize narratives into 4 exclusive categories
- Expectation: oral traditions that highlight the punishment of tricksters reflect an environment of low tolerance toward antisocial behavior

1. Not antisocial- disregarded
2. Antisocial behavior unsuccessful/punished (36%)
3. Antisocial behavior and successful (46%)
4. Antisocial but outcome is not described

Folklore and Contemporary Beliefs and Attitudes

Trust- Across Countries

- Subtract the country-level frequency of motifs where antisocial behavior is punished from the instances where the antisocial behavior was not (explicitly) punished, normalize
- Show the rate at which antisocial behavior is punished maps into current levels of trust (WVS/EVS and GPS) and economic activity (GDP)
- Finds positive link between trust today and narratives of low tolerance of antisocial behavior across countries

Folklore and Contemporary Beliefs and Attitudes

Panel A: Across countries Dependent variable	Trust (WVS/EVS)		Trust (GPS)		ln(GDP pc in 2010)	
	(1)	(2)	(3)	(4)	(5)	(6)
Relative punishment of antisocial behavior	1.8560***	1.5383***	5.3760***	3.9233*	20.8954***	11.0059***
	(0.4794)	(0.5372)	(1.1388)	(2.1495)	(3.4327)	(3.6698)
Baseline controls	yes	yes	yes	yes	yes	yes
Continental FE	no	yes	no	yes	no	yes
Adjusted R^2	0.205	0.317	0.188	0.194	0.382	0.55
# of observations	104	104	76	76	160	160

Panel B: Across second-generation immigrants in Europe Dependent variable	How much people can be trusted		Income decile	
	(1)	(2)	(3)	(4)
Relative punishment of antisocial behavior	1.0988***	1.0659***	3.1897	5.7285**
	(0.3689)	(0.4018)	(3.5655)	(2.8876)
Baseline controls	yes	yes	yes	yes
Individual controls	no	yes	no	yes
Country - Round FE	yes	yes	yes	yes
Adjusted R^2	0.065	0.072	0.129	0.195
# of observations	6,554	6,554	4,720	4,720

Figure: Punishment of Tricksters in the Oral Traditions, Trust, and Economic Performance

- Positive link between trust today and low tolerance of antisocial behavior
- Those with an oral tradition that disapproves of antisocial behavior are more prosperous today

Folklore and Contemporary Beliefs and Attitudes

Trust- Across Second-Generation Immigrants

- Does parental folklore of second-generation immigrants help explain differences in trust levels today?
- Data: European Social Survey rounds conducted between 2002 and 2016
- Y: Most people can't be trusted or you can't be too careful?
- Y: The decile in the income distribution of the respondent's income
- Finding: Those who trace their ancestry to oral traditions where tricksters are unsuccessful are more trusting and enjoy higher incomes

Folklore and Contemporary Beliefs and Attitudes

Trust- Across Ethnic Groups

- Intensity of trickster punishment across the 958 ethnic groups
- Show that differences in tricksters' outcomes can explain part of the variation in economic performance across groups
- Use average luminosity in 2008 per square kilometer in a radius of 200 km of each group's centroid
  - Finding: Groups whose oral tradition sanctions tricksters' behavior often are more developed today

Folklore and Contemporary Beliefs and Attitudes

Risk-taking

- Are tales where the character wins a contest more likely to encourage risk-taking than tales where dangerous interactions are harmful to well-being?
- To study, each of the 87 motifs mentioning a word related to challenges and competitions, classified by MTurks
  - 48% of the challenge-tagged motifs portray a character who is successful
  - 19% of these competition-related themes, the character is harmed

Folklore and Contemporary Beliefs and Attitudes

Risk-taking:Across Countries

- Countries with a larger share of competition-related motifs in their folklore are more risk-tolerant according to the GPS today
- The most risk-tolerant country is the Netherlands, whereas Russia is one of the most risk-averse
- These tales predict entrepreneurial activity today (using patents and new business registrants today)
- Across and within continents, countries whose folklore depicts challenges as opportunities instead of tragedies record higher entrepreneurial rates

Folklore and Contemporary Beliefs and Attitudes

Risk-taking:Across Second-Generation Immigrants

- Focus on second-generation immigrants and ask how parental folklore influences the probability of self-employment
- Second-generation immigrants whose parental folklore depicts contests and competitions unfavorably are less likely to be self-employed
- These tales predict entrepreneurial activity today (using patents and new business registrants today)
- Across and within continents, countries whose folklore depicts challenges as opportunities instead of tragedies record higher entrepreneurial rates

Folklore and Contemporary Beliefs and Attitudes

	Across countries								Across 2nd-generation immmigrants in Europe	
Dependent variable	Risk-taking (GPS)			ln(# of patents from country's residents per 100,000 in 2006–2018)			ln(New business registrations per 1,000 people ages 15–64 in 2006–2018)		Self-employed	
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
Share of motifs on challenges and competitions										
All	5.4381***	5.6802**								
	(1.7645)	(2.3076)								
where the character is successful			11.6165**							
			(4.5020)							
where the character is unsuccessful			−5.1016							
			(4.9413)							
where the character is neither successful nor unsuccessful			7.9918*							
			(4.3289)							
where no challenges are present			6.6558							
			(13.4506)							
where the character is relatively unsuccessful				−9.5625***	−31.0846***	−23.0564**	−30.2746***	−16.7612**	−1.8689***	−1.4029***
				(2.7163)	(11.4762)	(10.0005)	(7.1015)	(7.1745)	(0.3955)	(0.3906)
Baseline controls	yes	yes	yes	yes	yes	yes	yes	yes	yes	yes
Individual controls	no	no	no	no	no	no	no	no	no	yes
Continental FE	no	yes	yes	yes	no	yes	no	yes	no	no
Country-round FE	no	no	no	no	no	no	no	no	yes	yes
Adjusted R^2	0.13	0.235	0.257	0.274	0.409	0.535	0.263	0.343	0.057	0.077
# of observations	76	76	76	76	140	140	147	147	6,063	6,063

Figure: Challenges and Competitions Across Oral Traditions and Risk-Taking and Entrepreneurship Today

Folklore and Contemporary Beliefs and Attitudes

Gender Roles in Folklore

- Establishing a link between gender bias in folklore and women's current status
- Ask whether the character is portrayed stereotypically drawing insights from research on media
- MTurks classified a total of 1,073 male and/or female motif
- Allow for multiple classifications
  - Men: Being violent, dominant, and arrogant is the most common representation of male characters with a 33% frequency
  - Women: Being submissive and dependent, with 30% of female motifs having such representation
  - MTurks classified the overwhelming majority of male and female motifs (80%) into the stereotypes provided

Folklore and Contemporary Beliefs and Attitudes

Gender Roles in Folklore: Across Countries

- Male bias: the difference between male and female motifs for a given stereotype and normalize it by the total number of motifs in a country's oral tradition
- Create two variables:
  - **Dominance bias**: the degree to which an oral tradition describes males relative to women as more violent, less dependent, less engaged in domestic affairs, and more physically active than women
  - **Male Mental Capacity Bias**: the degree to which men are portrayed as more intelligent and less naive than women
  - Ask whether variation in male bias across oral traditions maps into variation in how much women are embedded in the labor market as of 2019
  - In societies with more images of dominant and physically active men and dependent home-bound women, women are less integrated into the labor market

Folklore and Contemporary Beliefs and Attitudes

Panel A: Across countries

	Female labor force participation in 2019					
	(1)	(2)	(3)	(4)	(5)	(6)
Male dominance bias in the oral tradition	−111.9018***			−108.8809***		
	(22.2059)			(25.2061)		
Male mental capacity bias in the oral tradition		69.8931			73.4037	
		(46.8905)			(53.2801)	
Male sexual bias in the oral tradition			73.8563			−5.0315
			(125.1493)			(145.6141)
Baseline controls	yes	yes	yes	yes	yes	yes
Continental FE	no	no	no	yes	yes	yes
Adjusted R^2	0.136	0.004	−0.011	0.145	0.051	0.034
# of observations	174	174	174	174	174	174

Panel B: Across second-generation immigrants in Europe

	Housewife		Agree with the statement: Men should have more right to job than women when jobs are scarce		Agree with the statement: Women should be prepared to cut down on paid work for sake of family	
	(1)	(2)	(3)	(4)	(5)	(6)
Male dominance bias in the oral tradition	0.5739***	0.4206**	1.8022***	1.7888**	3.3846***	3.0251***
	(0.1799)	(0.1692)	(0.6563)	(0.7274)	(0.9648)	(0.9089)
Baseline controls	yes	yes	yes	yes	yes	yes
Country - round FE	yes	yes	yes	yes	yes	yes
Individual controls	no	yes	no	yes	no	yes
Adjusted R^2	0.025	0.051	0.158	0.182	0.082	0.098
# of observations	3,468	3,468	3,765	3,765	2,726	2,726

Figure: Gender Norms Across Oral Traditions and the Role of Women Today and Historically

Folklore and Contemporary Beliefs and Attitudes

Gender Roles in Folklore: Across Second-Generation Immigrants

- In European countries, females whose parents hail from a society with a strong male dominance bias in its oral tradition are more likely to be homemakers
- Male and female respondents from male-biased oral traditions are more comfortable sacrificing women's labor force participation

Folklore and Contemporary Beliefs and Attitudes

Gender Roles in Folklore: Across Second- Ethnic Groups

- Variable from EA that records sex differences in agriculture and exclude groups for which agriculture is absent
- Across and within continents as well in modern-day countries, historically plow-using societies and those where men did most of the agricultural work are communities whose traditional stories have a clear gender bias

Conclusion

- Introduce a unique catalog of oral traditions across approximately 1,000 groups
- Illustrate how to fill in the gaps and expand on a group's ethnographic record
- Illustrate that folklore characteristics can manifest themselves in modern development outcomes