London Business School

The (cultural) evolution of institutions and organizations

Francisco Brahm
Assistant Professor of Strategy, LBS

IOEA 2023, May 17, Corsica

Plan of the lecture

Motivation and Necessary Distinctions

Overview of Cultural Evolution Theory

Cultural Evolution of Institutions and Organizations

Persistence of Institutions and Organizations

Plan of the lecture

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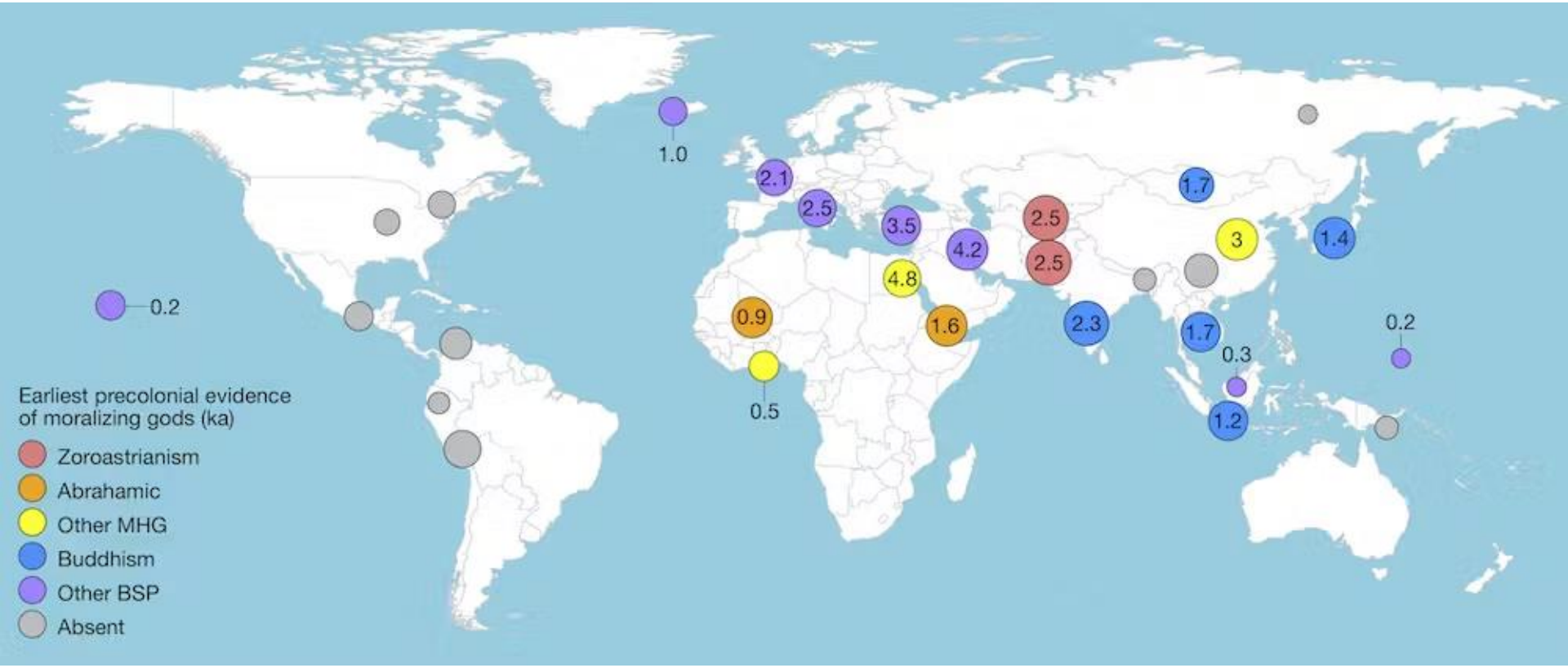
Persistence of Institutions and Organizations

Evolution of institutions & organizations

Two motivating examples to fix ideas

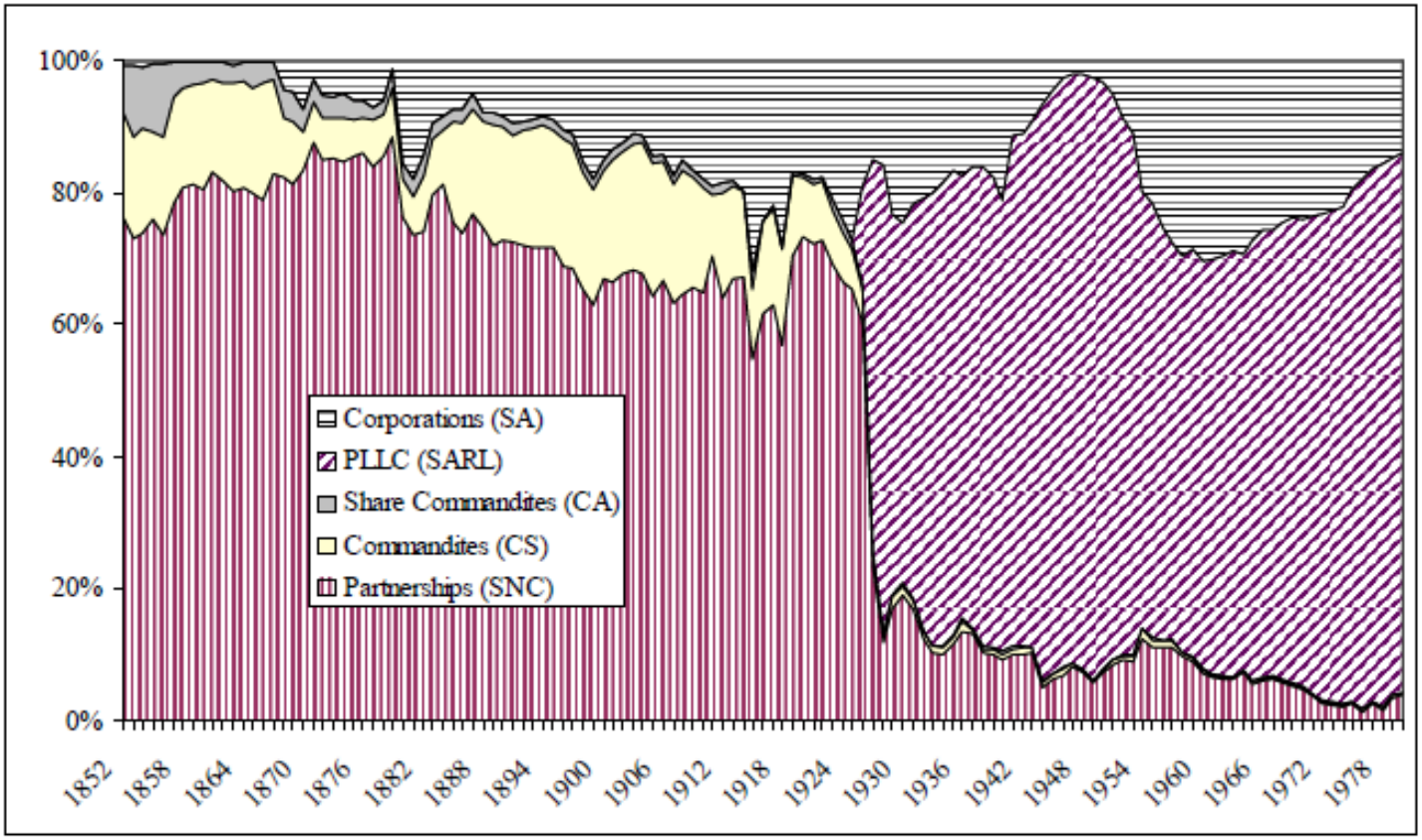


Whitehouse, H., François, P., Savage, P. E., Currie, T. E., Feeney, K. C., Cioni, E., ... & Turchin, P. (2019). Complex societies precede moralizing gods throughout world history. *Nature*, *568*(7751), 226-229

Evolution of institutions & organizations

Two motivating examples to fix ideas

Figure 3. Distribution of New Firms Among Multi-Owner Organization Forms, France, 1852-1978



Guinnane, T., Harris, R., Lamoreaux, N. R., & Rosenthal, J. L. (2007). Putting the Corporation in its Place. *Enterprise & Society*, *8*(3), 687-729.

Objectives of the lecture

1 *Introduction of Cultural Evolution* as a framework to think about the evolution of institutions and organizations

2 Show how Cultural Evolution provides a *general way of thinking about the origin* of institutions and organizations (i.e., why they evolve?)

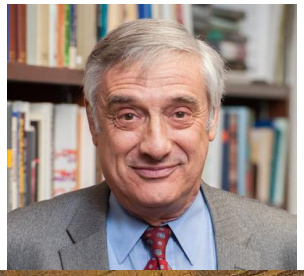
3 Show how Cultural Evolution can help thinking about the *persistence (and change)* of institutions and organizations

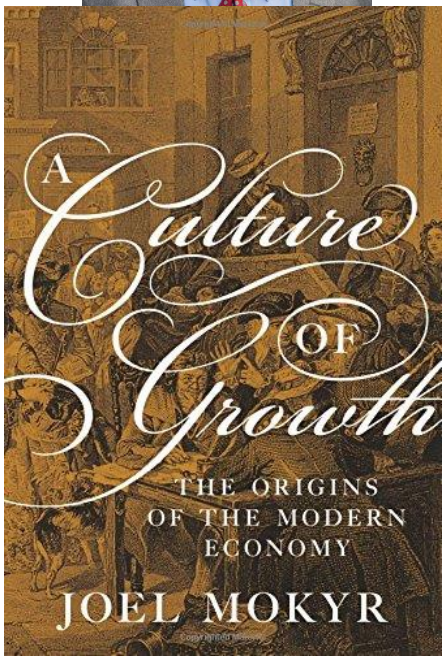
Necessary context/distinction

	Economics	Evolutionary anthropology
Fields	Political Economy / Institutional & Organizational Economics / Historical Economics	Cultural Evolution
Behavioral assumption	Rationality (for the most part)	Limited rationality / Learning
View of institutions	Outcome of bargaining and power games (usually involving political processes) among groups/coalitions (frequently elites) (Acemoglu et al, 2021)	Evolve/emerge over time from decentralized interactions Adaptive (but mismatch possible) (Bowles et al, 2021; Henrich, 2018; Mokyr, 2016; Currie et al, 2016)
View of organizations	Minimizing frictions (or maximize efficiency via proper governance) (Roberts and Gibbons, 2013)	
Origin of inst. and orgs.	Intentionality (calculation)	Group selection, via enhanced cooperation and adaptation
Change of inst. and orgs.	Punctuated Path dependent	Path dependent Gradual
Persistence of inst. and orgs.	Rooted on interest of incumbents and on multiple equilibria (coordination problems)	Rooted on the (adaptive) role of tradition

Growing interest in Cultural Evolution

A few examples of adoption in economics





27th Annual SIOE Conference.
Thursday, August 24 through Saturday, August 26,
at Goethe University Frankfurt, Germany.

Submission deadline: 31st March, 6pm ET = midnight CET.
We expect the decisions to be communicated by email by end of May.
The conference will be held in person.

The call for submissions is closed.
Registration will be open very soon after authors' notifications.

The Society for Institutional and Organizational Economics (SIOE) studies institutions and organizations, primarily from the perspective of economics. SIOE has the goal of integrating this work with strategic management, political science, law, and history.

In 2023, SIOE will hold its annual conference from Thursday, August 24 through Saturday, August 26, at Goethe University Frankfurt, Germany.

Submissions from the above fields and others like evolutionary anthropology or sociology are welcome.

Keynote speakers will be Sarah Mathew (Arizona State University) and Gérard Roland (UC Berkeley).

Growing interest in Cultural Evolution

A few examples of adoption in economics

CHAPTER

3

History as evolution☆

Nathan Nunn[a,b]

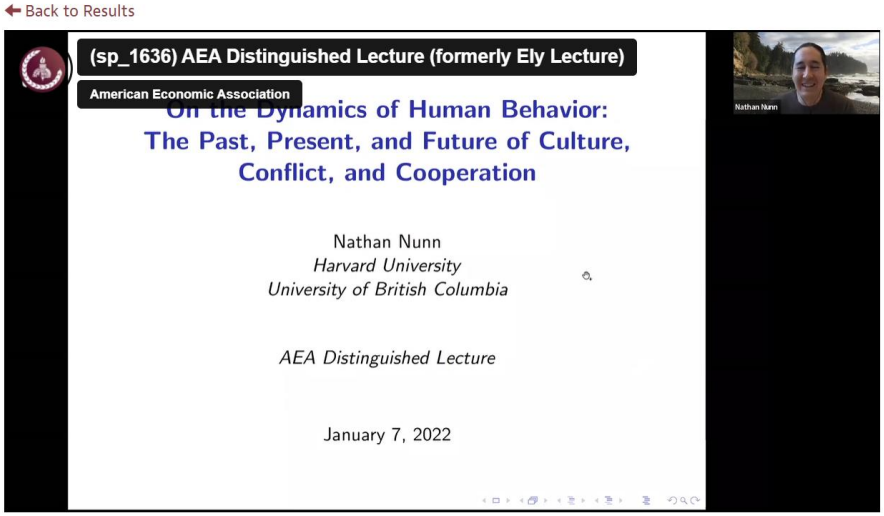
[a]Harvard University, Cambridge, MA, United States
[b]Canadian Institute for Advanced Research (CIFAR), Toronto, ON, Canada

3.1 Introduction

To many economic historians, the benefit of an evolutionary perspective for studying economic history or long-term economic growth may seem limited. Evolution is typically viewed as only being relevant in well-defined subfields within economics that study the importance of genetics for economic outcomes.[1] In this chapter, I will argue that an evolutionary perspective can provide useful insights that are widely relevant for the study of economic history and long-run economic growth.[2] My goal is to bridge the divide between research done within the field of economic history and that done within the evolutionary social sciences – i.e., evolutionary biology, evolutionary psychology, and particularly evolutionary anthropology.

The aspect of evolutionary research that is the most relevant for economic history is the study of cultural evolution. This line of inquiry is motivated by a desire to better understand human psychology, human societies, human behavior, and their evolution over time. The first contributions were theoret-

AEA Distinguished Lecture (formerly Ely Lecture)



Growing interest in Cultural Evolution

A few examples of adoption in economics


Annual Review of Economics

Advances in the Economic Theory of Cultural Transmission

Alberto Bisin[1,2,6] and Thierry Verdier[3,4,5,6]

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[3]Paris School of Economics, Paris, France; email: thierry.verdier@psemail.eu

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[5]Pontifical Catholic University, Rio de Janeiro, Brazil

[6]Centre for Economic Policy Research, London, United Kingdom

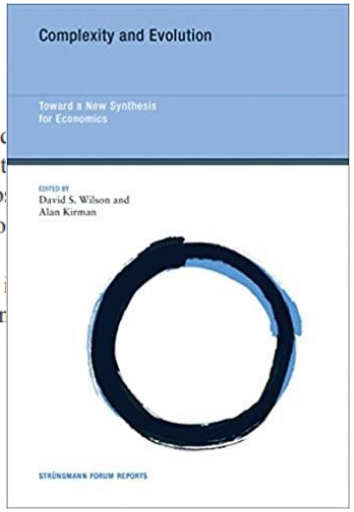
9

The Diffusion of Institutions

Enrico Spolaore and Romain Wacziarg

Abstract

This chapter explores the fundamental drivers of economic
institutions. It provides a novel empirical analysis of the det
differences and the diffusion of institutional innovations acro
cussion of the recent literature is presented, documenting ho
outcomes are affected by traits that have deep historical and
are passed on from generation to generation. The hypothesis
erationally transmitted traits affect current outcomes by actir



Plan of the lecture

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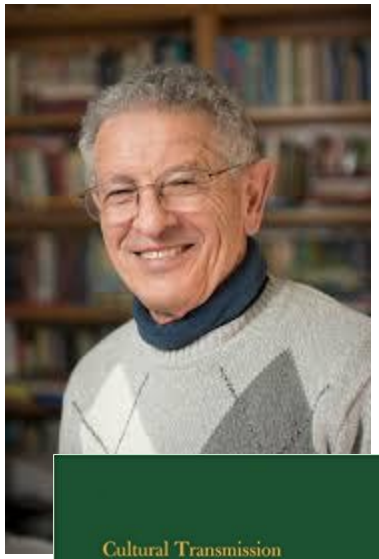
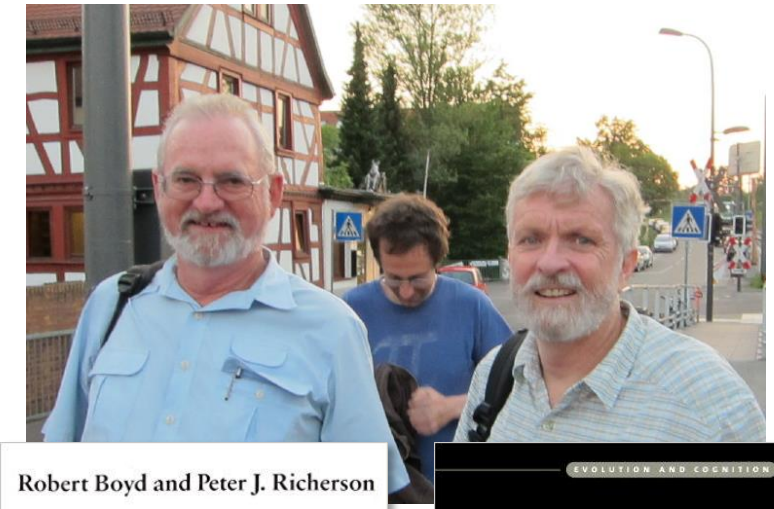
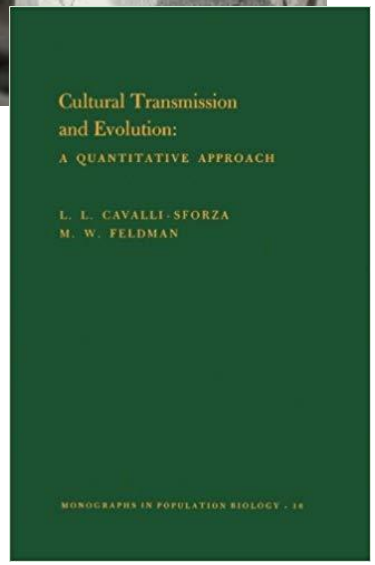
Persistence of Institutions and Organizations

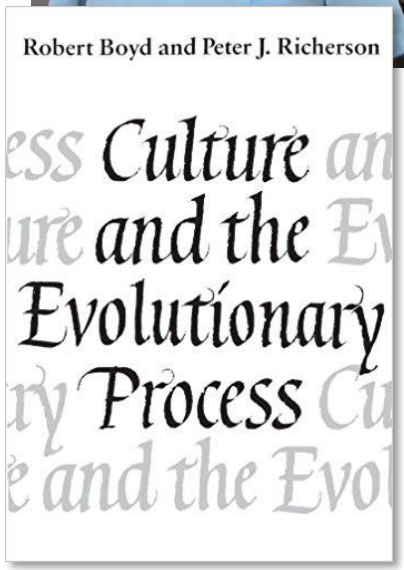
Cultural Evolution's Trailblazers

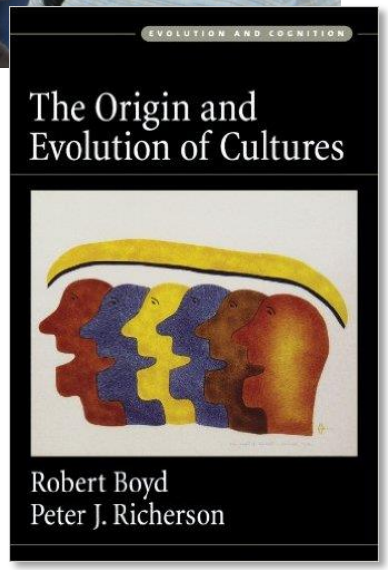
Evolutionary Biology meets Anthropology

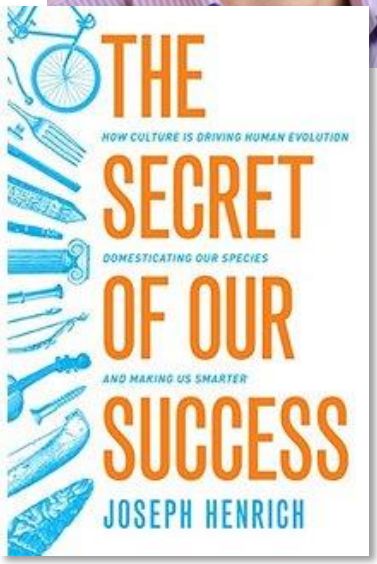












Introduction to Cultural Evolution Theory

A general theoretical framework for the social sciences

Definition of culture: "Information capable of affecting individuals' behaviour that they acquire from other members of their species by teaching, imitation, and other forms of social transmission" (Boyd and Richerson, 2005; Cultural Evolution Soc.)

Unit: "Cultural trait / package". Think of beliefs, preferences, values, skills, ideas, knowledge, practices, norms, etc., stored in mental states or physical medium.

How does culture evolve?

Inheritance / transmission: *social learning* (1-to-m, 1-to-1, hor/ver/oblique)
Selection: *social learning* (biases: conf., prest., skill), natural selection, CGS
Variation: random mutation, guided variation, individual learning

Key ideas / insights:

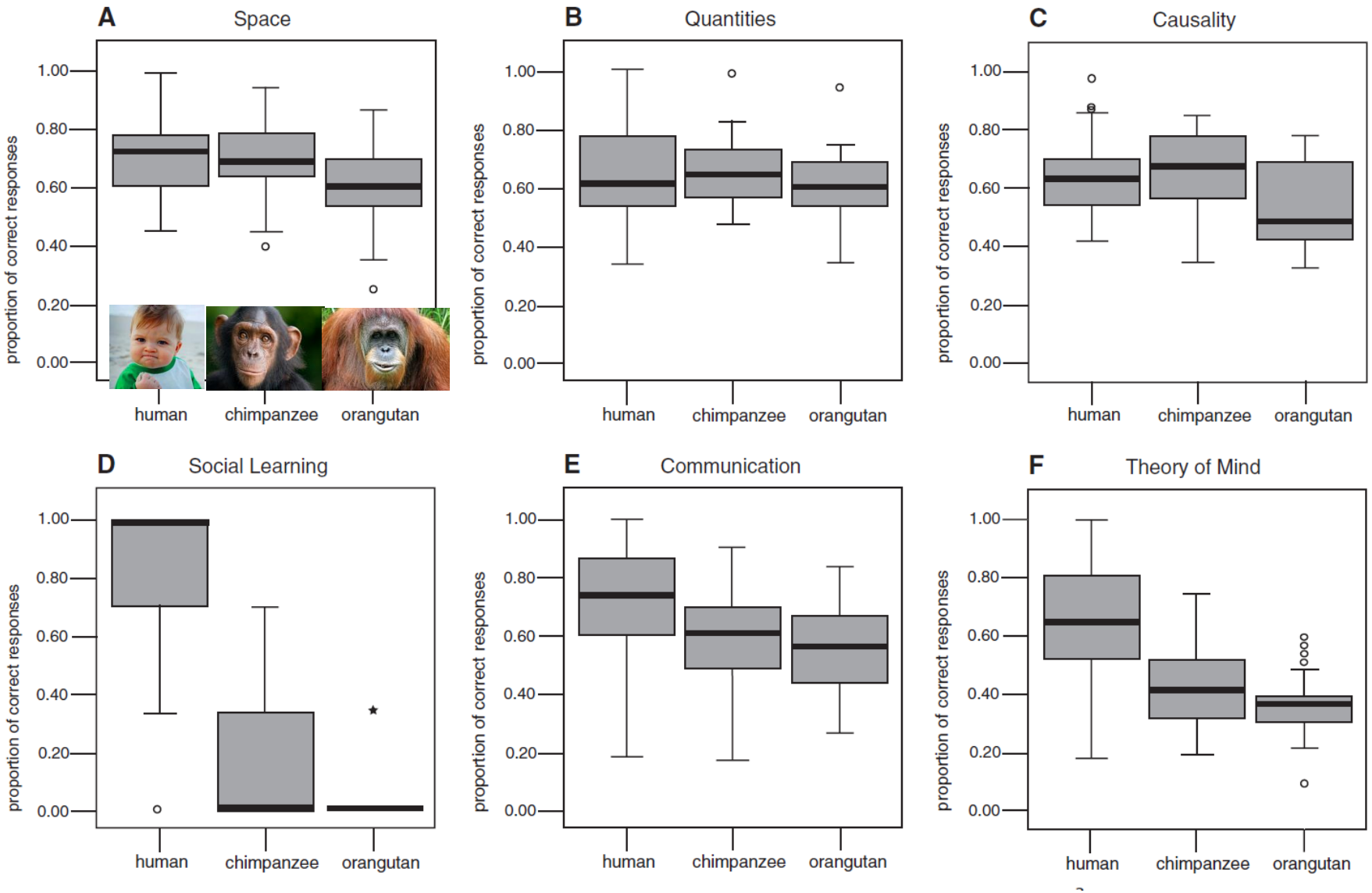
Cultural intelligence hypothesis
Cumulative culture
Cultural group selection – CGS (aka, multilevel selection)
Gene-culture co-evolution

Eclectic methods:

Formal models (theory), lab experiments, ethnography, phylogenetic trees

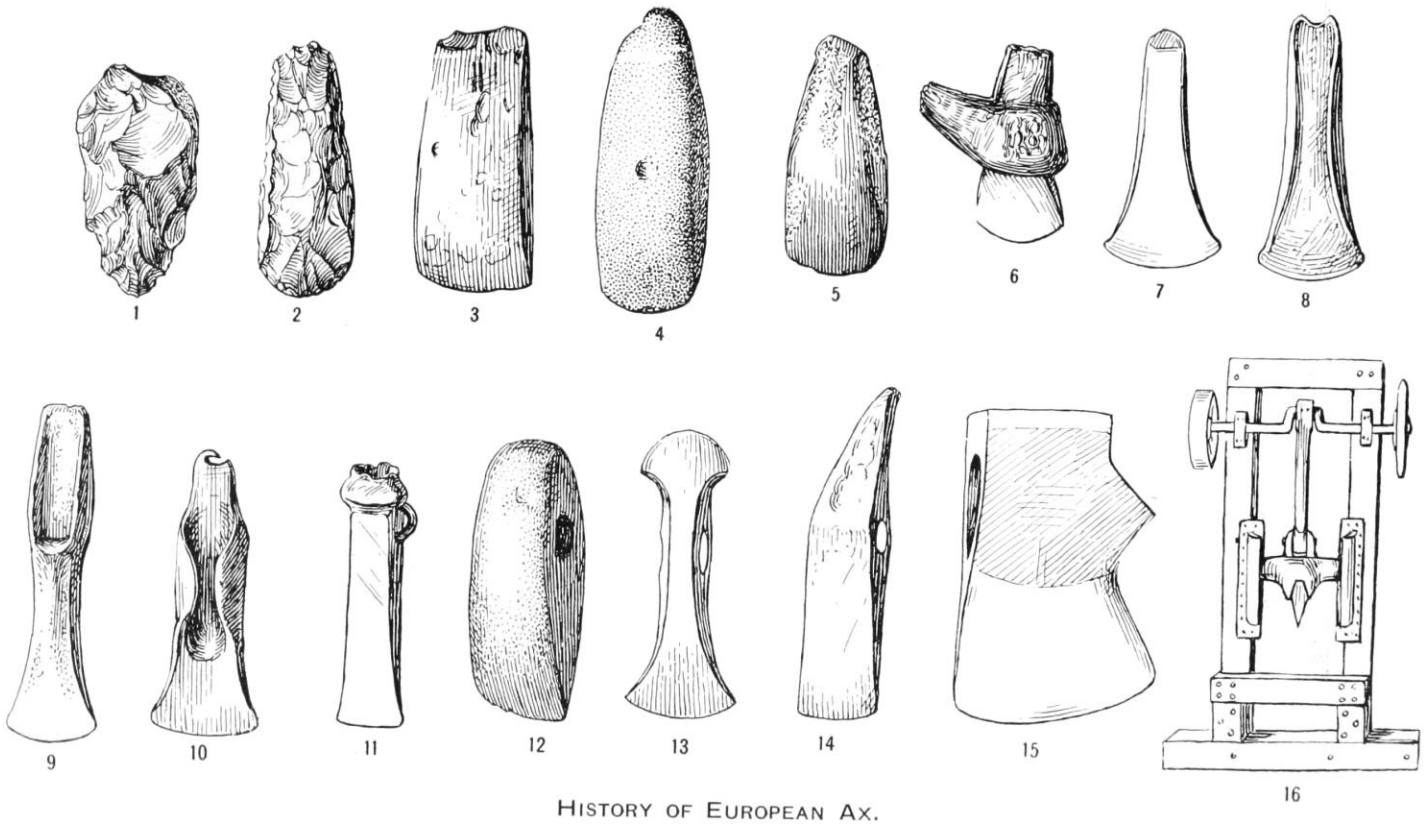
Cultural intelligence hypothesis

The battle of toddlers v/s adult apes (Herman et al, 2007 Science)



Cumulative culture (1/3)

Social learning diffuses innovations in society



… culture changes at least 50 times faster than genes

Cumulative culture (2/3)

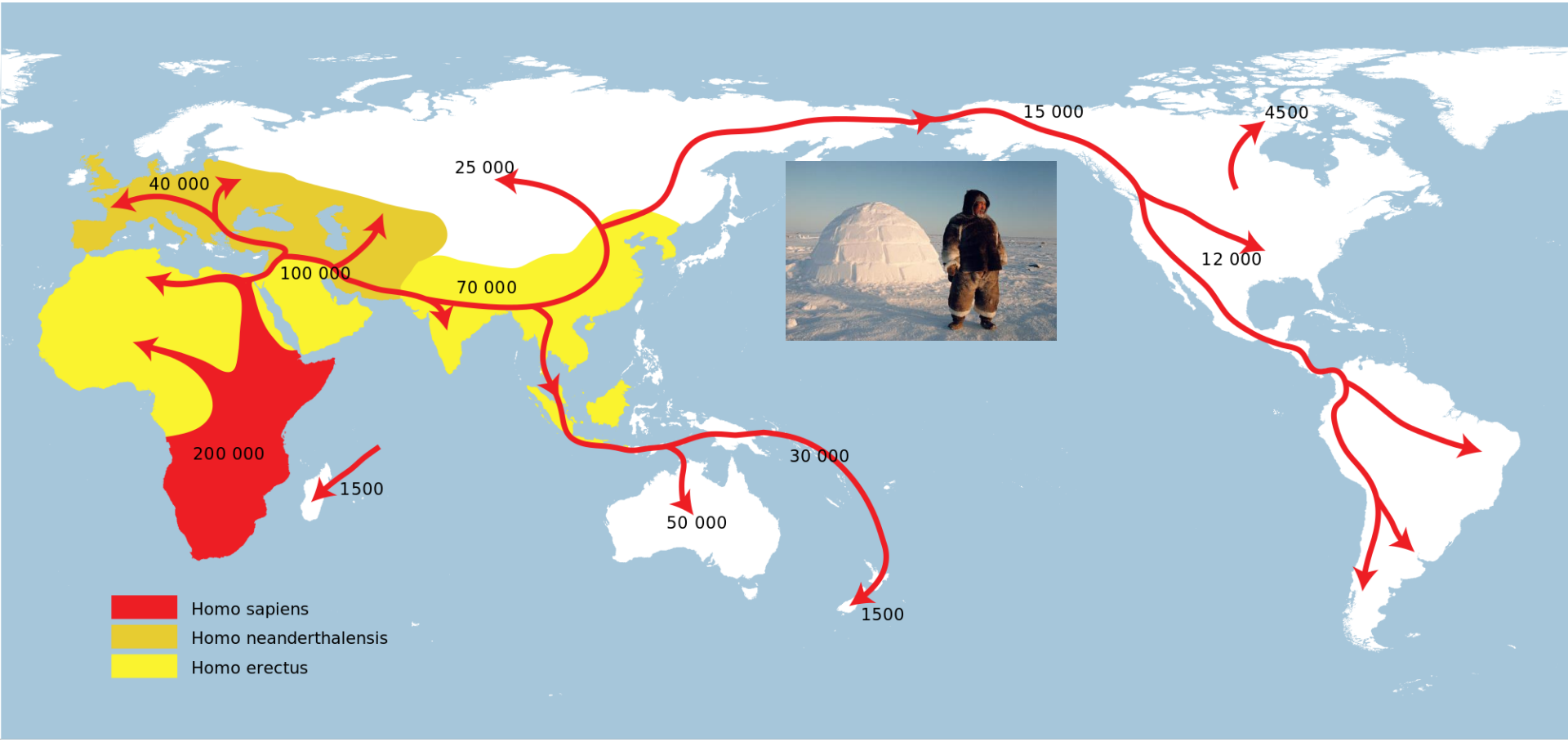
Social learning diffuses innovations in society

Evolution of the wheel

Evolution of the F1 steering wheel

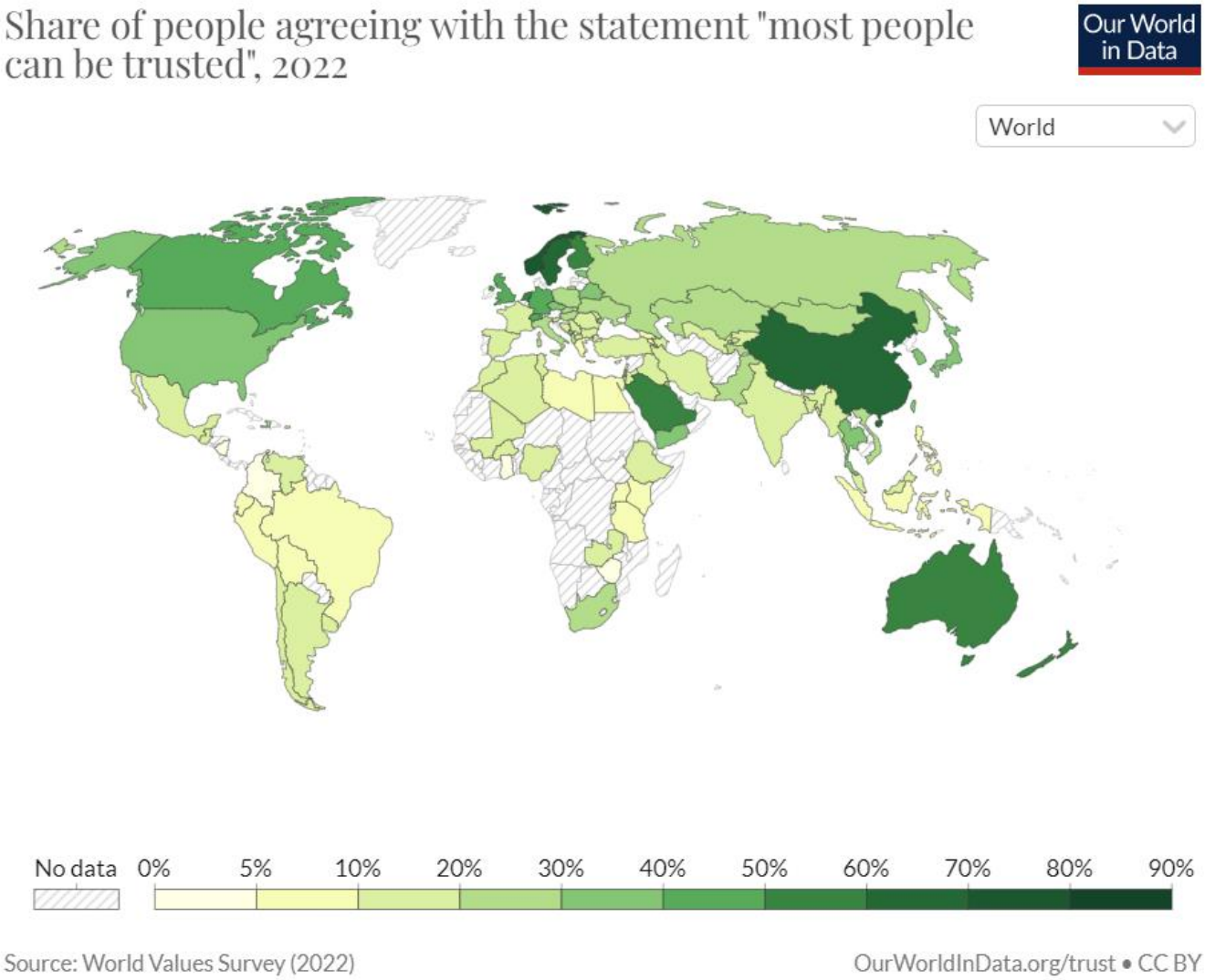
Cumulative culture (3/3)

Ants, genetic adaptations; Humans, cultural adaptation



Group selection (1/3)

Heterogeneity between groups arises naturally

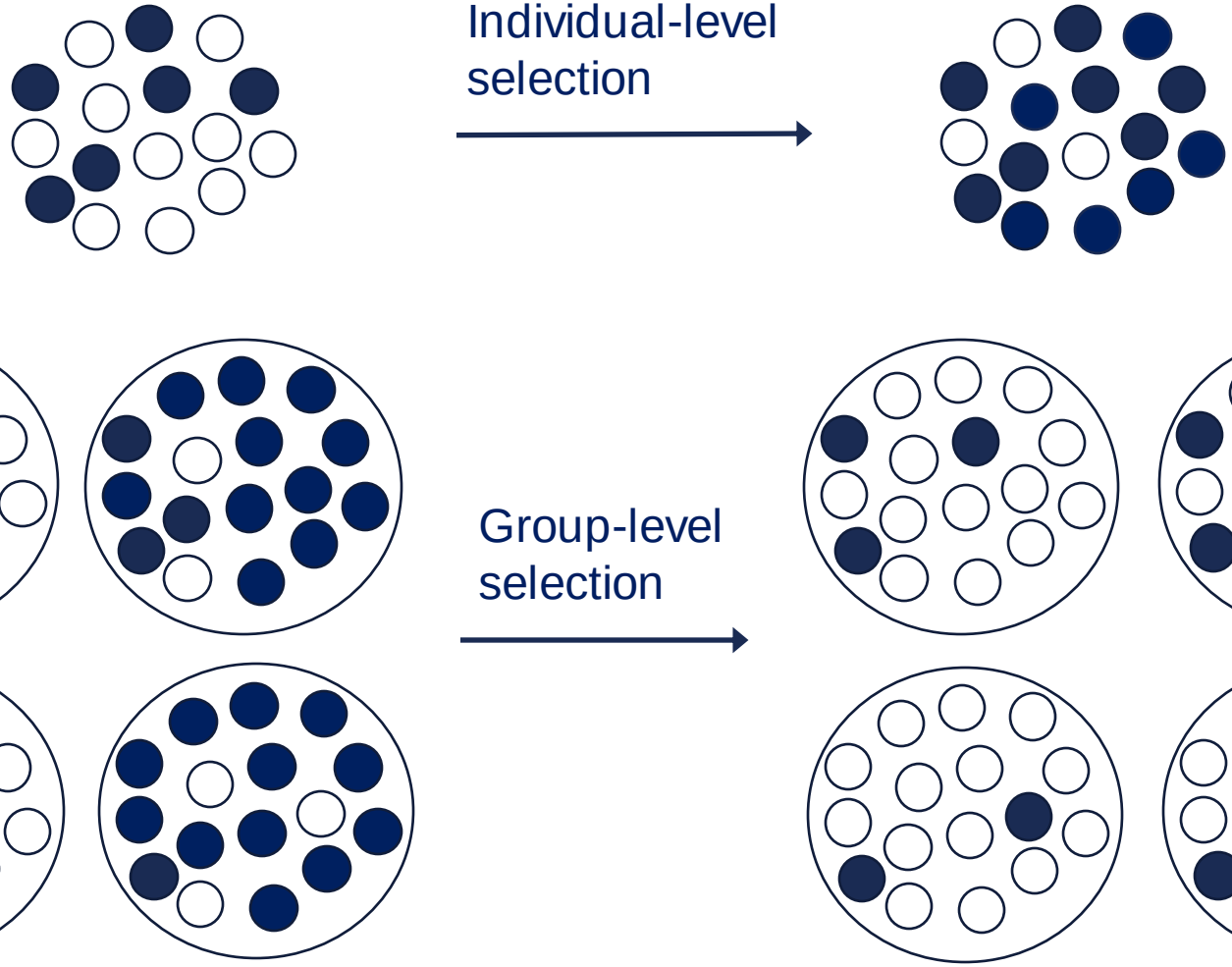


Group selection (2/3)

Cooperative groups are favoured in the long run

Selfish agent

Cooperative agent



Group selection (3/3)

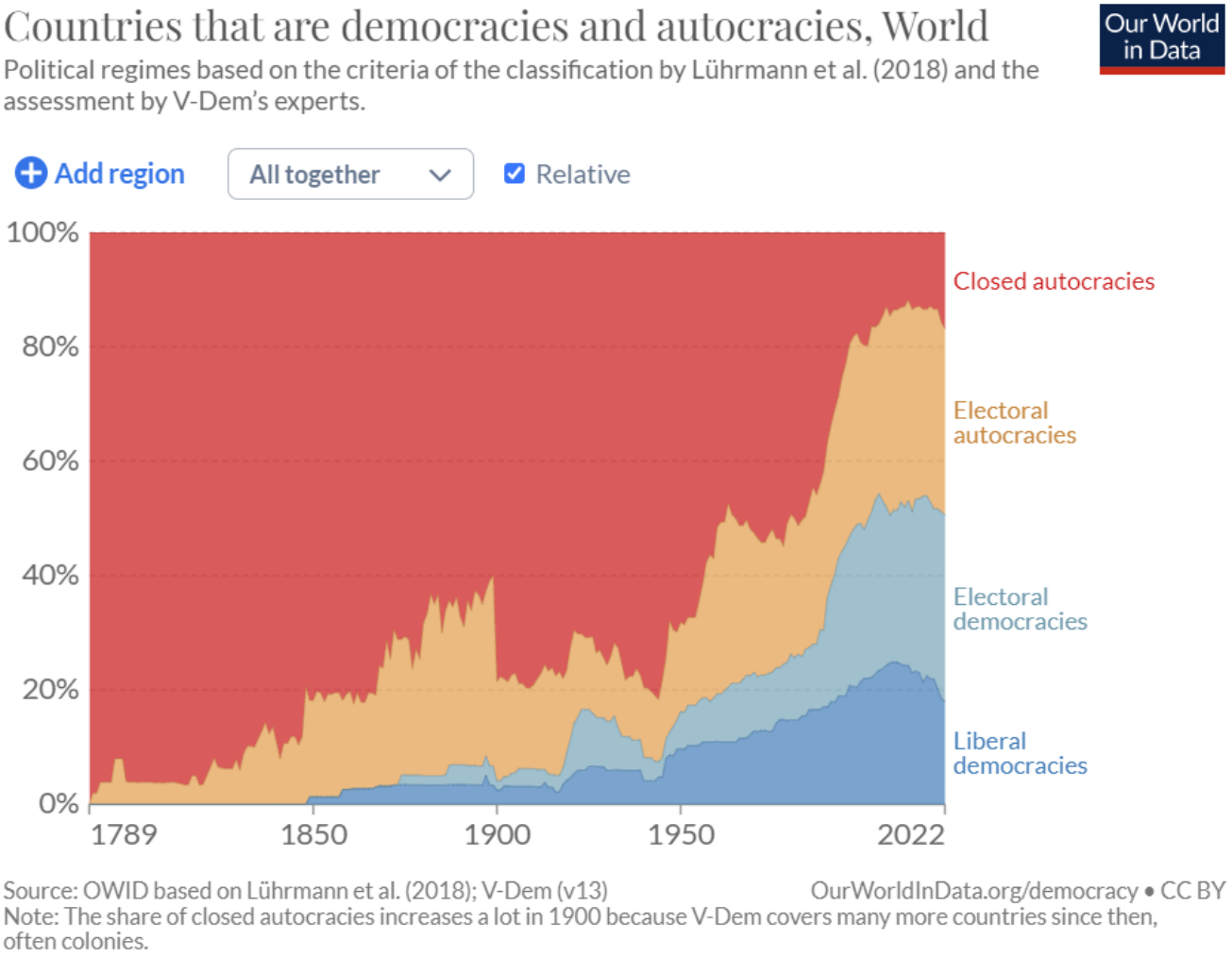
Not only conflict

Different ways in which group-selection operates:

	Mechanism	Example
1	Conflict	Nuer and Dinka (Boyd and Richerson, 2005)
2	Survival and Growth	Political systems
3	Migration	
4	Imitation	

Group selection (3/3)

Two examples



Group selection (3/3)

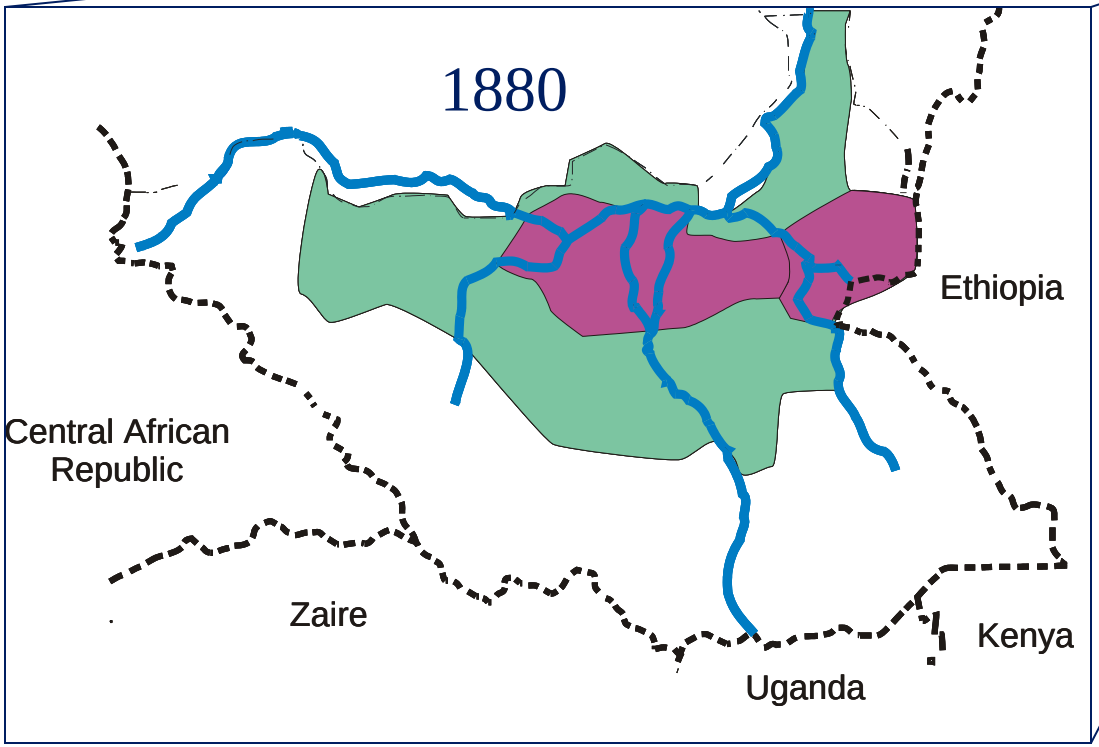
Two examples

From Boyd and Richerson (2005)

Nuer: Larger Bride "price"

→ More cattle per-capita → larger dry-season settlements → Nuer: larger war parties

→ Patrilineal clans → Larger tribes → Nuer: larger war parties

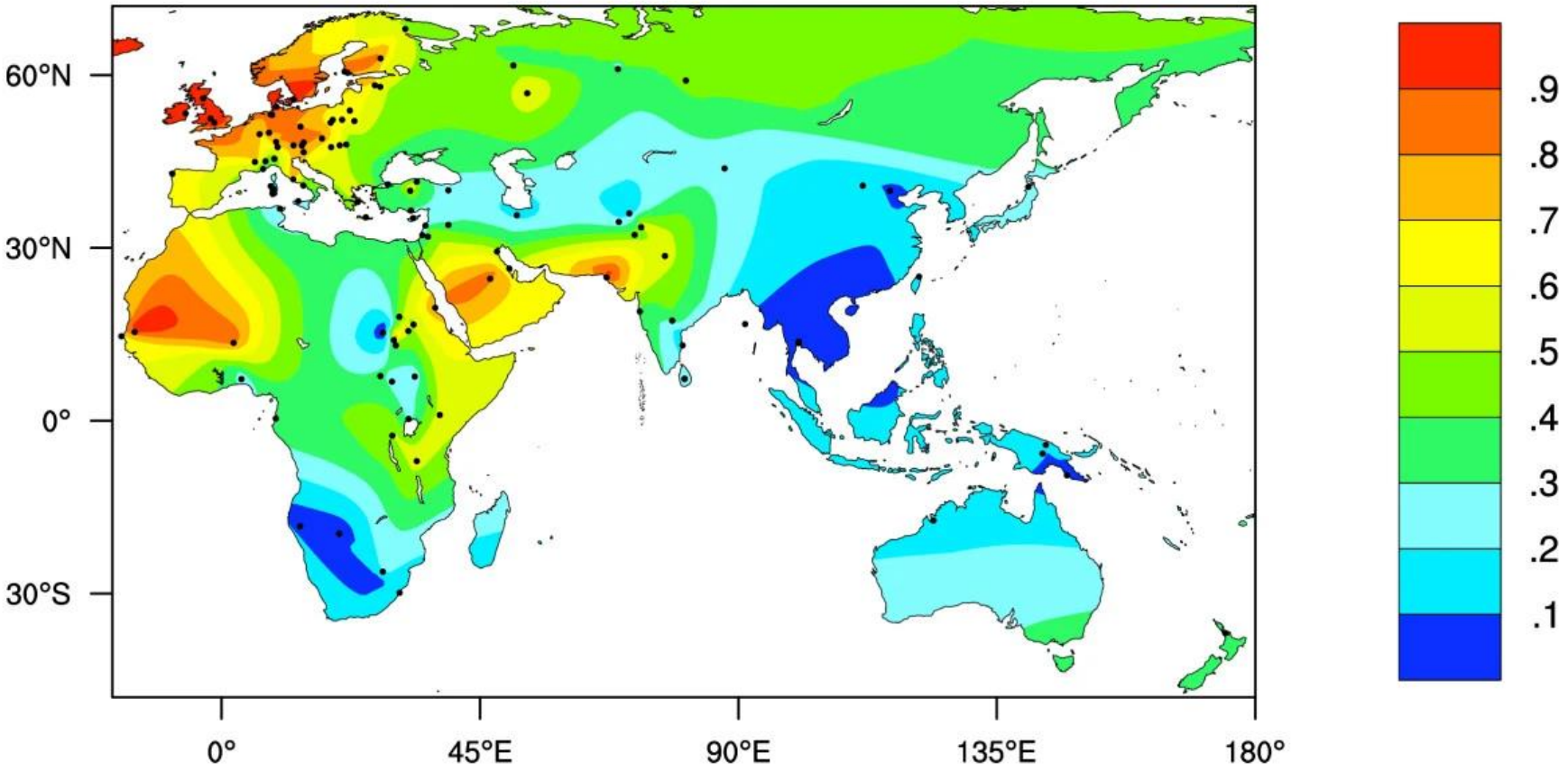


Nuer

Dinka

Gene-culture co-evolution (1/2)

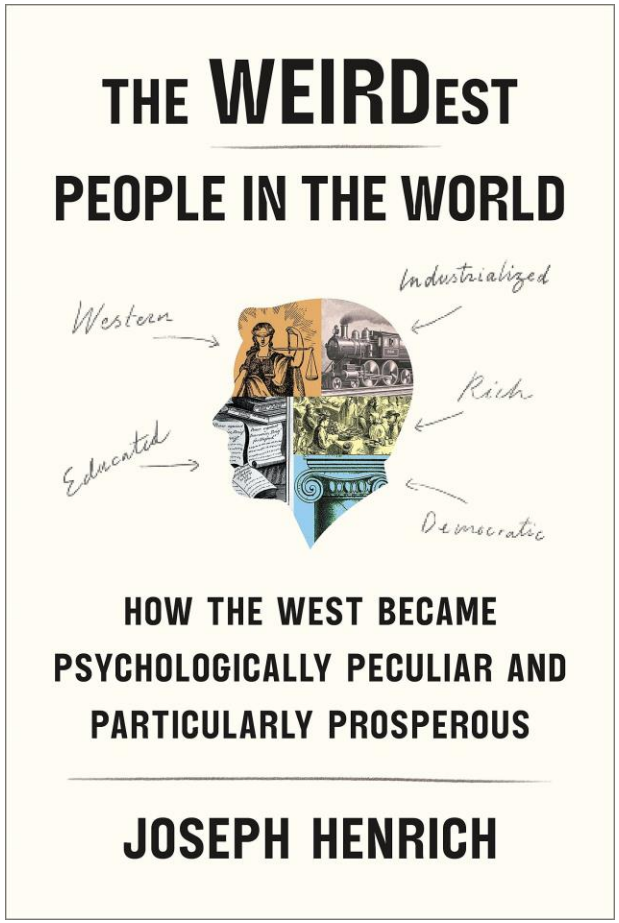
Culture affects gene frequency



Source: Itan, Y., Jones, B. L., Ingram, C. J., Swallow, D. M., & Thomas, M. G. (2010). A worldwide correlation of lactase persistence phenotype and genotypes. *BMC evolutionary biology*, *10*(1), 1-11.

Gene-culture co-evolution (2/2)

Culture affects psychology



KINSHIP, COOPERATION, AND THE EVOLUTION OF MORAL SYSTEMS*

BENJAMIN ENKE

Across the social sciences, a key question is how societies manage to enforce cooperative behavior in social dilemmas such as public goods provision or bilateral trade. According to an influential body of theories in psychology, anthropology, and evolutionary biology, the answer is that humans have evolved moral systems: packages of functional psychological and biological mechanisms that regulate economic behavior, including a belief in moralizing gods; moral values; negative reciprocity; and emotions of shame, guilt, and disgust. Based on a stylized model, this article empirically studies the structure and evolution of these moral traits as a function of historical heterogeneity in extended kinship relationships. The evidence shows that societies with a historically tightly knit kinship structure regulate behavior through communal moral values, revenge taking, emotions of external shame, and notions of purity and disgust. In loose kinship societies, on the other hand, cooperation appears to be enforced through universal moral values, internalized guilt, altruistic punishment, and an apparent rise and fall of moralizing religions. These patterns point to the presence of internally consistent but culturally variable functional moral systems. Consistent with the model, the relationship between kinship ties, economic development, and the structure of the mediating moral systems amplified over time. *JEL* Codes: D00, D90.

The Quarterly Journal of Economics (2019), 953–1019. doi:10.1093/qje/qjz001.

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Two generic mechanism for evolution

Games among people and with nature

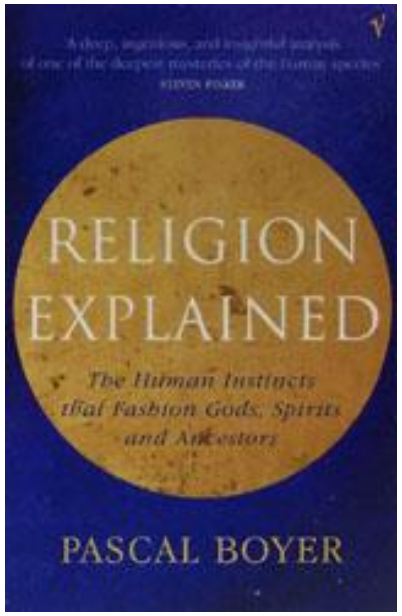
In general, **CE explains evolution of institutions and organizations via group selection**, that is, by showing that they help a tribe/society compete better against others.

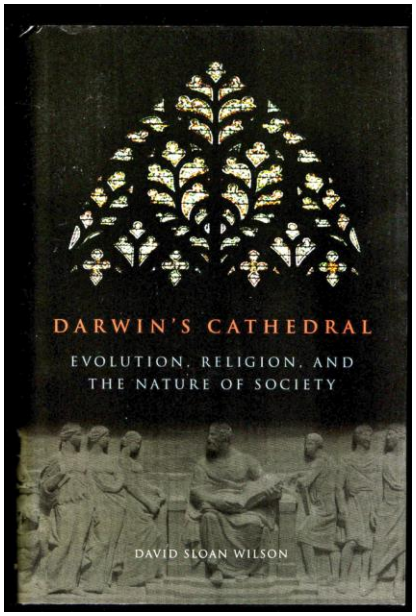
Two generic "mechanics" are emphasized:

Mechanism	**Relates to…**	**Key idea**	**Examples (evolution of institutions)**	**Examples (evolution of organizations)**
Higher cooperation	Game between people (Norms)	Trade and Efficiency, Collective action (Given a technological pool)	Big God Religion Property rights	
Improved adaptation (via learning)	Game with nature (Beliefs)	Cumulative culture (Expanding the technological pool)	Republic of letters	Pre-modern "productive" organizations

Evolution of Big-God, Moralizing Religions

Galvanizing large-scale cooperation





BEHAVIORAL AND BRAIN SCIENCES (2016), Page 1 of 65
doi:10.1017/S0140525X14001356, e1

The cultural evolution of prosocial religions

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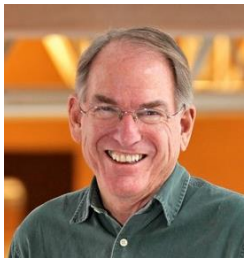
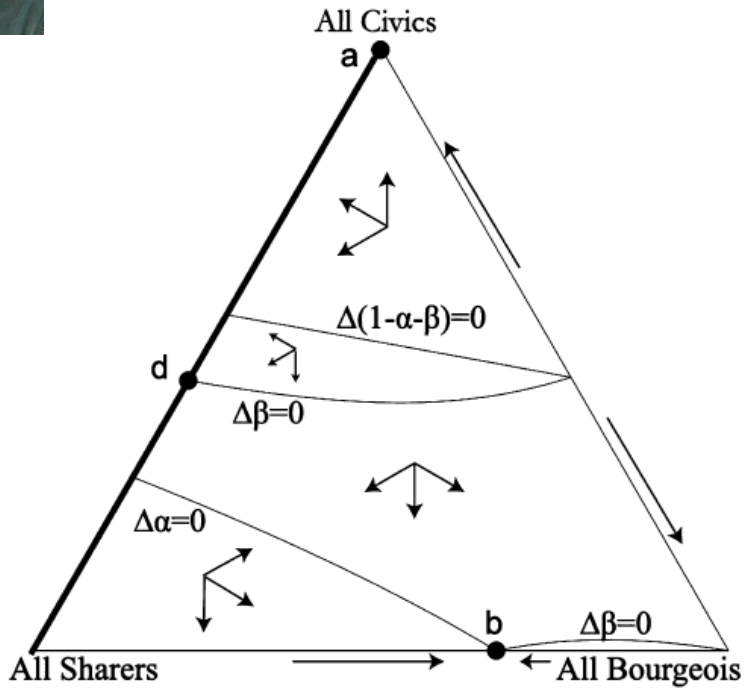
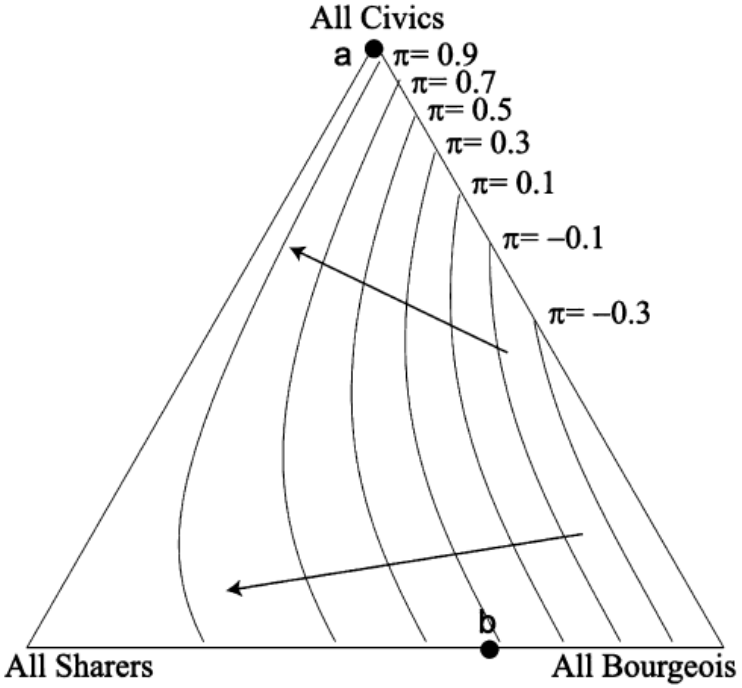
Abstract: We develop a cultural evolutionary theory of the origins of prosocial religions and apply it to resolve two puzzles in human psychology and cultural history: (1) the rise of large-scale cooperation among strangers and, simultaneously, (2) the spread of prosocial religions in the last 10–12 millennia. We argue that these two developments were importantly linked and mutually energizing. We explain how a package of culturally evolved religious beliefs and practices characterized by increasingly potent, moralizing, supernatural agents, credible displays of faith, and other psychologically active elements conducive to social solidarity promoted high fertility rates and large-scale cooperation with co-religionists, often contributing to success in intergroup competition and conflict. In turn, prosocial religious beliefs and practices spread and aggregated as these successful groups expanded, or were copied by less successful groups. This synthesis is grounded in the idea that although religious beliefs and practices originally arose as nonadaptive by-products of innate cognitive functions, particular cultural variants were then selected for their prosocial effects in a

Evolution of Property Rights

Co-evolution of farming and property rights



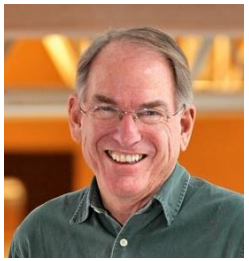


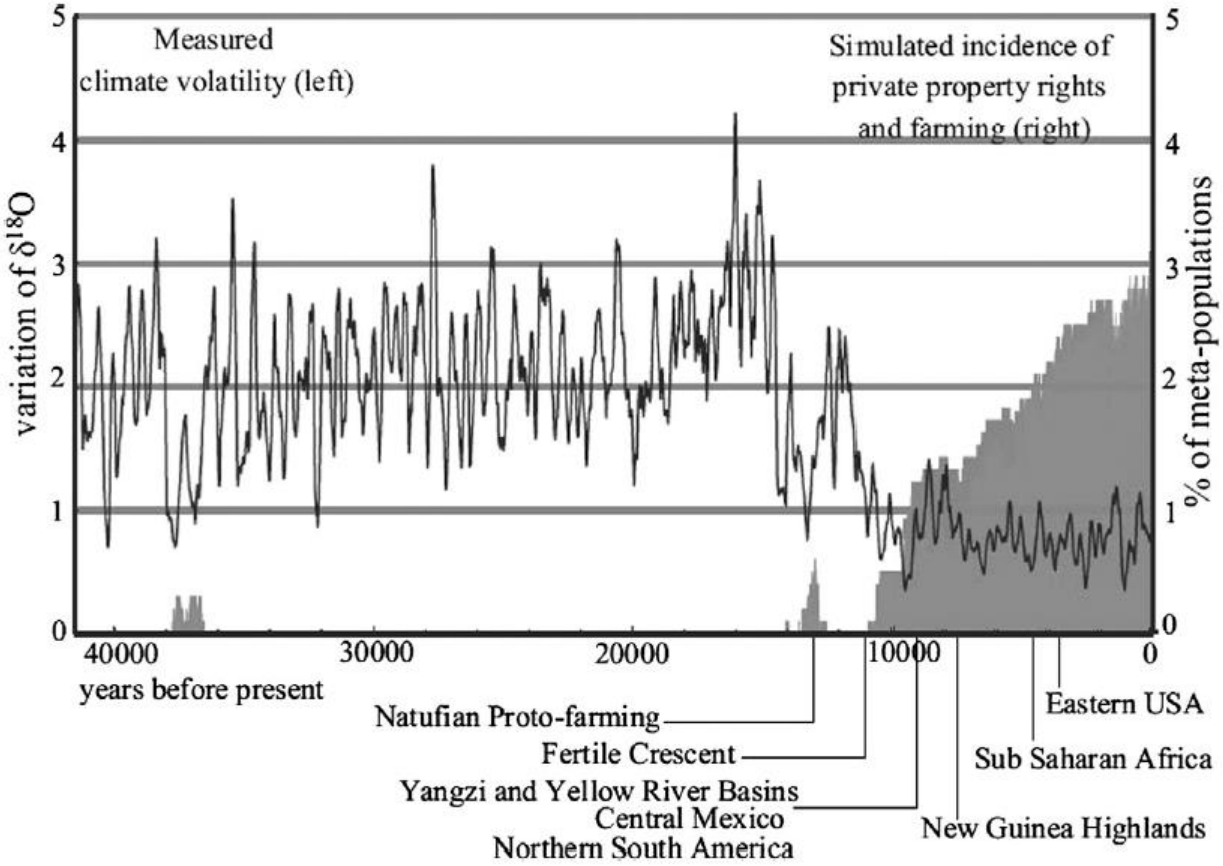


Source: Bowles, S., Choi, J. K., Hwang, S. H., & Naidu, S. (2021). How institutions and cultures change: an evolutionary perspective. In *The Handbook of Historical Economics* (pp. 391-433). Academic Press

Evolution of Property Rights

Co-evolution of farming and property rights





Source: Bowles, S., Choi, J. K., Hwang, S. H., & Naidu, S. (2021). How institutions and cultures change: an evolutionary perspective. In *The Handbook of Historical Economics* (pp. 391-433). Academic Press

Two generic mechanism for evolution

Games among people and with nature

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Improved adaptation (via learning)	Game with nature (Beliefs)	Cumulative culture (Expanding the technological pool)	**Republic of letters**	**Pre-modern "productive" organizations**

A cultural evolution framework

Adapting to a changing world via learning

Many individuals, N states of nature, one best technology per state

Many periods, likelihood of a change in state of nature is p

Acquisition of tech? 2 strategies available:

Individual learner (i), invests a large cost C to always get the best tech
Social learner (s), invests a small cost c < C to copy randomly from t-1

Share of individual learners in period t …….. r_{it}
Share of social learners in period t …….. r_{st}
Share with best technology in period t …… q_t

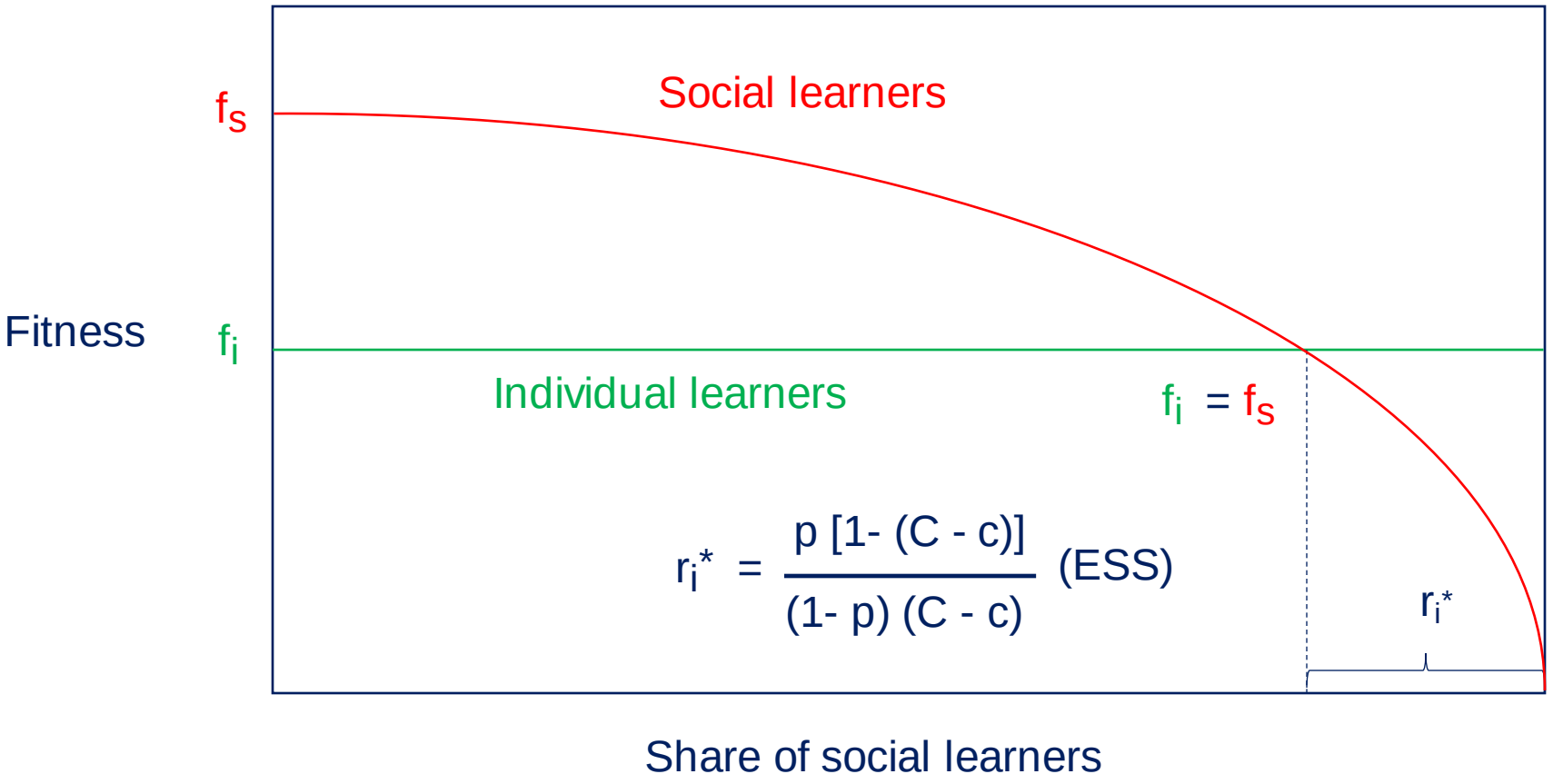
Change in share with best technology: $q_t = r_{it} + q_{t-1}\,(1-p)\,r_{st}$

Expected fitness: Individual learner: $f_i = 1 - C$
Social learner: $f_S = (1 - p)\,q^e - c$

To find the equilibrium r_i^* and r_s^*, we use replication dynamics and ESS

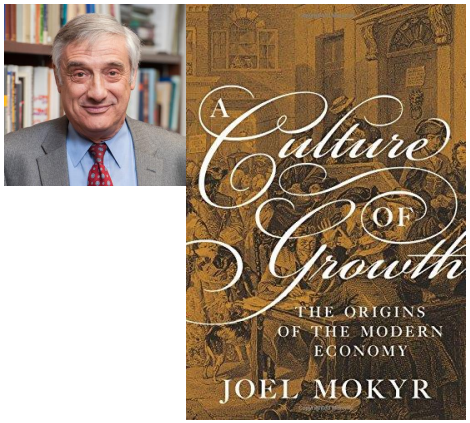
Equilibrium and Rogers (1988)'s paradox

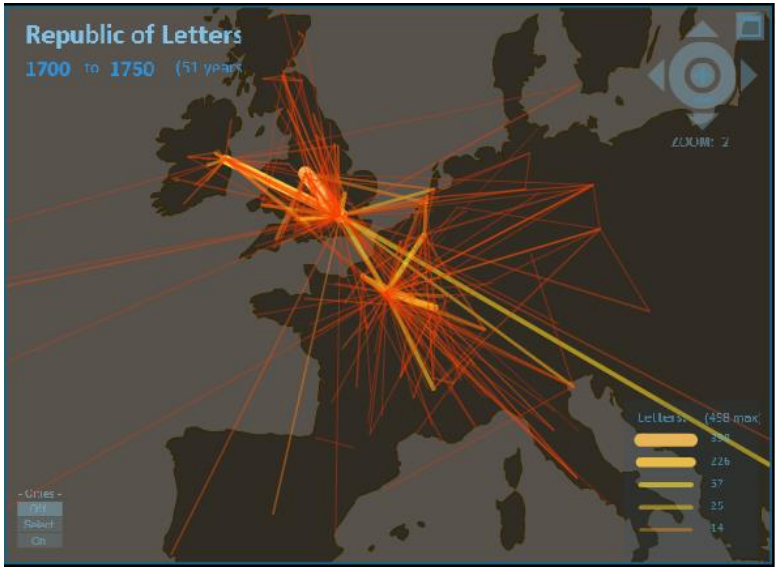
Traditionalists "free-rides" on innovators

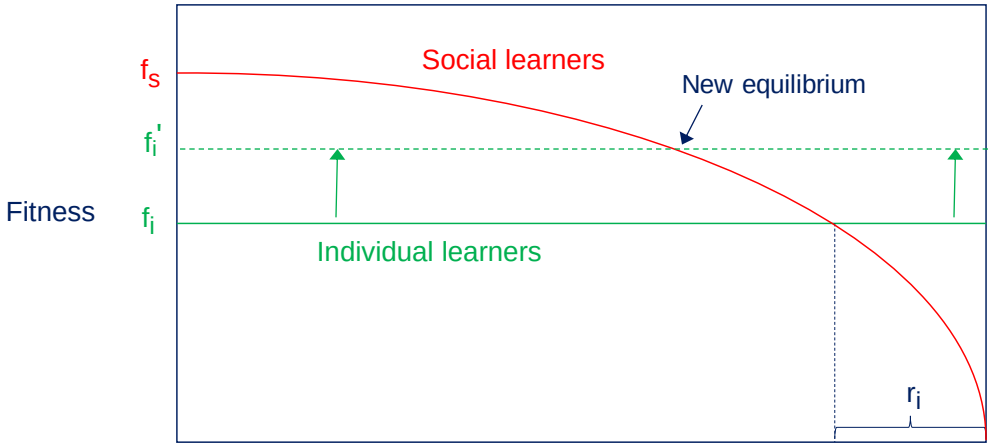


The Republic of Letters

Beliefs about understanding nature and progress







The evolution of productive organizations

Making social learning useful

nature human behaviour

ARTICLES

https://doi.org/10.1038/s41562-020-00957-x

Check for updates

The evolution of productive organizations

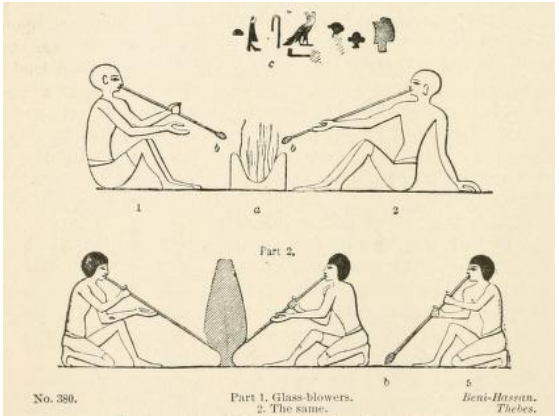
Francisco Brahm[1]✉ and Joaquin Poblete[2,3]

Organizations devoted to the production of goods and services, such as guilds, partnerships and modern corporations, have dominated the economic landscape in our species' history. We develop an explanation for their evolution drawing from cultural evolution theory. A basic tenet of this theory is that social learning, under certain conditions, allows for the diffusion of innovations in society and, therefore, the accumulation of culture. Our model shows that these organizations provide such conditions by possessing two characteristics, both prevalent in real world organizations: exclusivity of membership and more effective social learning within their boundaries. The model and its extensions parsimoniously explain the cooperative nature of the social learning advantage, organizational specialization, organizational rigidity and the locus of innovation. We find supportive evidence for our predictions using a sample of premodern societies drawn from the Ethnographic Atlas. Understanding the nature of these organizations informs the debate about their role in society.

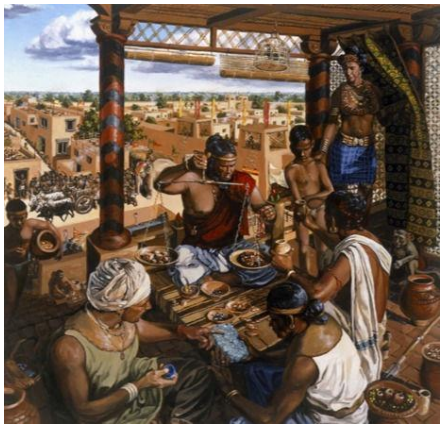
"Productive" organizations are old

From modern corporations to ancient "proto-guilds"

Egyptians glassmakers (guild-like?)
(~ 3000 BC)



Indian Sreni (guild)
(~ 400 BC)



Restaurant in Pompei (societas?)
(~ 200 BC)

Leather guild, somewhere in Europe
(late middle age)

Medici bank in Florence
(15th century) (partnership)

Modern firms

Nature of Organizations

"Accumulation of culture" v/s "Efficient transacting, given culture"

What is the nature of organizations?

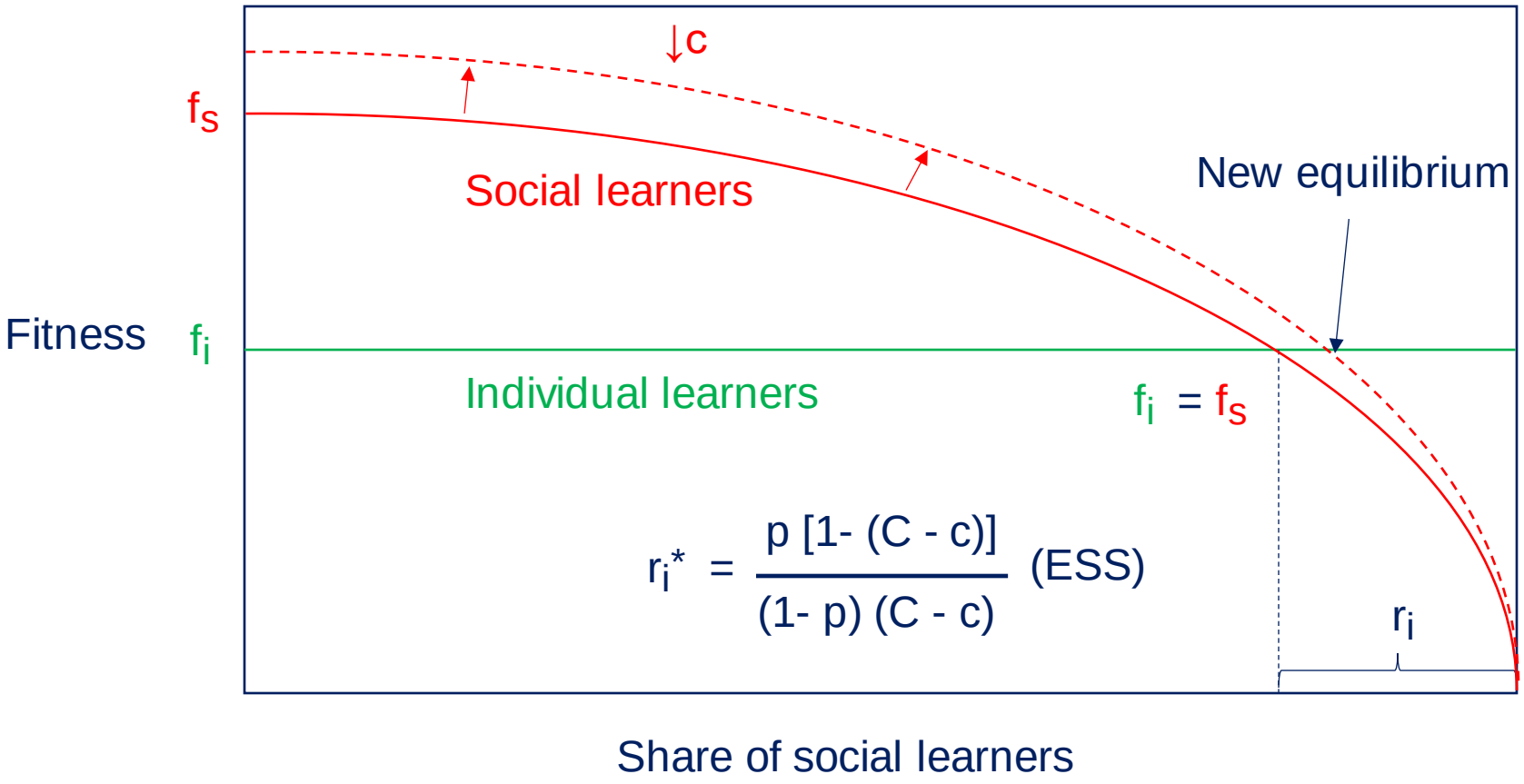
Focus on incentives and governance (TCE, PRT, Multitasking, Relational contracting)

However, empirical evidence on the role of firms as carriers and transmitters of knowledge and culture.

- Learning from others easier within firms than across (Argote & Mirron-Spector, 2011)
- Scant input sourcing from owned suppliers (Atalay, Hortacsu & Syverson, 2014)
- Relational cont. (culture) as source of capabilities (Gibbons & Henderson, 2012)
- Efficient transmission of skills essential for guilds (Delacroix, Deopke & Mokyr, 2017)
- Training/mentoring is fundamental to partnerships (Morrison & Wilhelm, 2008)

What if tradition is more efficient?

Social learning expands, hurting innovation



Adding a Productive Organizations

…with two very old characteristics

Now, a percentage λ of the population is within an organization

Two characteristics of the organization: i) social learning is cheaper inside PO
ii) restricted access

These characteristics are prevalent in history:

	Social learning	Restricted access
Today	Organizational learning (Argote and Mirron Spektor, 2011)	Simple observation
Middle age	Craft guilds (Epstein, 1998)	
300 - 50 BC	Amphorae workshop in Roman Empire (Coto-Sarmiento et al, 2018)	
400 BC	Indian Sreni (Khanna, 2005)	
2000 BC		Daggers in Scandinavia (Apel, 2008)
Neolithic	Sodalities (Anderson, 1971; Lowie, 1948)	
Late Paleolithic	Proto-guilds in forager societies (Sterelny, 2012)	

What do we find?

Improving tradition becomes useful

Proposition 1: "*If λ is sufficiently small, the existence of PO increases the average fitness of the population*"

Intuition: PO stops the invasion process of social learners

Corollaries: (1) Only social learners inside PO
(2) PO adapt slower to environmental change

Results are robust to different assumptions about learning strategies

Proposition 2 on "the origin of social learning advantage"

Proposition 3 on many POs/Techs and "the origins of specialization"

An empirical test

Details of the ultimate explanations

nature human behaviour

ARTICLES

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Check for updates

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We use pre-modern societies from the Ethnographic Atlas (Murdock,1967) and the SCCS.

We measure **"Presence"** of 11 technologies and whether they are executed **"Within a PO"**

Support for model's predictions and its comparative statics (e.g., uncertainty)

Robust to endogeneity correction and several other tests

Table 1 | Impact of presence of technologies and PO on the size of local population

	Dependent variable: size of local population	
	β ($t_{d.f.}$) (*P* value) (95% CI)	
	1	2
%Presence	1.137 (t_{114} = 1.39) (0.165) (−0.466; 2.742)	0.016 (t_{113} = 0.02) (0.984) (−1.641; 1.675)
%Presence × %Within PO		4.298 (t_{113} = 3.36) (0.001) (1.729; 6.805)
Geographic controls?	Yes	Yes
Resource endowment controls?	Yes	Yes
Year of ethnography?	Yes	Yes
Agriculture intensity dummies?	Yes	Yes
Region dummies?	Yes	Yes
Type of settlement dummies?	Yes	Yes
Observations	173	173
Pseudo *R* square	0.329	0.352

Plan of the lecture

Motivation and Necessary Distinctions

Overview of Cultural Evolution Theory

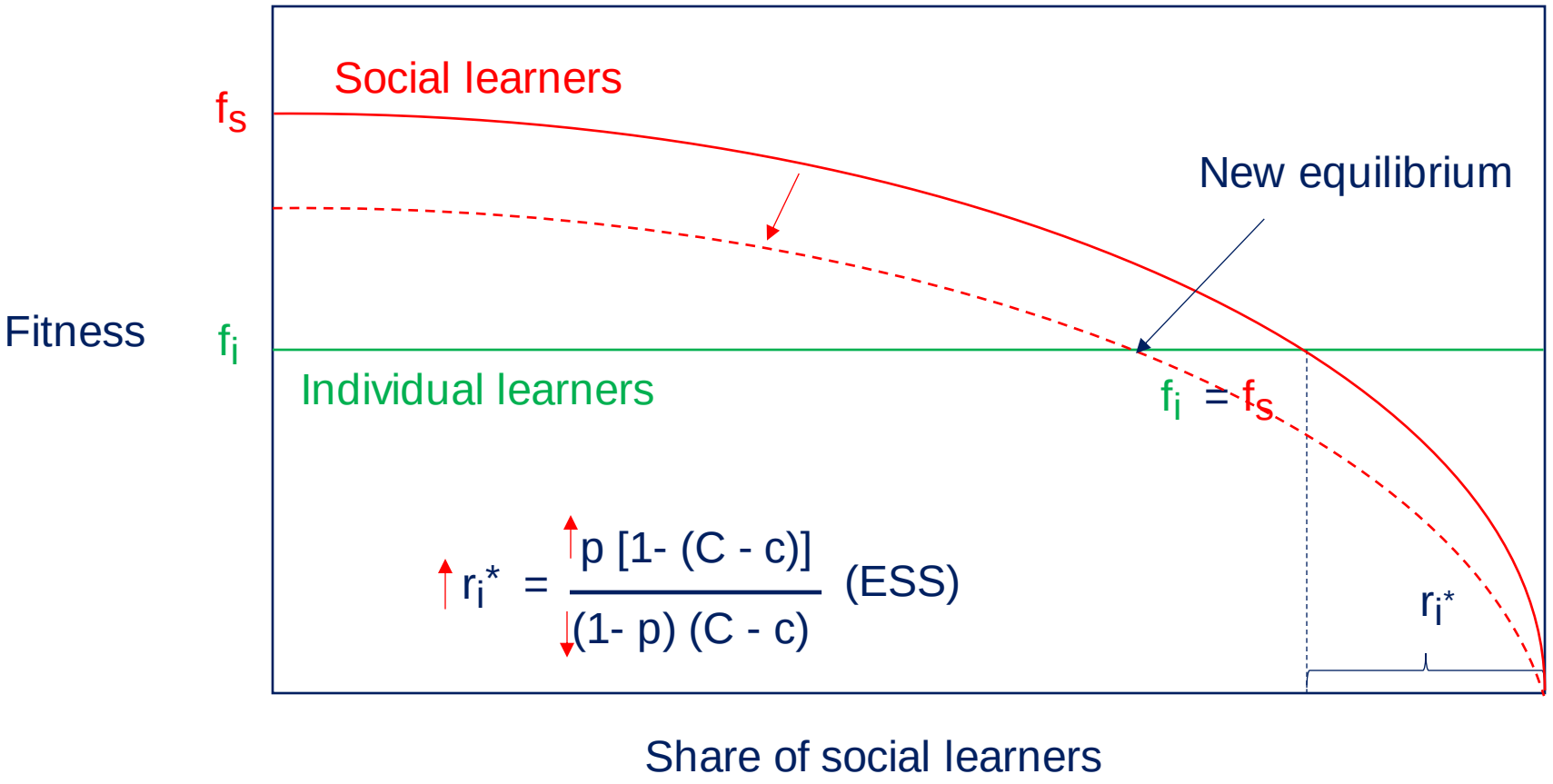
Cultural Evolution of Institutions and Organizations

Persistence of Institutions and Organizations

VOGT AND HANDBOOK OF HISTORICAL ECONOMICS

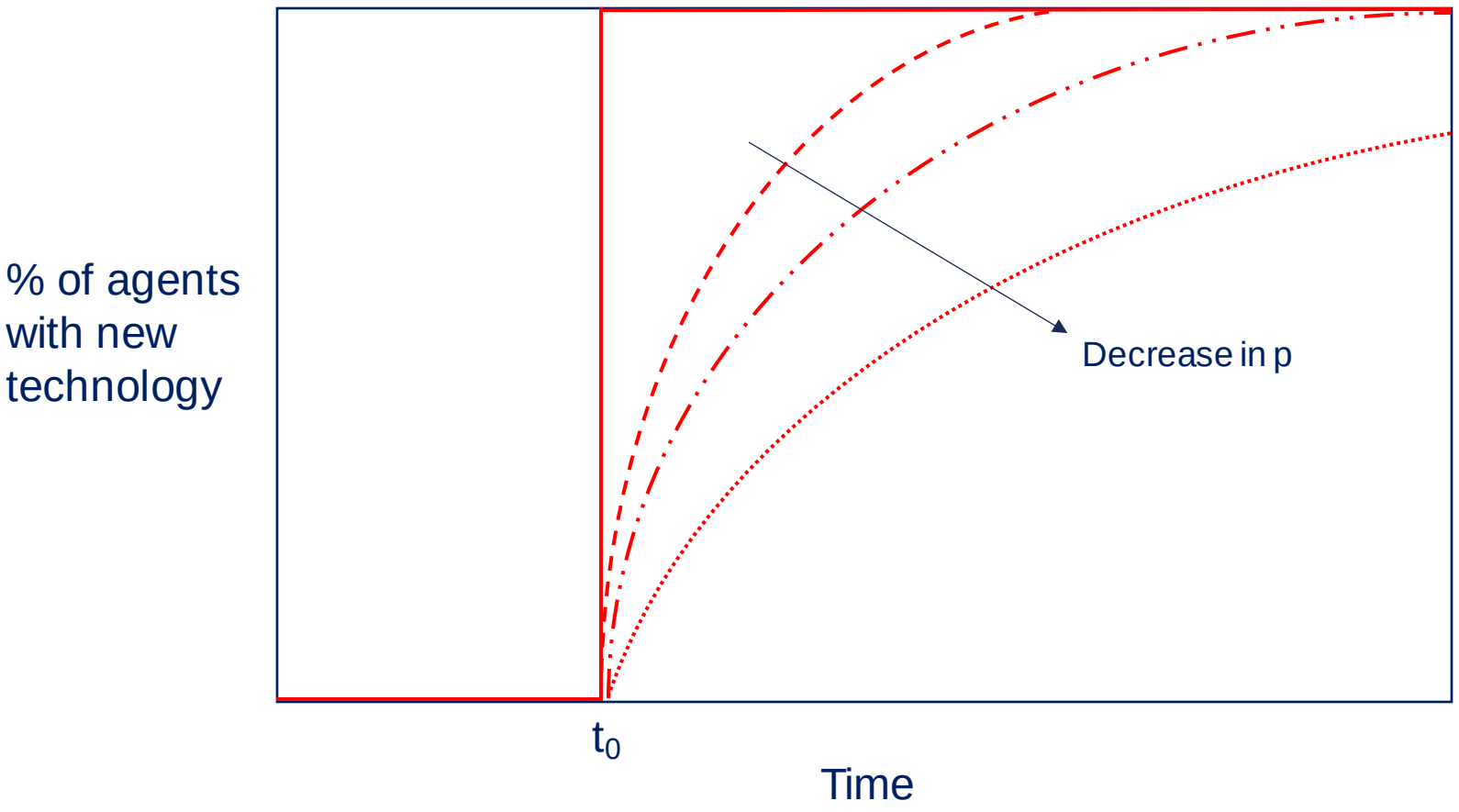
Higher instability reduces tradition

Social learning is liable to changes in the environment



Social learning and persistence

Traditionalists generate shadow-of-the-past



A comprehensive test

Ancient climate reflects itself today

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Understanding Cultural Persistence and Change

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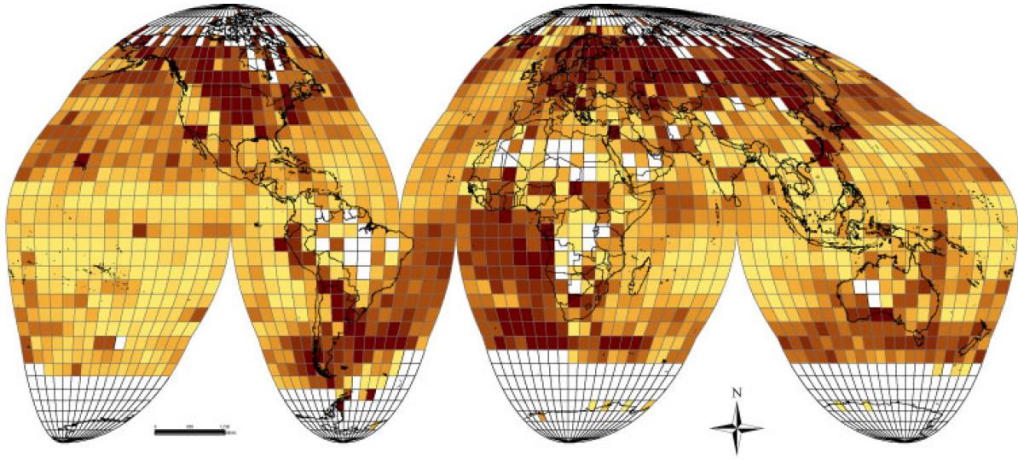


(a) Measure using the global sample (temperature anomalies)

Tests:

i) Country level data on the World Values Survey (WVS),

ii) individual-level data from the World Values Survey,

iii) Immigrants to the US,

iv) Contemporaneous indigenous populations in the US and Canada

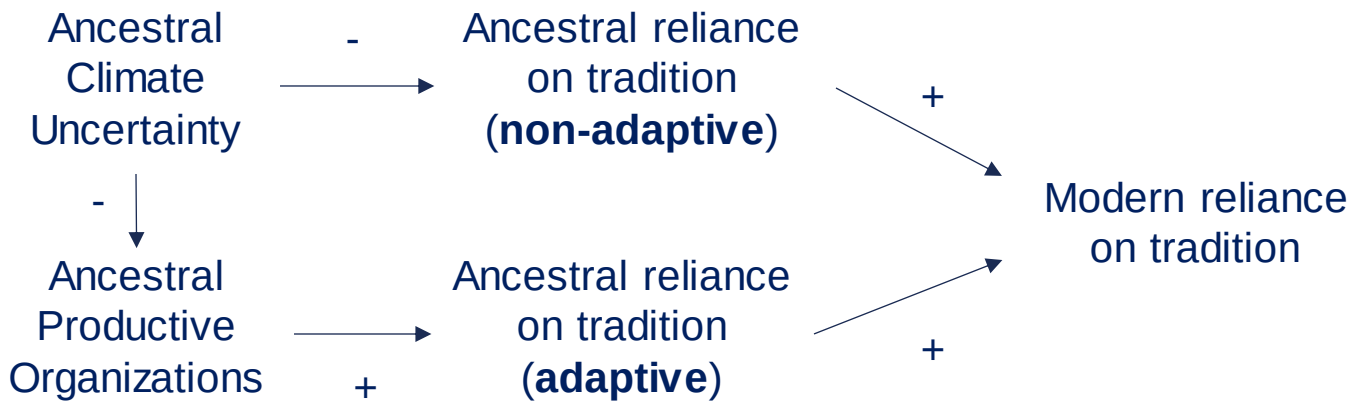
Institutions Shape Persistence

Helping tradition being adaptive

Giuliano and Nunn (2021) is based on social learning **NOT** being adaptive (i.e., it is subject to the Rogers (1988)'s paradox)

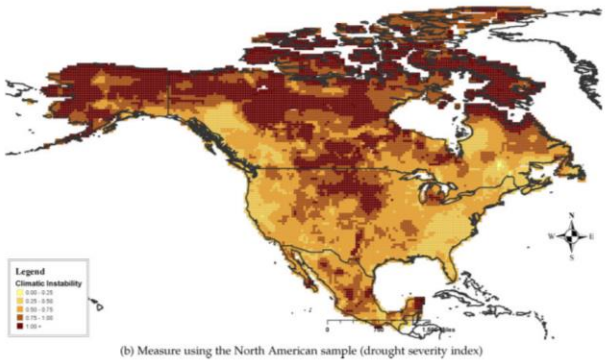
In other words, higher tradition in the past endures until today ***despite not necessarily helping societies adapt/perform better***.

Institutions that make social learning useful will boost persistence. Not only about amount of social learning in the past, but whether it helps a society adapt better. We test this idea on Brahm, Poblete and Ruiz (2023; WP).



Brahm, Poblete and Ruiz (2023, WP)

We complement Giuliano and Nunn (2021)



(b) Measure using the North American sample (drought severity index)

FIGURE 3
Grid-cell-level measures of the instability of the climate across previous generations, 500–1900.

	Dependent Variable: Indicator for speaking an Indigenous language at home		
	(1)	(2)	(3)
	All individuals	Not living with parents	Living with parents
Presence	0.827* (0.447)	0.880* (0.472)	0.779* (0.415)
Presence * Within PO	**3.451** (1.440)**	**3.850** (1.598)**	**2.795** (1.255)**
Climatic instability	-0.014 (0.143)	-0.030 (0.164)	-0.007 (0.123)
Individual controls	yes	yes	yes
Number of ethnic groups	**83**	**83**	**79**
Mean (sd) of DV	0.18 (0.39)	0.20 (0.40)	0.15 (0.36)
Observations	127,919	79,193	48,726
R-squared	0.404	0.447	0.354

Controls: a quadratic in age, a gender indicator, employment-status fixed effects, an indicator for being married, metropolitan-area fixed effects, and an indicator for whether the individual has any education. *, **, and *** indicate significance at the 10, 5, and 1% levels.

Takeaways

1 Cultural Evolution is a ***useful a framework*** to think about the evolution of institutions and organizations

2 Cultural Evolution provides **two *general mechanisms that guide thinking about the origin*** of institutions and organizations: “cooperation and group selection”, and “adaptation via learning”.

3 Cultural Evolution can ***help thinking about the persistence (and change)*** of institutions and organizations

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Thanks for your time!