On the Importance of Culture and Context for Economic Development

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Introduction

Questions that I will address in today's talk:

1. What is culture? Why would it ever arise?
2. How big are the cultural differences in the world today?
3. What are the determinants of these cultural differences?
4. Does culture affect anything that we as economists care about?
5. What are the implications (if any) for economic policy?

Questions

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Culture and our cognitive limits

- Human beings have cognitive limits.
- Even in normal every day life we are overloaded with information that requires cognitive effort to process.
  - E.g., the 'invisible gorilla'.
- In the face of these limits, we have developed heuristics or shortcuts that help us make decisions.
- These may be less precise, but they save on cognitive costs.
  - They are *fast and frugal*.
- Can manifest themselves as deeply held values (e.g., religion) or *gut-feelings* about the right or wrong action in certain situation (e.g., system 1).

A stylized model (Rogers, 1988)

Players:

- Society consists of a large population of individuals.
- Each period, a new generation is born, and the older generation eventually dies.

Actions:

- The new generation chooses an action, either 0 or 1.
- There are two (unobservable) states of the world, either 0 or 1.
- In each state, one of the two actions yields a higher payoff than the other.

Environment, actions, and payoffs

Payoffs:

		Environment	
		0	1
Action	0	$\pi + b$	$\pi - b$
	1	$\pi - b$	$\pi + b$

- The state of the environment is unobservable.
- Each period, there is a shock with probability $\Delta \in (0, 1)$.
- When a shock is experienced, then there is a new draw and thus an equal probability of being in state 0 or 1.

Players

Two types of players:

1. **Non-traditionalists (NT):** ignore tradition and engage in trial and error, learning the optimal action with certainty.
   - Learning comes at a cost $c > 0$.
2. **Traditionalists (T):** value tradition, and adopt the action (i.e., culture) of a randomly chosen person from the previous generation.
   - Relying on tradition is costless.

p **denotes the proportion of traditionalists in the economy**.

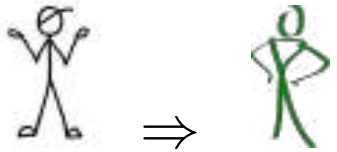
Expected payoffs to non-traditionalists

- Non-traditionalists ignore tradition and engage in trial and error.
- They bear a cost c, but choose the right action with certainty.
- Therefore, expected payoffs are:

$$\Pi^{NT} = \pi + b - c$$

Some ways for traditionalists to obtain the right action

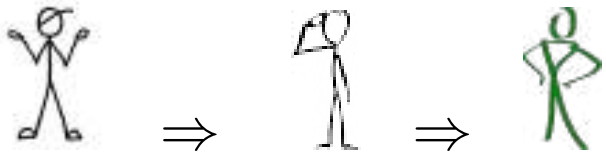
1. I copy a non-traditionalist from the previous generation; and there was no shock last period:



$$\Pr = (1 - p)(1 - \Delta)$$

Some ways for traditionalists to obtain the right action

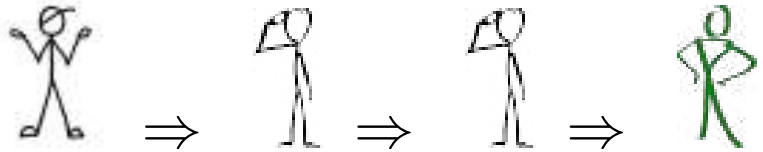
2. I copy a traditionalist from the previous generation, who had copied a non-traditionalist from the previous generation; and there were no shocks during this time:



$$\Pr = p(1-p)(1-\Delta)^2$$

Some ways for traditionalists to obtain the right action

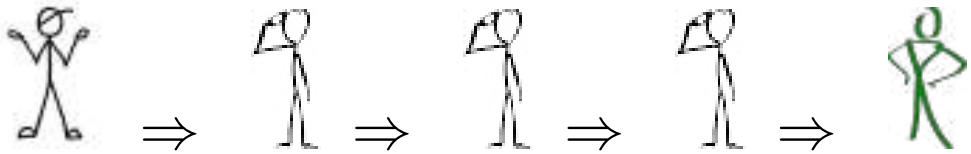
3. I copy a traditionalist, who copied a traditionalist, who copied a non-traditionalist; and there were no shocks during this time:



$$\Pr = p^2(1-p)(1-\Delta)^3$$

Some ways for traditionalists to obtain the right action

4. I copy a traditionalist, who copied a traditionalist, who copied a traditionalist, who copied a non-traditionalist; and there were no shocks during this time:



$$\Pr = p^3(1-p)(1-\Delta)^4$$

5. Etc, etc, until infinity.

The sum probability of all of these events is:

$$\sum_{t=1}^{\infty} p^{t-1}(1-p)(1-\Delta)^t$$

Expected payoffs to traditionalists

- With probability $\sum_{t=1}^{\infty} p^{t-1}(1-p)(1-\Delta)^t$, a traditionalist:
  - Adopts the right action and receives $\pi + b$.
- With probability $1 - \sum_{t=1}^{\infty} p^{t-1}(1-p)(1-\Delta)^t$, a traditionalist:
  - Either, still adopts the right action and receives $\pi + b$ (50% chance)
  - Or, adopts the wrong action and receives $\pi - b$ (50% chance)
  - Thus, her expected payoff is:

$$0.5(\pi + b) + 0.5(\pi - b) = \pi$$

Expected payoffs to traditionalists

$$
\begin{aligned}
\Pi^T &= \sum_{t=1}^{\infty} p^{t-1}(1-p)(1-\Delta)^t \cdot [\pi + b] \\
&\quad + \left[1 - \sum_{t=1}^{\infty} p^{t-1}(1-p)(1-\Delta)^t\right] \cdot \pi \\
&= \pi + b(1-p)(1-\Delta) \sum_{t=1}^{\infty} p^{t-1}(1-\Delta)^{t-1} \\
&= \pi + \frac{b(1-p)(1-\Delta)}{1-p(1-\Delta)}
\end{aligned}
$$

Summarizing the expected payoffs to both types

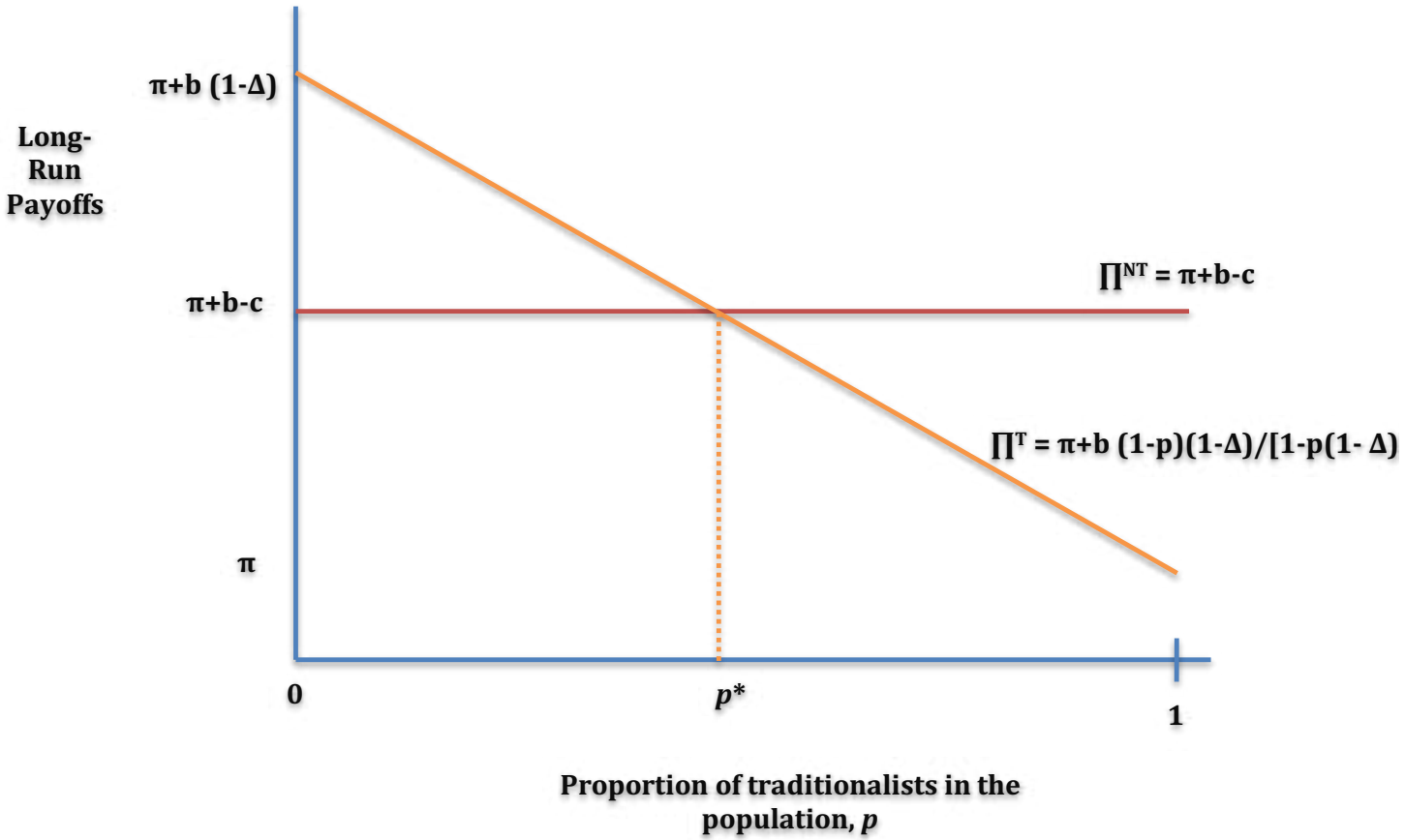
Expected payoffs to non-traditionalists:

$$\Pi^{NT} = \pi + b - c$$

Expected payoffs to traditionalists:

$$\Pi^{T} = \pi + \frac{b(1-p)(1-\Delta)}{1-p(1-\Delta)}$$

Expected payoffs and the frequency of traditionalists



A key prediction of the model

- Under fairly general conditions, there is always some reliance on culture.
- Culture arises because it is a short-cut that saves on information acquisition and processing costs (c in the model).

An example of the benefits of tradition

Questions

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2. **How big are the cultural differences in the world today?**
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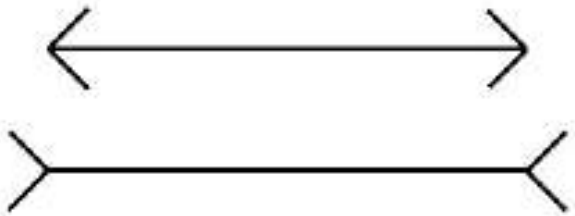
Cultural differences across societies

- Two strategies have been used to measure culture across societies:
  1. Bring people into the lab:
     - Henrich et al. (2001, 2005, 2006, 2010)
     - Nisbett (2004)
  2. Study natural settings where people from different cultural backgrounds face the same decision in the same environment:
     - Fernandez and Fogli (2006, 2009)
     - Giuliano (2007)
     - Algan and Cahuc (2010)
- An important fact for economic development is that European cultural traits are not the norm but are actually outliers.
  - See Henrich, Heine, Norenzayan (2010).

Mueller-Lyer Illusion

Which line is longer?



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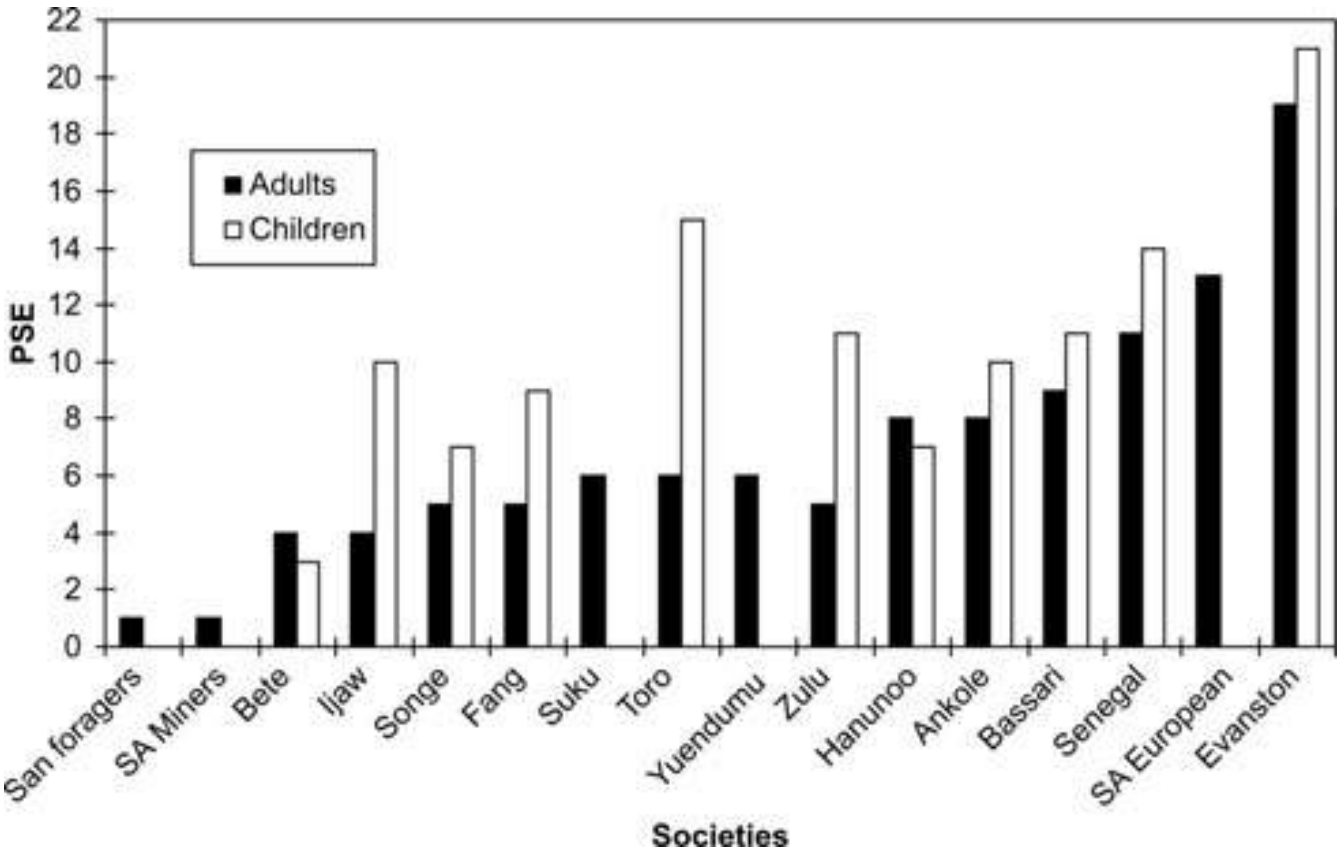
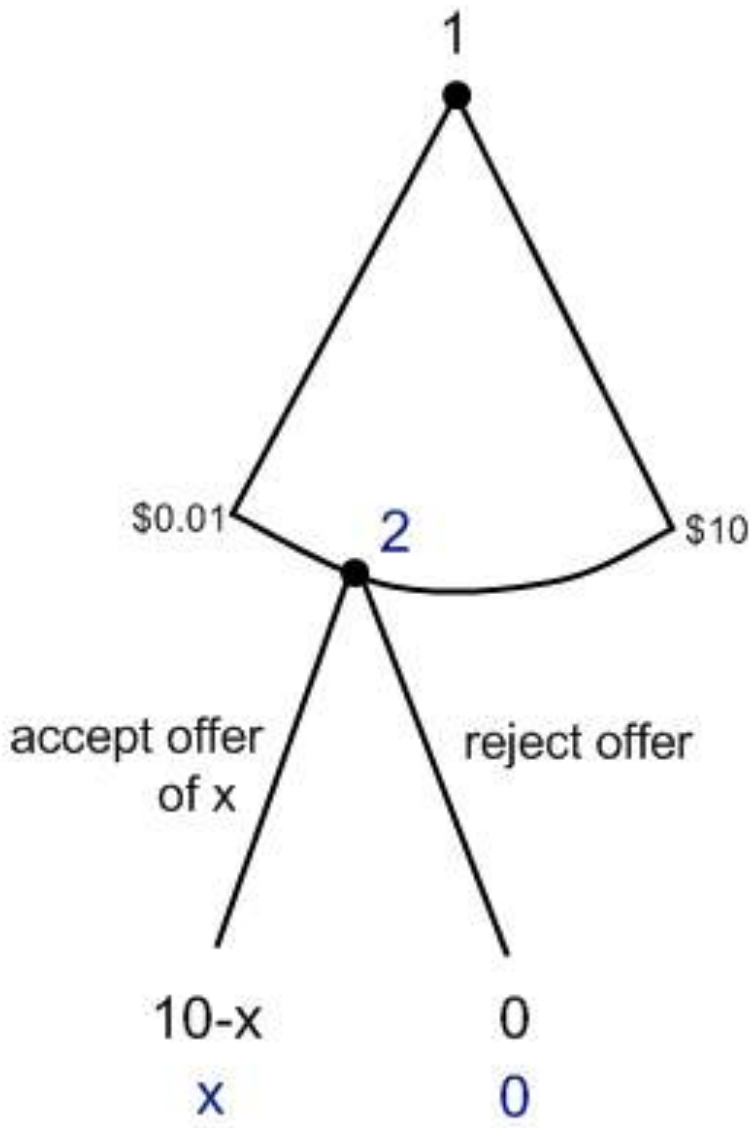
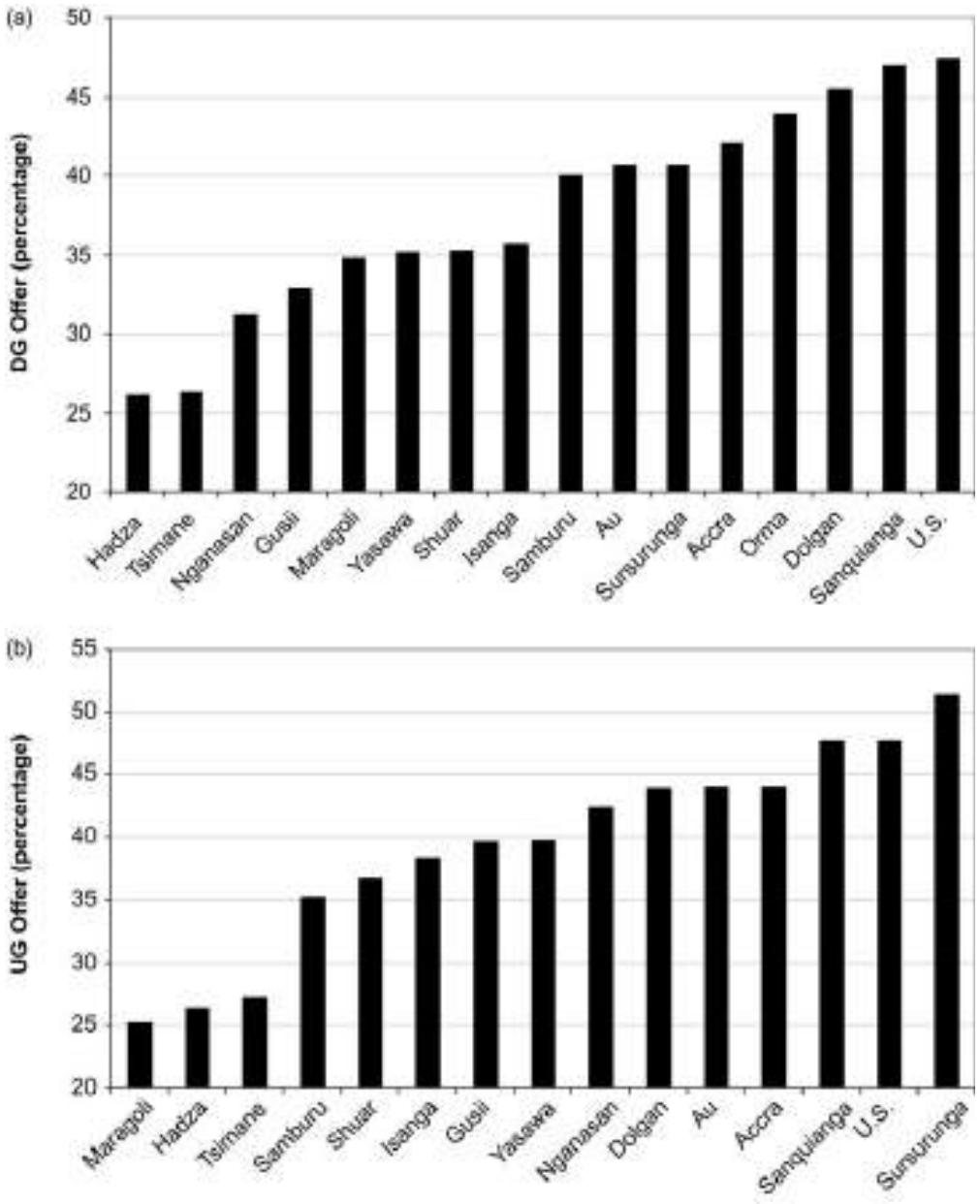


Figure 2. Müller-Lyer results for Segall et al.'s (1966) cross-cultural project. PSE (point of subjective equality) is the percentage that segment a must be longer than b before subjects perceived the segments as equal in length. Children were sampled in the 5-to-11 age range.

The Ultimatum Game



Behavior in the Dictator and Ultimatum games



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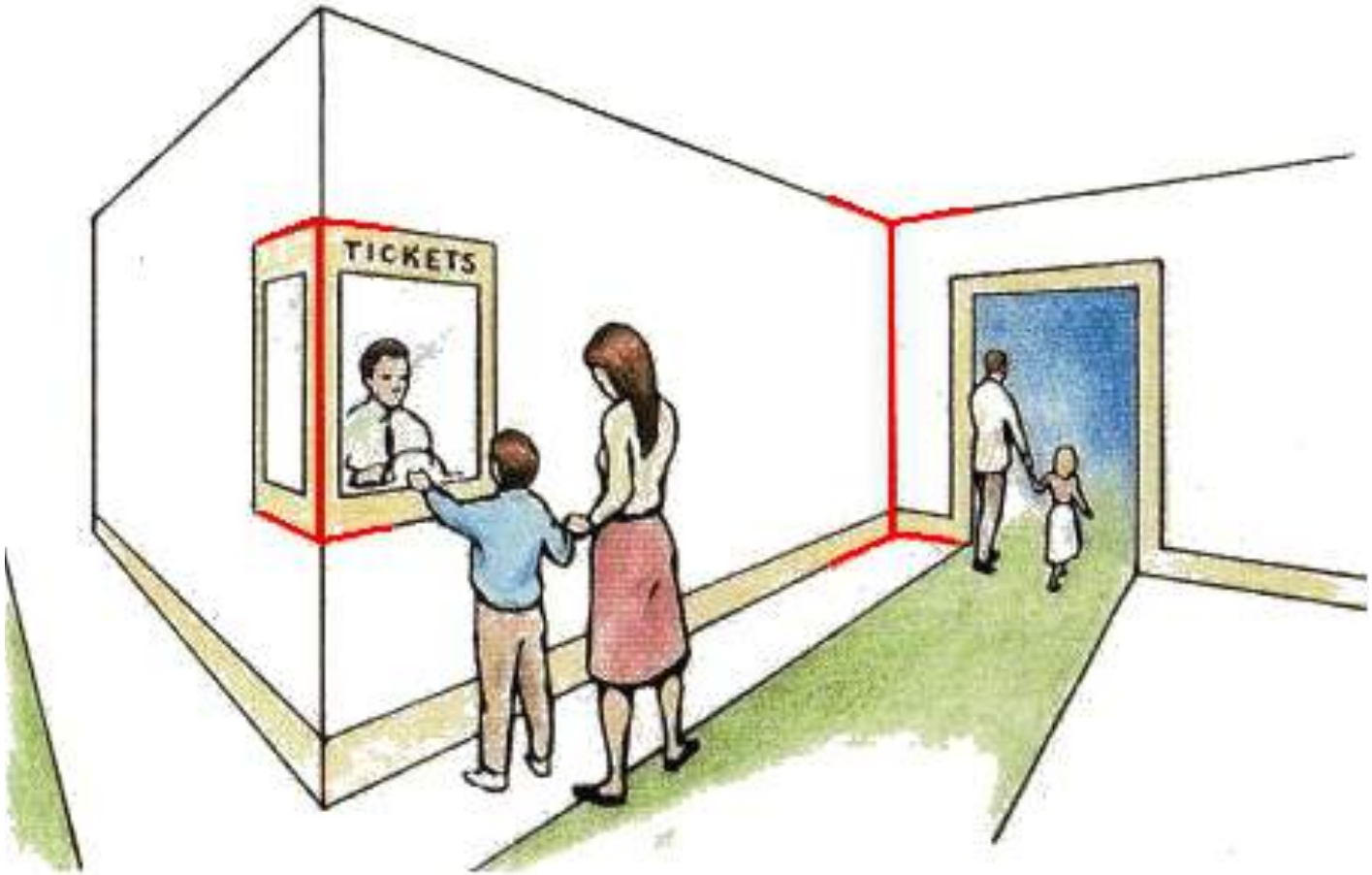
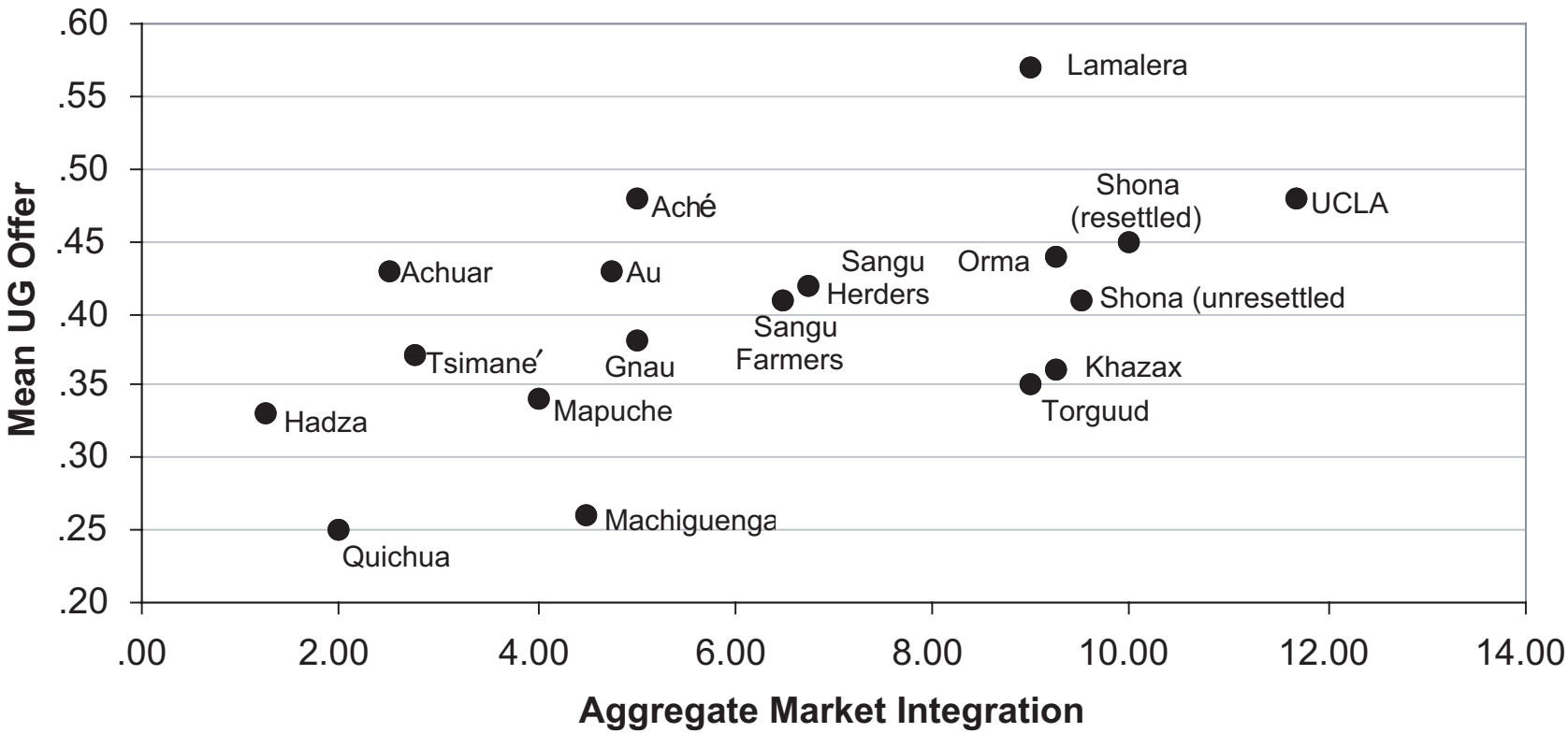
Mueller-Lyer illusion: Living in a carpentered world



Mueller-Lyer illusion: Living in a carpentered world

Variation in UG offers (Henrich et al., 2005)



The Lamalera

The Lamalera

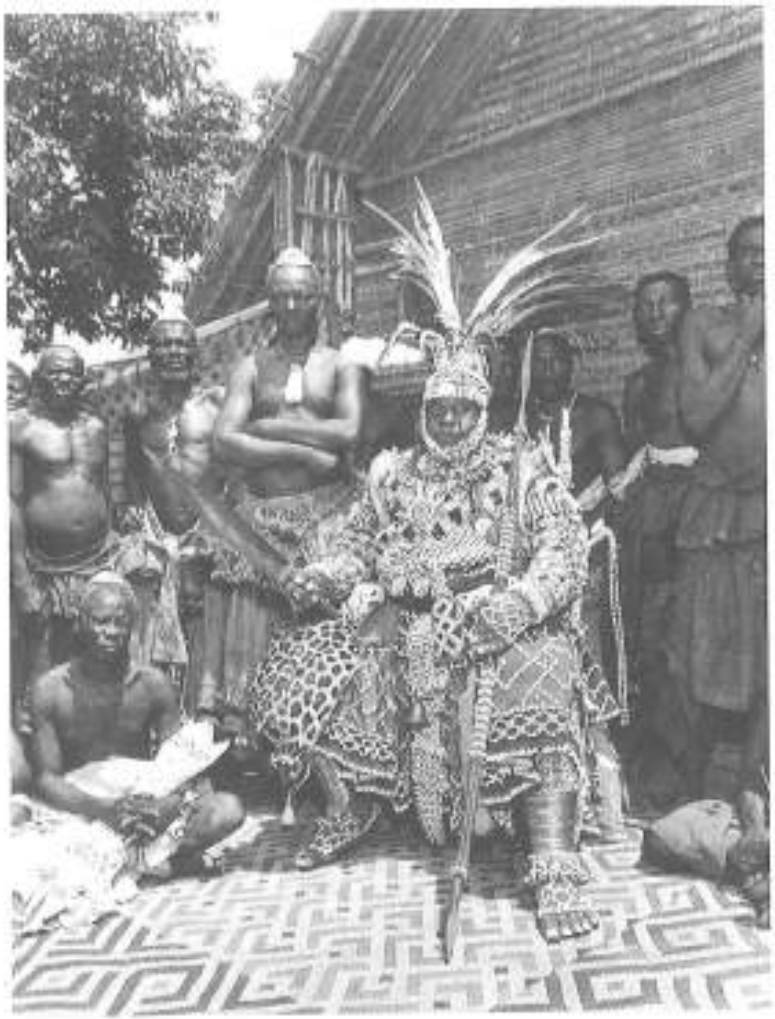
Shorter-run determinants

- Economic shocks
  - Recessions: Giuliano and Spilimbergo (2014)
- Violence and conflict
  - Civil war: Bauer et al. (2016)
  - Interstate war: Campante and Yanagizawa-Drott (2016)
- Socialization activities
  - 4th of July: Madestam and Yanagizawa-Drott (2011)
  - Political protests: Madestam et al. (2013)
- Policies
  - Monetary incentives: Bowles and Polania-Reyes (2012)

Long-run determinants

- Trust (& related prosocial traits)
  - Slave trade: Nunn and Wantchekon (2011)
  - Colonial indirect rule: Blouin (2015)
  - Habsburg state: Becker et al. (2016)
  - DRC rubber concessions: Lowes and Montero (2016)
  - Missions: Valencia Caicedo and Voth (in progress)
- Gender norms
  - The plough: Alesina, Giuliano, and Nunn (2013)
  - Communism: Campa and Serafinelli (2015)
  - Animal herding: Becker (2017)
- Collectivism/individualism
  - Wet rice: Talhelm et al. (2014)

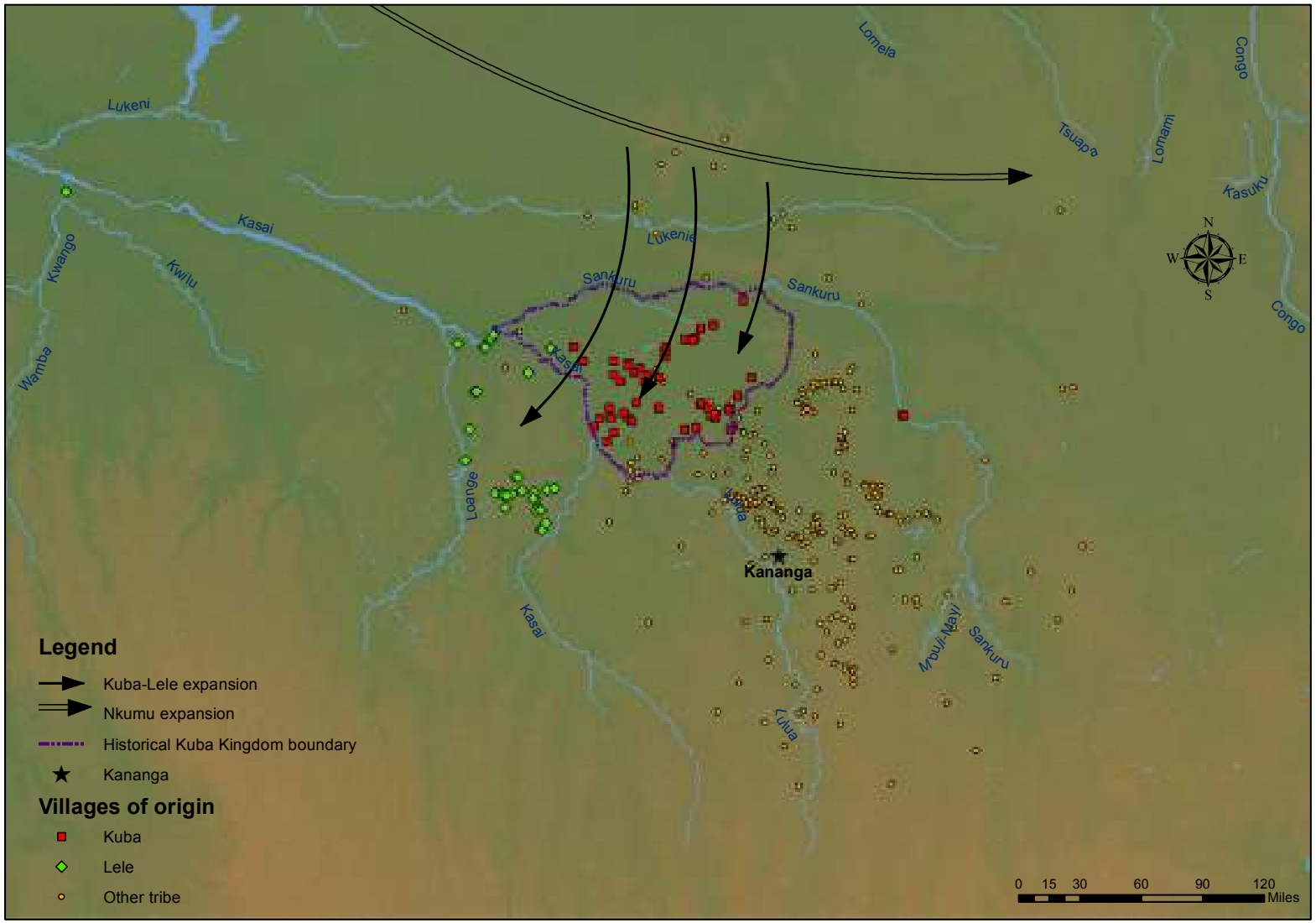
Do good states make good citizens? (Lowes et al. forthcoming)



King Mbop Mabinc maKyeen (1939–69) (photograph by Eliot Elisofon, 1947, Eliot Elisofon Photographic Archives 22923-P5, #10, National Museum of African Art, Smithsonian Institution)

The Kuba Kingdom (Lowes et al. forthcoming)

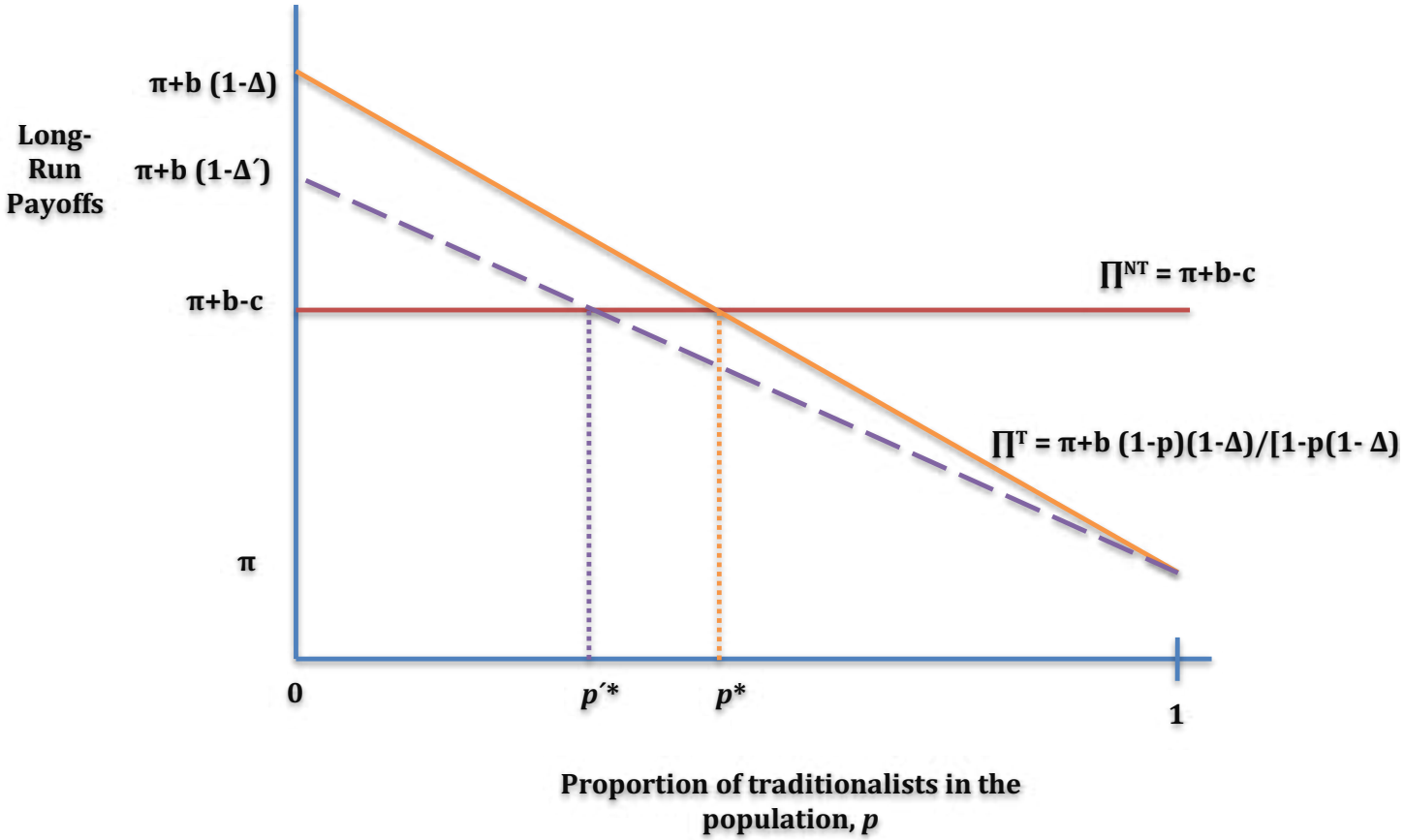
States and norms of rule following (Lowes et al. forthcoming)



A puzzle

- We have evidence that culture persists over long periods of time.
- However, it also continuously evolves, being shaped by both SR and LR factors.
- What determines when culture will persist and when it will change?

Back to the model: The effect of an increase in instability: $\Delta' > \Delta$



A test of models of cultural evolution

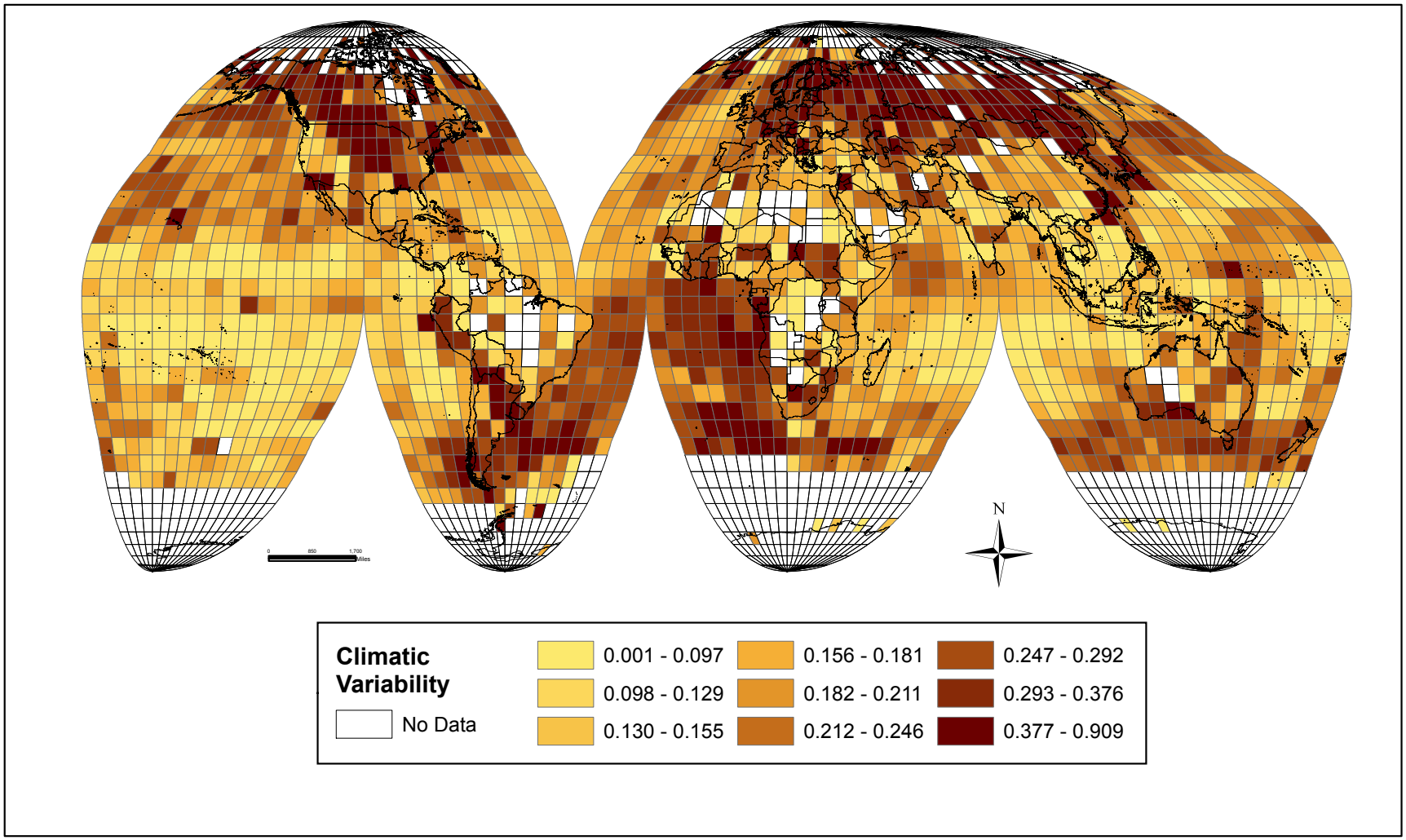
General prediction:

> **When the environment is more variable, tradition is valued less and there is less cultural persistence.**

A test (Giuliano and Nunn, 2016):

- Measure the instability of the environment using grid-cell level variation in temperature across generations from 500–1900.
- Calculate the standard deviation (between generation) in average temperature.
- Link individuals to the locations of their ancestors.

Climatic instability across grid-cells, 500–1900



Empirical tests of Giuliano and Nunn (2016)

Observational data across countries, ethnic groups, and individuals.

- If one has ancestors that lived in an environment with more instability:
  1. Self-reported importance of tradition is lower.
  2. There is less persistence of cultural traits over time.
     - Female labor force participation
     - Polygamy
     - Cousin marriage

Empirical tests of Giuliano and Nunn (2016)

Natural experiments where individuals face a new culture.

1. Descendants of immigrants to the U.S.
   - If one has ancestors that lived in an environment with more instability, then the children of immigrants are:
     - Less likely to marry someone with their same ancestry.
     - Less likely to speak a foreign language at home.
2. Descendants of Indigenous populations of North America.
   - If one has ancestors that lived in an environment with more instability:
     - Less likely to know how to speak indigenous language.
   - One also finds the same relationship amongst Canadian First Nations populations.

Measuring the importance of tradition

- Respondents are given the description of a person:

  > *"Tradition is important to this person; to follow the family customs handed down by one's religion or family."*

- Respondents then choose the response that best describes how similar this person is to them:
  (1) Not at all like me
  (2) Not like me
  (3) A little like me
  (4) Somewhat like me
  (5) Like me
  (6) Very much like me

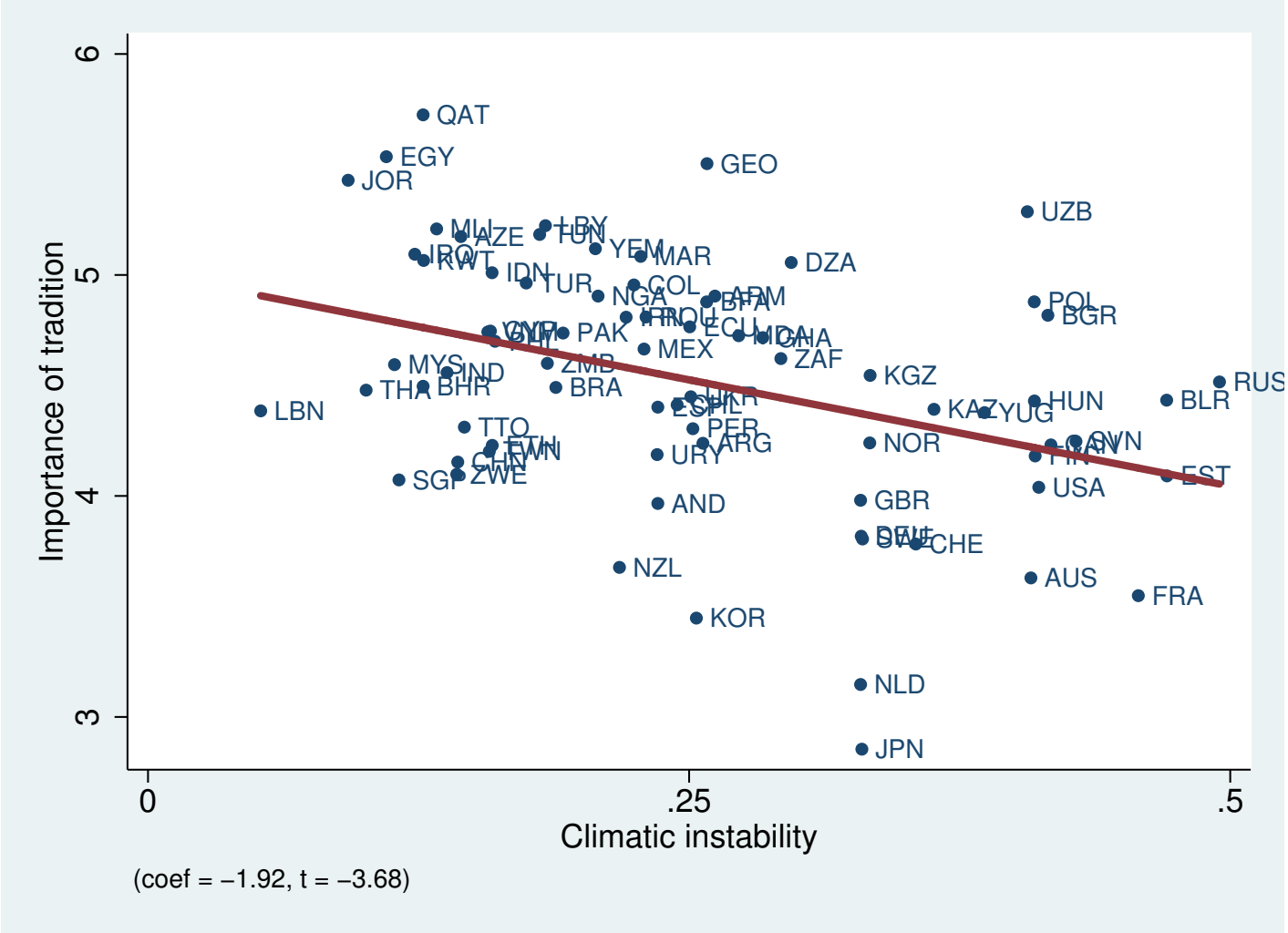
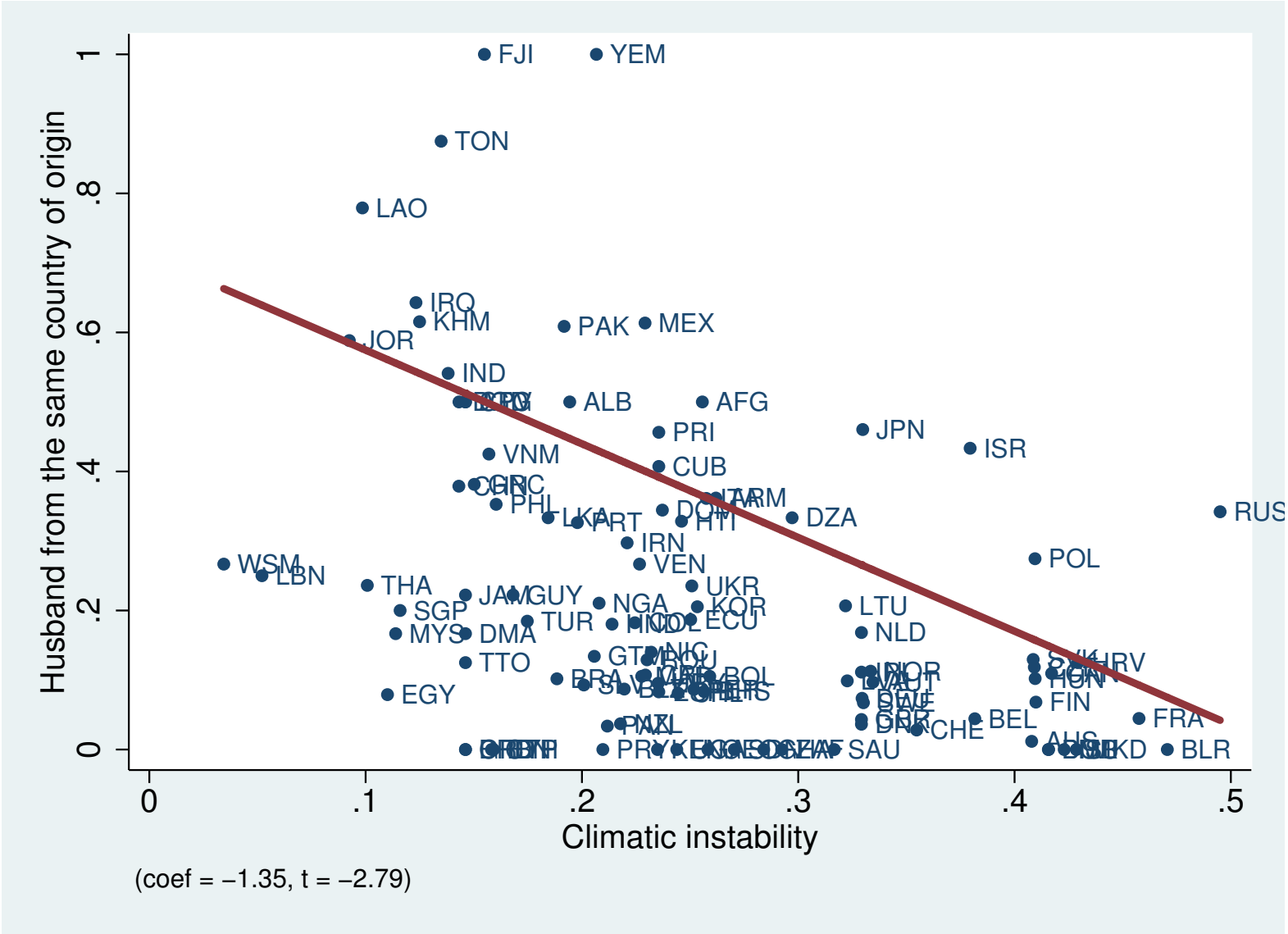


Figure: The bivariate cross-country relationship between average ancestral climatic instability and the average self-reported importance of tradition.

Bivariate plot: Sample of married women. Is the husband from same country of origin?



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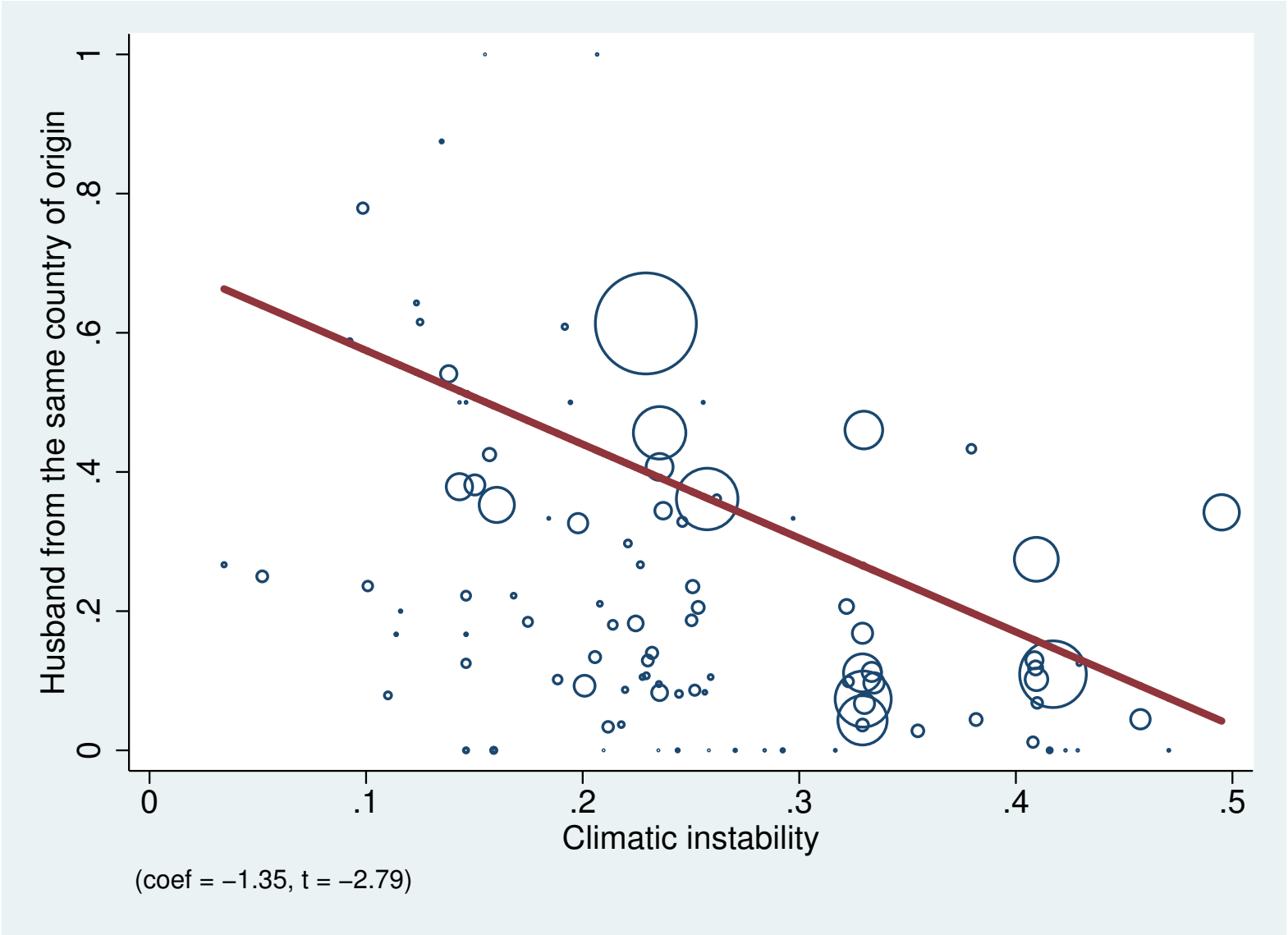
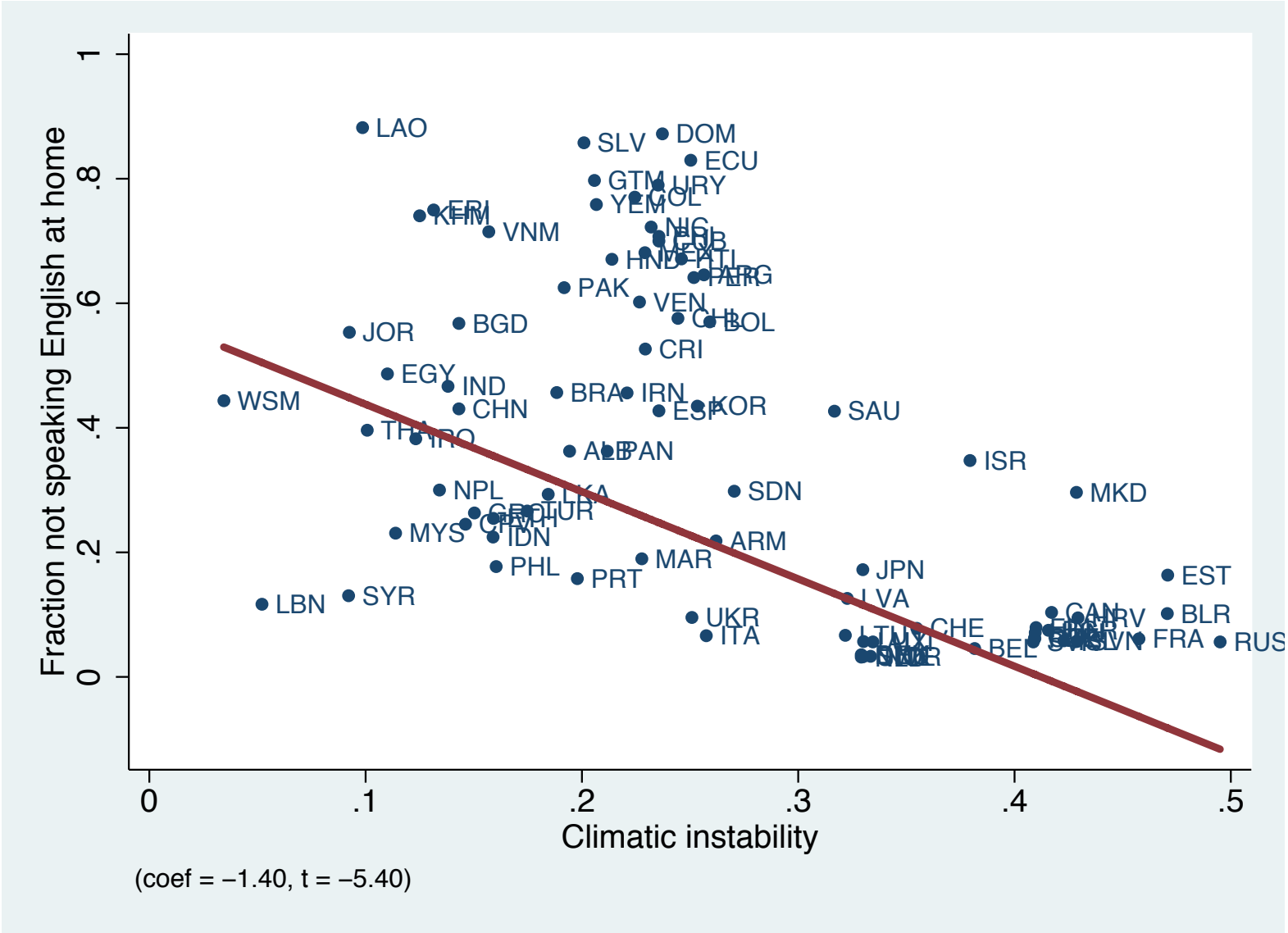


Bivariate plot: Speaking a foreign language at home



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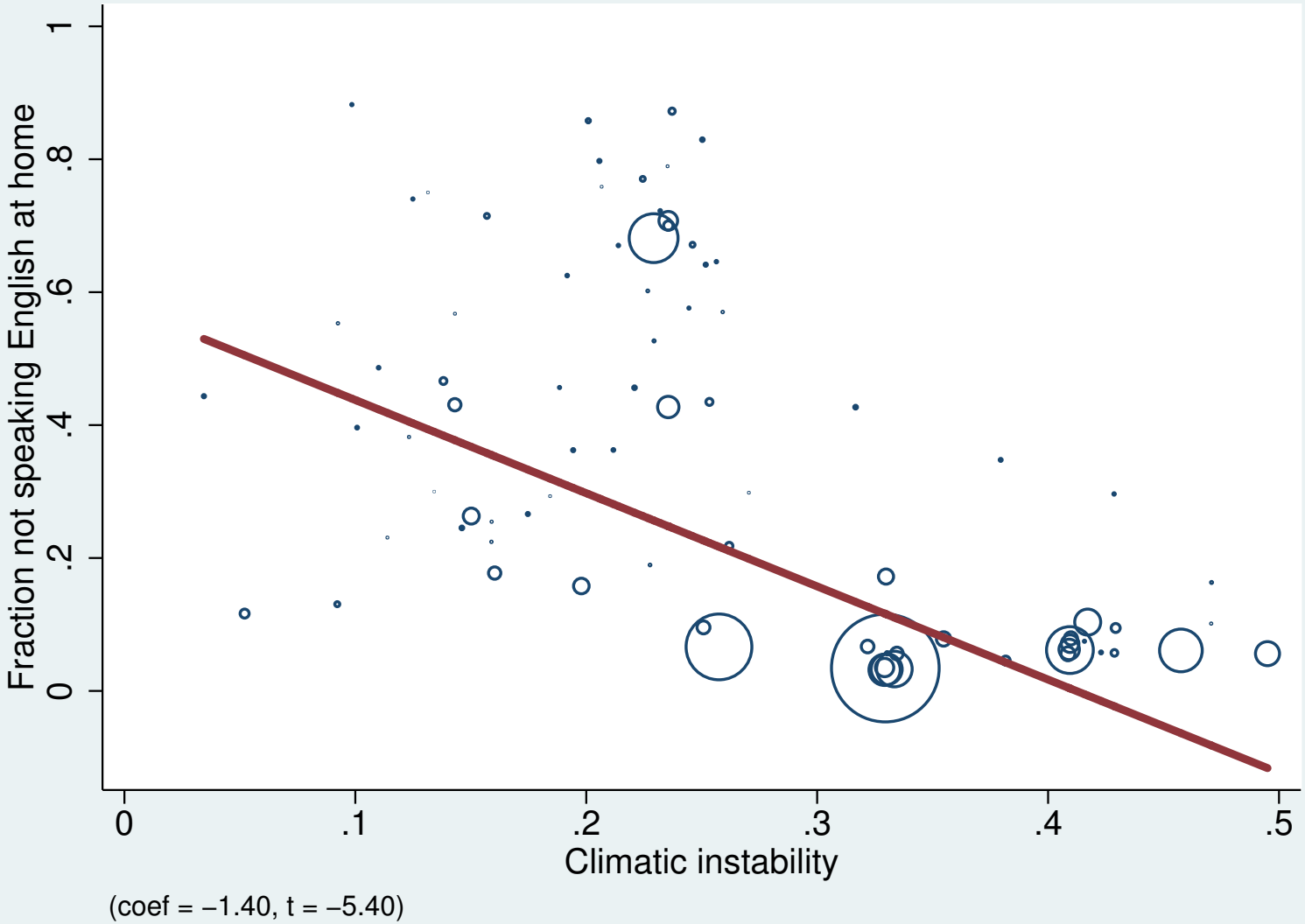

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Bulletproofing beliefs (Nunn and Sanchez de la Sierra, 2017)

Culture and social organization in SSA

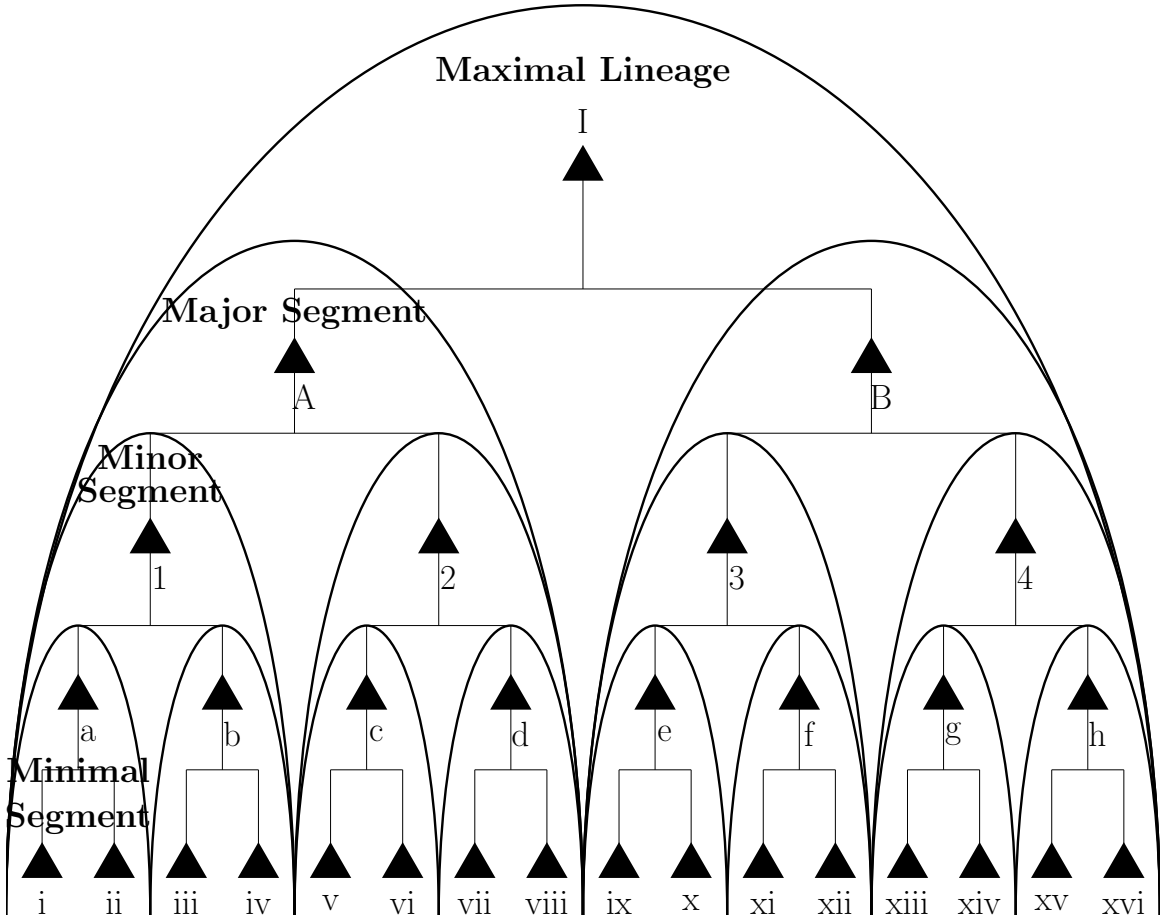
- Existing research has focused on state centralization as being important for economic development.
  - E.g., Gennaioli and Rainer (2007), Michalopoulos and Papaioannou (2013).
- However, African societies also differ in important (cultural) dimensions.
  1. Segmentary lineage structures
  2. Age sets

Social organization: Segmentary lineages

Definition from Evans-Pritchard and Fortes (1940):

1. Political and administrative association are based on a (unilineal) lineage structure.
2. Individuals are aware of their genealogical relationship to other tribe members, including most recent common ancestor
   - And, this biological distance guides social interactions.
3. Patterns of residence are based on the lineage structure.

Segmentary lineage societies (Moscona, Nunn, and Robinson, 2017)



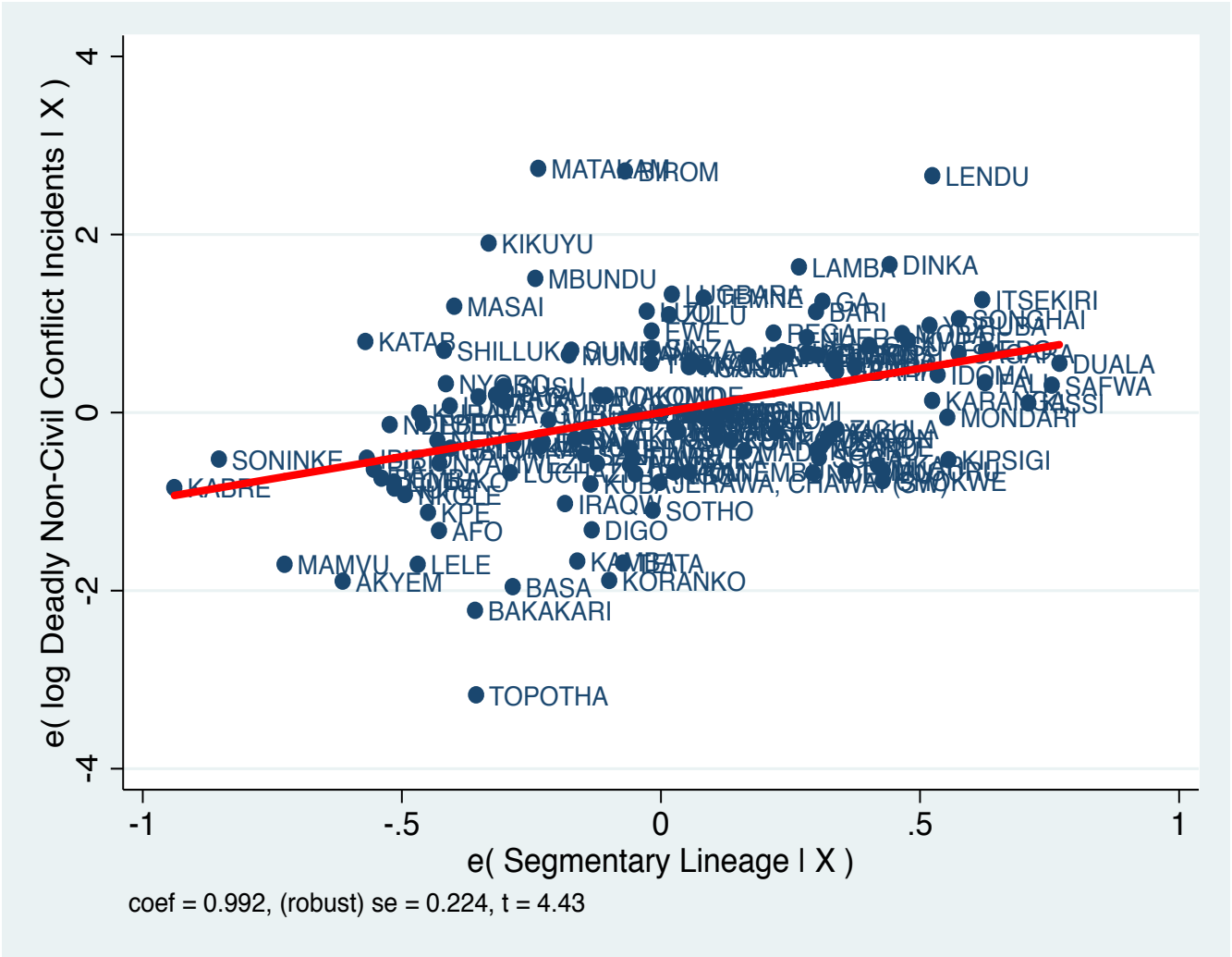
Relationship with conflict

- Literature in anthropology hypothesizes a link between segmentary lineage organizations and the incidence and escalation of armed conflicts.
- Evans-Pritchard (1969), discussing the Nuer, explains:
  - *"The members of any segment unite for war against adjacent segments of the same order and unite with these adjacent segments against larger sections."*
- Bedouin proverb:
  - *"I against my brothers; my brothers and I against my cousins; my cousins, my brothers, and I against the world."*

Measuring the presence of a segmentary lineage society

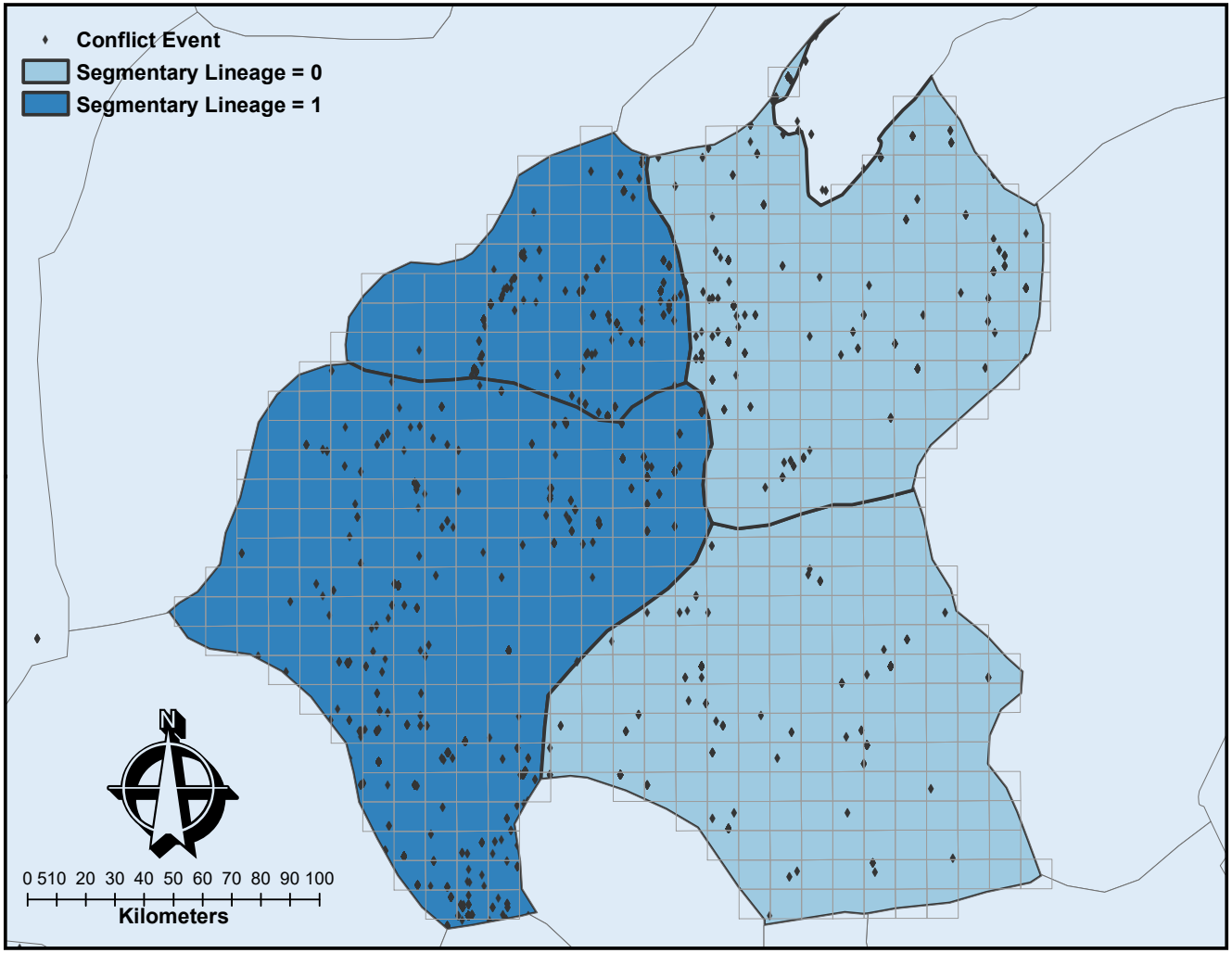
- We code 145 African societies as either having or not having segmentary lineage systems.
  - From the *Ethnographic Survey of Africa*, a series of studies edited by Daryll Forde and produced from the 1940s until the 1970s.
- Connect ethnic groups to conflict using the location of conflict.

OLS estimates: Segmentary lineage and the incidence of localized smaller-scale conflicts

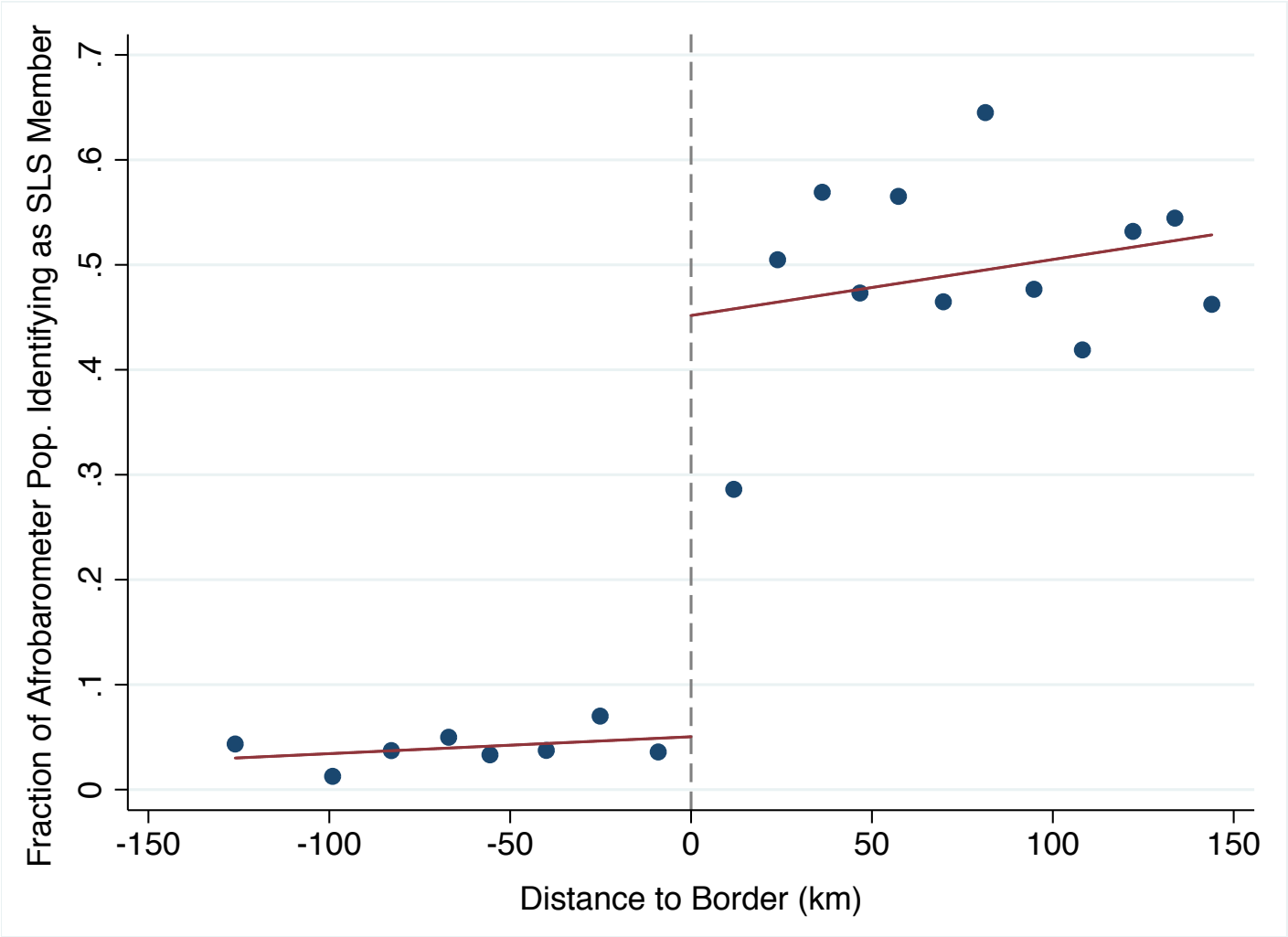


coef = 0.992, (robust) se = 0.224, t = 4.43

RD estimates



RD estimates: Ethnic identity



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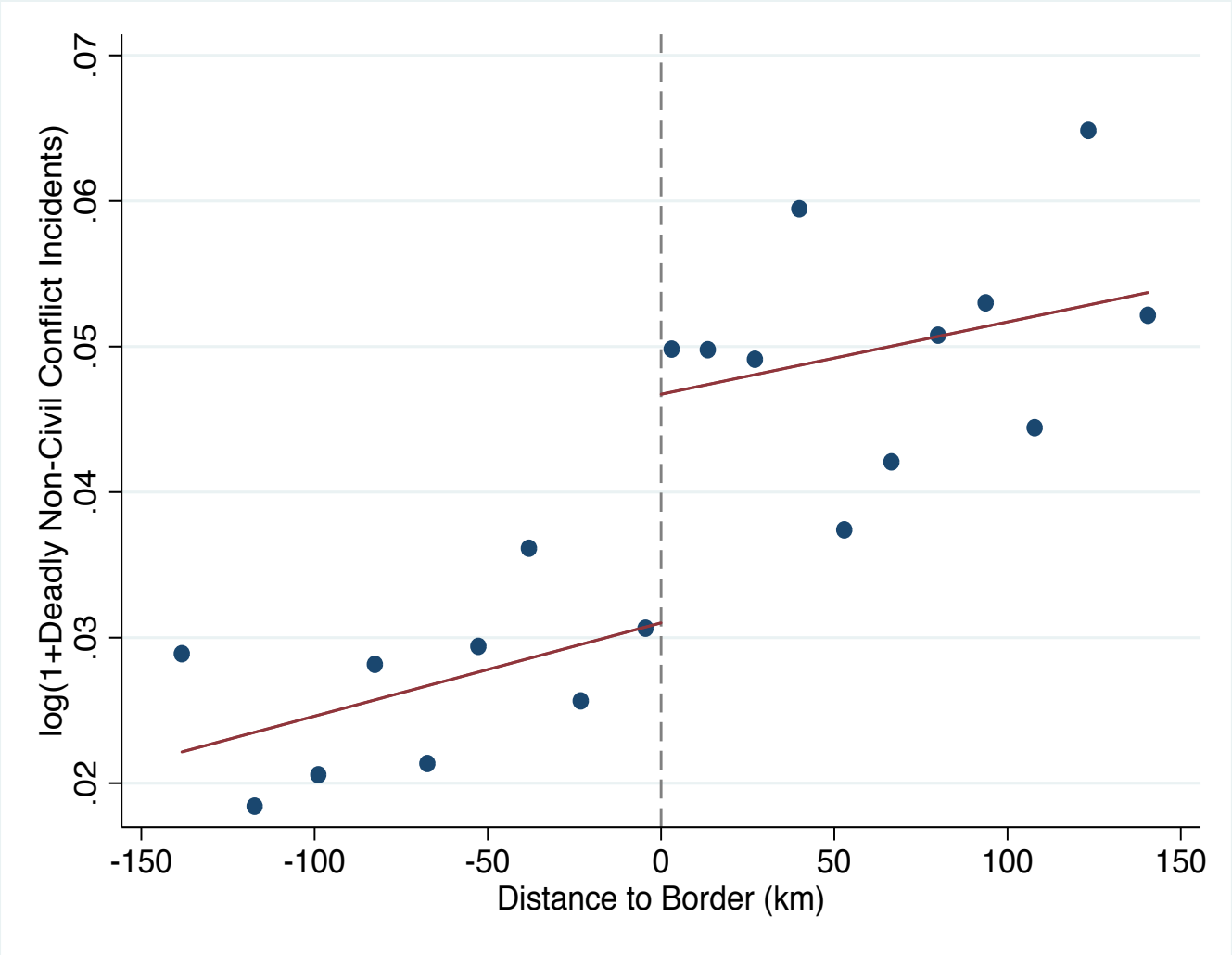

Age sets: Traditional Ngbaka initiation ceremony

Age sets: Contemporary Ngbaka initiation ceremony

Social organization: Age sets

Definition (Radcliffe-Brown, 1929):

- A recognized and sometimes organized group consisting of persons (often male persons only) who are of the same age.
- An age-set is normally formed of all those males who are initiated at one time.
- Once a person enters a given age-set, he remains a member of the same age-set for the remainder of his life.
- Each age-set normally passes from one age grade to another as a group.

Social organization: Age sets

Why age sets might matter:

- Age sets build strong horizontal (within cohort) ties.
- These are even stronger than vertical (within lineage) ties.
- For example, a young man will have a much stronger allegiance with those in his age set than with elders, the chief, or even his own father.

Chiefs from rural villages in Equateur province of DRC

Evidence from baseline surveys in Gemena (200 villages)

Individuals from villages with age sets:

1. Are less likely to believe that it is important to agree with elders.
2. Trust their chief less.

This is despite the fact that chiefs in villages with age sets are:

1. More likely to be appointed democratically.
2. Provide more public goods.

Age sets and the trust of chiefs

Age sets and the accountability of chiefs

Age sets and public goods provision by chiefs

Questions

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4. Does culture affect anything that we as economists care about?
5. **What are the implications (if any) for economic policy?**
   - **CDESG Panel Session: 9am Saturday**

Conclusions

1. Because humans have cognitive limits, culture provides an effective short-cut for decision-making.
2. We observe vast differences in culture traits across societies
   - Western European cultural traits are not the norm.
3. Cultural traits evolve through systematic historical processes.
4. Cultural differences are important determinants of factors that affect long-run growth.
   - E.g., conflict, quality of institutions, etc.
5. Policy implications? How does better understanding culture help us design better policies?

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