Title: Culture, economics, persistence

Subject: EIC 1

WHAT IS CULTURE AND HOW DOES IT AFFECT ECONOMICS?

Definition (Guiso, Sapienza and Zingales 2006):

"Those customary beliefs and values that ethnic, religious, and social groups transmit fairly unchanged from generation to generation".

More in deep: time invariant inherited from previous generations (parent-child vertical transmission, state, church), slow-moving, not effect of social interactions with friends, colleagues, propaganda. Example Mursi of Ethiopia: women wear large lip ornaments that disfigure their lips and force them to remove some of their front teeth. Today's Mursi have lost the reason for this tradition (introduced to make women less interesting to slave traders).

Is culture input or output? (reverse causation). The debate has started centuries ago:

- Input: Smith and Mill regarded culture as key input for econ dev, Weber considered religion a key factor for econ development, Putnam theorized that where "social capital" is high, the formally identical regional govs functioned much better (Italy).
- Output: Marx thought technology determined the type of social structure and culture, post ww2 econ of Chicago school thought of culture as output of econ forces.

Our task, a three step procedure to show how culture is an input in affecting economic outcomes

Culture (ex. religion)

Measure:

1.Survey data

2. Experimental evidence (ex. Trust games)

3. Immigrants (diff background but live under common inst).

1. Prove

Culture affects Preferences (thriftiness, redistribution)

Catholics and Protestant are more likely than non-religious to think teaching thriftiness is important and less likely to prefer redistribution.

2. Prove

Economics

Thriftiness => nat saving rate
pref for red => nat tax rate

Culture affects Prior Beliefs (Trust, individualism/collectivism)

Culture(religion)-prior belief (Trust) regression (from "does culture affect economic outcomes?" Guiso, Sapienza, Zingales)

$$T_{icw} = \alpha_c + \tau_w + \beta_1 R_i + \beta_2 God + X_i\gamma + \varepsilon_{icw}$$

(God: 1 if you believe in god)

Survey data, build trust variable

Religion (muslim, christian, hindu…)

Individual level controls (health, gender, age, education, social class)

Results:
Religious people have +20% trust, each religion correlates with trust differently (ex. Protestant +10%, Hindu – 5%), Different ethnic groups correlate with trust differently (Mex – 30%, Jap +25%)

2. Prove

Economics

Priors are key in decision making, especially when there is no previous experience (education, savings for retirement..).
Arrow: "Virtually every commercial transaction has within itself an element of trust", especially in unstructured environments

Other possible cultural traits:

- Family ties: Weak family ties promote good conduct outside the small family network.
- Generalized morality: Limited morality exists where cooperative behavior is extended only toward family, not everyone in society
- Attitudes toward work: Relevance of hard work versus luck in determining success in life. This really affects your ideas o distributional policies and you work effort.

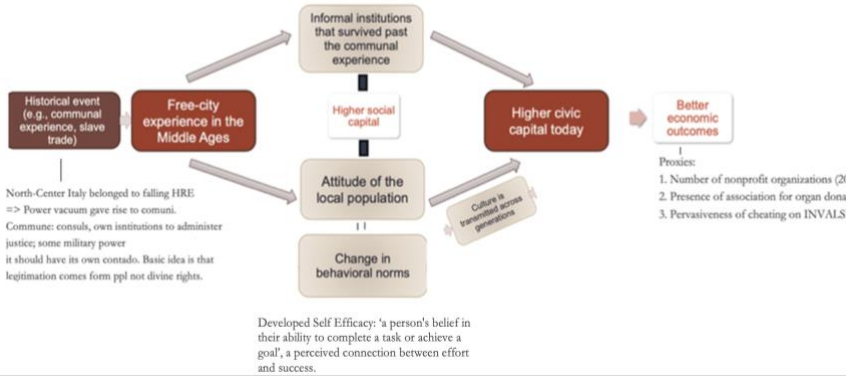
IS CULTURE PERSISTENT? WHY?

A. The long term persistence: Comuni, Social capital and GDP growth

I. Research question: what can explain differences in performance among Italian regions?

Hyp = Putnam's hypothesis: differences in performance among Italian regions are due to persistent differences in Civic Capital (lower free riding) originating from communes experience during the late Middle Ages. Good idea bc:

- hist period whose formal inst have long disappeared = no confounder to the cultural effect
- exploit regional variation within the North, not all northern cities were free cities =



II. Results:

Towns that were communes in 1176 have:

i. 30% more nonprofit org than avg

ii. higher income/capita.

The more independent the communes were and the longer the free-city experience lasted the greater the effect!

B. The Medieval Origins of Anti-Semitic Violence in Nazi Germany

I. Idea

Connect the Wave of mass murder of Jews during the Black Death (14C) in Ger to the local variation of anti-Semitism during the 20s-30s

II. Data Description, Extended Sample:

1,400 towns and cities with Jewish communities in 20s, control for existence of Jewish Community in 1349.

III. History

- 14th century antisemitism. Various accusations: deicide, conspiracy for world domination, ritual murders. Children separated from adults and baptized. Co-ordinated effort to kill all the Jews in town (ex. 600 adults brought to a specially-built wooden structure on an island in the Rhine river and burnt inside).
- Anti-Semitism in 20th century Germany:

Discrimination, Desecration of Jewish graveyards, Pogroms, Anti-Semitic propaganda, Deportations (start after 'Night of Broken Glass')

IV. Results:

Towns and cities with pogroms in 1348-50 (Dummy 0, 1) show higher levels of:

1. Pogroms in the 1920s, 2. Votes for the Nazi party, 3. Deportations, 4. Anti-Semitic letters (Der Stürmer), 5. Attacks on synagogues

=> Strong persistence of anti-Semitism at the local level over 600 years

Note: persistence failed in open and trading cities

C. Immigrants keep the level of trust of their c of origin. Slow Foreign culture assimilation.

Culture is persistent! Build a mathematical model of cultural transmission

A. 'The Economics of Cultural Transmission', Bisin and Verdier

I. Research questions: 1. how parents transmit traits to their children and 2. how marriage dynamics influence the persistence of culture?

II. Methodology: Develop a Model of cultural transmission

Assumptions:

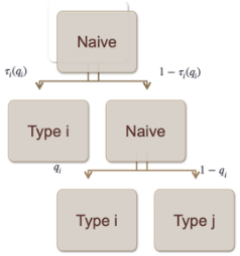
- 2 cultural traits: {a,b}
- Young are born without a specific trait. Agents gain greater U from having children with same trait (Vii > Vij, imperfect emphaty)
- Only homogamous families can transmit their trait to their child.

To maximize utility. Agents will choose:

a. Effort of vertical socialization (direct socialization effort τ):

Time your parents spend with you to transmit their values (ex. doing homework together, choice of schools). The effort the greater the effect. Costly (direct soc cost is β, you need convex maximization funct bc otherwise everyone would choose max effort).

If vertical socialization fails then the individual takes the trait wrt a prob depending on population shares (qj= 1 – qi, the melting pot factor, horizontal socialization)



b. Effort to search for a partner:

Cost to find homogamous match. There are 2 restricted pools (containing only individual of type i) and 1 common (residual) pool containing unmatched individuals. Homogamous marriage is a technology to transmit traits. α is the probability of finding a match in the restricted pool, π is the overall probability of getting an homogenous match. Entering the restricted pool is costly (marriage segregation cost) = attend church events, follow traditions etc.

III. Conclusion

Ppl Actively look for homogamous marriages to socialize their offspring to the trait of the family = the marriage process is biased toward homogamy.

Overall, if you consider the eq of the BR functions, you could see that:

A. Higher cost of direct socialization effort β:

i. lower t (Direct socialization effort) and

ii. lower α bc less ppl will enter the common pool as the benefits of the restricted pool consist of the option to use the direct socialization technology which is now more costly = homogamy rate is decreasing in the direct socialization effort.

B. Higher marriage segregation cost δ: lower αi (match in the restricted pool, bc lower entry) and lower πi (prob of homogenous match)

C. Higher cultural distance/intolerance/segregation of group i => higher gains from having a child with same traits (imperfect empathy), higher effort for homogenous match (ai) /vertical transmission (ti)

D. Higher A^j => more type-j individuals in the common pool => lower incentive to get onto pool i.

B. Cultural persistence and climate stability (Giuliano and Nunn 2021)

Even if on average culture is persistent, we have also examples of rapid cultural change (ex. Protestant reform, or village of Peri and community of Tikopia, completely abandoned their traditional practices embracing Eu customs)

Research Question: What determines a society's willingness to adopt new customs, beliefs, and behaviors?

Thesis (From evolutionary anthropology): highly stable environment across generations => evolved traditions of the previous generation are beneficial for the current generation = more beneficial to maintain existing customs

Title: The origin of Culture

Subject: EIC 2

Striking fact: Vast cross-societal differences in cultural attitudes about the appropriate role of women

i. Survey responses – Ex. WVS Ex. "When jobs are scarce, men should have more right to a job than women"

ii. Female labor force participation, wage gap, differences in time used

Where does the gender division of labor come from? Cultural norms!... Yes but c'mon… where do cultural norms come from?
Alesina, Giuliano & Nunn (2013): On the origins of gender roles: Women and the plough.

I. Research Question:

Test the Boserup's hypothesis: Was the hist adoption of the plough associated with less female participation in agriculture?

Boserup's hypothesis: the form of agriculture practiced traditionally (plough vs shifting agriculture) affected female participation in agriculture. Plough needed men power, no weeding (women specialized in this) = men had a biological advantage => men tended to work outside in the field while women at home. Over centuries, the belief that the home was "normal", "natural" place for women. These beliefs continue to persist today even after a movement out of agriculture.

II. Data (Ethnographic Atlas):

I. Historical plough use (X)

- Categorize 1267 ethnic groups into 4: i. No Data, ii. No use, iii. Not-aboriginal Plough use, iv. Aboriginal plough use

II. Historical female participation (Y)

- Data on female participation in agriculture (Indicator 1-5): i. Males only, ii. Males more, iii. Equal, iv. Female more, v. Females only (32)
- Data on female participation in the following tasks: Land clearance, Planting, Care of small and large animals, Milking, Cooking, Burden carrying

Methods, regression 1:

- Y = female participation in agri or female participation in other tasks
- X = Dummy equal to 1 if ethnic group i used plough agriculture: I plough
- Controls: Economic complexity, Political hierarchies, Tropical area

Base Results

- Negative relationship with femal participation in agricutlrue!, instead no correlation with other activities (thi suggests there is no omitted factor)

But this is simply a regression on the Ethnographic Atlas. We have just an hist analysis, with a given classification! Bring plough variable to current nations:

Methods, regression 2 (district level)

Y now: Female labor force participation/ % of firm managers that are female / % of seats in nat. parl. held by women

X now: fraction of the pop currently living in a district with ancestors that engaged in plough agriculture. This is a district level pop weighted avg. Built as:
1. The Ethnographic Atlas gives you historic distribution of plough use of 1265 ethnic groups.
2. They use the Ethnologue to match are occupied by the ethnic groups into the current geographic distribution of 7612 different languages => We now know if the ancestors of each language group engaged in plough agriculture.
4. Put modern boundaries above
5. Combine this with the Landscan 2000 database, that gives pop density for each area. Now you have the fraction of the population currently living in a district with ancestors that traditionally engaged in plough agriculture

Issue: reverse causation. Locations that historically had less equal gender-role attitudes may have had a higher likelihood of inventing/adopting plough.

Robustness:

I. Use individual level data + related additional controls: ancestors' subsistence from hunting, family structure, exposure to warfare in 19th and 20th, per capita oil production, religion

II. Use 2SLS

A determinant of whether the plough was adopted was the characteristics of crops that could be grown in a particular location: Areas can be 1. Plough-positive and 2. Plough-negative. Use this as an IV.

III. Use Immigrants

Problem: how to distinguish this from current institution?

Solution: Immigrants are a great experiment*. Group of individuals from diverse cultural backgrounds BUT face the same external environment, including mkts, institutions, laws

Consider immigrants to US or EU, Look at Second generation

Y = outcome of daughter i, with parents a living in state s with country of origin c

$$Y_{i,s,c} = \alpha_s + \beta Plough_c + hist\ Con\ c\ of\ origin + contemp\ Con + indiv\ Con + \varepsilon_{i,s,c}$$

*Issues

- Immigrants are not a random sample of the pop in the home country (individuals who left from may be less attached to the traditions. May have commo traits).
- Feedback btw institutions and culture: parents should, over time, teach their children family values more compatible with the new institutions they face

Title: How culture shapes development

Subject: EIC 3

We want to know whether culture has an effect on development => Tabellini G. (2010): "Culture and inst, econ dev in the regions of Europe"

A. Idea and data

Current Institutions = Current Political and Economic Environment (Acemoglu)

Current Social Interaction (horizontal transmission)

Culture (X)

Development (Y)

Meaning: Even when hist inst don't exist anymore, culture will persist and affect develop (communi)

Data: Average per capita gross value added at PPP

Level: Regions in eight European countries (Fra, Ger, Uk, Ita, Ned, Bel, Spa, and Por). Main advantage of using regions: today's inst are captured by country FE (control for upper Acemoglu channel = contemporary inst)

Good culture = generalized morality (cooperative behavior towards all in society vs limited morality only towards rescripted group ex. family)

Data: WVS individual surveys aggreg regional level. Extract 4 cultural traits:

- Trust (+ with gdp): facilitates econ exc, less need ext enforc (lower transaction cost)
- Respect (+): less hierarchical societies
- Control or Self efficacy (+): the conviction effort will pay off = you work harder
- Obedience (-): typical of hierarchical societies, good behavior is deemed to result from coercion, sincere Individual initiative and cooperation is typically hampered.

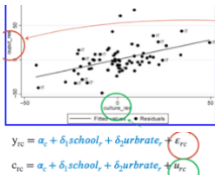
=> Estimate principal component (weighted avg of these cult traits)!

B. Methodologies and results

a. Correlation

Culture-Gdp correlation is positive: all coherent with all we expected in data.

Advanced: Partial out confounders (excluded omitted variables): Regress both output and culture on schooling an urbanization rate. They are correlated even if you remove the effect of these two directions.



b. Iv: use hist institutions as an IV for culture!

Culture (X)

Development (Y)

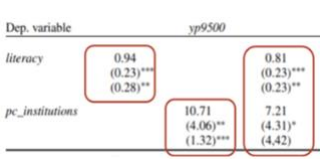
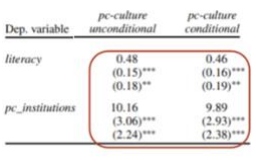
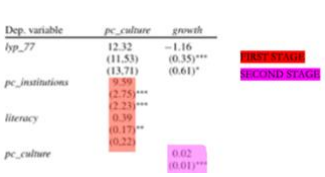
Traits inherited from previous generations (vertical transmission)

IV: Past Social Interactions = past inst and literacy rates (exacerbates effects of neg

Data to measure historical political institutions:

- The holder of executive pow is accountable to bodies of political representatives or to citizens

So we control for contemporaneous social interaction (current inst) and we focus on Cultural inherited traits => use as IV past institutions + literacy rate!

	Reduced form: Y (yp9500) ON Z. Positive and significant	**First Stage:** regress X on Z	**First Stage:** regress X on Z
Correlations			
Regressions			

Result: The effect of culture on GDP is positive and significant: if South Ita had the same culture as Lombardy, its avg yearly g would have 0.5% higher

Implication: Distant political history (historic inst) emerges as an important determinant of current econ perf also when controlling for contemporary institutions. The regions in the sample (ex. Ita) have been ruled by the same formal inst for some centuries, and yet we still find an economic legacy of early political institutions.

Title: Interplay Culture - Institutions

Subject: EIC 4

"Family Values and the Regulation of Labor" (Alesina et al., 2015)

A. Idea: Culture shape institutions and vice versa: **Culture** (preference and values) Ex. Strenght of family ties ⇄ **Choice of Institutions** Ex. Labor market Regulations

A. Model

a. Framework

I. **Individuals**: At birth, every individual is located on a [0,1] line. They are identical, risk neutral and have no preference for leisure: their utility is equal to the sum of C + Utility from family ties. The only distinction is family ties:

- Strong family ties: utility $\Delta(\sigma) > 0$, if an individual lives in the same location as her parents, and a disutility - $\Delta(\sigma)$ if he /she lives elsewhere. Assume $\Delta'(\sigma) > 0$: as the proportion of ppl with strong family ties increases, the Utility/Disutility for an individual with strong family also increases (feel to conform to social norms).
- Weak family ties: indifferent btw home and elsewhere, thus $\Delta(\sigma) = 0$.

The share of individuals with strong family ties is σ [0; 1].

II. **Market**: There are two goods labor and a numeraire good produced with labor. Just one firm operates in each location. By assumption there are two possible types of labor mkt policies: labor market flexibility or regulation. When a worker is hired in his initial location, his prod y is drawn from the uniform distribution on the interval [0; 1]. Every worker can find a job with productivity 1 in a place different from his initial location. Job protection constrains firms to keep all employees whose productivity is above a threshold value denoted by R [0;1]: Job protection entails deadweight losses c [0;1); that is the production of a worker who draws the productivity y is equal to y – c (coherent to intuition of a distorted labor market)

b. Stages:

I. Individuals choose family values: strong family ties or with low family ties (simplistic, in reality families choose). → II. With majority rule individuals vote on labor mkt regulation.

c. Solve by backward induction:

II. Who votes for what? => Who has majority?

a. Flexible labor market

- **Weak ties individuals:** will always get $U_F^W = 1$ (they move if prod < 1)
- **Strong ties individuals:** get a wage equal to 1 if they decide to leave their initial location, but the move costs them $2\Delta(\sigma)$: reservation wage (min wage they require to work in initial location) = max[0; 1 - $2\Delta(\sigma)$].

We assume if $\Delta(\sigma) > ½$ => reservation wage is 0! They will not move for sure! $U_F^S = 0 + \Delta(\sigma)$. WHY ARE WE USING 0? Monopsony, firm exploiting immobility of workers + monopsony pow, they know workers won't move. Ok but why should I work if they payment 0? is this simply a consequence of the model not valuing leisure?

b. Rigid labor market

Gov sets minimum wage (w, key to avoid they are exploited for their immobility) and job protection (if productivity y > R you keep the job).

They can get w at home if y > R or always 1 - c abroad (not w bc firms can't exploit immobility). Note w < 1-c to guarantee firms earn positive profits

- If your y < R; get either zero income if they do not move, or a wage equal to 1 - c if they move.

-- Weak ties will always move to get 1 - c

-- Strong ties will always stay at home: $U_R^S = (1-R)w + \Delta(\sigma)$

Clearly weak ties prefer flexible. Strong ties prefer regulated. What about unemployment? in flex 0 (but employed with 0 wage), in rigid all y < R?

Note: wrt aggr welfare (Aggr Ut) regulation can be a pareto improvement if there are sufficient rigidities

Individuals chose the strength of family ties at birth. If they anticipate that the share of individuals with strong family ties is s < 1/2, they know that labor market flexibility will prevail. Two possible equilibria:

1. Weak family ties, labor market flexibility
2. Strong family ties, labor mkt regulation

Conclusion:

Two-way effect between family ties and labor market regulations

- An inherited culture of strong family ties => preference for labor market rigidities
- labor market regfulation = economic benefits of mobility are reduced => Opp cost of strong family ties decreases = optimal to choose strong ties

=> Thus economic incentives explain the evolution of cultural values and vice versa.

d. Test the model with data

Our model leads us to expect: individuals with strong family less mobile, should receive lower wages + should have higher D for job protection and wage reg?

I. Data

Y: job regulation

- Objective measures:
  - Index on Job protection (how costly to dismiss workers).
  - Index on minimum wage
- Preferences for regulation
  - Preference of job security (WVS)
  - Demand for wage regulation

X: strength of family ties

- Objective measures
  - Share of adult population in parental house
- Subjective measures:
  - WVS on strength of family tie

II. Result (cross country correlations): stronger family ties => more mkt regulation

III. Prove Causation: robustness with Second Generation Immigrants (individual level outcomes)

i. Data

Y: job regulation

- Labor market outcomes (mobility)
- General Social Survey: Preferences for job security and Regulation

X: strength of family ties

- Measure of how strong family tie is in the country of origin of parents of 2nd generation immigrant

ii. OLS

$Y_{ic} = d_0 + a_1\ family_ties_c, + a_1 X_i, + \delta_s, + \varepsilon_{ic}$

- Xi are individual controls (gender, age, experience, education, marital status, employment status, number of children, home ownership, etc.)
- δs state fixed effect

iii. Results

Individuals coming from countries with Stronger family ties:
- In terms of labor mkt outcomes higher mobility / higher unemployment / Lower wages
- In terms of individuals preferences: higher preferences for job security

IV. Test Persistence

Labor market inst are persistent to the extent that family values are fairly constant over time: <u>show that family values do not change quickly</u>

First Idea: show attitudes toward the family of immigrants arrived in the US before 1940 are related to the labor mkt regulations in the country of origin at the beginning of 2000. Since the strength of family ties before World War II cannot be observed = no survey available for this period, estimate the inherited component of family values.

Two steps procedure:

a. OLS regression of family values reported in the GSS ('How often you spend evening with a relative') on countries of origin dummies, in addition to individual characteristics. The inherited family values correspond to the coefficients of country-of-origin fixed effects.

b. Correlate inherited family ties with current labor market legislations in the home countries. Results: effect is strong and significant. The coefficients associated with past family values are of the same order of magnitude as the ones found with contemporaneous family values in cross country correlations, suggesting the long-lasting effect of family ties on the desire for mkt regulation.

Second Idea: Exploit differences in family types across Eu regions dating back to the Middle Ages and show that regional historical variation in family structures is related to differences in individual level desire for regulation

i. Data

X: Todd's Classification provides regional variation in the structure of the family. Authoritarian vs Liberal (verthical: rel paretnts-children, liberal if children is independent from parents in adult age), Egalitarian vs Non egalitarian (horizontal: relationship btwn siblings). We use as strong family ties the two authoritarian forms: communitarian and extended families.

Y: Current desire for regulation: Europe, WVS and International Social Survey Program

ii. Results

=> Extended and Communitarian family background is associated today with higher desire for regulation and n_of generations living in the parental home!

Title: Can Institutional transplants work to change institutions?

Subject: EIC 5

Inspirational paper in the field: The Consequences of Radical Reform (Acemoglu, ACJR 2011)

Research Question: What are the consequences of radical, externally imposed, reforms on subsequent economic growth?
Context: Expansion of French Empire in Ger under Napoleon and imposition of Napoleonic Code.

Results: Occupation by the French induced significant institutional reforms => rapid economic development

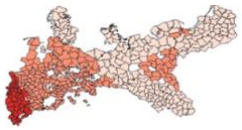
Policy conclusion: Externally imposed, radical, and "Big Bang" style reforms can sometimes be successfulx

Expand: why don't transplants work everywhere in the same way ? **Institutional Transplant and Cultural Proximity: Evidence from 19th-Century Prussia, Lecce, Ogliari**

Research question: What determines the success of the transplant? Do imported institutions induce better economic outcomes where the cultural environment is more similar to the one of the exporting country?

Hyp: Similar culture is key. Culture affects 2 things: type of institutions and functioning of institutions (recall Putnam hyp: same regional gov in Italy, but different functioning).

Context: Again, 19th-century Prussia after Napoleon Invasion. Napoleon clashed the Ancien Regime and imposed Napoleonic code (*regulated family wrt the traditional French customs). Conquered areas are heterogenous in cultural background, religious affiliation and previous exposure to French culture!



Empirical Specification: $y_i = \alpha + \beta_1 Cultural\ dist_i + \beta_2 Napoleon_i + \beta_3 Cultural\ dist_i \times Napoleon_i +$ Other controls

Y (econ outcome): average annual wage of male elementary school teachers, 1886

x1 (Institution): dummy equal to 1 if Napoleonic Code was imposed in the county

x2 (Cultural Similarity): 1871 Protestant share in the county. Why religion for cultural similarity?

i. Religious affiliation synthesizes various cultural aspects beyond the spiritual dimension;

ii. Religion was of paramount importance in shaping politics

iii. Anecdotal evidence shows the reaction to the French rule was different btw Cath and Prot.

β1: Effect of cultural distance on gdp

β2: Represents the effect of Napoleonic institutions

β3: Represents the effect of the Napoleonic institutions given the cultural distance. Do Napoleonic institutions have lower impact the greater the cultural distance (share of protestants)? We expect negative coeff on cultural distance = positive coefficient on cultural similarity (complementarity culture-institutions: economic terms, complementary if they enhance each other's effectiveness when present together.)

Results:

Log Average Wage for Male Elementary Teachers in 1886	(1)	(2)
Napoleon	0.0377**	0.114***
	(0.0172)	(0.0224)
Protestant Share	0.0938***	0.172***
	(0.0189)	(0.0261)
Napoleon × Protestant Share		-0.112***
		(0.0332)

In a Protestant county (protestant share=1) the positive effect of institutions is not there anymore!

Robusness (every check is passed):

I. Endogeneity of Institutions: what if better inst in already more developed areas = What if napoleaon invaded richer areas? Non invaded countries no good control. NO:

i. French invasions had primarily geopolitical, military, and ideological motives. Napoleon did not systematically select territories.

ii. Anecdotal evidence shows how occupied regions were not economically more promising ex ante than those not invaded

iii. Empirical test (urban rate, pop density, education, coal): no result

II. French occupation: Some areas in our sample had been repeatedly invaded by France before the Napoleonic wars.

- Forged a historical collective memory identifying France as the traditional enemy -> negative effect on the reception of institution.
- BUT Protracted occupations imply interactions with the French military and cultural exchanges with the local population - positive reception of the institutions

III. Battles

Institutions achieved through conquest: if destruction from war has a persistent economic effect, and if harsher conflicts occurred in invaded culturally distant areas, results may be contaminated by the severity of the Napoleonic conflict (not culture itself but war reaction to culture)

IV. What if religion is not a good proxy for cultural distance? Try other measures of cultural distance:

i. Linguistic distance (use ethnologue)

ii. French ties: proxy of cultural distance among the elites. Mediation of ruling class was key. Many rulers had a French relative and a long standing relationship with the French Royal House

Mechanism: Why cultural similarities should lead them to adopt more easily Napoleonic code?

I. Mechanism 1: invaded perspective

Invaded from someone similar to you (language, religion, mixed marriages) => similar social norms => accept more easily 'invaders' + catholic clergy favored to build the legitimacy of the French invader

Instead, For protestants it was perceived an act of usurpation and encouraged obstructionisms

II. Mechanism 2: invader perspective

Invaders used a friendlier approach in territories they considered more similar. Ex:

i. in Catholic areas French representatives had chosen for public holidays those of popular religious holidays.

ii. Engaged local elites in administrative positions

iii. Favored sociability between Ger and Fre people

III. Mechanism 3: content of new institutions

Some of the norms in the Civil Code were entrenched in traditional French values => clash vs pre-existing local social norms and values.

Conclusion

Institutional change can create radical improvement. However: Institutional view of development seem to pick up only part of the story => Imposition of seemingly "sound" reforms does will not work equally everywhere. Culture and inst seem to be complement in generating economic growth.

Institutional rejection due to cultural dissimilarity: Italian Unification (Lecce)

Research question: did cultural distance lead to reject of piedmontese institutions in the south?

Before: we wanted to prove cultural distance ---> rejection of napoleonic inst = bad functioning of transplanted Napoleonic inst ---> bad gdp

Now: cultural distance ---> rejection of Piedmontese institutions (brigantage).

Before we used as y variable the gdp, now we have no measure on gdp, hence we use brigantage

Context: History: 1860 - Southern Italy was annexed to Italy under the Savoy rule. The unification process was carriedout by a complete transfer of the Piedmontese institutions onto the annexed territories. Perceived as an hostile invasion, huge dissatisfaction => social unrest, organization of guerrilla groups = brigants. Three waves of brigantage:

1st phase: small, unorganized (groups of peasants)

2nd phase: specialzed bands => martial law introduced (220k soldiers from italian army)

3rd phase: large military operations worked, brigantage fade , remained as common criminality

Empirical specification:

Y (Institutional rejection): proxy is the incidence of brigantage in a municipality (archieve data)

X (Cultural similarity): Proxy is the distance from Ethno-linguistic enclaves (10) in southern Italy (following medieval migrations from Piedmont).

Results: The more distant you are from the piedmont enclave the more brigantage

Mechanisms (in previous numbers)

I. Mechanism 1: Invaded perspective

Places more similar to Piemonte identify more with the new rulers since to observed common attributes(ex. langayge). Southern Italian population considers the new rulers from the north of Italy as a rival outgroup and rebels against them.

III. Mechanism 3: Content of new institutions

Places more exposed to Piedmontese ppl had more similar culture = More easily identified in the values of the invader. Norms embedded in new inst are more similar to own ones

Title: Industriral revolution

Subject: EIC 6

Modern growth: quantitative change of avg world growth rate from 0.15% to 2%, extraordinary leap. Qualitative change in value cration: now tech is key, before trade and institutions. Modern growth started with the first industrial revolution (1750-1830): Huge technological progress in some industries: power, metallurgy, textiles (Ex.: spinning jenny, engineering...). Why Indutrial revolution happened in the Uk? Three possible Explainations

1. Economic factors: Prices (Robert Allen)

High wages

Globalization in the 17th:

- Increased the D for labor => tight labor markets and high wages
- Expanded trade and manufacturing => D for educ (high skill = high wage)

+

Cheap energy (from wood to the greatest coal industry):

- Growing urban demand + innovation in house heating technology also led to energy revolutions
- Timber shortage hypothesis

High D for the new technology that would substitute labor with energy (R&D for invention profitable in Britain and not elsewhere)

Instiutions: Acemoglu, Robinson

Growth as the result of a process of progressive inst development: Inclusive economic and political institutions created the conditions for the Industrial Revolution

1215: magna carta challenges to the king's authority (taxation, illegal imprisonment)

1265: first elected parliament

1642: Parliament wins the Civil war vs king Charles. Overall balance of power in the parliament, more or less pluralistic

1688: Glorious revolution (Par defeated the king) => Constitutional Monarchy => Declaration of Rights: illegality of taxation & no standing army without par consent, etc. Develop of inclusive and econ (ppt rights, tax reform)political inst (dem)

Opp and incentives to growth:
- Transportations revolution (thanks to change in property rights impediments to use of land were abolished)
- competition among nascent domestic cotton industry and woolens

3. Mokyr: Culture and human capital

Gerowth derived by a specific new EU culture, that's why industrializationwas a western phenomenon:

Scientific revolution (17th century): Copernico, Kepler, Galilleo, Newton => scientific method => faith in orderliness and predictability of natuaal phenomena => rationality => open mine willing to abandon conventional doctrine when confronted with new evidence

Belief in material progress!

Enlightment (18th century): science and reason vs faith and tradition. Bacon: Understand and command nature in order to attain material progress. Aim: expanding the set of useful knowledge and applying natural philosophy to solve problems and bring about economic growth. For the first time, mechanical arts had the same dignity as liberal arts.

How can we attain material progress?

a. Expansion of propositional knowledge (practical)

b. Reduction in access costs to existing knowledge -> knowledge had to be popularized. How?

i. Vertically: Connected those who knew things ("savants") with those who made things ("fabricants"), ex. steam engine.

ii. Horizontally: Dissemination of both scientific and practical knowledge
- Diffusion of Encyclopedic volumes.
- Spreading of academic and scientific publications
- Scientific societies and private meetings
- Emergence of public lectures and experiments

iii. Improvement in the "language of technology" (increasing use of mathematics, illustrations, standard measures, universal scales).

Actors of the IR: did this culture of progress embrace the masses or just the elites? who really made the difference in the industrial revolution?
Despite the efforts to popularize sciences, the Enlightenment was an Elite Movement.

Yeah but why enlightment was in Europe?

Intellectual innovation has two big problems:

i. Reactionaries resist new ideas

ii. All intellectual innovation involves fixed costs, and so for it to be generated, innovators must expect some minimum audience + big return from the mkt implies more 'minds' will enter it, will compete and be incentivized to do better research. There are economies of scale in verification: any new result is checked by many experts.

Europe before the 17th century:

the problem was mainly (i):

Political power (and economic interests) was riding a stable image of the universe. Many philosophers got in trouble (Galileo, Giordano Bruno).

However Europe later developed a system that was highly suitable for intellectual innovation.

a. Advantage Political fragmentation: Forces of reaction (Pope, Bourbons, Habsburgs) failed to coordinate => did not suppress new ideas (exept few areas as Southern Eu) => Intellectuals threatened by their regime could leave and go to other country (ex. Hobbes)

b. Without atomized mkt for ideas (Intellectual Unity):

piece of innovation was contestable and the mkt for ideas was not monopolized.

BUT Why Britain FIRST? Main idea is Human capital advantage

Once invention were made by thinkers around Europe (data shows uk thinker not more inventive than avg eu thinker), they needed empirical though to be applied and to be crafter with proper skills to become economically usefull, hence to diffuse and be adopted.
= Need complementarity between inventors and skilled craftsmen.
England was full of technically brilliant empirical thinkers and skilled crafters. In the 1750s: British workers were the most skilled in Eu (many were hired in France)

The source of Britain's high quality labor:

- Better nutrition (high agricultural productivity + Poor Law)
- Good apprenticeship system (guilds vs. poor school system) <= institutional basis probably played a role

Title: Human Capital and Industrializazion

Subject: EIC 8

Key puzzle: Education based on avg workers skills (literacy rate) strong predictor of contemporaneous development, but typically unimportant for early industrialization, ex. Scandinavia (high literacy rate, but slow industrialization) vs. England (low literacy rate, but fast industrialization). How to explain this?

Human capital and industrialization: evidence from the age of Enlightenment. Squicciarini, M. & Voigtländer, N. (2015)

Inspiration: "density in the upper tail" crucial for innovation and diffusion of modern technology

Research question: test whether upper-tail human capital was an important factor for industrial and economic development during the 1st IR

Empirical specification

Y
- City pop growth, 1000-1850
- Department-level industry employment and output
- Department-level wages by sector
- Soldier height pre-1750 and in the 1800s

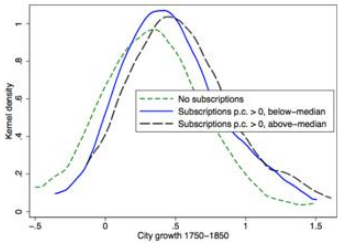
X
- For Upper tail knowledge (more challenging): List of more than 7,000 subscriptions to the Quarto Edition of the Encyclopédie (1777-1780) => use subscriber density.

Controls
- Literacy 1686-1786 and school rate 1837
- Printing Cities and number of books published in 1500
- Universities in 1750
- Atlantic Port, Mediterranean Port, Navigable River
- Non-French Speaking
- Pop Density

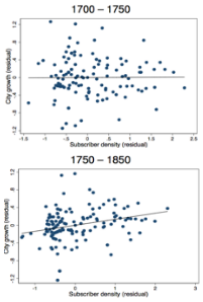
Results

A. Baseline (city pop growth – density of subscriptions):

We aggregate cities in three categories: no subscription, below median subscriptions an a above median subscriptions. On the x axis we put city growth 1759-1850. If we plot the distribution of the three categories we see the distribution of cities with high subscriptions is shifted to the right



But, If we consider the relationship before and after the IR (use 1750 as a cutoff) we see that the presence of knowledge elites is positively associated to growth only after 1750, ie when knowledge became economically useful. Clearly subscriptions are in 1777, so we assume persistence in local elites (test: more subs were Famous ppl born / died or where we had Pre-1750 scientific societies).



B. Propensity Score matching

i. An algorithm computes a score equal to the probability of receiving the treatment (above zero subscriptions)given the observed characteristics.
ii. Match individuals in the treatment group with similar individuals in the control group based on these scores.
iii. compare outcomes
=> cities with more subscriptions grew faster, but only after 1750

OLS

Specification

$$y_n = \beta \cdot S_n + \delta \mathbf{X}_n + \varepsilon_n$$

y_n= outcome (econ. Development)
S_n=subscribers' density
X_n= controls

Robustness: pos and sign even after cotrols

SubsDensity	0.100** (0.039)	0.171*** (0.036)	0.169*** (0.033)
$lnPop_{initial}$	0.055*** (0.014)	-0.085** (0.041)	-0.089* (0.048)
Atlantic Port		0.221*** (0.082)	0.242** (0.094)
Mediterranean Port		0.779*** (0.076)	0.794*** (0.091)
University			-0.063 (0.067)
Printing Press in 1500			0.093 (0.094)
ln(Books Printed 1500)			-0.001 (0.020)

Additional Controls

- One fun control: a dummy = 1 if city with at least 1 subscription. Key for Intensive vs extensive margin: if extensive presence of the treatment (dummy =1) is enough. Dummy is not significant, our beta is=> intensive margin: the more encyclopedias the better.

- Timing, Pre Industrial revolution vs Post Industrial revolution: density is not significant in 1700-1750

- Key point: Upper tail skill vs avg literacy: Upper tail skill is still positive and significant even if we control for the effect of literacy

Robustness for other Y

Results are consistent also if we use soldier height, disposable income, industrial output and wages as a proxies for income

Who were subscribers? Deep roots of Upper tail: the Huguenots

The Huguenots: Protestant minority in France. Important part of the entrepreneurial and knowledge elite

"Were determined to acquire an education so they could read, write, and master arithmetic," and that they were "skillful in trade and daring in enterprise, apply themselves well to commerce and have all the genius which is needed to succeed in their profession"

=> Huguenot population share in 1670 is a strong predictor of subscriber density a century later. Huguenot presence does not predict literacy (Huguenot share in the population overall was too small). Note again that the association between Huguenot presence and growth only emerged after 1750

Mechanism: How did elite foster growth?

Idea: Recall the presence of elites become effective only after the IR = only when knowledge become substantially useful in some sectors after the introduction of some key new technologies. So, the effect of elites should be more relevant in sectors characterized by high tech progress.

Empirical specification: $\ln(wage_{jn}) = \beta_1 S_n + \beta_2 S_n \times I_j^M + \gamma_1 h_n + \gamma_2 h_n \times I_j^M + \delta_1 \mathbf{X}_n \ldots$

Y: wages per sector
X: Subscription density

I (Innovative sector): Use patent frequency and quality to define modern and hold sectors.

β2 interaction => effect of subscription on growth is even higher in modern sectors

=> more innovative sectors are more represented in encyclopedie and fostered more wage growth

Dep. Var.: log wages (by sector and arrondissement)

	(1)	(2)	(3)	(4)	(5)	(6)
lnSubDens	0.041**	0.040**	0.031**	0.025	0.012	
	(0.016)	(0.015)	(0.014)	(0.015)	(0.021)	
lnSubDens × *modern*	0.069***	0.056***	0.052***	0.062***	0.066***	0.060***
	(0.015)	(0.015)	(0.017)	(0.018)	(0.019)	(0.021)

Policy Considerations: Only intellectual elites mattered for industrial revolution. Seems to mean that broad education leads to higher prod in operating existing tech, but upper skill is crucial for invention and adoption of new tech.

Title: Structural change

Subject: EIC 8

Human Capital: Usually we measure HK through avg education. Huge differences in developed and developing countries, but similar trends with some convergence.

But Human Capital is not just education: It refers to quality of labor and has the following characteristics similar to capital

1. It is Productive: higher HC leads to higher productivity. But note Human k has different returns across countries (Less premia, less heterogeneity in developing countries)
2. It is Produced: produced by a certain institution/company = it requires investment
3. It Earns a return: increased productivity, hence people are willing to pay for it.
4. It depreciates if not renewed

+ The main difference between k and human k is that human k has positive externalities (exchange of ideas, education) <= that's why Govs invest in education

Stuctual change is key for econ dev: agriculture -> industry -> services. It has been explained by: decrease in the rel D of agri goods (income effects) + increase in the rel productivity of the agri sector. Consequences:

1. Dramatic effect on society structure, changes the style of living, effects on female labor force participation, etc.
2. May affect aggregate economic growth
3. May affect inequality and factor shares
4. May interact with trade, business cycles, etc.

Porzio et al. (2022).

Research Question: Can structural change be explained through human capital?

Hyp: Transformation of labor force: more educated cohorts have a comp adv towards the non-agricultural sector => S of agricultural labor ↓ => agricultural employment ↓.

Data: broad sample of countries at different levels of development.

Result: higher human capiral => less employment in agriculture = structural transformation. Magnitude of the figure: one extra year of school is associated with at least a 10% decline in agricultural employment.

Mechanism: more valuable to employ outside agriculture

A historical instance of structural change: Italy after WWII, Lecce

Context: Ita after WWII Economic boom and structural change (from rural to industry). Three key explanations: Governmental policies (e.g. Cassa per il Mezzogiorno), 2. Entrepreneurial activities, 3. reforms. Our channel of interest is 3.

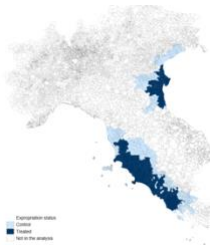
Reseach question: What determined structural change in Italy? has the land affected structural change (industrialization)? If yes, for the better or for the worse? = equal to saying: was the land reform good or bad for structural change = better to have many small owners or few large ones? In theory with Large owners:

- cons: associated with lower provision of education, low education implies slower structural change
- pros: typically employ a lower amount of labor

The Land reform: legge Stralcio 1950

After WWII, many rural workers occupied plots of uncultivated land (absentee landowners), especially in the South of Italy => Many occupations ended up in blood as police tried to force them out. Need for a political solution:

1950 legge Stralcio: promoted by ruling DC party (newly adopted Constitution declared that private property can be expropriated for general public interest) to reduce land inequality and increase productivity: expropriate landowners of some areas (direct proportion of size, inverse of productivity), compensate them with bonds. 700,000 hectares expropriated => 120,000 families received a part



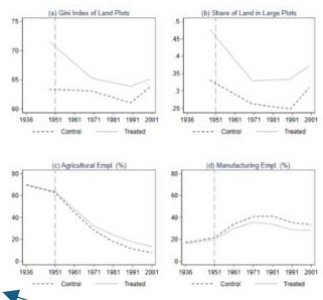
Data and Empirical estimation

- Y: Income levels
- X: Expropriation documents => aggr at municipality level
- Controls: Municipality characteristics

Results (look also at t):

A. Plotting:

treated areas have lower GINI, lower large plots, but more agri employment and less manufacturing employment



B. Diff in Diff:

$$y_{it} = \delta_i + \gamma_t + \sum_{\tau \in \{1936, \mathcal{T}^{post}\}} \alpha_\tau \times d_\tau \times E_i + \varepsilon_{it}$$

where :

- y_i is the economic outcome in municipality i in the decade t
- γ_t denote a full set of time effects;
- δ_i denote a full set of municipality fixed effects;
- d_τ are time dummies
- $\mathcal{T}^{post}$ is the set of years after treatment.

	Agriculture		
Treat. margin:	(1) Ext.	(2) Both	(3) Intensive
1936	-0.299	-4.597	-9.110
	(0.627)	(2.755)	(5.531)
1961	1.917***	15.11***	19.67***
	(0.365)	(1.423)	(2.613)
1971	2.627**	17.51**	18.34*
	(0.928)	(4.932)	(7.571)
1981	5.190***	31.01***	26.58**
	(1.292)	(5.881)	(9.452)
1991	5.328**	28.04***	17.02
	(1.523)	(7.335)	(11.96)
2001	4.544**	22.85**	11.64
	(1.531)	(7.639)	(12.55)

How to explain the 40 yrs persistence? Occupational Inheritance: If you receive a family business you probably stay in the family business. How to test?

1. Test whether young adults are employed in the same sector as their father.
2. Show that those young adults whose fathers own land are more likely to be employed in the father's sector

=> Results: Children of agricultural workers 2x the prob to stay in agriculture when their parents own land

Mechanism Possible factors:

i. Agglomeration: higher pop density higher industrialization (London cheap labor). Intensity of expropriation was negatively associated to pop density.

ii. Scale: smaller agricultural firms employ larger amounts of labor overall.

Note: Education? we do not detect any relationship between educational attainments and intensity of expropriation.

Aggregate final effect on income? in the long run the effect on income was positive

Title: Adverse events, religion and economic growth

Subject: EIC 9

83% of world pop believes in God. Religion has shaped:

i) Individual beliefs and traits, ii) cultural norms and values, iii) social groups and organizations, iv) political and military power

Can religion have effects on economics? The economic study of religion has a long history: from a chapter into Adam Smith's wealth of nations (1776) to Max Weber (1905) work on Protestant ethic.

The vast majority is on the three main Abrahamic faiths: Judaism, Christianity, or Islam (50% total pop)

Judaism. Main themes:

- why jews specialize in high skill progressions? Botticini & Eckstein on Jews and reading Torah
- Why antisemitism arouse?

Christianity. Main themes:

- Wrt Catholicism: how Church affected pol and eco?
- Wrt Protestantism: Becker,& Woessmann. Was Weber wrong?
- LR effect of Catholic and Protestant missionary activity

Islam. Increasing interest after 9/11, the Arab Spring, and emigrations to Eu:

- Biggest question: why did the ME fall behind the West economically after being ahead for so long? Hyp: politics, law, finance, human capital

A: Acts of God? Religiosity and Natural Disasters Across Subnational World Districts Jeanet Bentzen (2019)

Context: Large variation in religiosity across the globe:

- From 20% in China to 100% in Algeria and Pakistan
- Within China: From 2% in Shanghai to 60% in the Fujian province.

Research question: What explains these differences in religiosity, even within countries?

Hyp: can adverse events => religiosity

Mechanism: Religious Coping theory

Aim: use religion to cope with stress of hard times /unpredictability:

- Survey, 9/10 Americans claim they used religion to cope with stress after 9/11
- Prayes is indicated as the key coping strategy in case of adverse event (cance, death in close family, divorce)

Peculiar Characteristics:

1. It is a psychological mechanism (no need to be directly hit bt event)
2. It should be stronger for unpredictable events (problem-focused coping is used for predict)
3. People tend to use their intrinsic religiosity (pray) rather than their extrinsic religiosity (go to church)

Methodology

Adverse event => religiosity.

But there could be that an unobservable individual characteristic k makes more exposed to adverse event and also more religious. We need an exogenous adverse event: natural disaster (earthquakes: high-quality data and highly unpredictable, or volcanic eruptions, tsunamis and storms)

3 metodological strategies:

1. Earthquake risk - religiosity
2 Actual earthquakes – religiosity (Event study)
3. Second generation immigrants to study cultural transmission

Data

Y (Religiosity measure): World Values Survey, 6 qstns on god/ religiosity. Use pc of these questions except churchgoing to construct strength of Intrinsic religiosity index

X (Long term earthquake risk): 5 categories of earthquake risk (4 is max risk).

Compute distances to help disentangle psychological effect (economic effect would be a confounder). Distance 0 if in zone 3-4, otherwise geo distance from zone 3-4. Note also covid works.

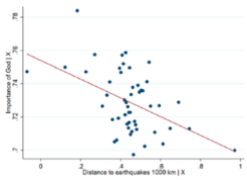
c. Controls:

Individual and district level data: sex, marital status, age, latitude, distance to coast, euduc, income, ethnicity

Results

a. On risk of earthquakes

i. Correlation



ii. Regression

Religiosity of individual i living in district d of country c, interviewed in w

$$religiosity_{idcw} = \alpha_0 + \alpha_1 earthquake_risk_{dc} + \text{Controls}$$

=> Results: negative and significant, fore ach religions

b. On Actual earthquakes (Event study: magnitude 6 within 100km)

i. Regression

$$\Delta religiosity^{Z}_{dcw} = \alpha + \beta \Delta earthquakes_{dcw} + \lambda_{cw} + \Delta X'_{dcw}\delta + \Delta\varepsilon_{dcw}$$

Δ in religiosity in district d in country c between waves w - 1 and w

Country fixed effects

Time-varying controls

=> Results: positive and significant! The effect abates after 3-12 years, longer for intensive margin and for surprising earthquakes. Intensive margine guides results. ST effetc much larger than LT + in the st only intrisnic religiosity, in the LR also estrinsic: as people become more religious, they go to church more, not the other way around!

Robustness: holds within all continents, denominations, income deciles, education categories.

Conclusion:

1. Impact persists after removing physical losses: exclude districts directly hit, children of immigrants = PSYCHOLOGIC FACTOR (1)
1. results hold true for each natural disaster except storm (not that unpredictable) = UMPREDICTABILITY IS KEY (2)
2. Mainly intrinsic religiosity affected: Church-going less affected = INTRINSIC RELIGIOSITY (3)

c. Cultural transmission: Do these features affect also next generations?

$$religiosity_{cjat} = \alpha + \beta earthquake_a + r_{ct} + X'_{cjat}\eta + V'_{jat}\lambda + \varepsilon_{cjat}$$

Religiosity_cjat: religiosity level of individual j interviewed at time living in country c in which he was born, and with parents who migrated from country a
Earthquake: earthquake risk in the country of origin
rc: country of origin fixed effects
X: individual level controls
V: characteristics of parents

=> Results: negative and significant.
Meaning: High earthquake risk increases religiosity => religiosity is passed on through generations = People who have never themselves experienced an earthquake can still be influenced by the disasters experienced by earlier generations, in terms of increased religiosity

isn't this simply vertical transmission?

B. Religiosity and innovation. Forbidden Fruits: The political economy of science

Research question: Does religion affect socio-economic outcomes?

Hyp: religion => affects scientific process (but also free thought, unorthodox ideas, etc..) =>economics. Example: Catholic church and scientific revolution: Heliocentrism, atomism, infinitesimals, empiricism completely upended Aquinian synthesis. These theories were banned, Inquisition severely repressed Copernicus (1453), Bruno (1600), Galileo (1610)

Data (cross section)
- Religiosity from WVS, Variables scaled to [0,1] at country level
- Innovation: (log-) patents per capita

Regression Result: effect of religiosity on gdp growth is negative ans significant at world level. Similar results for the 50 American States.
Mehcanism? Possible explanation is education + attitude

Title: Religion and growth

Subject: EIC 10

This is about religion, not religiosity (how often you go to church)!

From Farmers To Merchants, Conversions And Diaspora: Human Capital And Jewish History

Assessment: Jews make 0.2% of world population, but 54% of world chess champions, 27% of Nobel physics, 31% of medicine laureates

In the Us: 21% of Ivi League students.

→

Research Question: Why this better economic outcomes? Is this related to Judaic religion?

Possibilities

- Econ prohibitions: ex. money lending banned to cristians
- Persecutions & portability human capital
- The economics of small minorities: have diff incentives
- Botticini and Eckstein theory: Try explain with hist event.

Methodology

Questions: 1. when did they start having better outcomes, 2. why?, 3. why moneylending?

1st: shift in religious norms

200 BCE to 70: Many religious groups, among them Pharisees stressed the study of Torah → 70: Pharisees became leaders, introduced new norm: fathers have to send sons to school to study the Torah → 200-: from 200 illiterate people considered outcast (LT selection of Human capital??)

Howeevr, as wwe have said they started having better outcomes just from the 8th century, not before. So rn they are HS, but they do not earn econ return from this knowledge. Jews in Talmud era (200 - 650): being literate did not pay off, just religious purposes, there were noo urban skilled occupations.

2nd : Islam empire was born, urban (Cario, Baghdad: 1mln) and commercially developed

This created demand for high skill workers => Education becomes valuable, Jews have an advantage. Now they entered HS positions.

3rd: voluntary diaspora(Golden Age of Jewish history)

Jews migrated voluntary where more D for HS was present, become essential for econ growth:

- within muslim empire 800-1100
- to western Europe (850-1250)

Why did they specialize in money lending? Timing:

1000: main occupation, commerce, crafts, medicine
1100: Key occup in Uk, important France, one of the main in Ger and Ita
By 1300: almost all Jews in Fra, Ger, and northern and central Italy were engaged in moneylending (unlike Spain and southern Italy)

THEORY 1: restrictions

Economic restrictions during Medieval period

- Jews in medieval Europe became segregated in moneylending because they could not own land (no farming) & guilds pushed them out of urban skilled occupations
- Usury bans on Muslims and Christians led to Jewish specialization in Moneylending

THEORY 2 (Botticini and Eckstein): economic incentives

Jews had already voluntarily abandoned farming 5 centuries before medieval restrictions!

- Simple theory of occupational choice (Roy's model): individuals choose an occupation based on their advantage in the skills required for that occupation and the relative expected earnings: Trade and moneylending require more k, more networking, more literacy and numeracy than farming

Was Weber Wrong? A Human Capital Theory of Protestant Economic History (Becker and Woessmann, 2009)

Origin of Protestantism: 1517 Martin Luther posted its Ninety-Five Theses in Wittenberg: against the selling of indulgences. His teachings spread quickly, partly facilitated by the recent invention of the printing press

Assessment: Countries with a larger share of Protestants in 900 were on average economically more advanced (correl analysis).

Research question: was Protestantism key for growth? Why?

Weber thesis (ethic-based): "Protestant ethic" was instrumental for economic progress. The reformation gad introduced the concept of Beruf (calling): work is seen not just as a means to earn a living but as a moral and spiritual duty set by god, fulfilling the god's task implies the higher moral achievement = sanctification of labor. Totally different perspective from Christianity: earth duties vs monastic asceticism. The success in performing this task: sign of being among god's select group, that God will save from damnation => incentive to work harder => industrial capitalism

Becker and Woessmann thesis: Protestantism facilitated development through: increase in education (human capital channel, higher human capital). If so, Protestantism should be positively associated with measures of human capital.

Cross country Correlation: Countries with a larger share of Protestants have a higher literacy rate.

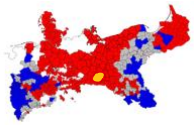
Channel why Protestantism --> education:

Martin Luther: everyone should be able to understand God's Word, ie the bible => produced first Ger translation of the Bible vs Roman Catholic use of Latin + promoted expansion of educ calling local Councils to establish schools where boys and girls can learn the holy bible => Luterans had lower costs to educ (provided by councils) and higher benefit (faith) => crucial econ effect (high skill = high prod = high wage), even if Luther did not have this aim.

Expand the empirical analysis: Evidence from 19th century Prussia. Show protestants => literacy => economics

Prussia is the obvious place to look at:

1. Birthplace of Protestantism, Reformation in its purest form
2. Rather uniform laws and institutional framework
3. Well divided between Prot and Cath (no small minority)



4. One of the largest European countries in 1871 (25 million)
5. Prussian orderliness and thoroughness yields high-quality data

Data

County-level census data (452 counties) from 1870s/80s

- Religious denomination and literacy
- Occupation, Income taxes, wages

Empirical estimation

$$LIT = \alpha_1 + \beta_1 PROT + X\gamma_1 + \varepsilon_1,$$

LIT= share of literates in a county's population aged 10 or older

PROT: share of Protestants in the county

X: set of demographic control variables (share of Jews and females in the county, the share of the county population below 10 years of age, born in the specific municipality, and of Prussian origin, average household size, size of the county, population growth over the four preceding years, etc...)

Issue: endogeneity

Was adoption of Protestantism endogenous to specific characteristics:

- richer places adopted Protestantism
- more literate ppl adopted Protestantism
- ppl with special attitude adopted Protestantism

Results:

Dependent variable:	Share literate (5)	Distance to school (9)
% Protestants	(.010)***	-.026 (.004)***
% Age below 10	-1.950 (.159)***	.148 (.067)**
% Jews	-1.013 (.290)***	-.097 (.119)
% Females	-1.256 (.302)***	.458 (.126)***
% Born in municipality	.478 (.034)***	-.108 (.014)***
% Of Prussian origin	-.298 (.184)	.031 (.076)
Average household size	-1.701	3.067

Hist evidence: Spread of Reformation was exogenous

A. Imperial Diet 1555 principle "Cuius regio, eius religio" => citizens accepted their sovereigns 'choices (driven power and politics, etc). This decision was hence:

I. exogenous to avg citizen literacy, but also

II. exogenous to stage of region econ development (actually richer places less likely to switch to Protestantism (they would benefit more from hierarchical structure of Catholicism)

B. Reformation seems to have spread out in concentric fashion from Wittenberg (Costs of traveling and of information diffusion through space)

IV approach: Wittembers as an IV

The concentric spread pattern was exogenous to economic development and human capital

I. First stage Regress share of protestants (x) on distance to Wittembers. We get exogenous part of Protestantism predicted by distance <= neg and sign

II. Second syage; regress y (literacy and distance to school) on the predicted protestant share

=> positive and significant

Wittenberg exogenous to econ growth of the time? ie could being close to Wittemberg associated with higher groth?

- Historians: Wittemberg was an "unimportant place"
- Being close to wittemberg did not effect econ development of close cities: no effect on urbanization, on being a free imperial city, on location of Unis, ir presence of shools

Ok for literacy, now, what about econ growth? Results:

Dependent variable:	OLS Per-capita Income Tax[b] (1)	IV[a] Per-capita income tax[b] (4)
% Protestants	.154 (.091)*	.586 (.236)**

How to exclude ethics (OLS)?

Test with horse race regression: suggests ethic channel is not as relevant (not relevant at all? hard to say). Protestantism channel works through educ.

$$Y = \alpha_3 + \beta_3\,\mathrm{PROT} + \chi_3\,\mathrm{LIT} + X\gamma_3 + \varepsilon_3$$

Dependent variable:	Per-capita income tax[b] (7)
% Protestants	-.068 (.097)
% Literate	2.460 (.424)***

Now: Double-IV" (3SLS) !!!

1st stage: distance to Wittenberg => Protestantism
2nd stage: Estimated Protestantism => Literacy
3rd stage: Estimated Literacy => Economics

	1st stage % Protestants (1)	2nd stage % literate (2)	3rd stage per capita income tax[a] (3)
Distance to Wittenberg in km	−0.097 (0.011)***		
% Protestants		0.190 (0.028)***	
% literate			3.242 (1.169)***

Conclusion:

Was Weber wrong? Right in pointing protestant were richer, wrong in considering the correct channel (ethics s literacy). How relevant was ethics? hard to say bc hard to measure, likely wrong