Chapter 4

Informal Institutions (culture) and Economic Growth

Does culture have relevant economic consequences?

> Is the correlation between social attitudes and economic outcomes due entirely to economic and institutional differences across societies or are potentially systematic differences in social beliefs playing a causal role? More generally, what role do differences in the distribution of social preferences and beliefs (what I will henceforth call *culture*) play in explaining the variation in economic outcomes be it at the level of countries, social groups (e.g., ethnic or socioeconomic groups), or over time?

Several Empirical Approaches:

- traditional *cross-country regressions* with controls:

  - omitted variable bias (overlap between formal and informal institutions)
  - reverse causality

- *within country variation*

  - possible endogeneity
  - Instrumental Variables, Difference in Differences, Regression Discontinuity, ...

- *experimental evidence*

  - Games in different cultural contexts
  - Relatively small (and not always representative) samples and few controls
  - External validity

- other approaches (e.g. case studies)

- ***epidemiological approach*** → separate culture from the environment by studying the outcomes of individuals whose cultures potentially differ, but in a common economic and institutional setting

4.1   The "*Epidemiological*" Approach

The Epidemiological Approach is used in medicine to distinguish between genetic predisposition and environmental determinants
→ focus on the incidence of diseases in immigrants and natives

- if there is convergence $\rightarrow$ genetic factors are less plausible

- if there is no convergence $\rightarrow$ genetic factors plausible determinant

> The essence of what I call the epidemiological approach is the attempt to identify the effect of culture through the variation in economic outcomes of individuals who share the same economic and institutional environment, but whose social beliefs are potentially different.

The Epidemiological Approach was proposed in economics to distinguish between institutions and cultural factors:

- environmental factors: institutions

- cultural factors: beliefs, values, norms, SC, ... inherited (as the genetic heritage)

$\rightarrow$ Identify impact of culture studying differences in outcomes between people that share the same institutions but whose culture might be different

4.1.1 "*Epidemiological*" Approach in Economics

In economics the epidemiological approach attempts to distinguish between cultural versus environmental factors contributing to individual variation (and thus the environment now includes the economic and (formal) institutional settings that may affect outcomes, but excludes culture)

The reasoning underlying this strategy is that:

1. parents transmit their cultural beliefs to their children

2. cultural beliefs vary across (immigrant) groups in a systematic fashion reflecting culture in the country of origin

3. individuals who live in the same country face similar economic and formal institutional environments

$\rightarrow$ idea: **individuals from different cultures will take different actions despite facing identical environments**.

The missing convergnce (of economic and other individual outcomes) between immigrants and natives gives support to the conjecture that cultural factors are important

4.1.2 "*Epidemiological*" Approach: Regression Analysis

Level of analysis: individual i from country-of-ancestry c

$$y_{ic} = \beta_0 + \beta_1 X_i + \beta_2 \text{Culture}_c + \epsilon_{ic}$$

- y_{ic}: behavior/outcome of individual i coming from country c and now observed in the destination country

- X_i: individual characteristics

- Culture_c: proxy for culture in country of origin c

> Although it is possible to simply use a country–of–ancestry dummy for this variable, a superior strategy is to use a variable that more directly reflects the cultural attitudes of interest. For example, if y_{ic} is a labor force participation decision for a woman whose parents were first generation immigrants, then Y_c could be the female LFP in her parents' home country.

- β_2: coefficient of interest
  - $\beta_2 = 0$ culture doesn't have a causal effect on the individual's outcome y_{ic}
  - $\beta_2 \neq 0$ culture has a causal effect on the individual's outcome y_{ic}

Arguably, underestimation of the effect of culture on y_{ic}:

- other channels of transmission of culture (school, local institutions, neighbourhood, ...)
  - parents are not the only (nor necessarily even the most important) transmitters of culture
  - the relationships and institutions of the local environment will also impact an individual's beliefs

  Culture is socially constructed: to be replicated, the behavior may require the incentives – rewards and punishments – provided by a larger social body

- studying the descendants of immigrants also means that the impact of culture from the source country is likely to have been attenuated over time.

4.1.3 "*Epidemiological*" Approach: Caveats

Main identification assumption of the approach

- within the host country, individuals are exposed to the same environmental factors
- (all) immigrants and natives face the same (formal and informal) institutional setting

These assumptions are likely violated in many contexts:

- immigrants (and their descendants) from different countries may face different economic and institutional environments within the host country
- immigrants are not a random sample of a source-country's population

Some examples: *Spatial segregation (of immigrants), Exclusion (labor market, welfare, ...), Discrimination, Ethnic networks...*

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Digression: Ethnic Networks

- Epidemiological Approach
  - culture$_c$ → culture$_{\mathbf{i},c,d}$ → $y_{i,c,d}$
    * d is the destination country,
    * c is the origin country
    * i is the individual living in destination country d with origin country c
  - focus on the link culture$_{\mathbf{c}}$ → $y_{i,c,d}$

- Social Networks among immigrants
  - culture$_c$ → culture$_{i,c,\mathbf{d}}$ → $y_{i,c,d}$
    * culture$_{c,\mathbf{d}}$ is the average cultural trait of ethnic group c in d
  - focus on the link culture$_{c,\mathbf{d}}$ → $y_{i,c,d}$
    * it may be interest per se
    * it highlights problems of the epidemiological approach
      · Ethnic networks expose immigrants to different (informal) institutions

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- sociological and (recently) economic literature

  - Networks across immigrants (and across immigrants and natives) have (causal) effects on integration (in welfare, in the labor market, etc.)

    * social norms (culture)
    * information

- evidence: $\text{culture}_{c,\mathbf{d}} \rightarrow y_{i,c,d}$ mediated by the social network of immigrants in the destination country

  - The effect of social norms is probably overvalued (at least in some contexts) with respect to information

  - Important consequences for policy

Back to the link culture $\rightarrow$ GDP

$\mathbf{culture_{c,t}} \rightarrow \text{culture}_{i,c,d,t} \rightarrow \mathbf{y_{i,c,d}}$

- d is the destination country,

- c is the origin country

- i is the individual living in destination country d with origin country c

- t is time

- y is an outcome at the individual level

$\rightarrow$ Algan & Cauch (2010): use a *Reversed* epidemiological approach i.e. use $\mathbf{culture_{i,c,d,t}}$ to measure $\mathbf{culture_{c,t}}$

4.2 Algan & Cauch (2010) - "*Inherited Trust and Growth*"

This paper develops a new method to uncover the causal effect of trust on economic growth by focusing on the inherited component of trust and its time variation. We show that inherited trust of descendants of US immigrants is significantly influenced by the country of origin and the timing of arrival of their forebears. We thus use the inherited trust of descendants of US immigrants as a time-varying measure of inherited trust in their country of origin. This strategy allows to identify the sizeable causal impact of inherited trust on worldwide growth during the twentieth century by controlling for country fixed effects.

4.2.1 Estimation Strategy

The goal is the causal link culture $\rightarrow$ GDP

$$Y_{c,t} = \alpha_0 + \alpha_1 \text{Culture}_{c,t} + \alpha_2 X_{c,t} + F_c + F_t + \epsilon_{c,t}$$

- $Y_{c,t}$ income per capita in **country c** at period t

- $\text{Culture}_{c,t}$: country average of trust of individuals who live in country c at period t, conditional on their individual characteristics such as age, gender, education, income, employment status, or religious affiliation

- $X_{c,t}$: time varying country characteristics

- F_c: country fixed effects (capturing all other time invariant specific features such as the legal origins or past institutions with long-lasting effects)

- F_t: time fixed effects

usual problem of endogeneity of culture and reverse causality

> The problem with equation (1) is that contemporaneous trust is likely to be correlated with the unobserved error term ε_{ct}. For instance, individuals who live in a more secure environment are likely to trust others more and to be more efficient.

Idea 1

A part of social attitudes is shaped by the contemporaneous environment, and another part is shaped by inherited beliefs from earlier generations → use measure of trust in the past (previous generation)

$$Y_{c,t} = \alpha_0 + \alpha_1 \text{Culture}_{c,t-1} + \alpha_2 X_{c,t} + F_c + F_t + \epsilon_{c,t}$$

which is a valid identification strategy if $\text{Culture}_{c,t-1}$ is not correlated with $\epsilon_{c,t}$

Problem: unavailability of measures of the level of trust of earlier generations → solution: use the (reversed) logic of the epidemiological approach to construct a measure of past culture in most countries (Idea 2)

Idea 2

Use trust of immigrants from different countries (c) to the US (d) as measure of $\text{Culture}_{c,t-1}$ at the moment of migration (available in the U.S.)

$$\text{Culture}_{i,c,d,t} = \lambda_1 + \lambda_2 \text{culture}_{(c)} + \lambda_3 X_{it} + \nu_{it}$$

- X_{it} includes age, sex, education, income, occupational status, religion

- d=US

- $\hat{\lambda}_2$ captures culture in the origin country (cleaned from composition effects)

it is possible to estimate λ_2 for various cohorts and generations (second or third generation immigrants)

- It gives a measure of trust in the past in country c

- It allows dynamic analyses (variations of trust – growth)

Summing up: main advantages

- possible to measure "culture" for countries with missing data

- Using different generations of immigrants, possible to *measure* culture in c in the past

$$\text{culture}_{i,c,d,t-1} \rightarrow \text{culture}_{c,t-1}$$

- exploit the variability over time of culture to control for country time-invariant characteristics

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4.2.2 Data Description - Measures of Trust

Trust of individuals born in the United States is provided by the *General Social Survey* data-base (GSS).

- covers the period 1972–2004

- provides information on the birth-place and the country of origin of the respondent's forebears since 1977

   The GSS variable for the country of origin reads as follows: "From what countries or part of the world did your ancestors come?" The individual can report up to three countries of origin by order of preference.

   large number of observations for at least 24 countries or continents

- measure the path of cultural transmission of trust by using the waves of immigration: Respondents are asked if they were born in the United States and how many of their parents and grandparents were born in the country:

  - The answers to the question of parents' birthplace are:
    * scaled 0 if both parents were born in the United States
    * 1 if only the mother was born in the United States
    * 2 if only the respondent's father was born in the country.
  - The answers to the grandparents' birthplace are scaled from 0 to 4 indicating the number of grandparents born in the United States.

  This information makes it possible to disentangle four potential waves of immigrations:

  - fourth-generation Americans (more than two grandparents born in the United States and both parents born in the United States)
  - third-generation Americans (at least two grandparents immigrated to the United States and both parents were born in the United States)
  - second-generation Americans (at least one parent born abroad)
  - first-generation Americans.

- Trust in the USA

   Trust is measured by the following question: "Generally speaking, would you say that most people can be trusted or that you need to be very careful in dealing with people?" The answers are given on a scale from 1 to 3, which corresponds to "Most people can be trusted," "Can't be too careful," and "Depends." We construct a trust indicator equal to 1 if the respondent answers that people can be trusted and 0 if he considers that one cannot be too careful or that it depends. We group together the two latter responses to make a clear separation between high trusting individuals as opposed to moderate or low trusting ones.

- Trust in home-country is measured by using the World Values Survey (WVS) database (as a check)

   The trust question in the WVS has exactly the same wording as that of the GSS: "Generally speaking, would you say that most people can be trusted or that you need to be very careful in dealing with people?" But the WVS allows for only two answers: 1 for "Most people can be trusted," and 0 for "Can't be too careful."

TABLE I—INHERITED TRUST IN 1935 AND 2000

	(1) Inherited trust in 1935		(2) Inherited trust in 2000	
	Coeff	Standard error	Coeff	Standard error
Country of origin	Swedish ancestors - 1935 : Reference			
Sweden			0.052***	(0.004)
Africa	−0.231***	(0.004)	−0.243***	(0.007)
Austria	−0.031***	(0.004)	0.102***	(0.011)
Belgium	0.073***	(0.013)	0.134***	(0.021)
Canada	−0.024**	(0.010)	0.078**	(0.015)
Czech Republic	0.006	(0.008)	−0.052***	(0.009)
Denmark	0.045***	(0.002)	0.157***	(0.004)
Finland	−0.032***	(0.003)	0.172***	(0.003)
France	0.040***	(0.004)	−0.047***	(0.010)
Germany	0.024***	(0.001)	−0.004	(0.008)
Hungary	0.023***	(0.004)	0.020*	(0.011)
India	−0.041***	(0.009)	−0.376***	(0.012)
Ireland	0.030***	(0.003)	−0.025*	(0.012)
Italy	−0.022*	(0.012)	−0.086***	(0.016)
Mexico	0.101***	(0.014)	−0.125***	(0.015)
Netherlands	−0.039***	(0.003)	0.051***	(0.005)
Norway	0.156***	(0.001)	0.113***	(0.003)
Poland	0.047***	(0.014)	−0.052***	(0.015)
Portugal	0.004	(0.009)	0.002	(0.017)
Russia	0.171***	(0.012)	−0.068***	(0.007)
Spain	−0.052***	(0.009)	0.042**	(0.015)
Switzerland	0.058***	(0.002)	0.102***	(0.007)
United Kingdom	0.043***	(0.001)	0.003	(0.007)
Yugoslavia	0.303***	(0.010)	−0.018	(0.016)
R^2		0.105		
Observations		11026		

Table 4.1: The dependent variable is the level of trust inherited by US immigrants from the periods 1935 and 2000. Trust inherited in 1935 by the Swedish Americans is used as the reference group.

Column 1 reports the estimates for inherited trust in 1935, relative to trust inherited by Swedish Americans in 1935 → Having forebears coming from a different country of origin than Sweden has a statistically significant effect on inherited trust.

- The trust inherited in 1935 from Continental European or Anglo-Saxon countries tends to be higher than that inherited from Sweden

- Inherited trust in 1935 is also higher for some Eastern European countries like the Czech Republic or Hungary

- In contrast, inherited trust from Mediterranean countries, Latin American countries, Africa, and India is lower than that of Swedish Americans in 1935.

For some countries of origin like the United Kingdom, the effect is statistically even more significant than the one found for the period 2000. This result suggests that inherited trust is strongly persistent.

Column 2 reports trust inherited in 2000 relative to trust inherited by Swedish Americans in 1935. Inherited trust displays substantial changes between the two periods.

- the Swedish Americans have inherited higher trust in 2000 relative to the period 1935

- inherited trust from Continental European countries, and to a lesser extent from the United Kingdom, has deteriorated over the period

- inherited trust has decreased even more among the immigrants from Eastern European countries and Mediterranean countries

- in contrast, inherited trust has increased for individuals with Nordic ancestors.
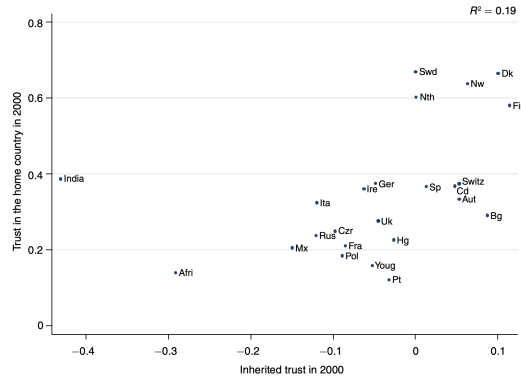
4.2.3 Results

Table 4.2: Estimated and Real Trust

Economic Consequences (levels)
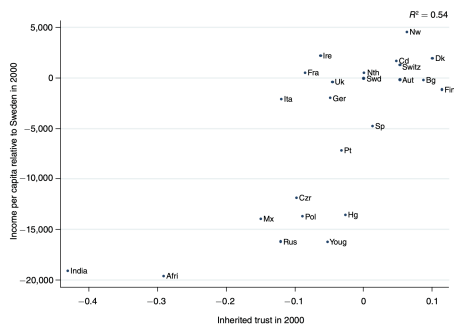
Table 4.3: cross-country correlation between inherited trust and income per capita in 2000

Economic Consequences (variations)

Table 4.4: scatterplot of the changes in income per capita between 1935 and 2000 against the changes in inherited trust between the same periods, relative to Sweden.

TABLE 5—INHERITED TRUST AND INCOME PER CAPITA IN 1935 AND 2000:
CROSS-COUNTRY REGRESSION

	Dependent variable: Income per capita in 1935 and 2000			
	(1)	(2)	(3)	(4)
Inherited trust in 1935 and 2000	35,952.13*** (6,811.83)	18,389.59*** (4,811.88)	18,601.70*** (5,708.99)	20,030.74*** (6,966.35)
Initial income per capita 1870 and 1930	No controls	3.83*** (0.45)	3.84*** (0.53)	3.64*** (0.54)
Political institutions in 1930 and 2000			1.45 (74.73)	32.50 (82.03)
Outliers				Africa, India excluded
R^2	0.37	0.75	0.69	0.63
Observations	48	48	46	44

Notes: OLS regressions. The dependent variable is the GDP per capita in the source countries in 1935 and 2000, relative to Sweden.
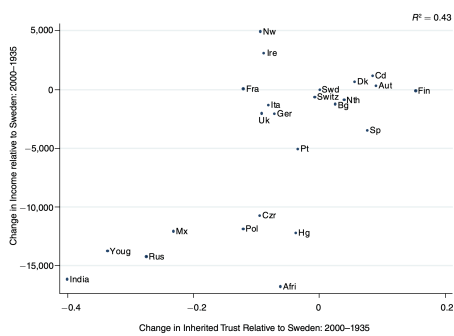
TABLE 6—INHERITED TRUST AND INCOME PER CAPITA IN 1935 AND 2000: WITHIN ESTIMATES

	Dependent variable: Income per capita in 1935 and 2000				
	(1)	(2)	(3)	(4)	(5)
Inherited trust in 1935 and 2000	41,007.70*** (6,041.57)	27,332.62*** (7,179.62)	31,198.48*** (7,231.02)	28,230.15*** (7,350.49)	23,930.95*** (6,181.20)
Initial income per capita in 1870 and 1930	NO CONTROLS	2.93*** (1.03)	2.17* (1.14)	2.81** (1.02)	2.65*** (0.86)
Political institutions in 1930 and 2000				−149.34 (89.41)	−103.15 (75.18)
Outliers			Africa excluded		
Country fixed effects	Yes***	Yes***	Yes***	Yes***	Yes***
R^2	0.83	0.87	0.87	0.87	0.88
Observations	48	48	46	46	46

Notes: OLS regressions. The dependent variable is the GDP per capita in the source countries in 1935 and 2000. relative to Sweden. GDP per capita is averaged over 10 years in column 5.
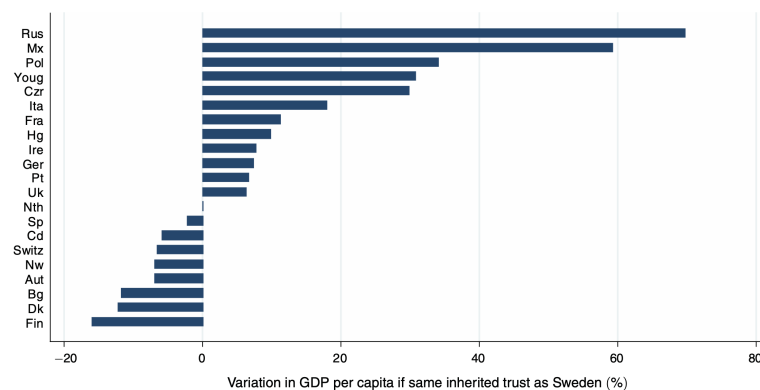
FIGURE 5. PREDICTED VARIATIONS IN GDP PER CAPITA IN 2000 IF INHERITED TRUST HAD BEEN THE SAME AS INHERITED TRUST FROM SWEDEN, CONTROLLING FOR LAGGED GDP PER CAPITA, CONTEMPORANEOUS POLITICAL ENVIRONMENT, AND COUNTRY FIXED EFFECTS

Figure 4.1: change in income per capita in period 2000–2003 that countries would have experienced if the level of inherited trust in a given country had been the same as trust inherited from Sweden

4.2.4   Conclusion

Trust causes growth: the effect is economically relevant

"*GDP per capita in 2000 would have been increased by 546 percent in Africa if the level of inherited trust had been the same as inherited trust from Sweden. (Africa and poor countries are obviously extreme cases)*

Income per capita would have increased by 69 percent in Russia, 59 percent in Mexico, (...) [17 percent in Italy] had these countries inherited the same level of trust as Sweden"

This paper provides a new empirical strategy to uncover the causal effect of trust on growth. We track changes in trust levels inherited by different generations of Americans from the countries of their immigrant forebears as a measure of the evolution of trust in those source countries. By using this inherited component of trust and its time variation, we are able to isolate

the specific impact of trust on economic development relative to other traditional candidates—like institutions and geography—captured by the country fixed effects. Inherited trust turns out to explain a significant share of the economic backwardness of developing countries and an important share of economic differences between developed countries over the twentieth century.