Seminar 2

ECON4921- Institutions and Economic Systems

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Assignment I-1

Explain why the lack of commitment to not expropriating the citizens
may be a problem for a ruler.

Which tools can the ruler and/or society use to achieve commitment?

Assignment I-1

At the beginning there was the *State of Nature*: every man for himself
and against all others.

No government, no social order, no property rights $\rightarrow$ no institutions
$\rightarrow$ no economic development:

- Invest in production and invest in fighting power/technology to
  protect what you produce $\rightarrow$ inefficient use of resources in fighting
- Do not invest in fighting technology $\rightarrow$ no incentive to invest in
  production

Assignment I-1

Introduce politics:

- ▶ Property rights: rights to gain of productivity, ruler can take a certain share (= taxation)
- ▶ If ruler can commit: the total pie growth and ruler and citizens can gain

see McGuire and Olson, Journal of Economic Literature (1996), "The Economics of Autocracy and Majority Rule: The Invisible Hand and the Use of Force"

But commitment unlikely: usually optimal to expropriate

Problem for the ruler:
$\rightarrow$ no/little production and little to take/tax for the ruler
$\rightarrow$ if he cant commit there may be a threat of loss of political power due to a revolution

Assignment I-1

Tools for commitment

- ▶ Cooperation without institutions possible (e.g. Skaperdas, 1992) with repeated interaction, complete information on others and history, small societies (North, 1991)
  → "no state, no development" (Robert H Bates, 2006)
- ▶ Repeated interaction: commitment outcome possible with trigger strategy, but game has several possible equilibria
- ▶ Sharing political power ("Why did the west extend the franchise")

Assignment I-2

In their book, Acemoglu and Robinson (2012, e.g. chapter 7) claim that
the British Glorious revolution of 1688 was an important prerequisite for
the industrial revolution.

What is their justification for this claim?

Does it seem reasonable?

Assignment I-2

- ▶ Basic mechanism necessary for industrial revolution: creative destruction (Schumpeter)
- ▶ Main argument: Inclusive institutions brought incentives for innovation
- ▶ Three (main) processes:
  - ▶ Political conflict
  - ▶ Political centralization (state capacity)
  - ▶ Pluralism: empowerment of diverse interests = checks and balances
- ▶ Plus: Critical junctures
- ▶ Gradual process: Interaction of political and economic institutions
- ▶ Reasonable?

Assignment I-3

3. Economic historian Bob Allen has argued that the reason for the industrial revolution occurring in Britain was their high labor costs and low energy (coal) prices relative to other countries.

Discuss this argument.

Does it invalidate Acemoglu and Robinson's argument?

Assignment I-3

Allen's arguments:

- ▶ Claim: institutions hypothesis cannot explain why the industrial revolution happened in Britain and not in another country
- ▶ Claims technological change is the fundamental cause of economic growth
- ▶ High wages and low capital and energy prices incentivize technological innovation that optimizes output using a cost efficient combination of inputs: less expensive labor and more (relative inexpensive) capital and energy
    - ▶ Labor costs (wages) increase further → positive feedback because education is affordable and there is demand for high educated labor due to commercialization and urbanization
    - ▶ Cheap energy: coal industry develops in response to demand from large urbanization in London
    - ▶ Globalization: export markets

Assignment I-3

Does it invalidate Acemoglu and Robinson's argument?

- ▶ Same mechanism: innovation
- ▶ Growth identity $Y = F(K, L, A)$, countries grow by accumulating capital K, labor L and improving technology A
- ▶ But fundamental: what effects incentives to do so
- ▶ AR start earlier and argue that Britain was in the unique situation to do so
- ▶ One could also ask why was Britain already ahead in 1820?

Assignment II-1

Michalopoulos and Papaioannou (2013) explore how pre-colonial institutions affect contemporary economic performance. Why should these institutional features matter today?

Assignment II-1

Some general thoughts:

- ▶ Empirical fact that institutions are persistent. If colonial institutions are persistent, why not other types of institutions?
- ▶ Institutions matter for development. These early institutions might have set of early development, the differences gave different starting points that led to advantages for those countries that were more developed, reinforced by simultaneous causality (of institutions and GDP): a virtuous spiral

Assignment II-1

From the paper:

- ▶ Channels through which centralization can work:
    - ▶ Accountability of local chiefs
    - ▶ Policing and public goods
    - ▶ Formal legal resolution and property rights
    - ▶ Adoption of Western technology
    - ▶ Successfully negotiating concessions from colonial power and central government
- ▶ Why did colonial institutions not wipe out previous ones? → Only limited impact, due to:
    - ▶ Limited time they existed (relative to precolonial institutions)
    - ▶ Tribal chiefs that were willing to collaborate where strengthened as part of a policy of indirect rule in some areas
    - ▶ At independence central states were (often) incapable to provide public goods without the support of local chiefs (tried but failed)

Assignment II-1

From the paper (continued):

- ▶ Evidence that ethnic leaders still matter:
    - ▶ Ethnic chiefs are popular in and supported by local communities
    - ▶ Ethnic chiefs often have power over, for instance, property rights assignment and conflict resolution
    - ▶ Local leaders collect local taxes
    - ▶ Local and ethnic leaders/institutions are formally recognized in many countries

Assignment II-1

Digging deeper: A behavioral hypothesis

▶ Institutions are outcome of formal arrangement (de jure institutions) and informal practices, habits and cultural aspects.
(Eg., trust is a very important part of the functioning of instituions in Norway: example of short contracts, verbal contracts)

▶ These informal aspects are baked into ethnicity and passed through
  ▶ Education and socialization from generation to generation
  ▶ Genetics

see Spolaore and Wacziarg, Journal of Economic Literature (2013), *How Deep Are the Roots of Economic Development?*

Assignment II-2

Explain the sources of data they use. How reliable do you think these
data sources are? Does this have an impact on how much we should
trust their results?

Assignment II-2

Night lights: intensity of night lights measured by satellites. Idea: proxy
for development (economic activity and GDP) where there are no
measures on a detailed enough grid. Widely used. Rather fine grid of 30
seconds = ca. $1km^2$.
Potential problems?:

▶ Clouds and other distorting weather phenomena (aurora, solar
  glares) $\rightarrow$ addressed by deleting/cleaning affected observations

▶ Snap shot $\rightarrow$ addressed by taking averages over several years

▶ Saturation (top coding) $\rightarrow$ there is little and leads to
  underestimated differences

▶ Blooming $\rightarrow$ distorts sharp boarders

▶ Cross validation with micro data. Correlation in large countries 0.7 -
  could there be a problem?

Assignment II-2

Institutions "Jurisdictional Hierarchy": An ethnolinguistic atlas with coordinates, based on ethnolinguistic literature.
Potential problems?:

▶ Assignment of ethnic homeland done in retrospect $\rightarrow$ measurement error

▶ Assignment of "Jurisdictional Hierarchy beyond the Local Community Level" on historic sources (how reliable are the sources) and through the lense of a western scientists

▶ Could have changed until today: 0.55 correlation with afro-barometer today ("reassuringly") $\rightarrow$ problem if systematic

▶ Averaging of 34 overlapping ethnicities

▶ Cross validation: how much exactly? Are we satisfied?

Imperfect, partly subjective measure. Crucial: is the bias systematic or not (attenuation)?

Assignment II-3

Explain the econometric specifications they use and which empirical
challenges these are designed to handle.

Assignment II-3

$$y_{i,c} = a_0 + \gamma IQL_i + X'_{i,c}\Phi + \lambda PD_{i,c} + a_c + \varepsilon_{i,c} \qquad (1)$$

- ▶ y: log night light intensity - reduce influence of outliers and zero values (normalize distribution)
- ▶ IQL: institutional quality
- ▶ X: variation at local level in: geography (elevation, land under water) ecology (land suitability for agriculture, malaria), natural resources, location of homeland (distance to capital, national boarder, nearest coast)
- ▶ PD: log population density, likely endogenous to development
- ▶ a_c: country fixed effects ($\rightarrow$ see next slide)

TABLE II

PRE-COLONIAL ETHNIC INSTITUTIONS AND REGIONAL DEVELOPMENT
CROSS-SECTIONAL ESTIMATES[a]

	(1)	(2)	(3)	(4)	(5)	(6)
Jurisdictional Hierarchy	0.4106***	0.3483**	0.3213***	0.1852***	0.1599***	0.1966***
Double-clustered s.e.	(0.1246)	(0.1397)	(0.1026)	(0.0676)	(0.0605)	(0.0539)
Conley's s.e.	[0.1294]	[0.1288]	[0.1014]	[0.0646]	[0.0599]	[0.0545]
Rule of Law (in 2007)					0.4809**	
Double-clustered s.e.					(0.2213)	
Conley's s.e.					[0.1747]	
Log GDP p.c. (in 2007)						0.5522***
Double-clustered s.e.						(0.1232)
Conley's s.e.						[0.1021]
Adjusted R-squared	0.056	0.246	0.361	0.47	0.488	0.536
Population Density	No	Yes	Yes	Yes	Yes	Yes
Location Controls	No	No	Yes	Yes	Yes	Yes
Geographic Controls	No	No	No	Yes	Yes	Yes
Observations	683	683	683	683	680	680

TABLE III

PRE-COLONIAL ETHNIC INSTITUTIONS AND REGIONAL DEVELOPMENT WITHIN AFRICAN COUNTRIES[a]

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)
Panel A: Pre-Colonial Ethnic Institutions and Regional Development Within African Countries												
All Observations												
Jurisdictional Hierarchy	0.3260*** (0.0851)	0.2794*** (0.0852)	0.2105*** (0.0553)	0.1766*** (0.0501)								
Binary Political Centralization					0.5264*** (0.1489)	0.5049*** (0.1573)	0.3413*** (0.0896)	0.3086*** (0.0972)				
Petty Chiefdoms									0.1538 (0.2105)	0.1442 (0.1736)	0.1815 (0.1540)	0.1361 (0.1216)
Paramount Chiefdoms									0.4258* (0.2428)	0.4914* (0.2537)	0.3700** (0.1625)	0.3384** (0.1610)
Pre-Colonial States									1.1443*** (0.2757)	0.8637*** (0.2441)	0.6809*** (0.1638)	0.5410*** (0.1484)
Adjusted R-squared	0.409	0.540	0.400	0.537	0.597	0.661	0.593	0.659	0.413	0.541	0.597	0.661
Observations	682	682	682	682	682	682	682	682	682	682	682	682
Country Fixed Effects	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Location Controls	No	Yes	No	Yes	No	Yes	No	Yes	No	Yes	No	Yes
Geographic Controls	No	Yes	No	Yes	No	Yes	No	Yes	No	Yes	No	Yes
Population Density	No	No	Yes	Yes	No	No	Yes	Yes	No	No	Yes	Yes

TABLE III—*Continued*

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)
	Panel B: Pre-Colonial Ethnic Institutions and Regional Development Within African Countries											
	Focusing on the Intensive Margin of Luminosity											
Jurisdictional	0.3279***	0.3349***	0.1651**	0.1493**								
Hierarchy	(0.1238)	(0.1118)	(0.0703)	(0.0728)								
Binary Political					0.4819**	0.6594***	0.2649**	0.2949**				
Centralization					(0.2381)	(0.2085)	(0.1232)	(0.1391)				
Petty Chiefdoms									0.1065	0.1048	0.0987	0.0135
									(0.2789)	(0.2358)	(0.1787)	(0.1725)
Paramount Chiefdoms									0.2816	0.6253*	0.2255	0.2374
									(0.3683)	(0.3367)	(0.2258)	(0.2388)
Pre-Colonial States									1.2393***	0.9617***	0.5972***	0.4660**
									(0.3382)	(0.3209)	(0.2207)	(0.2198)
Adjusted R-squared	0.424	0.562	0.416	0.562	0.638	0.671	0.636	0.671	0.431	0.564	0.639	0.672
Observations	517	517	517	517	517	517	517	517	517	517	517	517
Country Fixed Effects	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Location Controls	No	Yes	No	Yes	No	Yes	No	Yes	No	Yes	No	Yes
Geographic Controls	No	Yes	No	Yes	No	Yes	No	Yes	No	Yes	No	Yes
Population Density	No	No	Yes	Yes	No	No	Yes	Yes	No	No	Yes	Yes

Assignment II-3

- ▶ Least squares estimates:
  - ▶ Less problems of classical measurement error
  - ▶ But potentially omitted variables that account for unobservable country characteristics
- ▶ Fixed effects: interpret as panel data where local dimension replaces time dimension
  - ▶ Accounts for potential omitted variables at the country level
  - ▶ Cost: potentially magnifies attenuation
- ▶ Standard errors:
  - ▶ Standard errors clustered on two dimension: country and ethnic family - arbitrary correlation within both dimensions
  - ▶ Standard errors corrected for spatial correlation of unknown form

Assignment II-3

Further empirical aspects/specifications:

- ▶ Eliminate zero values (unlit areas) to normalize distribution
- ▶ Binary variable: linear probability (normalize distribution)
- ▶ Flexible estimation: dummies → identify which institutional forms drive results
- ▶ Control for other ethnic trades
- ▶ Additional checks

Assignment II-3

Pixel level:

$$y_{p,i,c} = a_0 + a_c + \gamma IQL_i + \lambda PD_{p,i,c} + Z'_{p,i,c}\Psi + X'_{p,i,c}\Phi + \zeta_{p,i,c} \quad (2)$$

Advantages:

- ▶ Controls at finer level
- ▶ Binary variable (? can do and did also in previous setup at local level)
- ▶ Account for inequality within ethnic homelands
- ▶ More observations: more detailed information on differences

Assignment II-3

Contiguous ethnic homeland (comparing pixels in adjacent homelands):

$$y_{p,i(j),c} = a_{i(j),c} + \delta IQL_i + \lambda PD_{p,i,c} + Z'_{p,i,c}\Psi + \zeta_{p,i(j),c} \qquad (3)$$

▶ Disperse concerns that unobservable local features drive results $\rightarrow$ validation in table VI
▶ Near and away from the boarder

Assignment II-4

To what extent can Michalopoulos and Papaioannou claim to find causal effects?

Assignment II-4

- ▶ Data issues
- ▶ Cannot rule out other ethnic characteristics and unobservable/hard to measure characteristics
- ▶ Are you convinced?

Assignment II-5

Michalopoulos and Papaioannou (2013) find that strong pre-colonial institutions enhance economic performance today, whereas Acemoglu et al. (2001) argue that societies that the Europeans could take over for their extractive endeavors do worse today. Are the two views contradictory?

Assignment II-5

Discussion

- ▶ Country vs. within country
- ▶ Same principles
- ▶ Matter both
- ▶ Interaction
- ▶ Relative role? How could we investigate?