ECON B225: ECONOMIC DEVELOPMENT

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Institutions
and
Historical Events

Some Definitions

- **History** – specifically past events, of course have influenced phenomena that we observe today
  - Events/periods that many would tend to focus on in development econ would be colonialism, slavery, various wars, etc.
  - But how by how much?
  - What is the quantifiable empirical support for this consensus?
    - Until Nunn (2008), very little within economics
- **Institutions** – established laws, practices, customs, or other social organizations, are one channel through which economists have focused on historical forces affecting the current world

Anecdotal Correlations and Associated Hypotheses

- **Colonialism**
  - Poor countries tend to have experience as colonies and rich countries were colonizers $\Longrightarrow$ Colonialism has produced current levels of development
  - Why? Through what mechanisms?

Nunn (2008)

- **Research question:** Did the slave trade affect the current levels of development in Africa and if so how much?

Data

- **"Cross sectional"**
  - Each row is a country
  - Like Mauro (1995)
- **Outcome Variable:** ln(Real GDP per capita in 2000)
- **Data on slave exports for each African country**
  - Shipping records and historical documents
  - Total number of slaves taken from each country from 1400 – 1900
  - Modern countries didn't exist then, so how does he measure this?
    - Uses ethnicity of slaves in shipping records and historical geographic regions for ethnic groups
  - Constructs ln(exports/area) variable

Data Construction

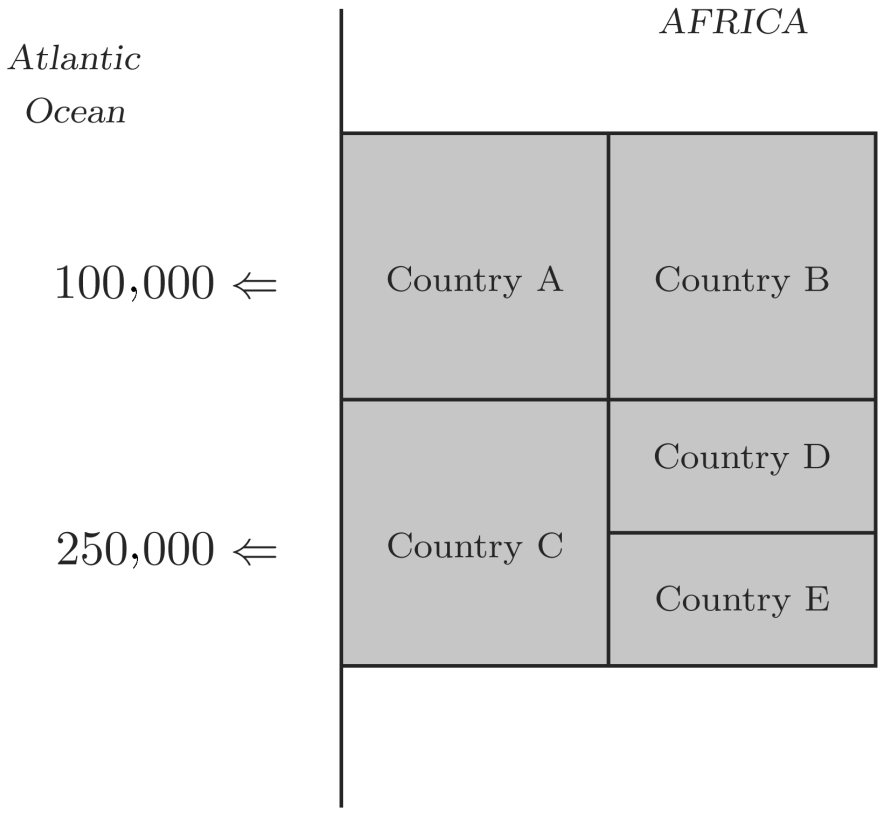

FIGURE I
An Artificial Map of the West Coast of Africa

- **Shipping data describes how many slaves left countries on the coast**
- **Other sources provide the ethnic compositions of the slaves who left**
  - Nunn uses this information to infer how many slaves actually came from inland areas

FIGURE II
Ethnic Boundaries Defined by Murdock (1959) and Modern Political Boundaries

TABLE II

ESTIMATED TOTAL SLAVE EXPORTS BETWEEN 1400 AND 1900 BY COUNTRY

Isocode	Country name	Trans-Atlantic	Indian Ocean	Trans-Saharan	Red Sea	All slave trades
AGO	Angola	3,607,020	0	0	0	3,607,020
NGA	Nigeria	1,406,728	0	555,796	59,337	2,021,859
GHA	Ghana	1,614,793	0	0	0	1,614,793
ETH	Ethiopia	0	200	813,899	633,357	1,447,455
SDN	Sudan	615	174	408,261	454,913	863,962
MLI	Mali	331,748	0	509,950	0	841,697
ZAR	Democratic Republic of Congo	759,468	7,047	0	0	766,515
MOZ	Mozambique	382,378	243,484	0	0	625,862
TZA	Tanzania	10,834	523,992	0	0	534,826
TCD	Chad	823	0	409,368	118,673	528,862
BEN	Benin	456,583	0	0	0	456,583
SEN	Senegal	278,195	0	98,731	0	376,926
GIN	Guinea	350,149	0	0	0	350,149
TGO	Togo	289,634	0	0	0	289,634
GNB	Guinea-Bissau	180,752	0	0	0	180,752
BFA	Burkina Faso	167,201	0	0	0	167,201
MRT	Mauritania	417	0	164,017	0	164,434
MWI	Malawi	88,061	37,370	0	0	125,431
MDG	Madagascar	36,349	88,927	0	0	125,275
COG	Congo	94,663	0	0	0	94,663
KEN	Kenya	303	12,306	60,351	13,490	86,448

Data Example and Estimating Equation

Table 2: Nunn Example Data			
Country Name	**Country ID**	**ln(GDP per Capita 2000)**	**ln(Slaves/Country Area)**
Algeria	001	4	2
Angola	002	2	3
Benin	003	3	6

$$\ln y_i = \beta_0 + \beta_1 \ln\left(\frac{exports_i}{area_i}\right) + \underbrace{\boldsymbol{C}_i'\delta}_{\text{Colonizer FE}} + \underbrace{\boldsymbol{X}_i'\gamma}_{\text{Control variables}} + \varepsilon_i$$

Simple Bivariate Correlations

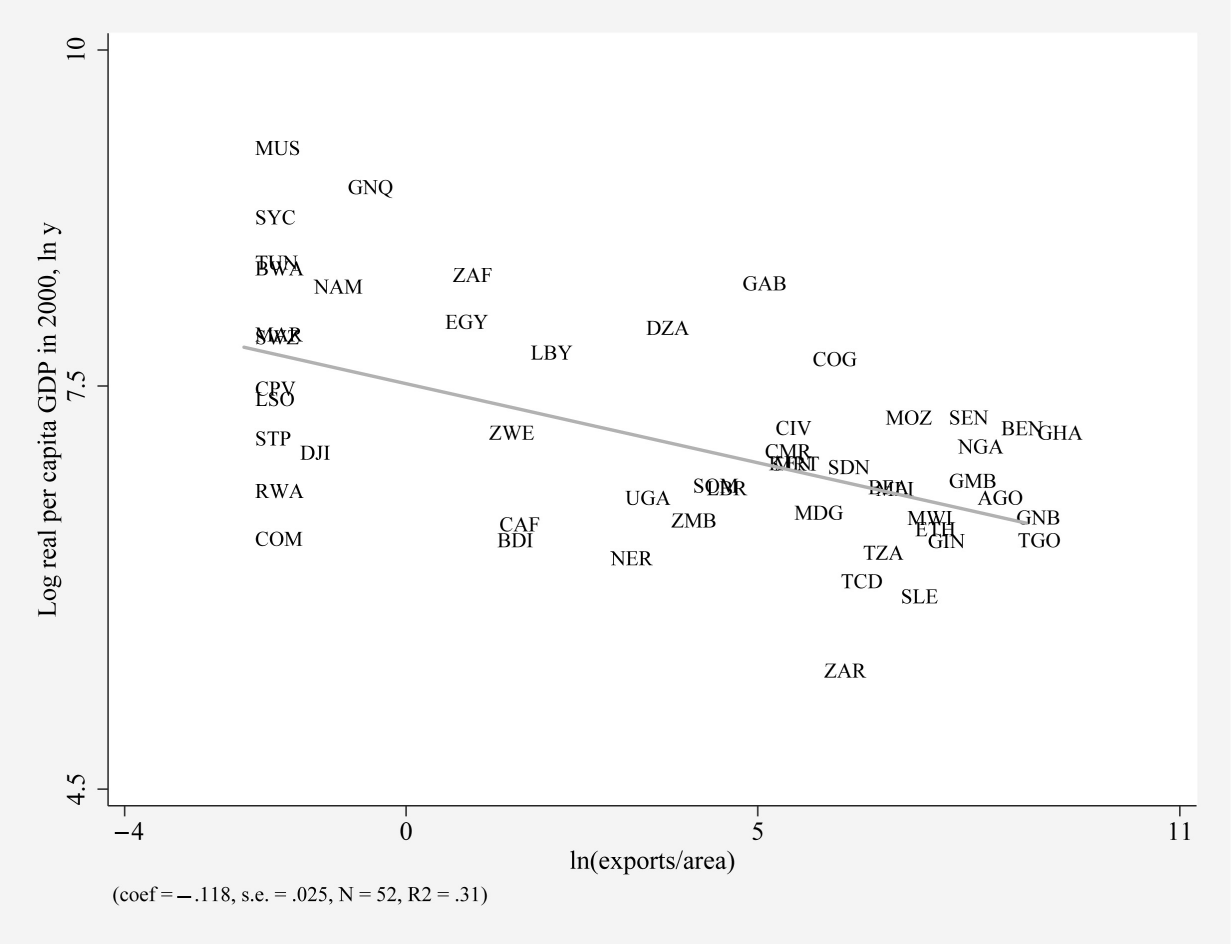

FIGURE III
Relationship between Log Slave Exports Normalized by Land Area, ln(exports/area), and Log Real Per Capita GDP in 2000, ln *y*

OLS Conditional Correlations

TABLE III
RELATIONSHIP BETWEEN SLAVE EXPORTS AND INCOME

	Dependent variable is log real per capita GDP in 2000, ln y					
	(1)	(2)	(3)	(4)	(5)	(6)
ln(exports/area)	−0.112***	−0.076***	−0.108***	−0.085**	−0.103***	−0.128***
	(0.024)	(0.029)	(0.037)	(0.035)	(0.034)	(0.034)
Distance from equator		0.016	−0.005	0.019	0.023	0.006
		(0.017)	(0.020)	(0.018)	(0.017)	(0.017)
Longitude		0.001	−0.007	−0.004	−0.004	−0.009
		(0.005)	(0.006)	(0.006)	(0.005)	(0.006)
Lowest monthly rainfall		−0.001	0.008	0.0001	−0.001	−0.002
		(0.007)	(0.008)	(0.007)	(0.006)	(0.008)
Avg max humidity		0.009	0.008	0.009	0.015	0.013
		(0.012)	(0.012)	(0.012)	(0.011)	(0.010)
Avg min temperature		−0.019	−0.039	−0.005	−0.015	−0.037
		(0.028)	(0.028)	(0.027)	(0.026)	(0.025)
ln(coastline/area)		0.085**	0.092**	0.095**	0.082**	0.083**
		(0.039)	(0.042)	(0.042)	(0.040)	(0.037)
Island indicator				−0.398	−0.150	
				(0.529)	(0.516)	
Percent Islamic				−0.008***	−0.006*	−0.003
				(0.003)	(0.003)	(0.003)
French legal origin				0.755	0.643	−0.141
				(0.503)	(0.470)	(0.734)
North Africa indicator				0.382	−0.304	
				(0.484)	(0.517)	
ln(gold prod/pop)					0.011	0.014
					(0.017)	(0.015)
ln(oil prod/pop)					0.078***	0.088***
					(0.027)	(0.025)
ln(diamond prod/pop)					−0.039	−0.048
					(0.043)	(0.041)
Colonizer fixed effects	Yes	Yes	Yes	Yes	Yes	Yes
Number obs.	52	52	42	52	52	42
R^2	.51	.60	.63	.71	.77	.80

- **Both the outcome variable and the independent variable of interest are logged**
  - So coefficient is interpreted as a percent change in 2000 GDP associated with a 100% in slave exports per sq km
- **Is this causal?**
  - No, and Nunn acknowledges this
  - In contrast to Sachs and Warner. Shows how standards change over time

Instrumental Variable (Advanced Technique w/ stronger causal inference)

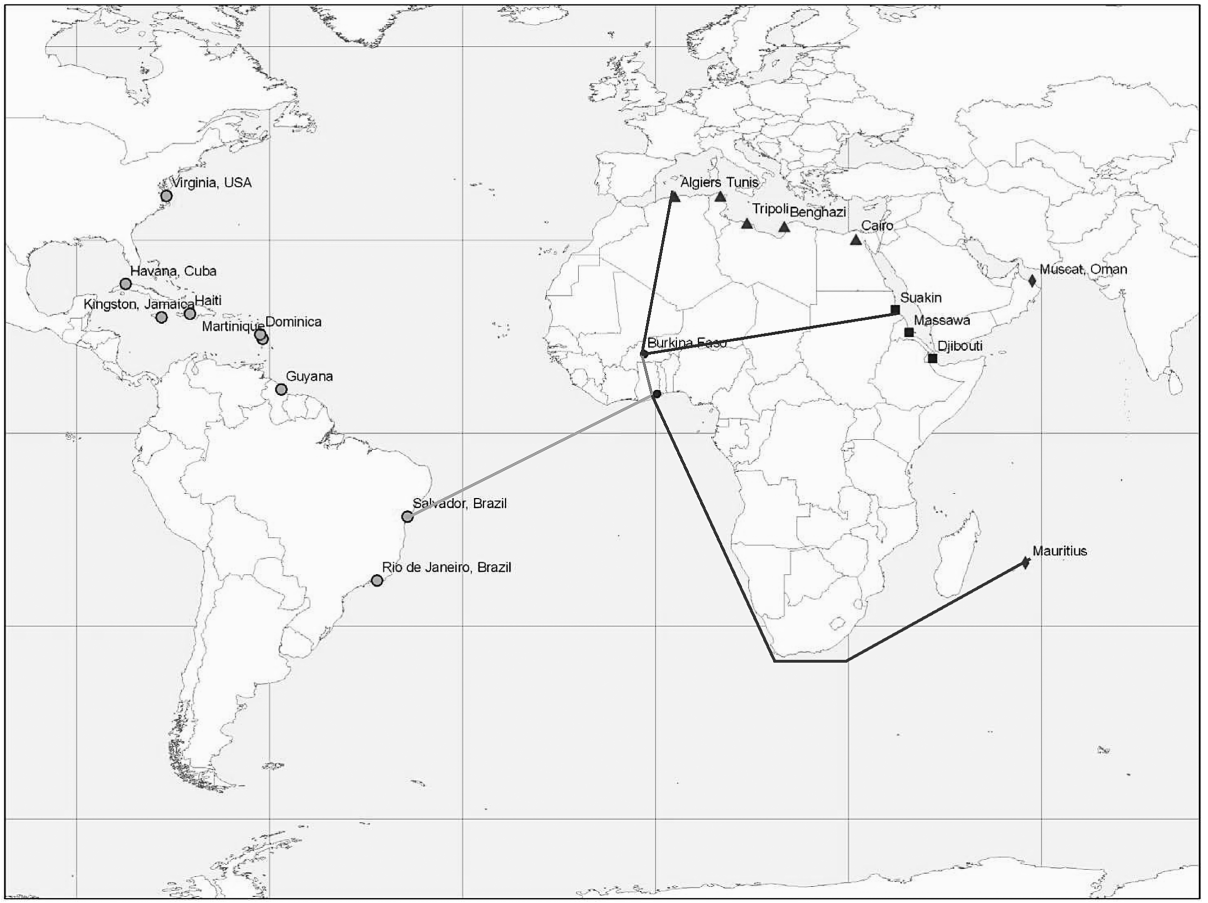

FIGURE V
Example Showing the Distance Instruments for Burkina Faso

Conditions for a Valid IV

- **Instrument Condition:** Travelling distance of a country to the main slave markets affects (to some degree) how many slaves were taken from that country
- **Exclusion Restriction:** The travelling distance of a country to the main slave markets is only related to current levels of GDP per capita through how it affected the number of slaves that were taken from the country and the controls

Does this seem plausible to you?

Results

TABLE IV
ESTIMATES OF THE RELATIONSHIP BETWEEN SLAVE EXPORTS AND INCOME

	(1)	(2)	(3)	(4)
Second Stage. Dependent variable is log income in 2000, ln y				
ln(exports/area)	−0.208***	−0.201***	−0.286*	−0.248***
	(0.053)	(0.047)	(0.153)	(0.071)
	[−0.51, −0.14]	[−0.42, −0.13]	[−∞, +∞]	[−0.62, −0.12]
Colonizer fixed effects	No	Yes	Yes	Yes
Geography controls	No	No	Yes	Yes
Restricted sample	No	No	No	Yes
F-stat	15.4	4.32	1.73	2.17
Number of obs.	52	52	52	42
First Stage. Dependent variable is slave exports, ln(exports/area)				
Atlantic distance	−1.31***	−1.74***	−1.32*	−1.69**
	(0.357)	(0.425)	(0.761)	(0.680)
Indian distance	−1.10***	−1.43***	−1.08	−1.57*
	(0.380)	(0.531)	(0.697)	(0.801)
Saharan distance	−2.43***	−3.00***	−1.14	−4.08**
	(0.823)	(1.05)	(1.59)	(1.55)
Red Sea distance	−0.002	−0.152	−1.22	2.13
	(0.710)	(0.813)	(1.82)	(2.40)
F-stat	4.55	2.38	1.82	4.01
Colonizer fixed effects	No	Yes	Yes	Yes
Geography controls	No	No	Yes	Yes
Restricted sample	No	No	No	Yes
Hausman test (p-value)	.02	.01	.02	.04
Sargan test (p-value)	.18	.30	.65	.51

Potential Channels

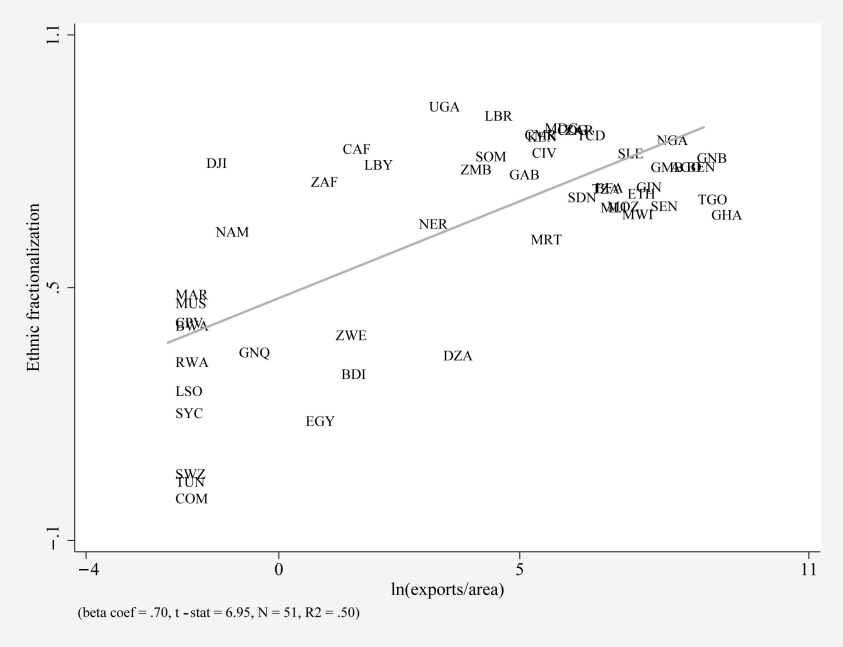

FIGURE VI
Relationship between Slave Exports and Current Ethnic Fractionalization

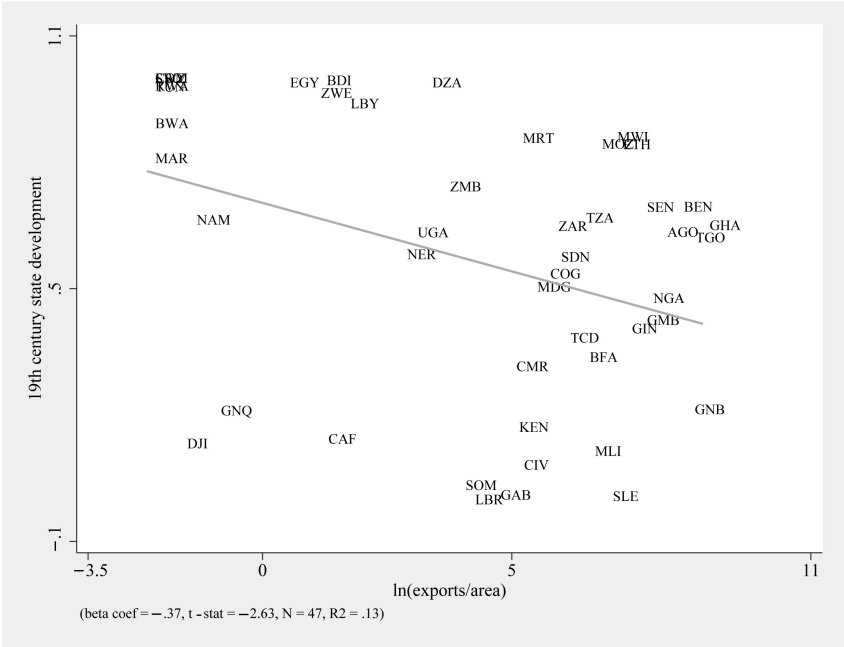

FIGURE VII
Relationship between Slave Exports and Nineteenth-Century State Development