AREC 345: Global Poverty & Economic Development

Lecture 6:

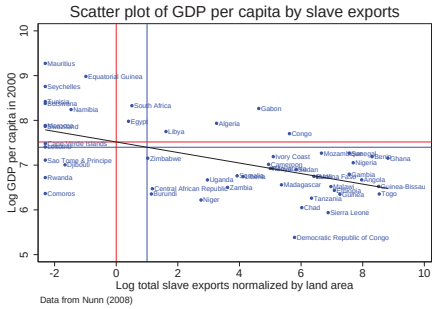
The African Slave Trade

Professor: Pamela Jakiela

Department of Agricultural and Resource Economics
University of Maryland, College Park

The Long-Run Impacts of the Slave Trade

Exposure to the Slave Trade & Income in 2000



$$E(\text{GDP}) = 7.517 - 0.117 \cdot \text{slave exports} \quad \longleftrightarrow$$

Dep. Var. = GDP	
	OLS
	(1)
Slave exports	-0.117^{***}
	(0.025)
Constant	7.517^{***}
	(0.126)

Exposure to the Slave Trade & Income in 2000

Use regression results to calculate **t-statistic**:

Regression results:

Dep. Var. = GDP	
	OLS
	(1)
Slave exports	-0.117^{***}
	(0.025)
Constant	7.517^{***}
	(0.126)

The formula for the t-statistic:

$$\textbf{t-stat} = \frac{\hat{b}}{\text{standard error of } \hat{b}}$$

$$=$$

$$=$$

Absolute value of t-statistic is greater than 2.58,

$|\text{t-stat}| > 2.58 \Rightarrow$ statistically significant at the 99 percent level

$|\text{t-stat}| > 1.96 \Rightarrow$ statistically significant at the 95 percent level

$|\text{t-stat}| > 1.64 \Rightarrow$ statistically significant at the 90 percent level

Exposure to the Slave Trade & Income in 2000

$E(\text{log GDP per capita}) = 7.517 - 0.117 \cdot \text{log slave exports per square km}$

Interpretation:

Country	Slave Exports	Log of Slave Exports	Predicted Log GDP	Predicted GDP	Actual GDP
South Africa	1.67	0.51	7.46	$1,732.62	$4,139
Uganda	19.30	2.96	7.17	$1,300.75	$788
Malawi	1062.97	6.97	6.70	$813.74	$ 679
Nigeria	2188.16	7.69	6.61	$747.82	$1,156

Clearly, exposure to the slave trade isn't the whole story!

How Do We Interpret Our Regression Results?

What linear regression tells us:

- Is there a relationship between GDP and exposure to the slave trade?
- Is the association **statistically significant**?

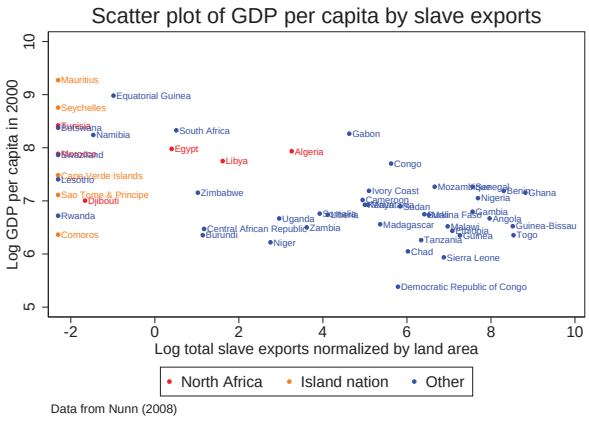
This doesn't tell us whether the relationship is causal

Other reasons for a significant association:

- **Reverse causality**: changes in the dependent variable cause changes in the independent variable
- **Omitted variable bias**: some other factor is causing changes in both the dependent and the independent variables
  - Selection bias is a form of omitted variable bias

Adding Controls to a Regression Specification

"Many of the countries that have the lowest slave exports are either small islands or North African countries, both of which tend to be richer than other countries in Africa."

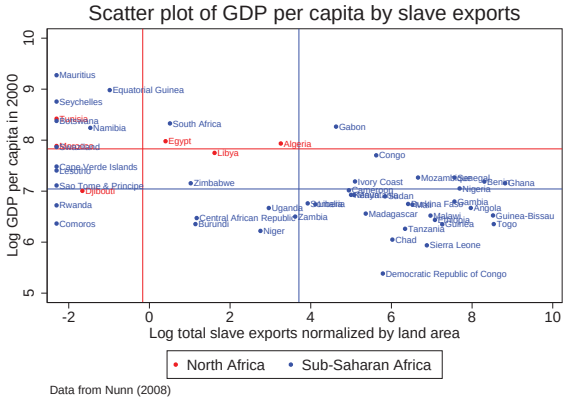


Data from Nunn (2008)

Adding Controls to a Regression Specification

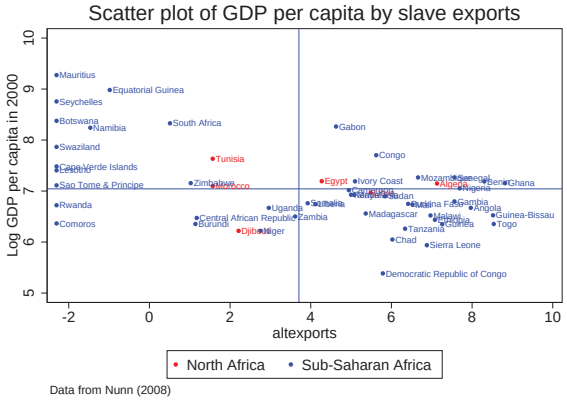
A **multivariate regression** including a control for North Africa:

$$E(\text{GDP}) = a + b \cdot \text{slave exports} + c \cdot \text{north africa}$$



Data from Nunn (2008)

Adding Controls to a Regression Specification

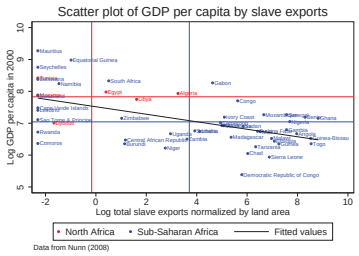


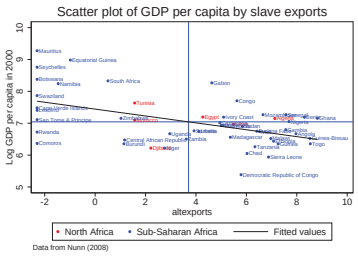
Including a control is equivalent to subtracting off the average levels of x and y from N. African nations, so that the means equal the rest of sample

Adding Controls to a Regression Specification

A **multivariate regression** including a control for North Africa:

$$E(\text{GDP}) = a + b \cdot \text{slave exports} + c \cdot \text{north africa}$$





Adding Controls to a Regression Specification

A **multivariate regression** including control for North Africa, islands

$$E(\text{GDP}) = a + b \cdot \text{slave exports} + c \cdot \text{north africa} + d \cdot \text{island nation}$$

Dep. Var.: Log GDP per Capita		
	OLS	OLS
	(1)	(2)
Slave exports	−0.117***	−0.100***
	(0.025)	(0.031)
North Africa		0.415
		(0.337)
Island nation		0.169
		(0.392)
Constant	7.517***	7.397***
	(0.126)	(0.177)

Interpretation:

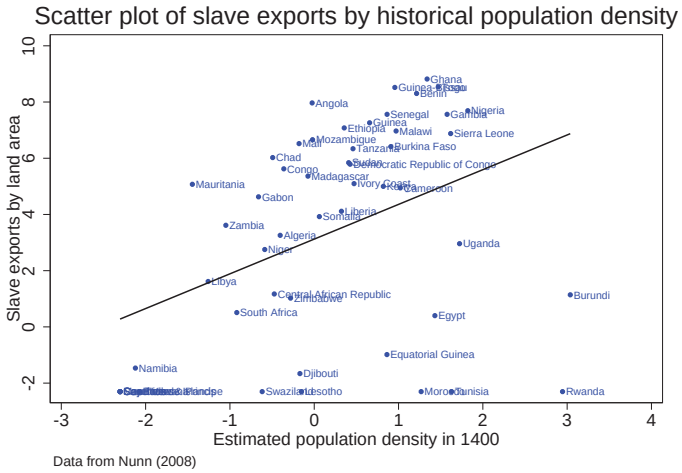
Did Underdevelopment Cause Slave Exports?

"An alternative explanation for the relationship is that societies that were initially underdeveloped may have been more likely to engage in the slave trades, and these same societies are still relatively underdeveloped today."

How can we explore this possibility?

- No data on GDP per capita is available from the 1400s
- In primitive societies, population density is a proxy for income
  - Why is this the case?
- Nunn uses data on population density in 1400 to test whether the least developed areas were the most impacted by slave trades

Did Underdevelopment Cause Slave Exports?



Data from Nunn (2008)

Consequences of the Slave Trade

Demographic consequences:

- Loss of working age population, increased **dependency ratio**
- Slower population growth, delayed urbanization (?)

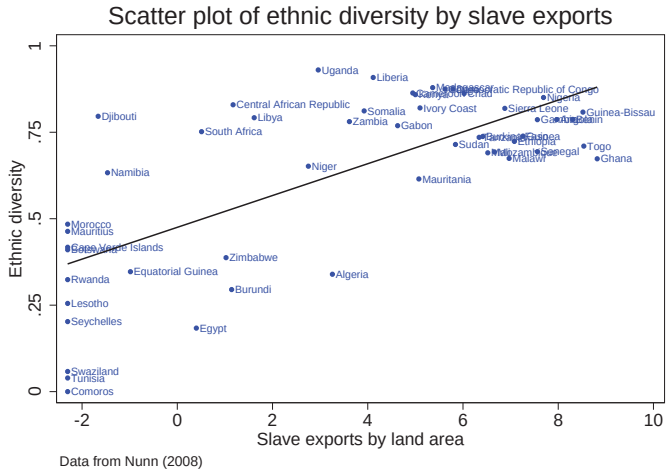
Political consequences:

- Undermined pre-existing political structures (e.g. Kongo Kingdom)
- Empowered those willing to enslave others
- Laid foundations of extractive (rather than productive) institutions

Social consequences:

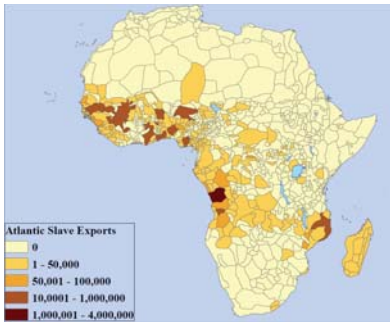
- Erosion of trust, decreased trade

Impacts on Trust, Ethnic Fractionalization

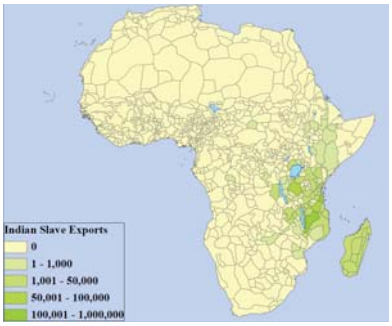


Impacts on Trust, Ethnic Fractionalization

Atlantic Slave Trade



Indian Ocean Slave Trade



Impacts on Trust, Ethnic Fractionalization

Nunn and Wantchekon (2011) estimate the relationship between exposure to the slave trade, how much people trust others

$$E(\text{Trust}) = a + b \cdot \text{slave exports}$$

Unit of observation is the individual:

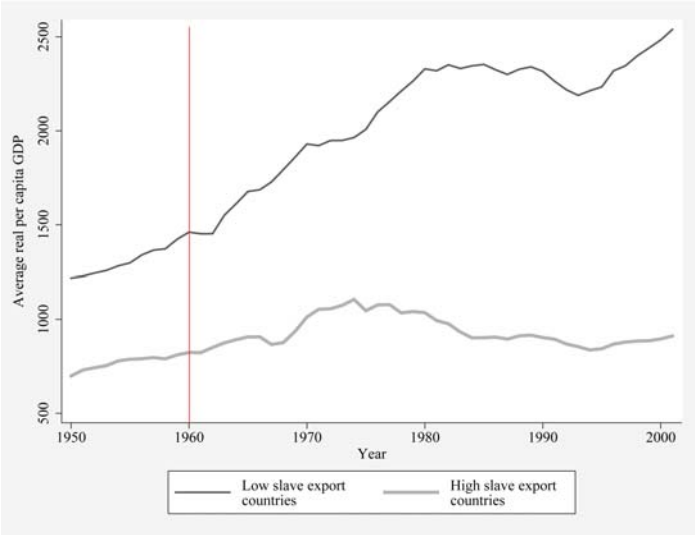
- Data is from the **Afrobarometer** surveys: nationally-representative surveys of African countries, conducted in local languages
- **Independent variable**: how much an individual's ethnic group was exposed to the slave trade (throughout the course of history)

Impacts on Trust, Ethnic Fractionalization

TABLE 2—OLS ESTIMATES OF THE DETERMINANTS OF THE TRUST OF OTHERS

	Trust of relatives (1)	Trust of neighbors (2)	Trust of local council (3)	Intra-group trust (4)	Inter-group trust (5)
ln (1+exports/area)	−0.133***	−0.159***	−0.111***	−0.144***	−0.097***
	(0.037)	(0.034)	(0.021)	(0.032)	(0.028)
Individual controls	Yes	Yes	Yes	Yes	Yes
District controls	Yes	Yes	Yes	Yes	Yes
Country fixed effects	Yes	Yes	Yes	Yes	Yes
Number of observations	20,062	20,027	19,733	19,952	19,765
Number of ethnicity clusters	185	185	185	185	185
Number of district clusters	1,257	1,257	1,283	1,257	1,255
R^2	0.13	0.16	0.20	0.14	0.11

Long-Term Consequences of the Slave Trade



Study Guide: Key Terms

- Atlantic, Indian Ocean, Red Sea, and Trans-Saharan slave trades
- ethnicity vs. shipping records
- t-statistic
- omitted variable bias
- statistical significance
- control (in a regression)
- multivariate regression