LECTURE 2: NATION

The Integrated Market with Diversified Interests

Benefits Of A Big Country

I. economy of scale of fiscal policy

"When the dimensions of a State attain to a certain magnitude, it requires the same energy of government and the same forms of administration which are requisite in one of much greater extent. " --- Hamilton, the *Federalist Paper* 13

II. Large domestic market

"The trader…will acknowledge that the aggregate balance of the commerce of the United States would bid fair to be much more favorable than that of the thirteen States without union or with partial unions." --- Hamilton, the *Federalist Paper* 11

A Ten-Dollar Bill, Alexander Hamilton

Costs Of A Big Country

《盐铁论》《地广第十六》 大夫 v.s. 文学

“文学曰：……今推胡、越数千里，道路回避，士卒劳罢。故边民有刎颈之祸，而中国有死亡之患，此百姓所以嚣嚣而不默也。”

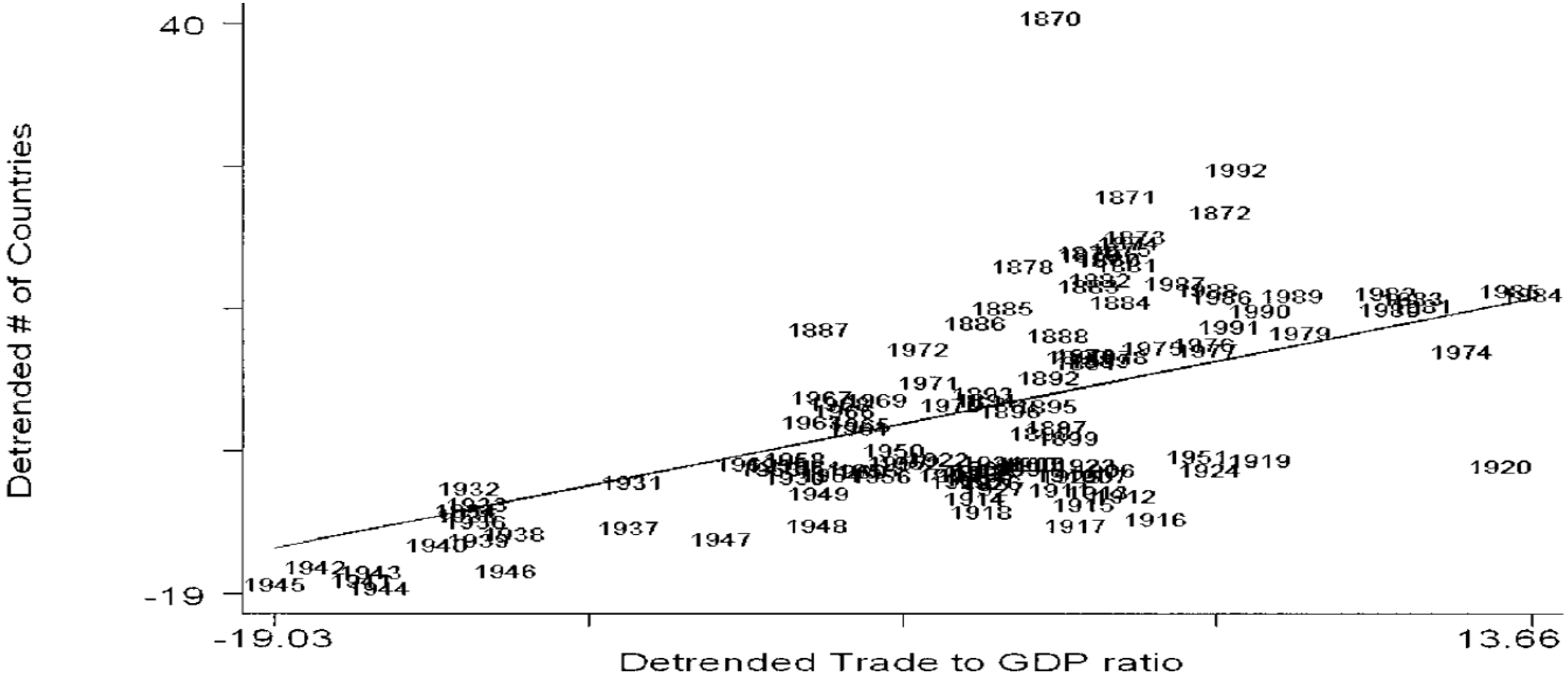
“文学曰：秦之用兵，可谓极矣，蒙恬斥境，可谓远矣。今逾蒙恬之塞，立郡县寇虏之地，地弥远而民滋劳……张骞通殊远，纳无用，府库之藏，流于外国……”

后来…大夫急了：”if You Are So Smart, Why Aren’t You Rich?”

“大夫曰：挟管仲之智者，非为厮役之使也。怀陶朱之虑者，不居贫困之处。文学能言而不能行，居下而讪上，处贫而非富，大言而不从，高厉而行卑，诽誉訾议，以要名采善于当世。夫禄不过秉握者，不足以言治，家不满檐石者，不足以计事。儒皆贫羸，衣冠不完，安知国家之政，县官之事乎？”

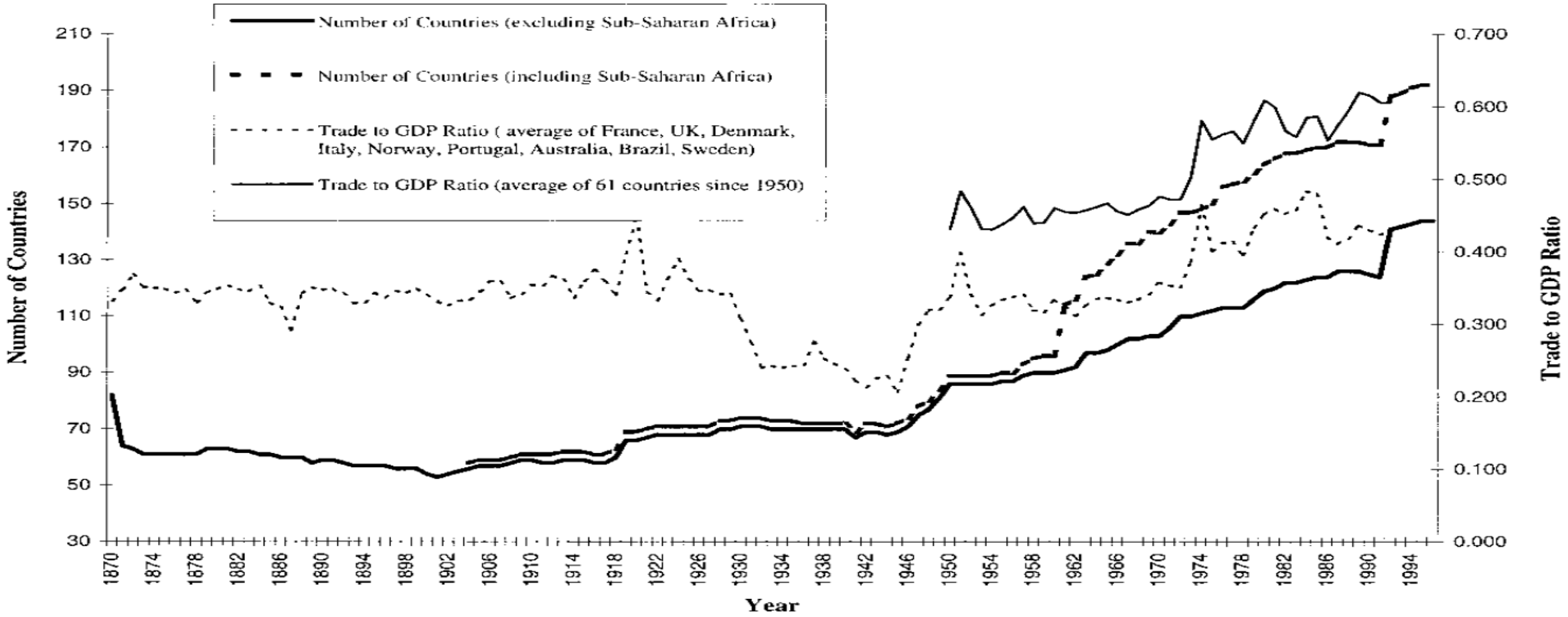
“文学曰：……苟先利而后义，取夺不厌。公卿积亿万，大夫积千金，士积百金，利己并财以聚；百姓寒苦，流离于路，儒独何以完其衣冠也？”

Economic Openness and the Number of Countries



Source: Alesina, Spolaore, And Wacziarg (2000)

Economic Openness and the Number of Countries



Source: Alesina, Spolaore, And Wacziarg (2000)

The Static Model: Trade Costs Within And Across Countries

W symmetric regions, each of which (*i*) uses a local specific factor K_0 to produce a tradable good X_i.

Each region also makes and consumes a non-tradable aggregate good:

$$Y_i = (\sum_{j=1}^{W} X_{i,j}^{\alpha}) L_i^{1-\alpha} \qquad \text{assume } L_i = 1 \; for \; every \; i$$

Within-border trade is costless. Cross-border trade incurs an iceberg cost

$$P_j = \alpha X_{i \in S_i, j}^{\alpha-1} = \alpha(1-\beta)^{\alpha} X_{i \in \overline{S_i}, j}^{\alpha-1}.$$

Resource constraint:

$$S_i D_i + (W - S_i) F_i = K_0$$

Utility: U=C

Equilibrium (If All Equal-sized Countries)

$$Y = C = K_0^{\alpha}[(1-\theta)S + \theta W]^{1-\alpha}$$

$$\theta \triangleq (1-\beta)^{\alpha/(1-\alpha)}$$

Output Y and consumption C are:

Increase in openness θ (for given S)

Increase in S (for given θ)

Decrease in S* θ

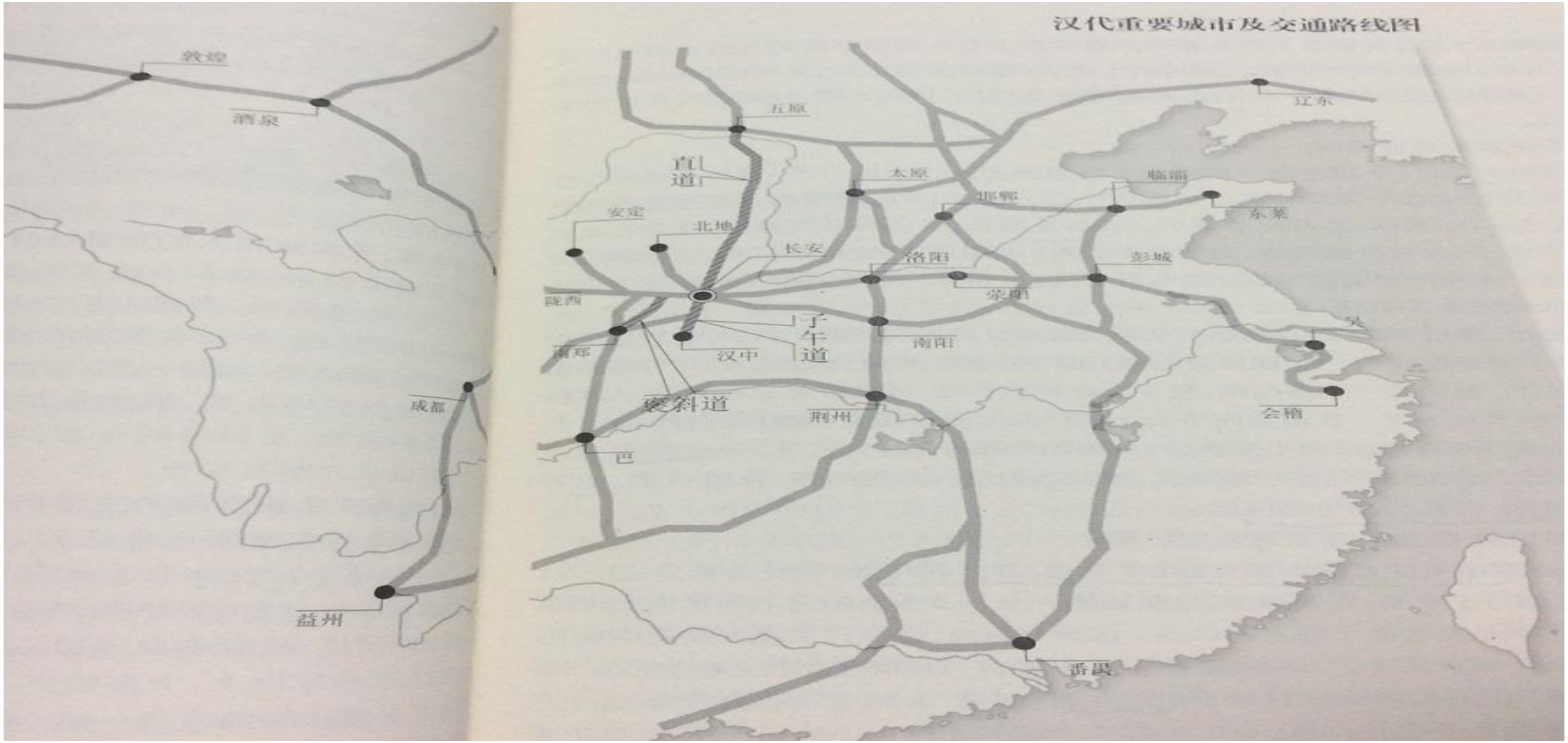
Evidence

TABLE 6—DETERMINANTS OF INCOME LEVELS: INSTRUMENTAL VARIABLES ESTIMATES

Dependent variable: Log of per capita income 1989	Size = log of GDP			Size = log of population		
	(1)	(2)	(3)	(4)	(5)	(6)
Intercept	−4.736	0.906	8.010	1.725	6.444	8.820
	(2.233)	(5.253)	(2.148)	(1.929)	(1.873)	(1.002)
Size*openness	−0.001	−0.008	−0.004	−0.0002	−0.010	−0.006
	(0.002)	(0.003)	(0.002)	(0.002)	(0.003)	(0.002)
Country size	0.636	0.442	0.068	0.494	0.243	0.004
	(0.131)	(0.314)	(0.143)	(0.184)	(0.206)	(0.121)
Openness	0.049	0.141	0.063	0.032	0.079	0.040
	(0.038)	(0.064)	(0.029)	(0.020)	(0.027)	(0.016)
Number of observations	114	80	71	115	81	72

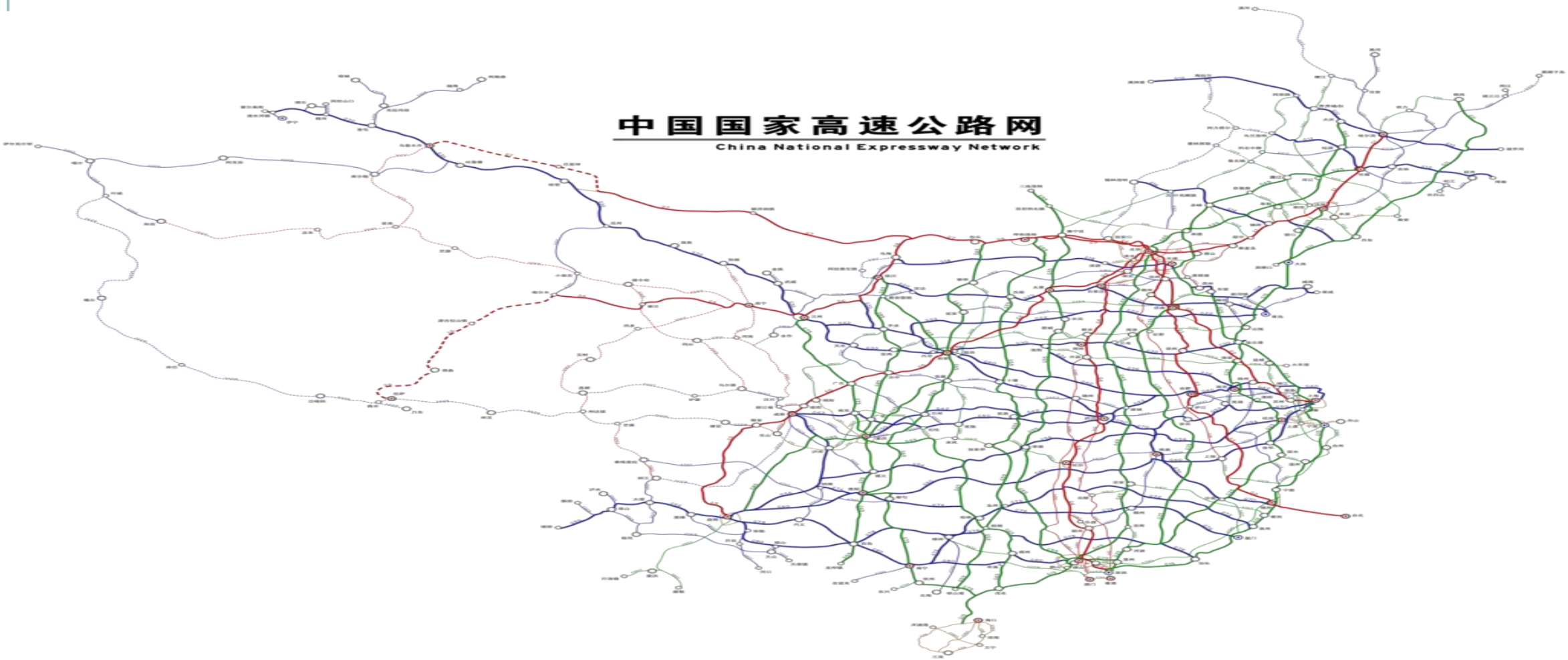
SOURCE: Alesina, Spolaore, And Wacziarg (2000)

汉代重要城市及交通路线图



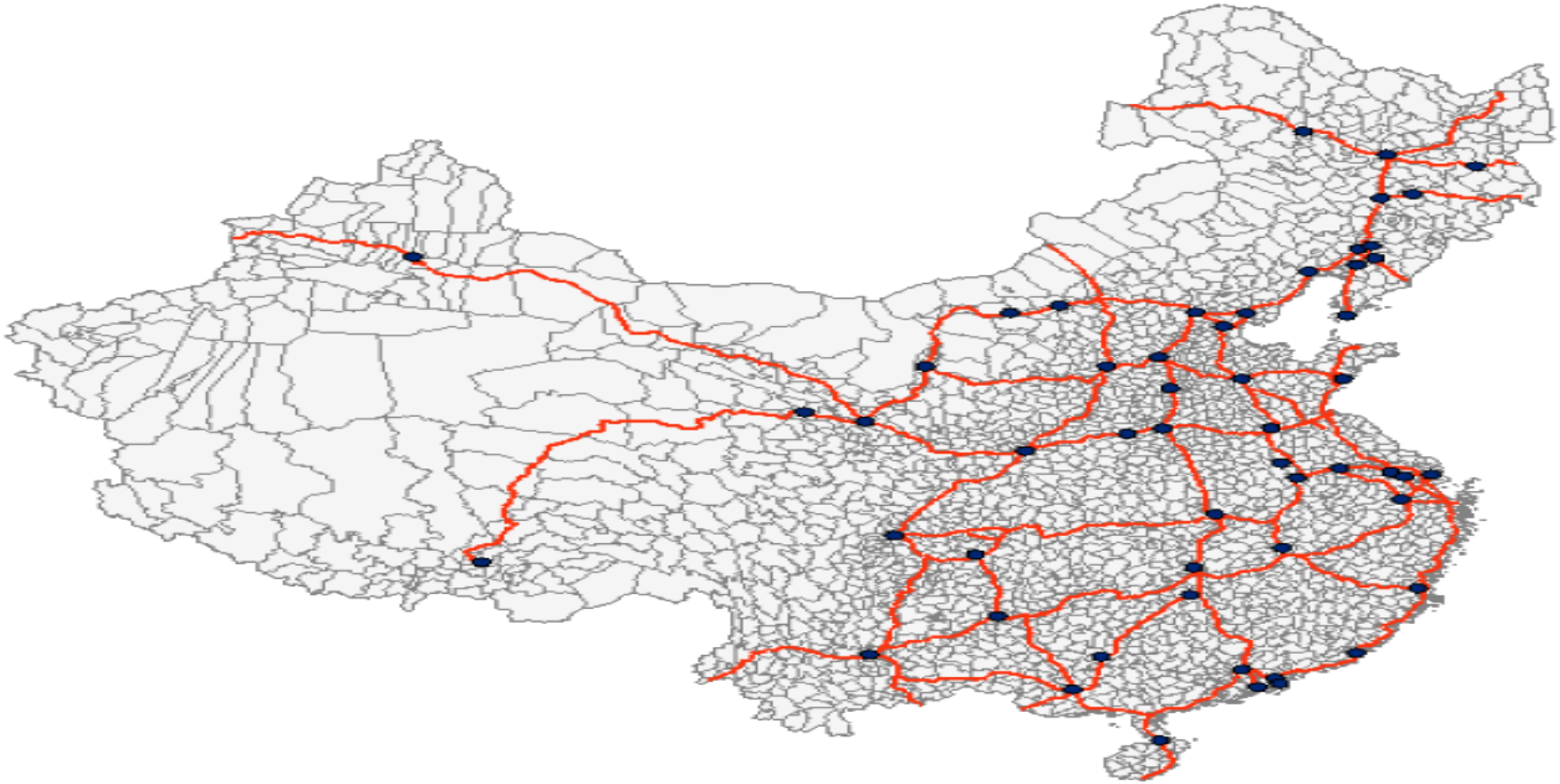
SOURCE:许倬云(2007)

中国国家高速公路网 (7118)



“五纵七横”:连上公路的地方经济发展一定好么?

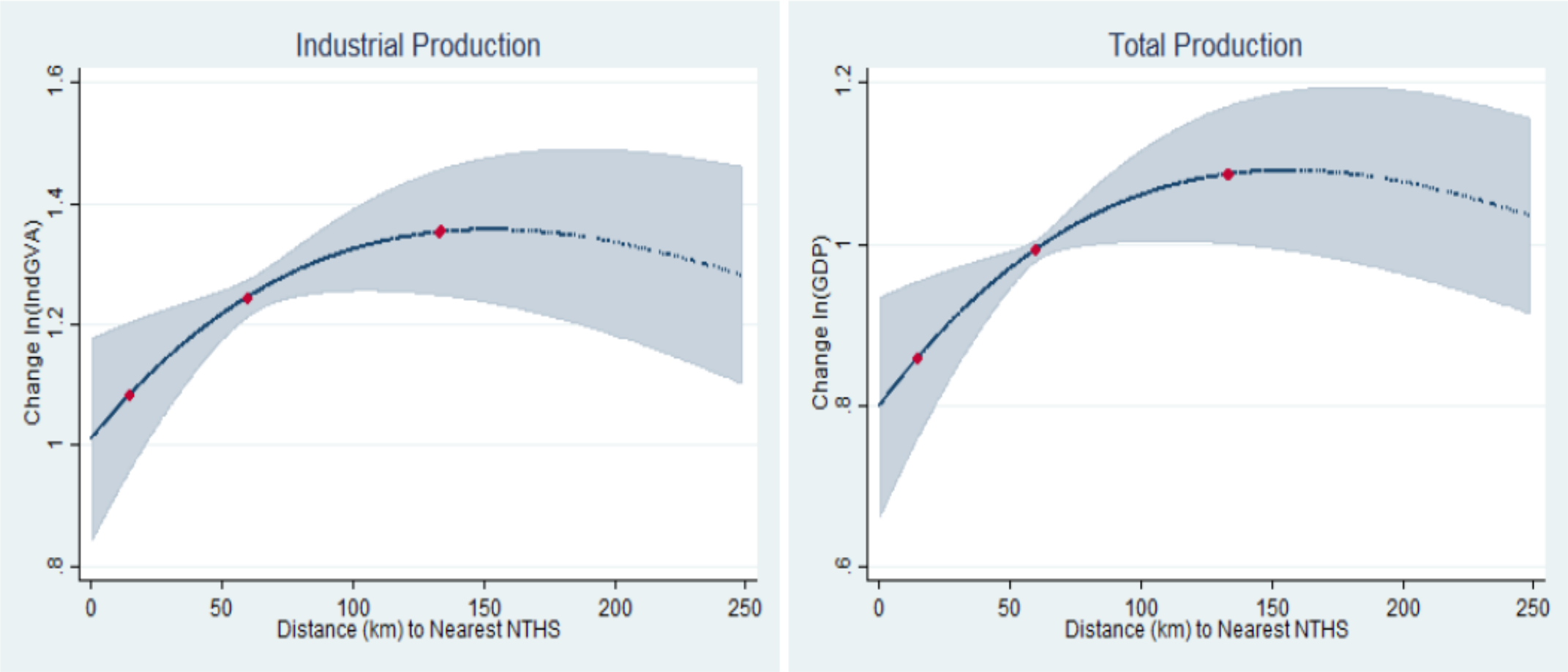
Figure 1: China's National Trunk Highway System



Source: Farber (2014)

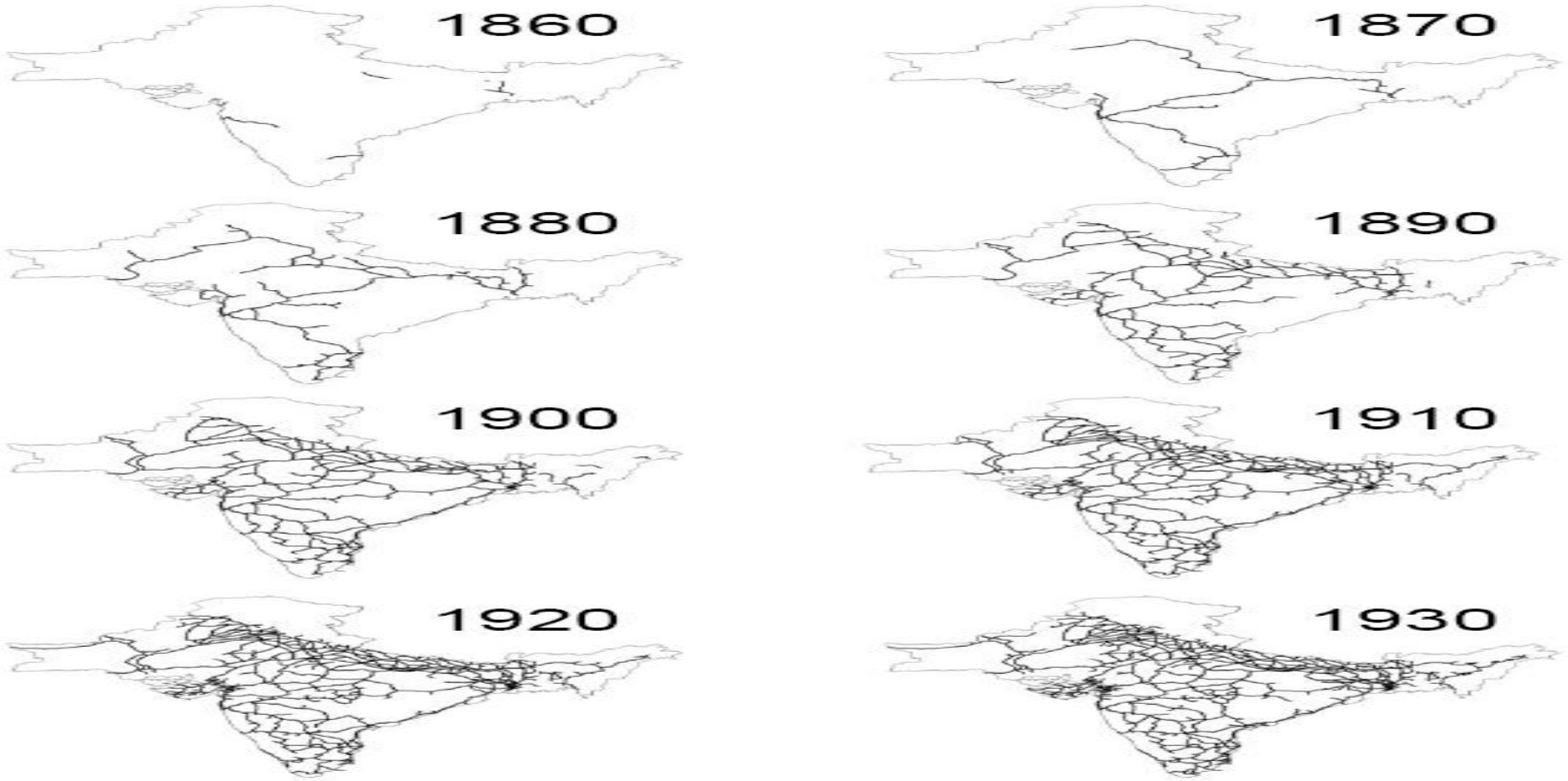
不一定

Figure 4: **Estimated Effect of Peripheral Connections over Distance to the Nearest NTHS Route**



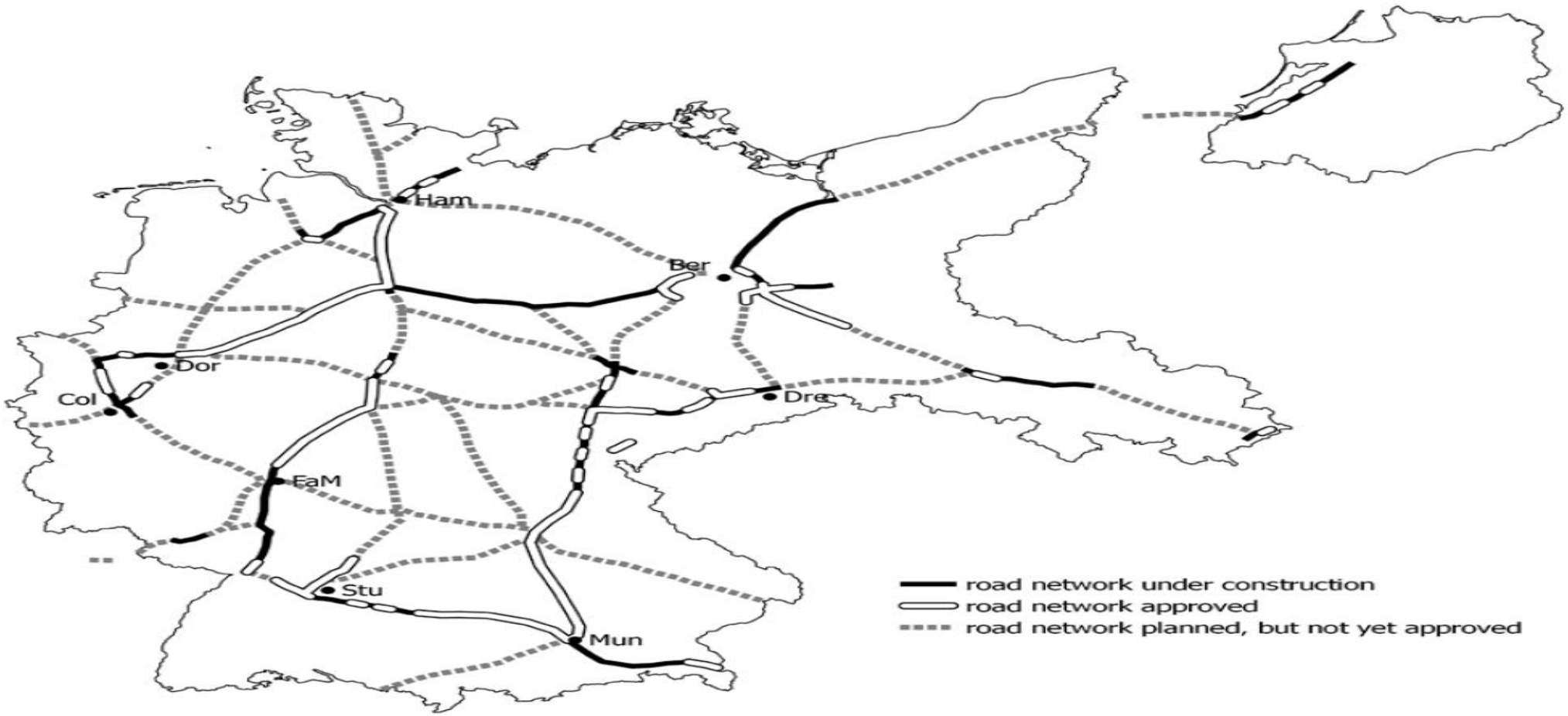
Source: Farber (2014)

Railroads In India, 1870-1930



SOURCE: Donaldson (2014)

German Highway Network by 1934



SOURCE: Voigtlaender and Voth (2014)

Highway to Hitler

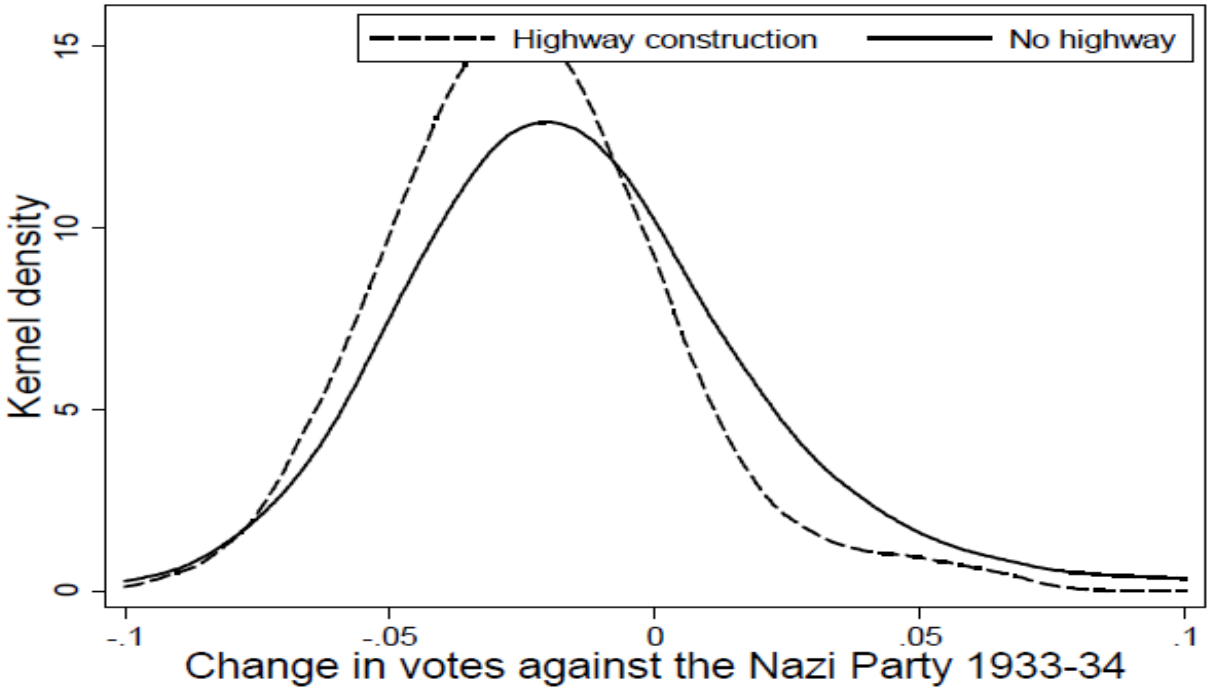
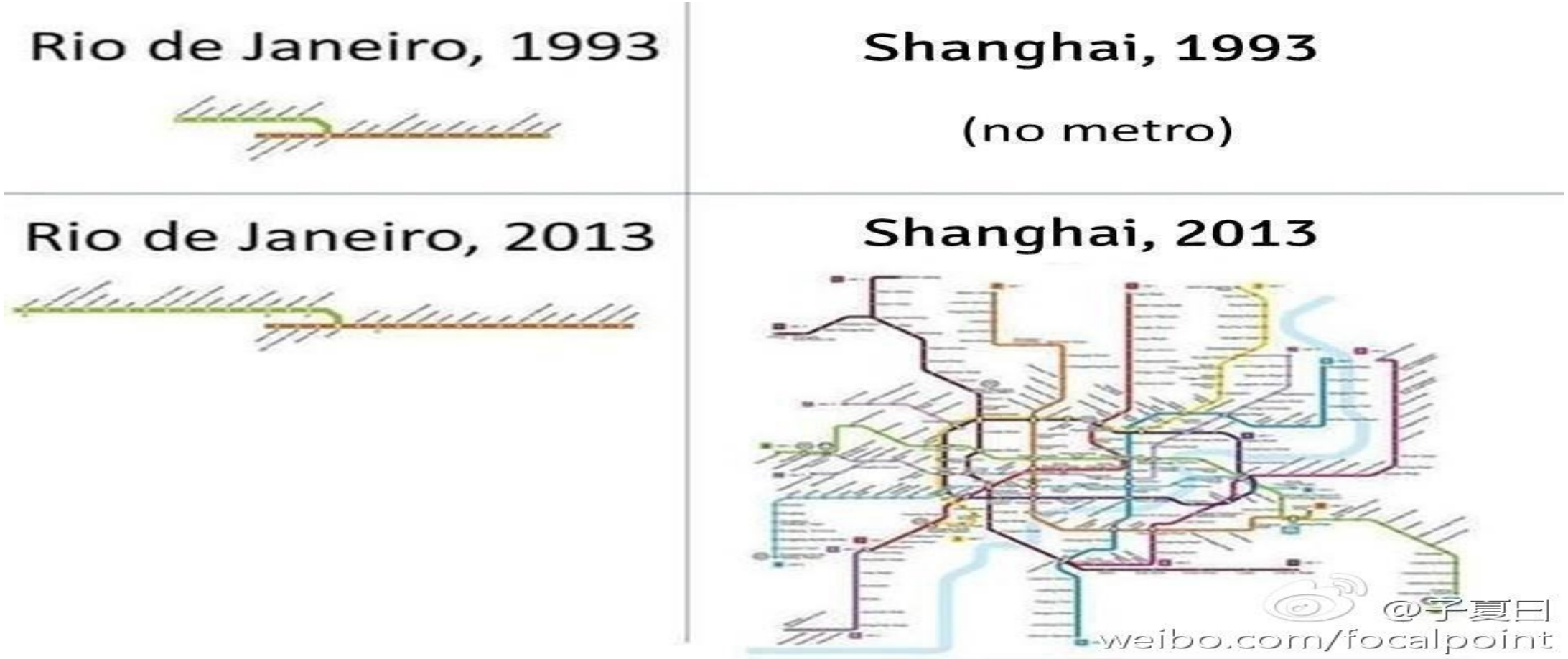


Figure 1: Change in votes against the Nazi Regime, November 1933- August 34, conditional on Autobahn connection

SOURCE: Voigtlaender and Voth (2014)

Economic Development And Transportation



The Dynamic Model: trade Costs Within And Across Countries

Utility function

$$U_i = \int_0^\infty \ln C_{it} e^{-\rho t} \, dt$$

Initial level of capital K_{i0} , dynamic constraint:

$$\frac{dK_{it}}{dt} = r_{it} K_{it} + w_{it} - C_{it}.$$

Hamiltonian:

$$H = lnC_{it} e^{-\rho t} + \lambda_t (r_{it} K_{it} + w_{it} - C_{it})$$

First Order Conditions

Hamiltonian:

$$H = lnC_{it}e^{-\rho t} + \lambda_t(r_{it}K_{it} + w_{it} - C_{it})$$

$$\frac{\partial H}{\partial C} = 0 \Rightarrow \frac{1}{C_{it}}e^{-\rho t} = \lambda_t; \qquad \frac{\partial H}{\partial K} = -\dot{\lambda} \Rightarrow -\lambda_t r_{it} = \dot{\lambda}$$

The first condition implies

$$\dot{\lambda} = -\frac{1}{C_{it}^2}\dot{C_{it}}e^{-\rho t} - \frac{\rho}{C_{it}}e^{-\rho t}$$

Combine with the second condition:

$$\frac{1}{C_{it}}\dot{C_{it}} = r_{it} - \rho$$

Steady State (If All Equal-sized Countries)

$$Y = C = [\frac{\alpha}{\rho}]^{\frac{\alpha}{1-\alpha}}[(1-\theta)S + \theta W]$$

$$\theta \triangleq (1-\beta)^{\alpha/(1-\alpha)}$$

Output Y and consumption C are:

Increase in openness θ (for given S)

Increase in S (for given θ)

Decrease in S* θ

Around the steady state, the growth rate also follows these properties.

OLS

Dependent variable: Growth of per capita GDP 1960–1989	Size = log of GDP			Size = log of population		
	(1)	(2)	(3)	(4)	(5)	(6)
Intercept	−9.956	−9.247	6.299	−4.900	−6.330	7.884
	(2.231)	(2.260)	(2.828)	(1.375)	(1.773)	(2.495)
Size*openness	−0.004	−0.004	−0.003	−0.004	−0.004	−0.004
	(0.002)	(0.002)	(0.002)	(0.0025)	(0.0026)	(0.002)
Country size	0.646	0.742	0.306	0.624	0.606	0.278
	(0.133)	(0.139)	(0.102)	(0.143)	(0.142)	(0.1187)
Openness	0.094	0.095	0.060	0.057	0.057	0.044
	(0.035)	(0.035)	(0.030)	(0.020)	(0.021)	(0.017)

SOURCE: Alesina, Spolaore, And Wacziarg (2000)

IV: Four Geographic Dummies

Dependent variable: Growth of per capita GDP 1960–1989	Size = log of GDP			Size = log of population		
	(1)	(2)	(3)	(4)	(5)	(6)
Intercept	−13.793	−14.299	−1.271	−9.955	−10.365	3.083
	(3.869)	(3.825)	(3.713)	(3.233)	(3.293)	(3.032)
Size*openness	−0.006	−0.0075	−0.007	−0.007	−0.007	−0.007
	(0.004)	(0.0037)	(0.002)	(0.005)	(0.005)	(0.003)
Country size	0.833	1.133	0.701	1.066	1.035	0.603
	(0.226)	(0.255)	(0.201)	(0.307)	(0.315)	(0.204)
Openness	0.131	0.163	0.136	0.102	0.101	0.077
	(0.061)	(0.058)	(0.038)	(0.039)	(0.039)	(0.023)

SOURCE: Alesina, Spolaore, And Wacziarg (2000)

Heterogeneity Cost In The Utility Function

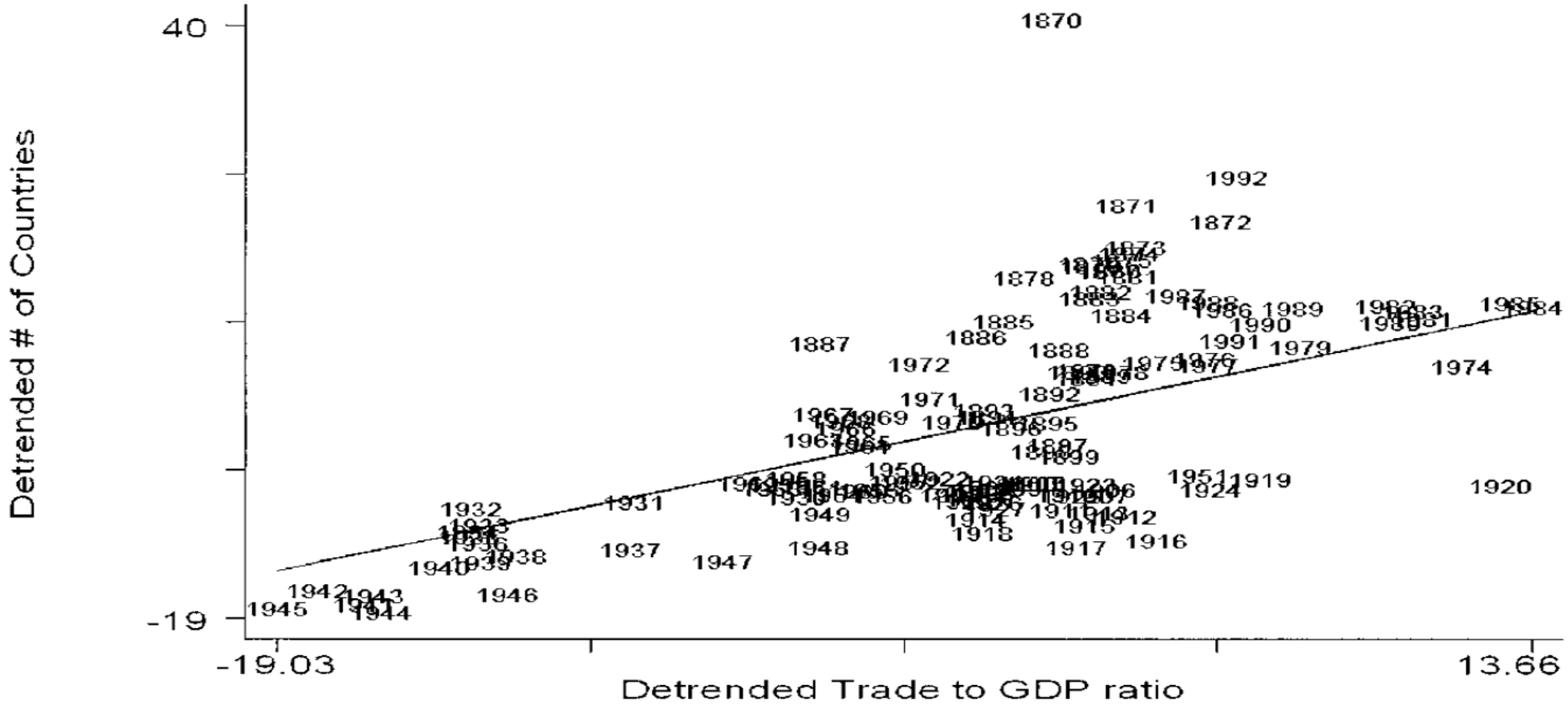
U=ln(C)-hS

$$S^* = \frac{1-\alpha}{h} - \frac{\theta}{1-\theta}W$$

More open, bigger θ

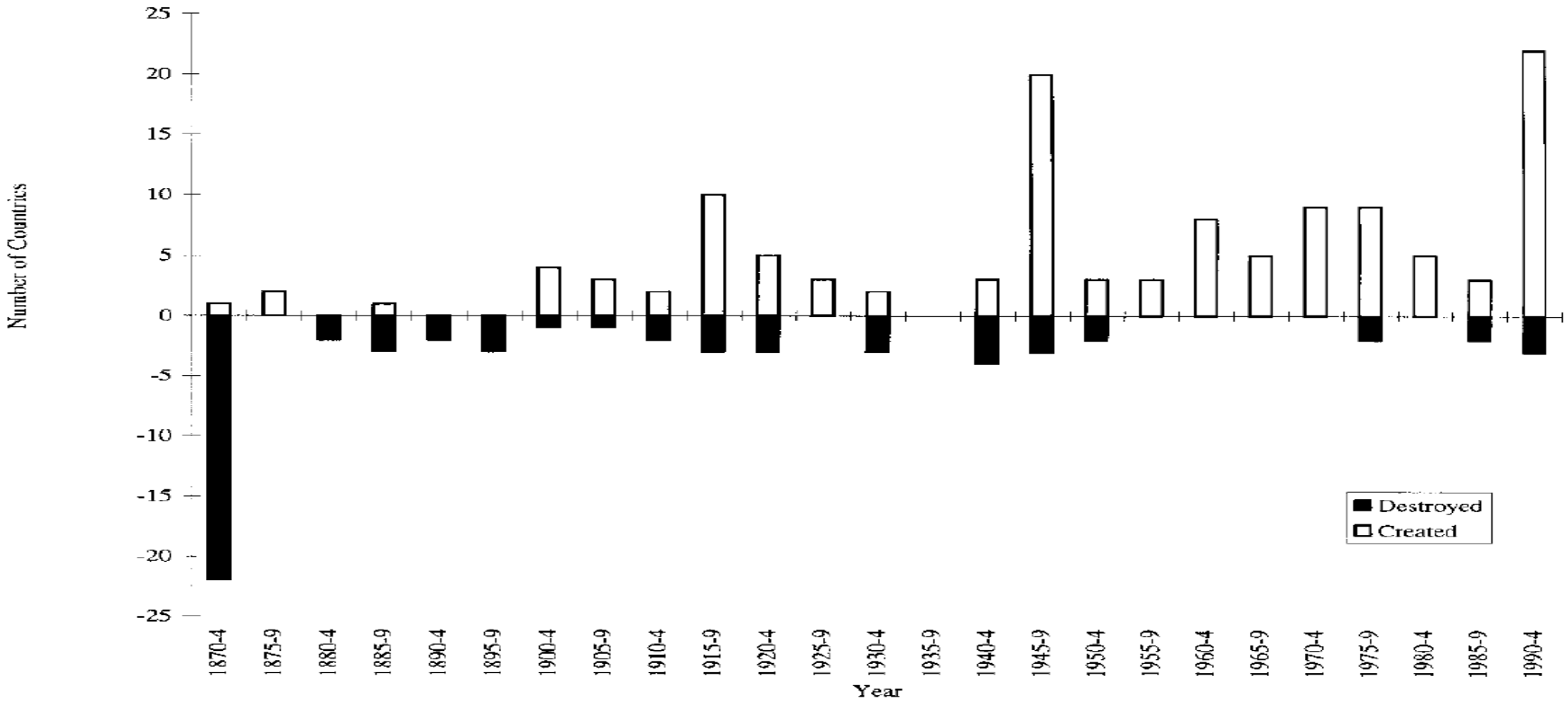
Size decreases with openness, so the number of countries increase with openness.

Informal Evidence



SOURCE: Alesina, Spolaore, And Wacziarg (2000)

Discussion I: Bigger H, More Countries



SOURCE: Alesina, Spolaore, And Wacziarg (2000)

Discussion II: Continuous Openness Shocks

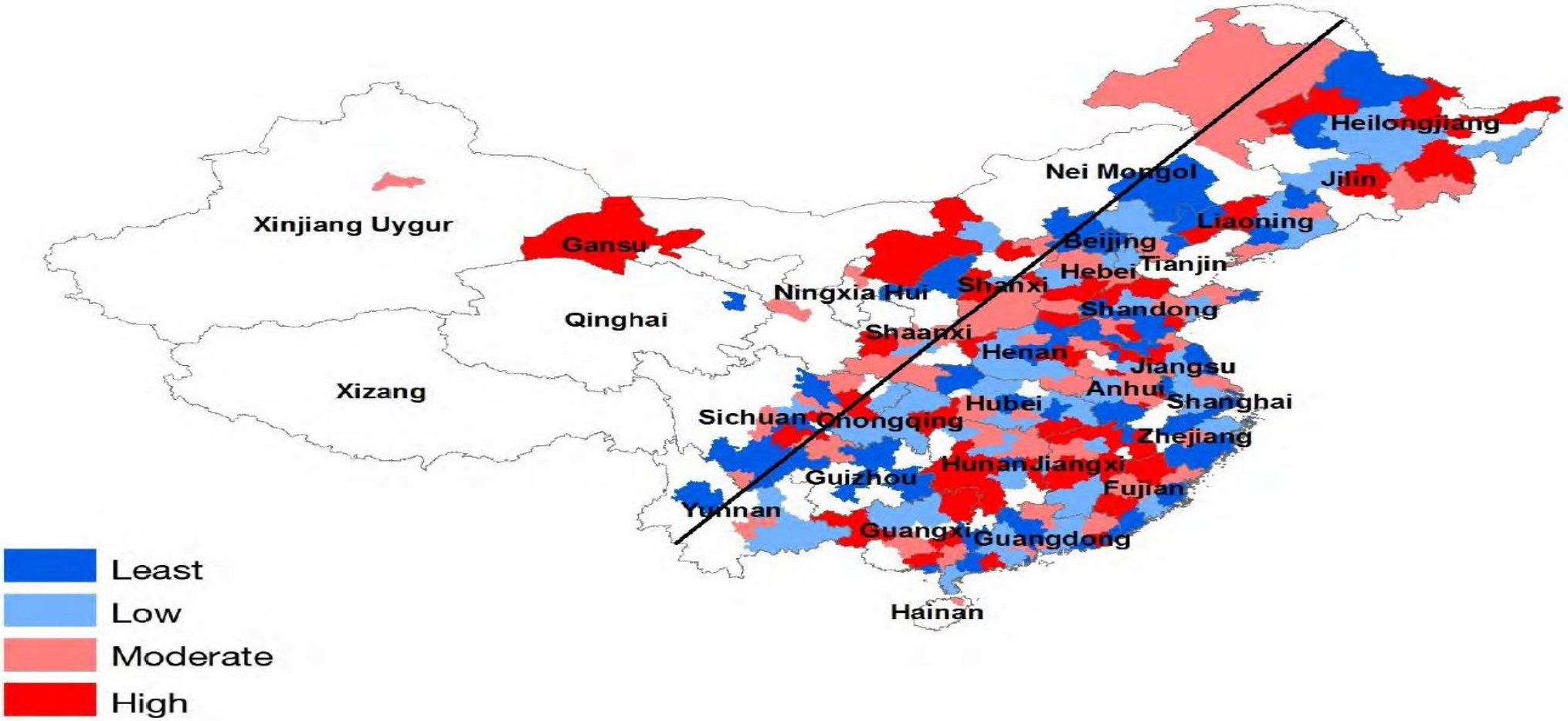
Formation and break-up of nations is rare

Shocks in international trade are continuous

Local interests deviate from the “nation”

Regional variations in nationalism within a country

The Distribution Of Nationalism In China



Source: Lan & Li (2014)

Discussion III: A Big Economy Trade With A Small Economy

统一的全国市场?

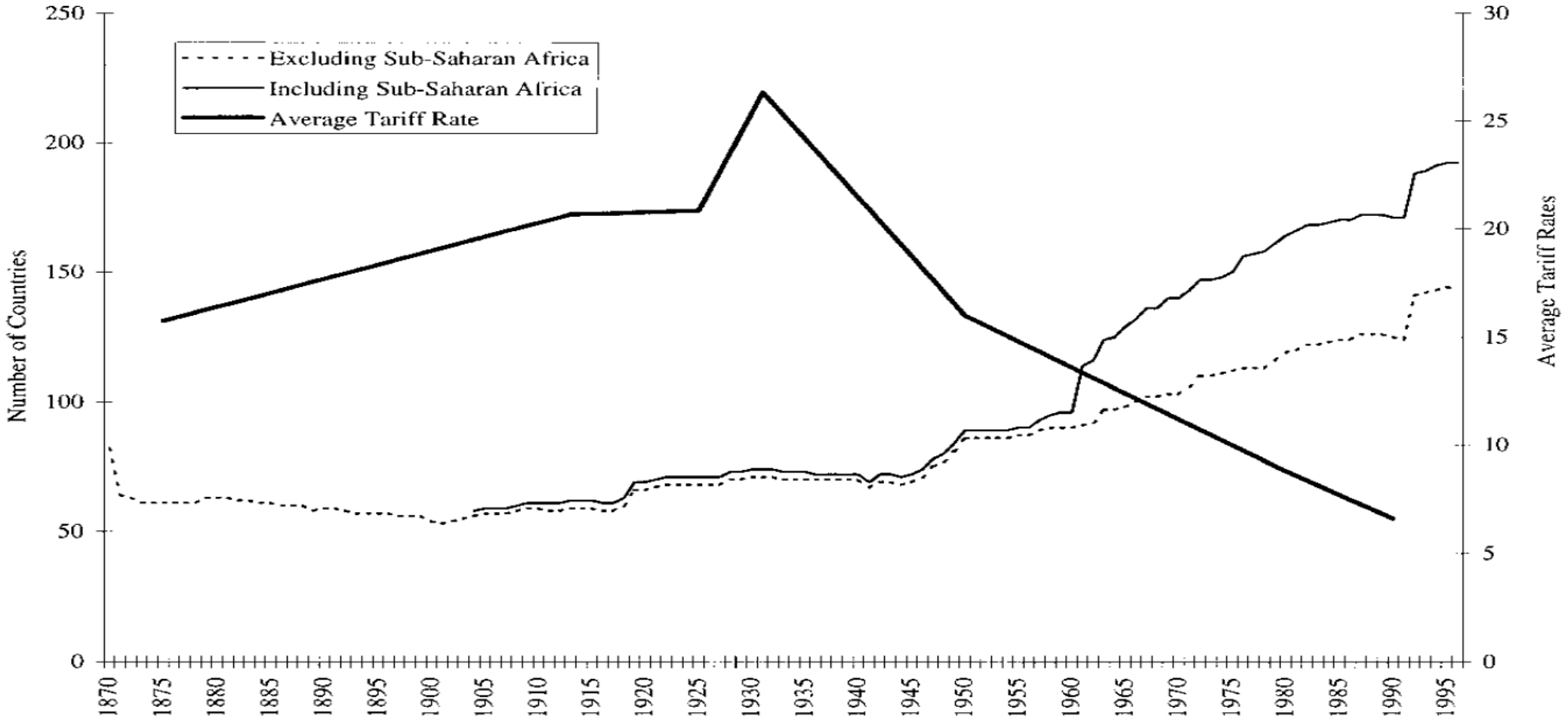
明朝朝贡贸易：利用贸易影响小国

Discussion IV: Lower Trade Cost Within A Country

What are trade costs anyway?

If we put two separate regions together into one country, by force, do they trade more?

Colonial Empires: 1870-1913



SOURCE: Alesina, Spolaore, And Wacziarg (2000)

Trade With An Empire: 1870-1913

Independent Variables	Pooled OLS	Country Fixed Effects	Country Yr. Fixed Effects	Dyad Fixed Effects	Dyad Yr. Fixed Effects	Instrumental Variables
Empire Membership		1.764***	1.768***	0.472***	0.429***	1.331***
		(0.04)	(0.04)	(0.12)	(0.12)	(0.04)
British Empire Membership	1.168***					
	(0.20)					
French Empire Membership	1.088*					
	(0.62)					
German Empire Membership	1.017***					
	(0.30)					
US Empire Membership	2.153***					
	(0.52)					
Spanish Empire Membership	2.458***					
	(0.20)					
Distance	-0.555***	-0.723***	-0.750***			-0.565***
	(0.07)	(0.01)	(0.02)			(0.02)
Gold Standard	0.302***	0.375***	0.448***	0.343***	0.169***	0.260***
	(0.10)	(0.03)	(0.05)	(0.02)	(0.02)	(0.03)
Border	0.635***	0.595***	0.705***			0.623***
	(0.20)	(0.04)	(0.04)			(0.05)

Source: Mitchener And Weidenmier (2008)

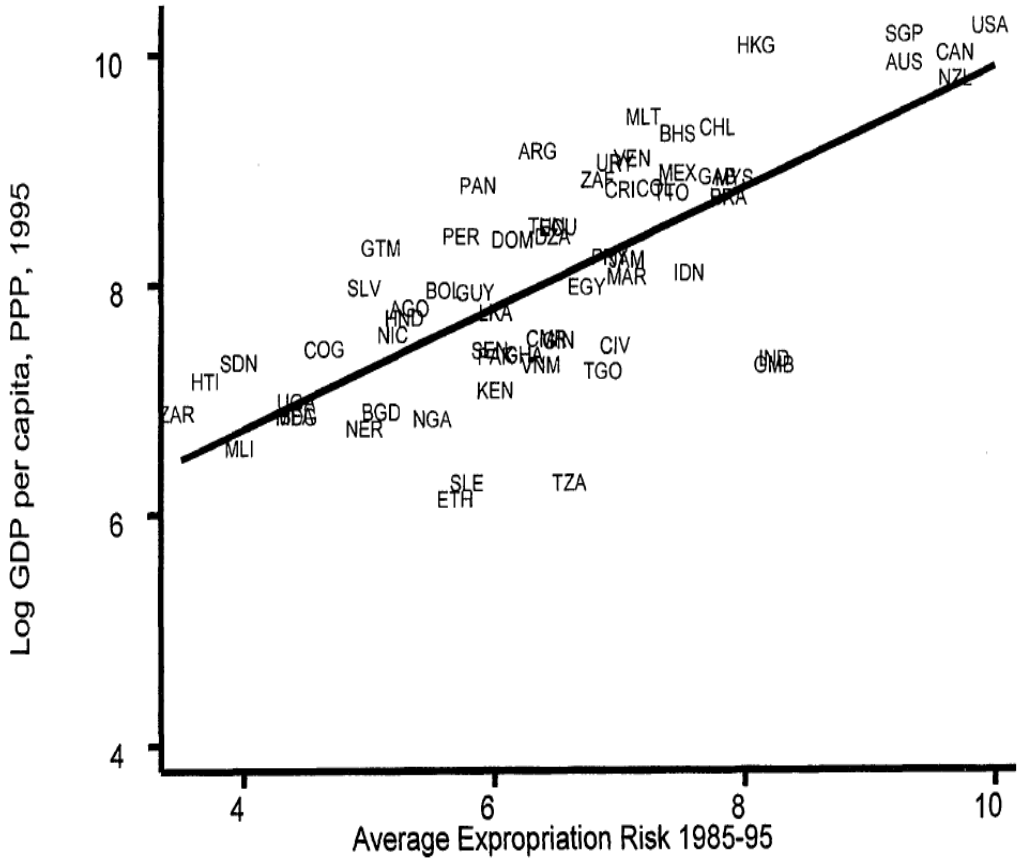
Discussion IV: Unbalanced Gains And Heterogeneous Costs

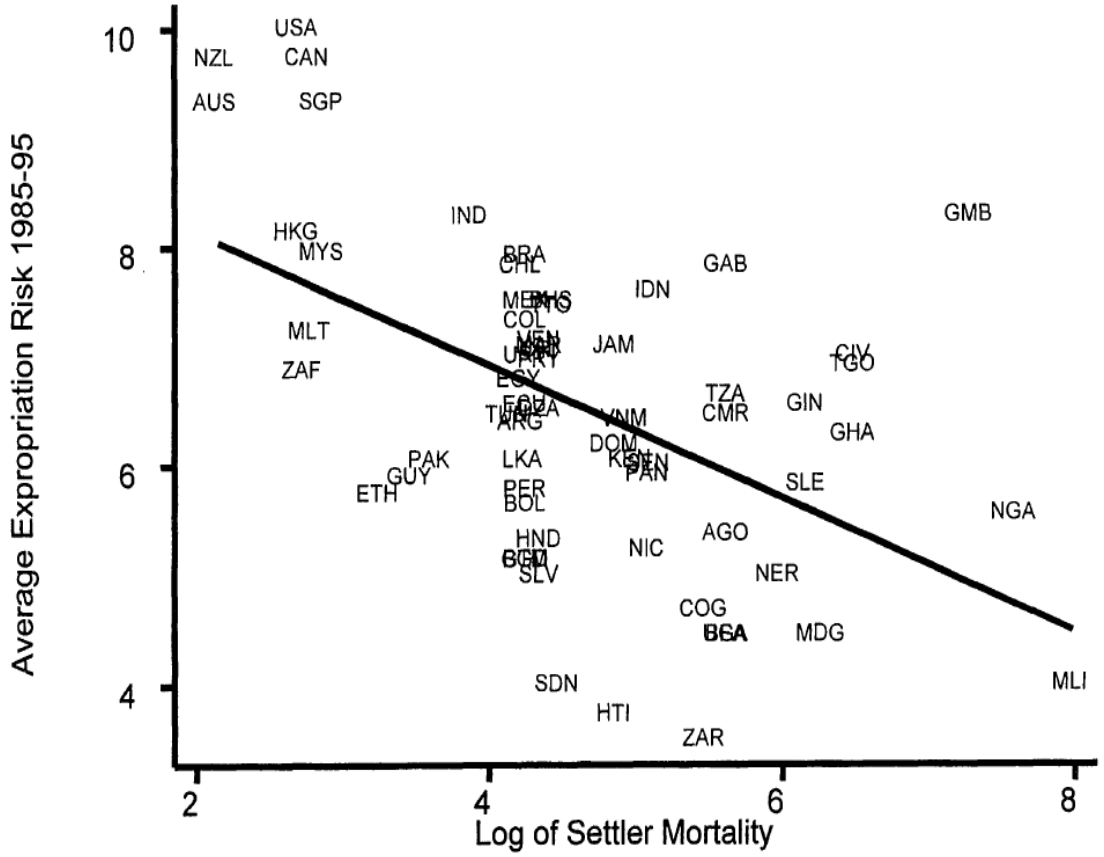
Colonization?

Commercial imperialism?

Wars?

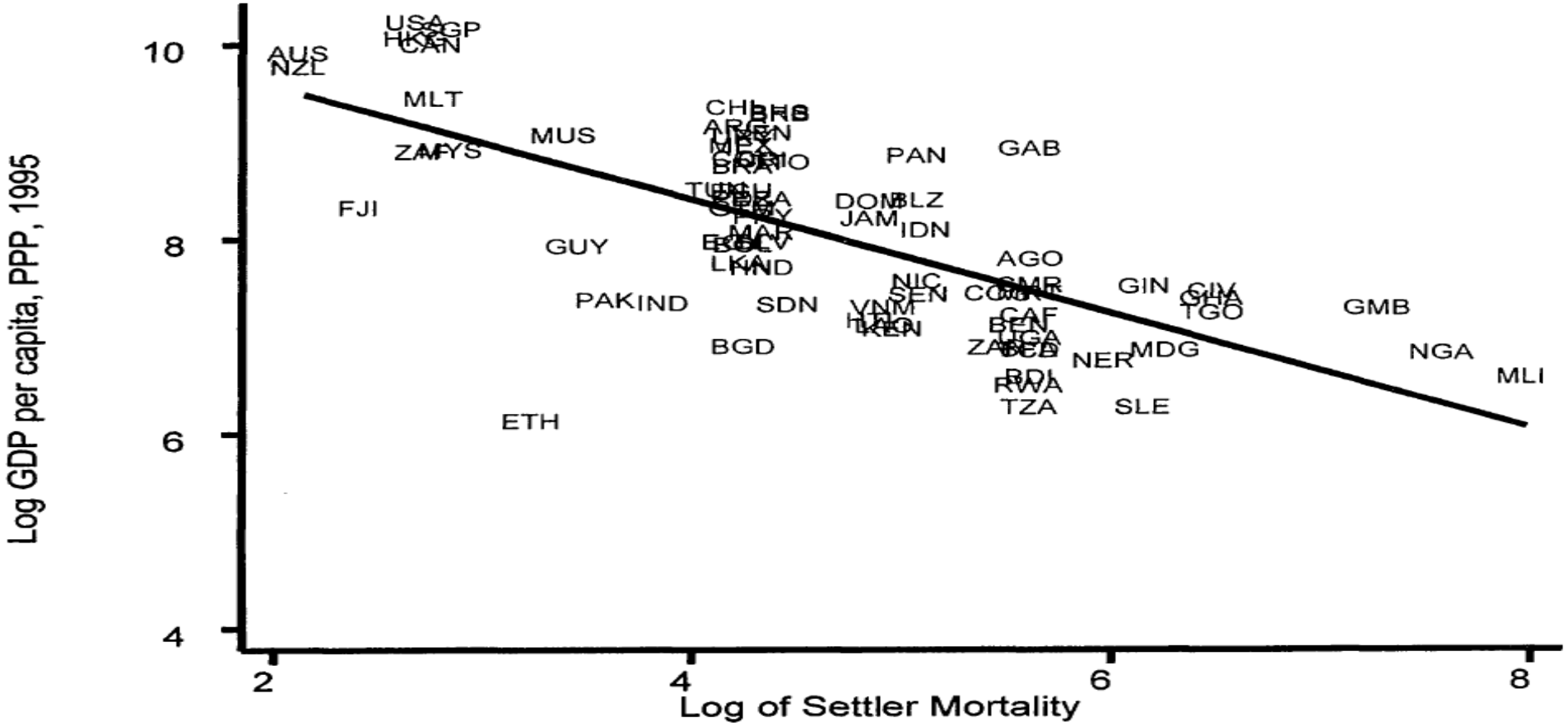
Long-run Economic Effects Of Colonial Origins





Source: Acemoglu, Johnson, And Robinson (2001)

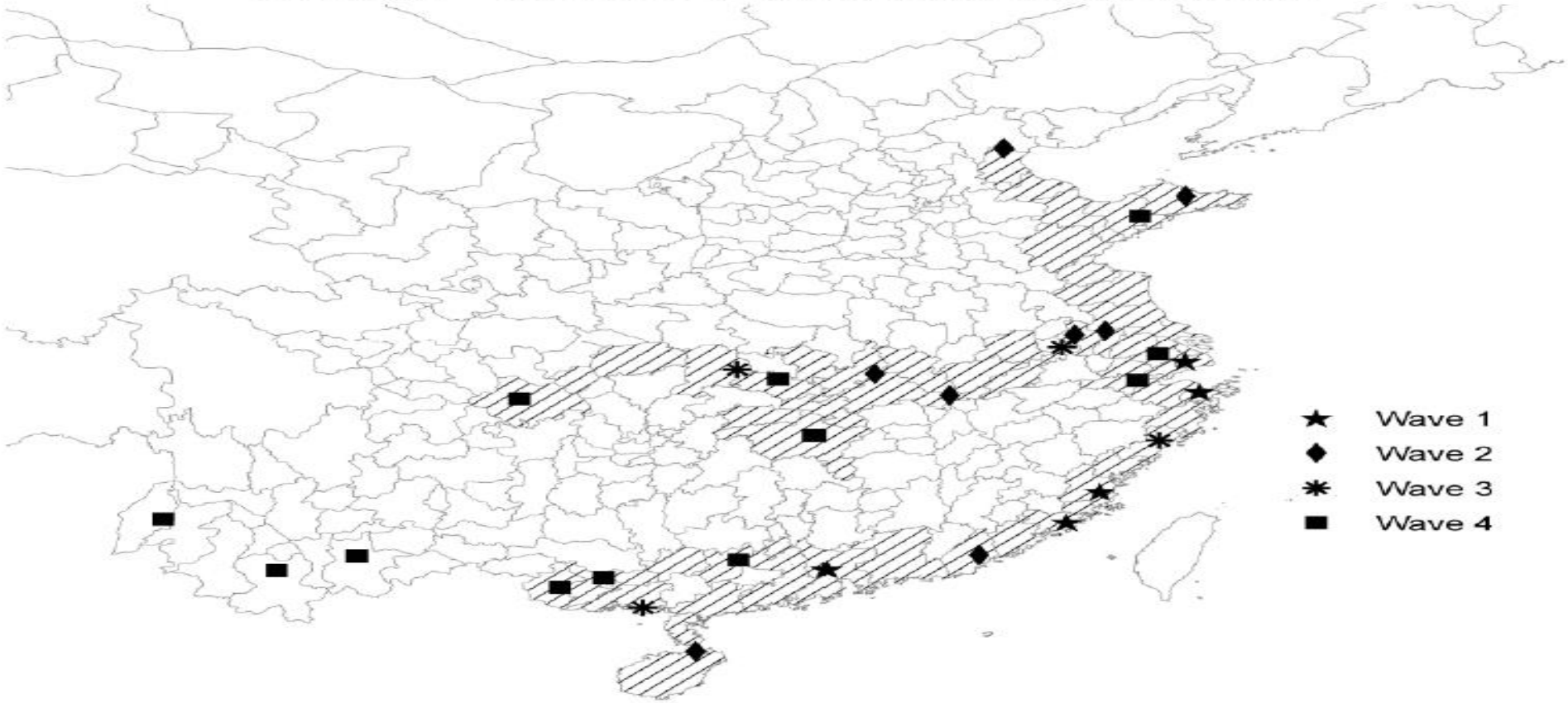
Reduced-form Relation:



Source: Acemoglu, Johnson, And Robinson (2001)

近代通商口岸的长期经济表现

FIGURE 1. – GROWTH OF THE TREATY PORTS SYSTEM



Source: Jia (2014)

POPULATION AND GDP PER CAPITA

FIGURE 2B. – TRENDS OF POPULATION SIZE FROM 1776 TO 2000: COMBINING WAVES

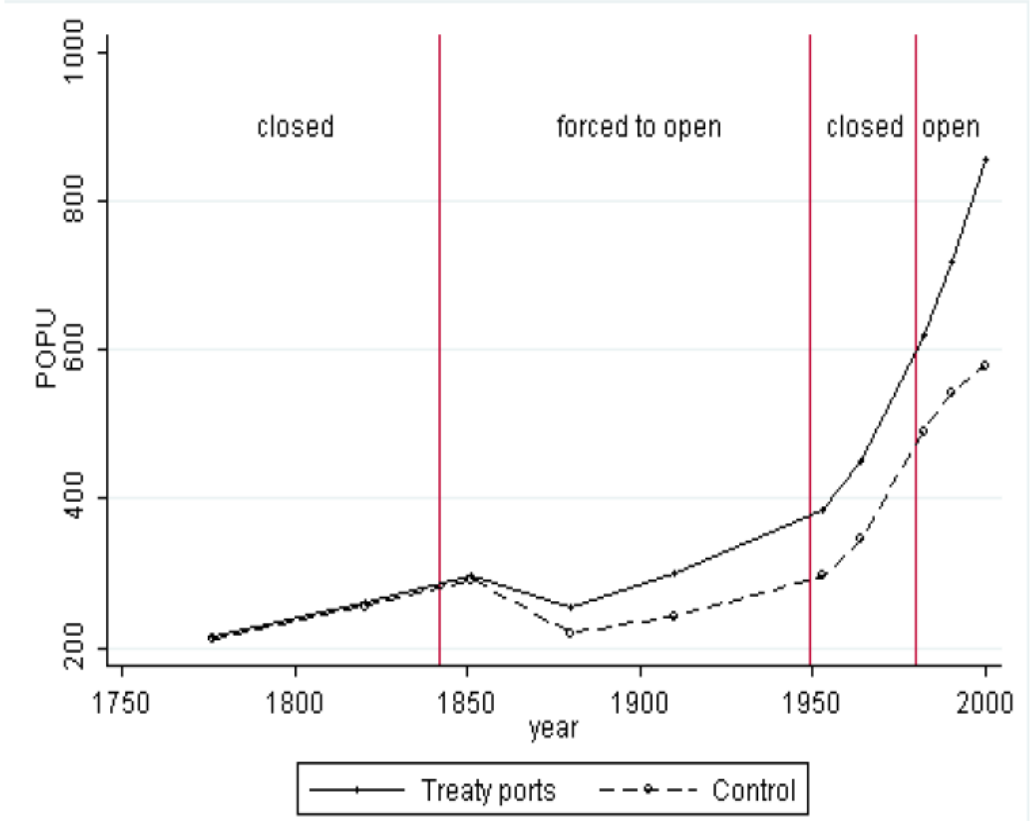
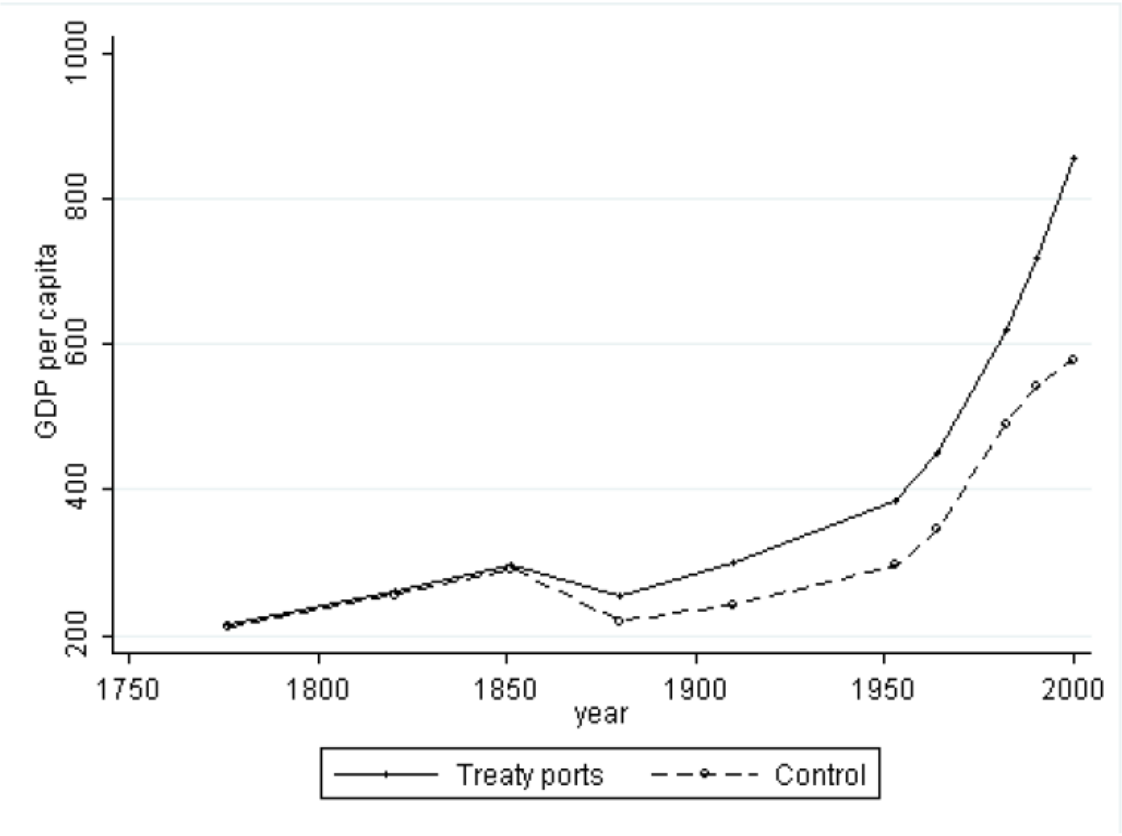


FIGURE 2C. – GDP PER CAPITA OVER TIME



Source: Jia (2014)

CIA Intervention And Trade

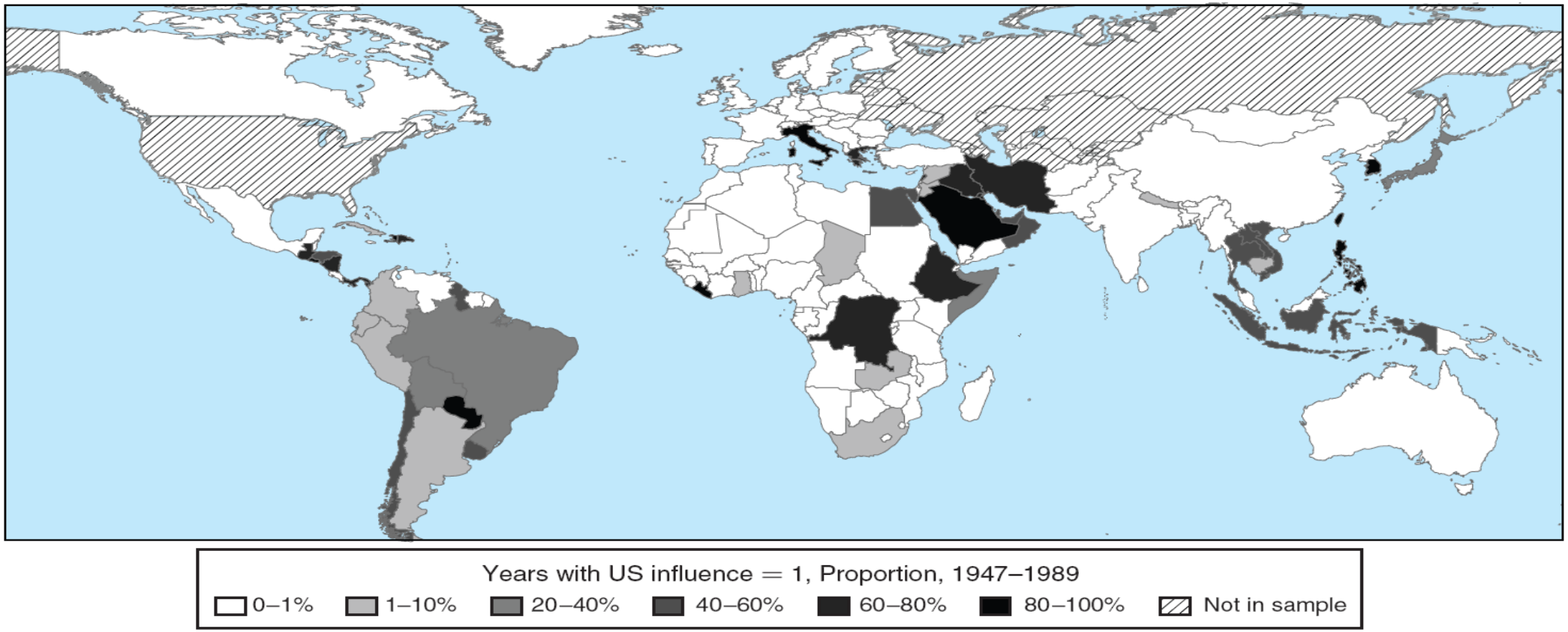


FIGURE 1. MAP SHOWING THE FRACTION OF YEARS BETWEEN 1947 AND 1989 WITH A CIA INTERVENTION

Source: Berger Et.Al. (2013)

Intervened Country: More Imports From The U.S., No Effects On Exports Or Imports From Other Countries

	ln normalized imports from the US			ln normalized imports from the world	ln normalized exports to the US	ln normalized exports to the world
	(1)	(2)	(3)	(4)	(5)	(6)
US influence	0.283**	0.776***	0.293***	−0.009	0.058	0.000
	(0.110)	(0.143)	(0.109)	(0.045)	(0.122)	(0.052)
Control variables						
ln per capita income	0.352**	0.327***	0.296**	0.129	1.234***	0.647***
	(0.148)	(0.068)	(0.148)	(0.111)	(0.239)	(0.134)
Soviet intervention control	−1.129**	−1.434***	−1.067**	−0.080	−0.682**	−0.082
	(0.456)	(0.307)	(0.430)	(0.102)	(0.307)	(0.100)

Source: Berger Et.Al. (2013)

Imports Through Government Purchase

TABLE 2—CAUSAL MECHANISMS

	ln normalized imports US				
	Country-year level			Country-year-industry level	
	(1)	(2)	(3)	(4)	(5)
US influence	0.242**	−0.006	0.006	0.245***	0.260***
	(0.114)	(0.167)	(0.168)	(0.081)	(0.080)
US influence × Govt share of GDP		1.368***	1.333***		
		(0.521)	(0.516)		
US influence × $I^{High\ Govt\ Purchases}$				0.176**	
				(0.073)	
US influence × $I^{High\ Govt\ Imports}$					0.141*
					(0.072)
Govt share of GDP	No	Yes	Yes	No	No

Source: Berger Et.Al. (2013)

Import Goods That The U.S. Has Relative Comparative Disadvantage

	ln normalized imports		
	World market RCA		
	2-digit industries	3-digit industries	4-digit industries
	(1)	(2)	(3)
US influence	0.524***	0.447***	0.391***
	(0.107)	(0.093)	(0.088)
US influence × *US RCA*	−1.202**	−1.496**	−1.511**
	(0.490)	(0.632)	(0.590)
US RCA	2.279***	4.808***	4.103***
	(0.259)	(0.213)	(0.182)
R^2	0.668	0.644	0.638
Observations	131,895	330,358	553,842

Source: Berger Et.Al. (2013)

Not From The U.S. Aid

	Military aid	Economic aid	Ex-Im Bank loans	ln normalized imports from the US				
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
US influence	0.794***	0.802***	0.200	0.293***	0.272**	0.252**	0.283***	0.246**
	(0.211)	(0.242)	(0.122)	(0.109)	(0.107)	(0.101)	(0.106)	(0.098)
ln (1 + US military aid)					0.032			−0.012
					(0.031)			(0.028)
ln (1 + US economic aid)						0.058**		0.064***
						(0.026)		(0.023)
ln (1 + Ex-Im Bank loans)							0.049***	0.050***
							(0.014)	(0.014)
R^2	0.566	0.548	0.409	0.836	0.836	0.838	0.837	0.839
Observations	4,149	4,149	4,149	4,149	4,149	4,149	4,149	4,149

Source: Berger Et.Al. (2013)

Does More Trade Reduce War Risks? (Martin, Mayer, And Thoenig, 2008)

If trade is beneficial, war reduce trade, and leaders are rational…

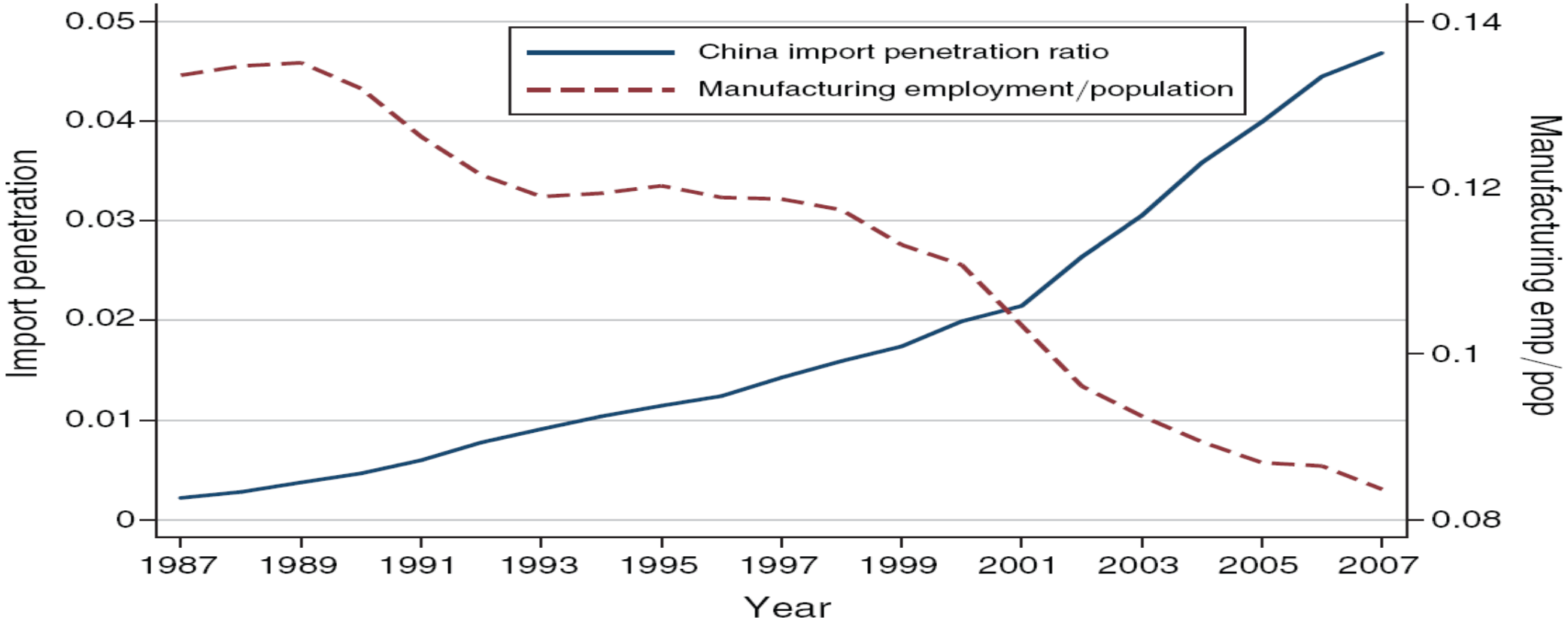
More bilateral trade, lower war risks

More global trade, higher war risks

Reduce dependence on any specific trade partner

Discussion V: Unbalanced Benefits And Costs Within A Country, Protectionism

The China Syndrome?



Source: Autor, Dorn, And Hanson (2013)

Discussion VI: The Globalization Paradox

The Trilemma (Rodrik, 2012):

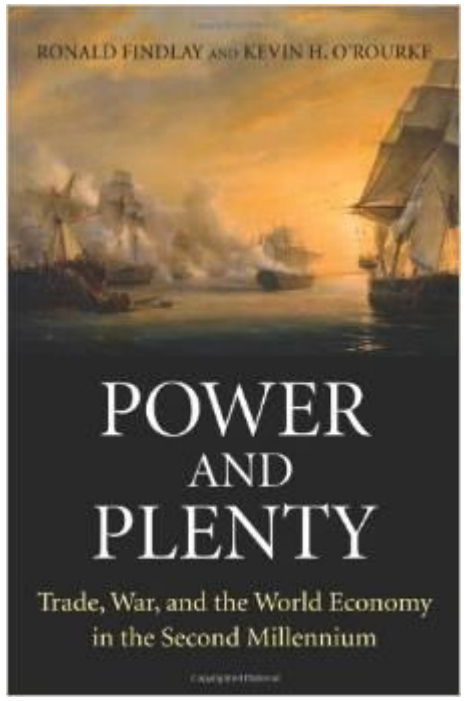
- Further Globalization
- Determination of National States
- Democracy

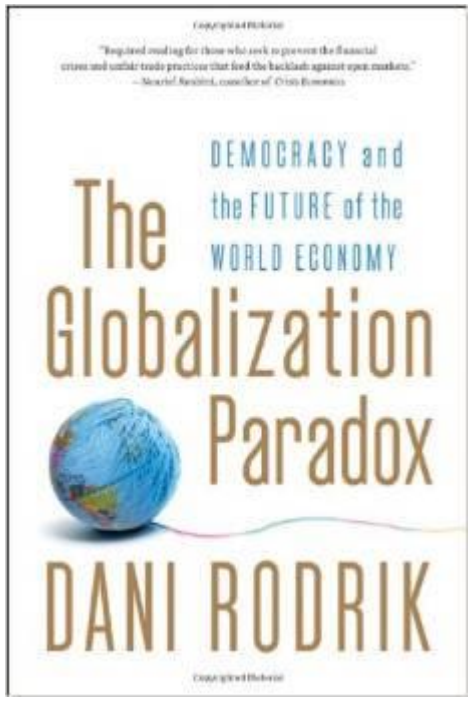
Discussion VII: European Union (Spolaore, 2013)

Balance of the Economy of Scale and Heterogeneity

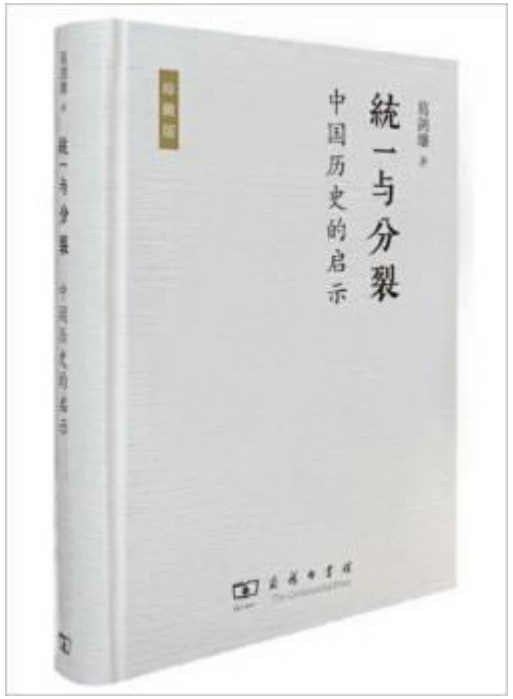
Successful Integration Areas: large benefits of the economy of scale, small costs of heterogeneity

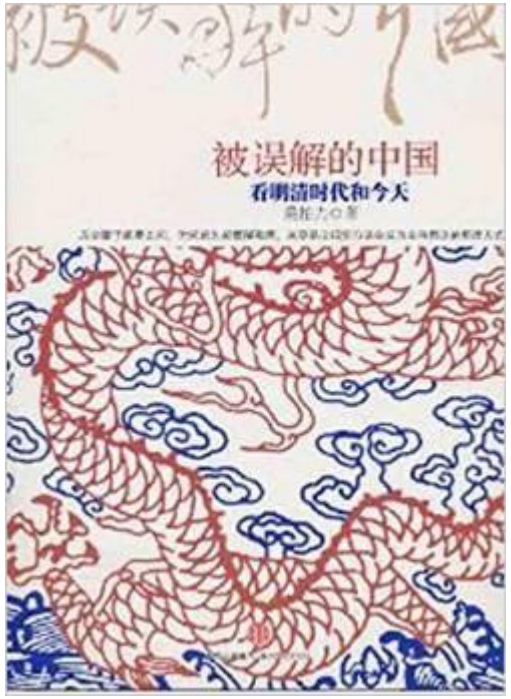
Extra Readings





Extra Readings





北岛《青灯》（为魏斐德所做）

故国残月
沉入深潭中
重如那些石头
你把词语垒进历史
让河道转弯

花开几度
催动朝代盛衰
乌鸦即鼓声
帝王们如蚕吐丝
为你织成长卷

美女如云
护送内心航程
青灯掀开梦的一角
你顺手挽住火焰
化作漫天大雪

把酒临风
你和中国一起老去
长廊贯穿春秋
大门口的陌生人
正砸响门环

REFERENCES

Acemoglu, Daron, Simon Johnson, and James Robinson. "The Colonial Origins of Comparative Development: An Empirical Investigation." *American Economic Review* 91.5 (2001): 1369-1401.

Autor, David, H., David Dorn, and Gordon H. Hanson. "The China Syndrome: Local Labor Market Effects of Import Competition in the United States." *American Economic Review* 103.6 (2013): 2121-2168.

Berger, Daniel, William Easterly, Nathan Nunn, and Shanker Satyanath, "Commercial Imperialism? Political Influence and Trade during the Cold War." *American Economic Review*, 103.2 (2013): 863-96.

Donaldson, Dave. "Railroads of the Raj: Estimating the impact of transportation infrastructure." *American Economic Review, (*2014), forthcoming

Faber, Benjamin. "Trade Integration, Market Size, and Industrialization: Evidence from China's National Trunk Highway System." *Review of Economic Studies* (2014)

Jia, Ruixue, "The Legacies of Forced Freedom: China's Treaty Ports", *Review of Economics and Statistics* (2014), forthcoming

Lan, Xiaohuan, and Ben Li, "The Economics of Nationalism," *American Economic Journal: Economic Policy,* (2014), forthcoming

Martin, Philippe, Thierry Mayer, and Mathias Thoenig. "Make Trade Not War?" *Review of Economic Studies 75*.3 (2008): 865-900.

Mitchener, Kris James, and Marc Weidenmier. "Trade and Empire." *Economic Journal* 118.533 (2008): 1805-1834.