

The geography of development within countries

J. Vernon Henderson

Brown University & NBER

November 2012

9th Seminar on The Economics of Cities

Banco de la República, Colombia

Overview:

Why and how of urbanization

1. Development involves spatial transformation:
 - Massive move out of low density rural areas to high density cities
 - Why?
 - What are the consequences?
2. Urban hierarchy evolves
 - Specialization in production patterns of cities
 - Changing functions of big cities over time
 - Developed countries: Historically versus today
 - Evolution today in developing countries
 - Role of transport infrastructure investments

Overview: Social, economic & political issues

3. “Urban bias” in development

- Favoritism of urban sector over rural
 - E.g., Favor urban industries in trade policies & capital market subsidies
- Special form: favoritism of biggest cities
- Why?
- Consequences
 - Economic growth
 - Inequality
 - Urban quality of life

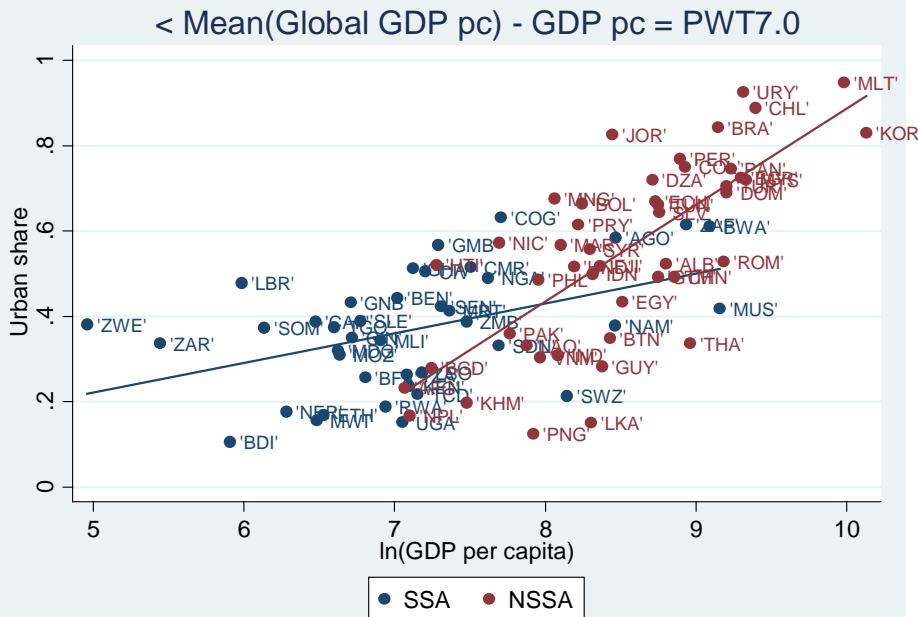
I. The urbanization process

- Why urbanization?
 - Traditional view: development is move out of “rural activities” (traditional agriculture & manufacturing) to “urban activities” (modern industry and services)
 - Driven by domestic improvements in technological capacity
 - Sector shift in economic composition towards urban industries
 - Jump started by demand from and access to export markets
 - Fueled by urban – rural productivity & income gap

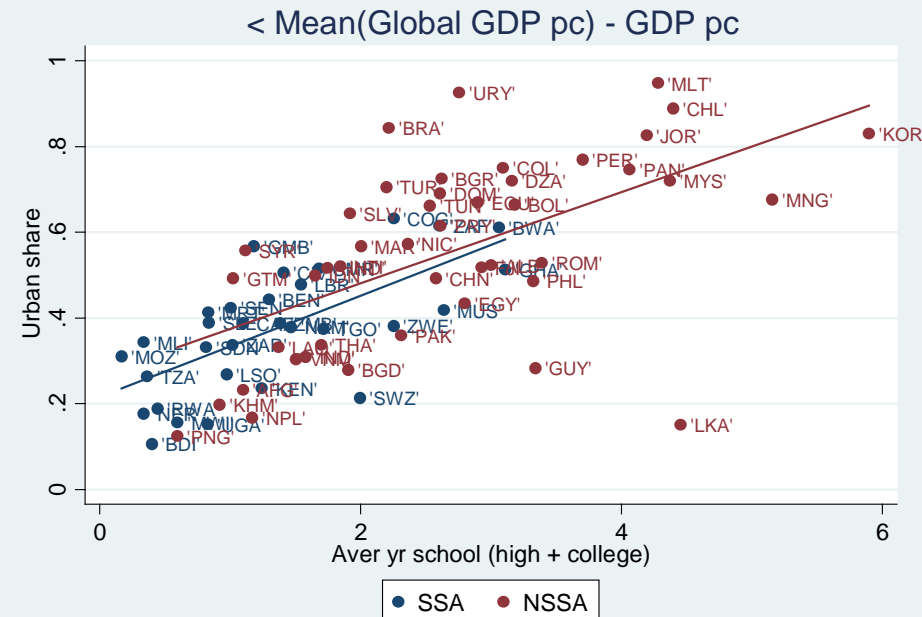
Urbanization and development (2010)

- Urbanization related to income and “effective technology” [education] levels and growth

Urbanization & income

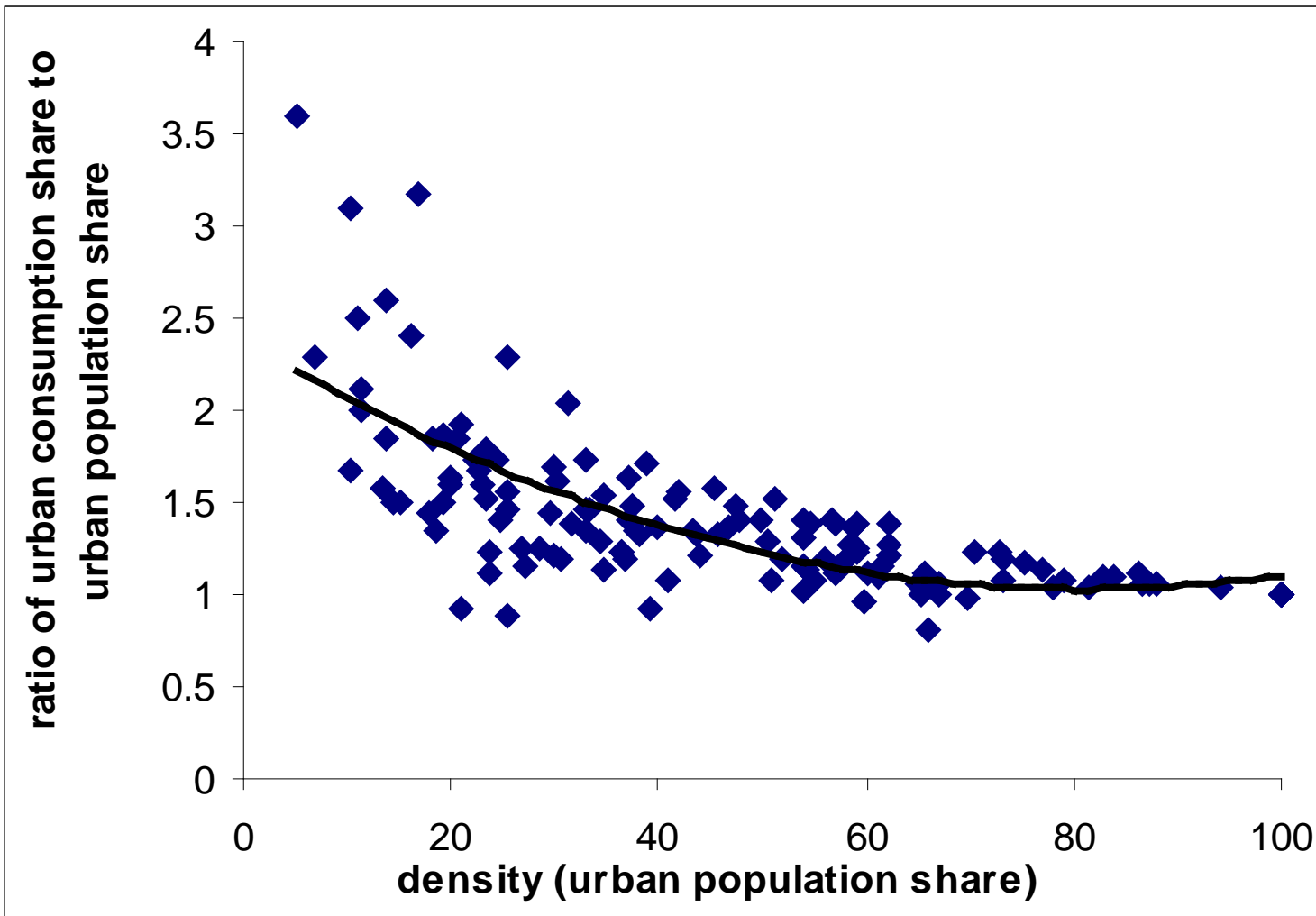


Urbanization & Effective Technology



Graphs: Just 1970 developing countries

Urban-rural income divergence and then convergence as urbanization proceeds



The Process

- Massive migration
 - Intergenerational depopulation of rural areas: uprooting and geographic diffusion of families
- Transformation of institutions: Rural informal → urban formal
 - Rural village networks vs. urban anonymity
 - E.g., Land tenure in Indonesia
 - Common knowledge use rights in rural areas
 - Versus land titling and registration in cities
 - E.g., Old age security: family versus social security
 - Village: “filial piety”: enforcement: village networks & shunning

Why Cities?

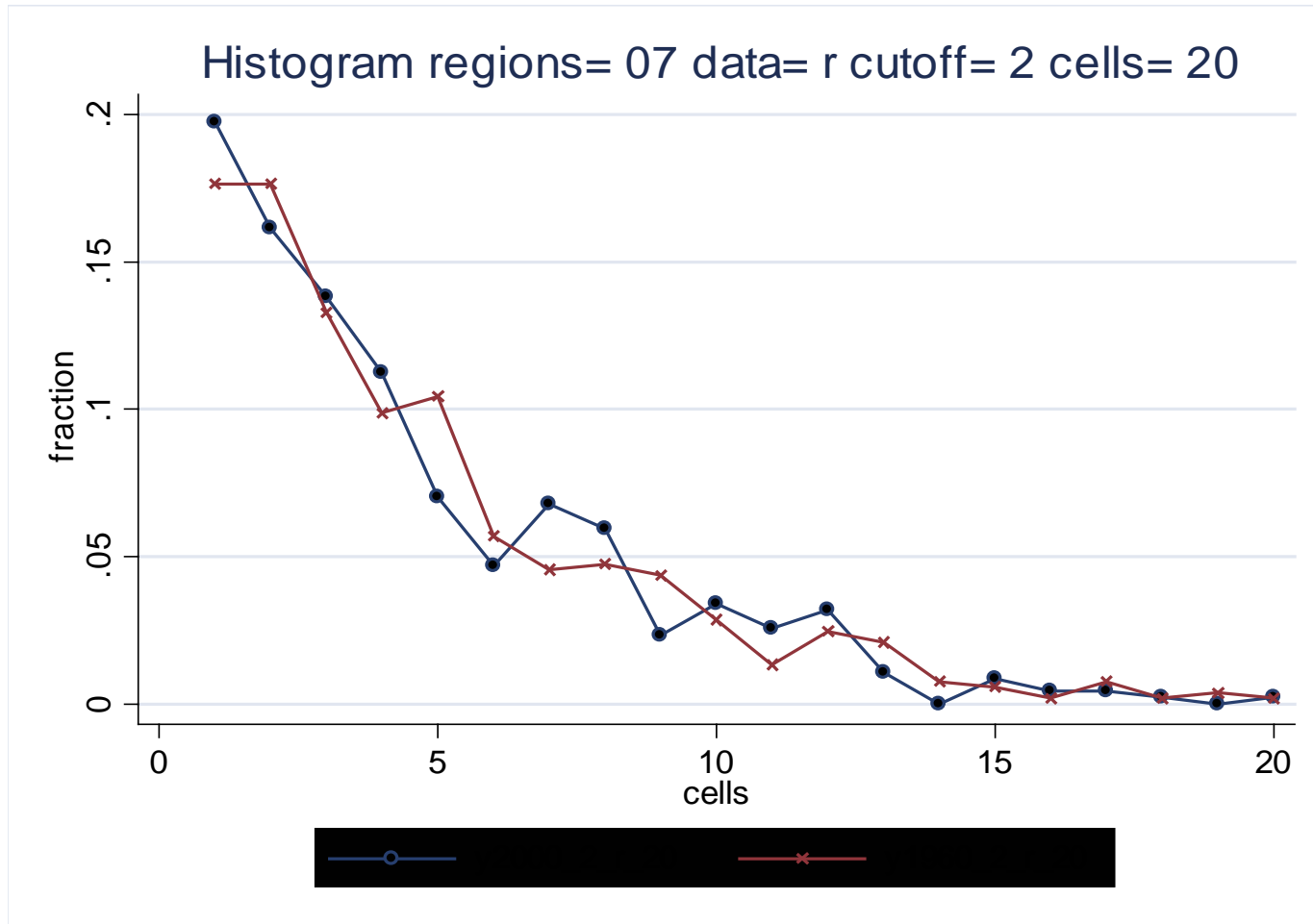
- Modern industry and services in cities
 - **Cities as engines of growth for industry**
 - Alfred Marshall (1890): Local information exchange & labor markets. Efficient in dense urban environments
 - Jane Jacobs (1969): Knowledge accumulation
 - “Revised” view (motivated by studies on Africa):
 - Can urbanize to some degree with advances in agriculture
 - “Consumer cities”: serving agriculture export sector in Africa
 - USA and Colombia have similar urbanization 70-80% BUT Colombia has 20+% labor force in agriculture ; USA <1%
 - » Farmers in cities (flowers for export)

II. Urban Hierarchy: Big versus small cities

- In a developed country, bigger versus smaller cities perform very different functions
 - Land and labor costs **vs.** what industries benefit most from rich information environment of biggest cities
- Biggest cities (> 5m): high profile services and some high tech manufacturing
- Smaller specialized cities
 - Standardized manufacturing (China: button city, bra strap city, sock city,... textiles, electronics, autos.....)

Need big and small cities:

Number of (normalized) big vs. small cities: 1960 & 2000



City Types and Sizes (Black and Henderson, 2003)

- Type cities by similarity of production patterns (cluster analysis)
- 275 primary metropolitan areas of USA

Cluster group	No. of Cities [clusters]	Average PMSA pop. (1000's)	Average share college/adult pop (%)
Electronics, computers, instruments	20 [5]	232	26.4
Machinery, primary metals, transport equip (autos, trucks, boats)	48 [8]	234	14.3
Health, food, hotels and recreation	54 [9]	255	21.4
Market centers (diverse services, higher tech, declining traditional manufacturing)	25 [4]	1938	25.2

Others: textiles, apparel, food processing, wood products, furniture, insurance, wholesale, business services

What a “global (mega-) city” does

- Little manufacturing: experimental
 - e.g. high tech, high fashion apparel
- Focus: Finance, business services, information services
- Known for special items
 - Performing arts, stock market, advertising, design
 - But **tiny** national demand for these
- Few mega-size cities needed in a country
 - USA: NY, LA (15 million or more)
 - Vs. McKinsey report on China

New York specifically

New York (Manhattan)	All	Head- Quarters	Financial HQ's	Financial services	Security brokers	Business services	Advert -ising
Share (%) of nation's private employment	1.8	3.0	11.7	12	25	7.5	15

Historically different role for mega cites

New York in 1910: sugar, textiles & garments, publishing
 natural port; central location on east coast

Manufacturing versus Business Services in USA Urban Hierarchy

Source: Kolko (1999)

- Functions of firms: headquarters and outsourced services

Current (1995)			Historical (1910)		
Metro area population	Share: manu./ local employ.	Share: business services/employ	Metro area employment	Share: manu. / local employ	Share: business services
Over 2.5m.	.14	.21	4 largest	.35	.062
Under .25m	.19	.13	Under .1m	.31	.046
Non-metro	.27	.09	Non-metro	.25	.044
Nation	.17	.18	Nation	.30	.050

What about developing countries?

- **Biggest cities: initially** sites of rapid industrialization (Shanghai, early 1990's back to 1920's)
 - Focal point for importation of technology & local learning: FDI related
 - Limited infrastructure and institutional capacity of hinterland
 - Favored by national government
 - Also Japanese and Maoist strategy

Changing role of biggest cities in developing countries

- Decentralization of **industry**

 - » As historically in USA: New York City

Two stages

 - 1) within metro region: ex/peri-urban (“suburbs”)

 - 2) from larger metro regions to smaller *specialized* cities and rural areas

- Why decentralization?

 - Primate metro areas: congested and expensive

 - Go where cheaper land and wages

 - Some technologies standardize

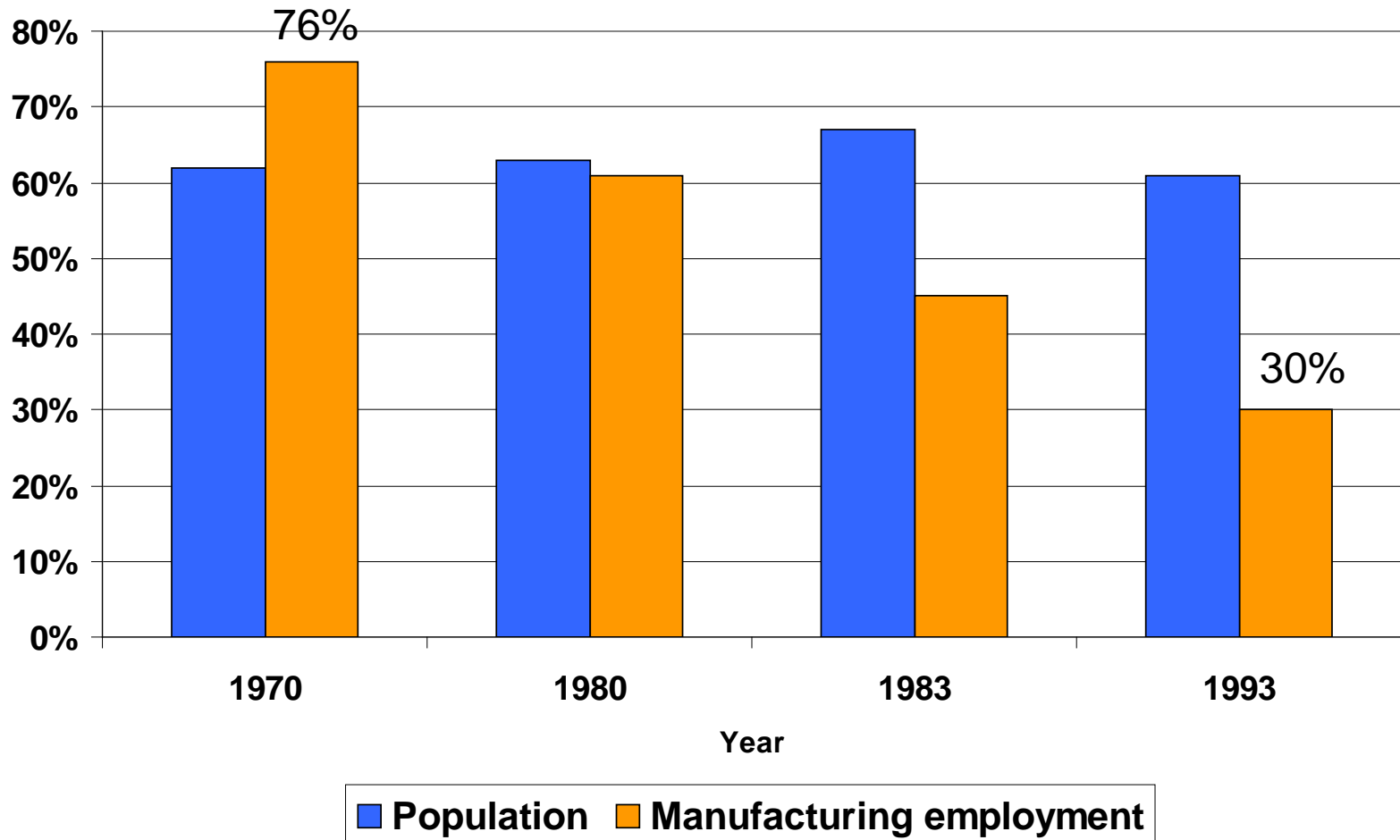
 - Less need for learning

 - Big role for transport infrastructure investments

- Examples: Korea, China, India

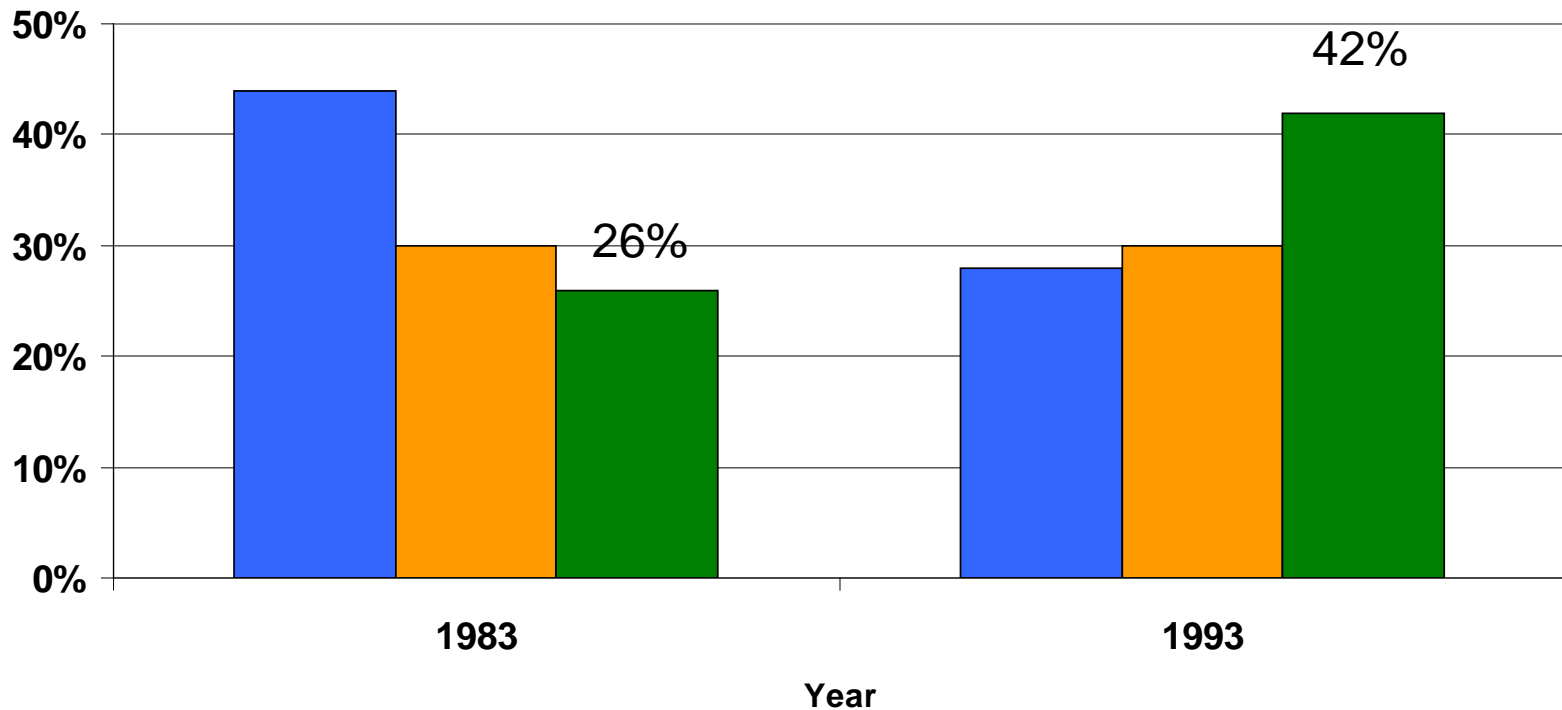
Manufacturing decentralization in Korea

Stage I. Share of Seoul in Kyonggi Province



Manufacturing decentralization in Korea

Stage II. Share of National Manufacturing Employment



- Seoul, Pusan, & Taegu metro areas
- Satellite areas of Seoul, Pusan, and Taegu
- Other cities, rural areas

Decentralization:

Transport infrastructure investments

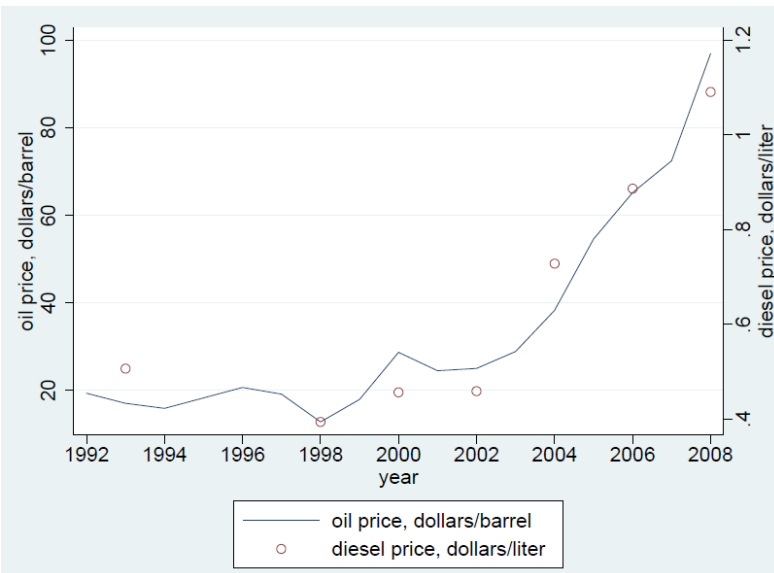
- **Within metro area (Stage I)**
 - For China (1990 vs. 2005):
 - **Highway rays:** each additional ray displaces 4% of center city population (to suburbs) (Brandt et al. 2012);
 - same as USA magnitude in Baum-Snow, 2007
 - **Ring roads:** Huge displacement of both people and industry
 - Versus: mass transit & buses
- **Across cities and to hinterland areas (Stage II)**
 - Move of industry follows investments in highways
 - **Korea: early 1980's**
 - Sao Paulo state: late 1960's & 1970's
 - Java: late 1980's toll roads

Cost of transport and urban income: Access to the primate coastal city (14 Sub-Saharan African coastal nations)

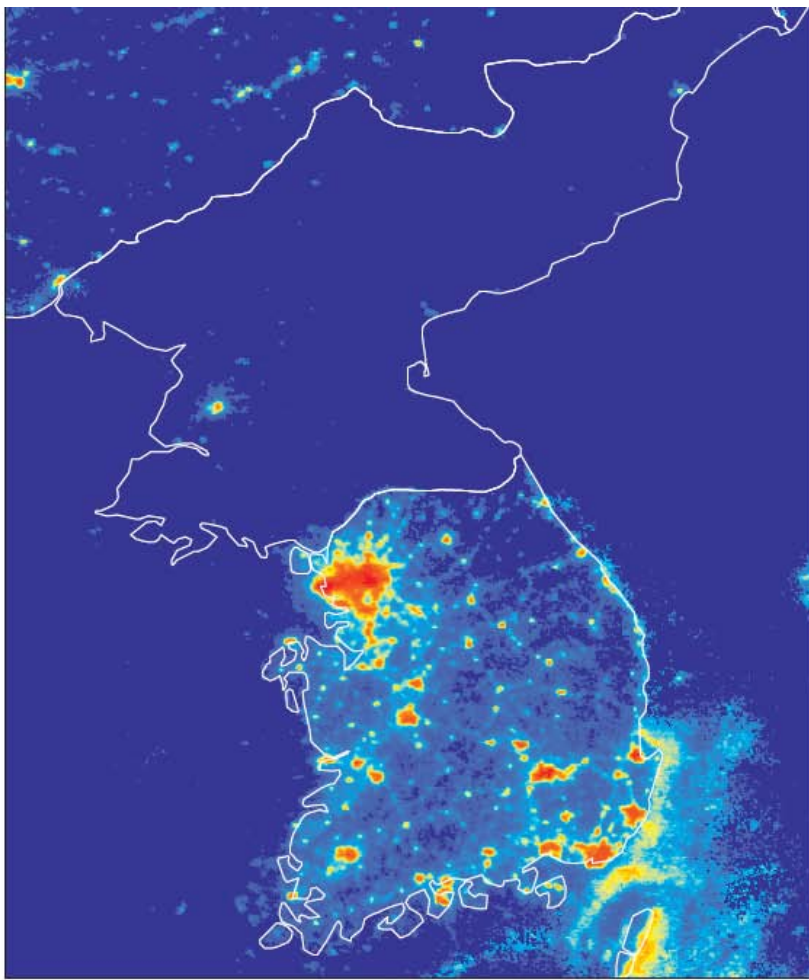
Log (Night lights per city), 1992-2008 (Storeygard, 2012)

Distance to primate * oil price	-.683***	-.520***
	Tobit; year & city FE's, linear city time trend	OLS; year & city FE's, city splines
N	263	263

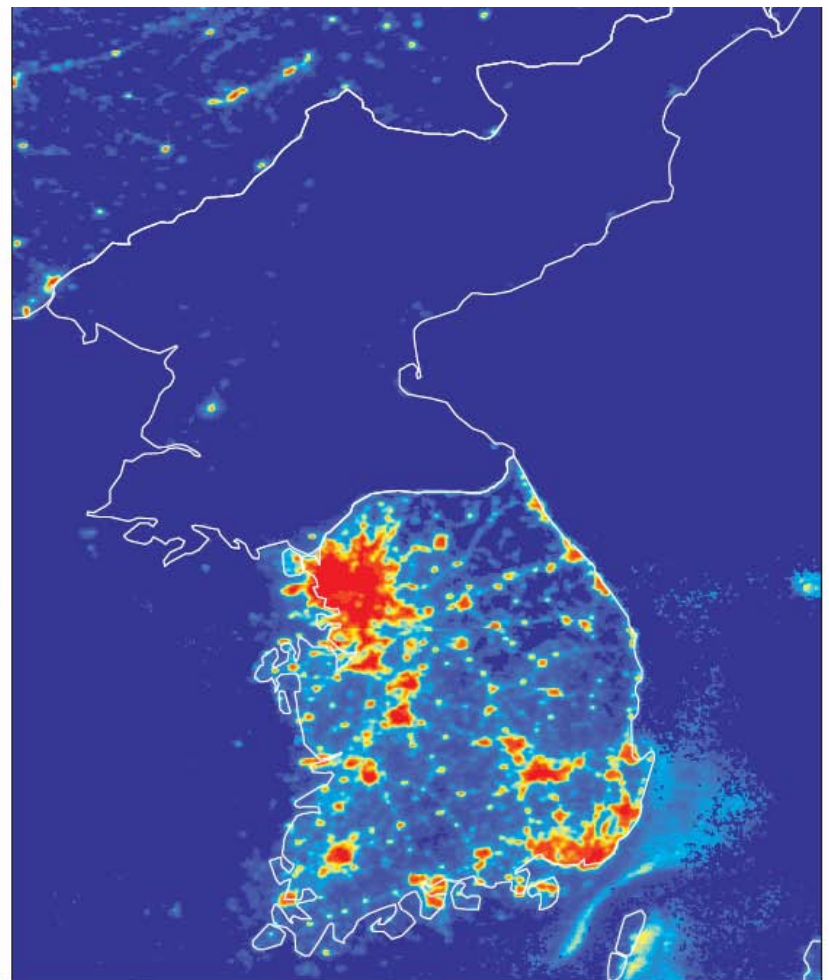
INTERPRETATION: for change in oil price (\$25→\$97) 1 SD increase in distance reduces city lights by 23% (≈ GDP by 6%).



- For hinterland cities primarily (and endogenously) served by paved roads, access to coastal primate is key.
- For cities on less paved roads, access to hinterland large city is critical.



F-10, 1992

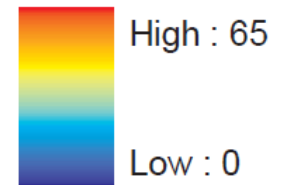


F-16, 2008

- Over time growth
- South vs. north
- Fishing

Figure 2. Korea

Digital Number



III. Urban bias: Favoritism of biggest (political) cities

- Capital cities and others with political influence **favored** in many countries
 - China, Indonesia, Brazil, Thailand, Mexico
 - **How?** Favoritism in capital markets & fiscal arrangements
 - Capital market (evidence: excessive investment; low returns; N.P.L.)
 - Public infrastructure investments (Beijing and Shanghai)
 - **Why?** Beliefs and politics (show case cities)
 - Trying to stimulate export led growth
 - Rent seeking, corruption

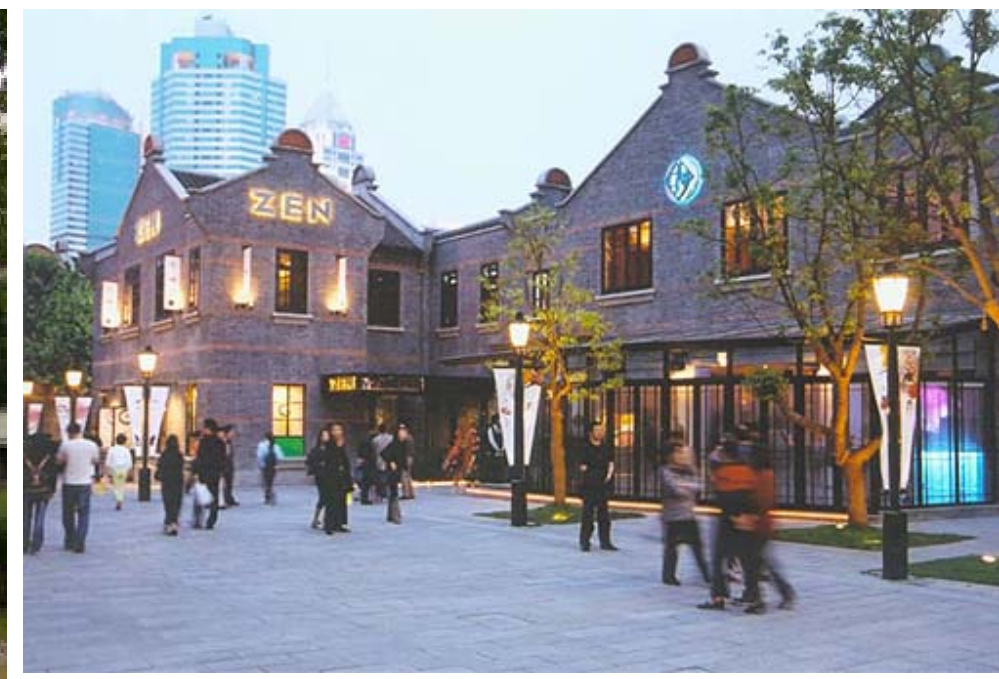
So What?

Effects of favoritism

- Spurs **in-migration**: seeking jobs created by favoritism
- So What?
 - Over-population of biggest cities, with **national growth losses**
 - Econometric studies: wasted resources (Henderson, 2003)
 - 1 SD increase in primacy (population of biggest city above best value for typical country leads to loss of 1.4 growth % points per year)
 - Enhanced inequality
 - China with legal migration restrictions, initially

Comparative Urban to Rural Per Capita Consumption Ratios					
China 1978	China 1995	China 2003	Taiwan 1995	South Korea 1994	Thailand 1990
2.2	2.8	3.10	1.43	1.03	2.66





Locals try to limit migration: China

- Legal restrictions (removed around 2000)
 - Hukou system
- 2000's in Beijing: Make living conditions in cities bad for migrants
 - No access to formal sector housing
 - Dorms, urban villages (“slums”)
 - Limited/no access to state schools
 - Health care & social security not portable

Locals try to limit migration: Brazil

- Brazil in 1970's and 1980's (Feler and Henderson, 2011)
 - Zone to make formal sector expensive
 - Informal: Loteamentos (“quasi” legal); favelas (illegal)
 - Not required to service with water (& sewerage)
 - 1 SD decline in fraction small houses served leads to 15 percent points decline in growth of number of households in city per decade (avg. growth: 40 points) [lower income]
 - “Clean-up” since late 1980's: reform to try to correct past problems
 - Service loteamentos
 - Title reform: can sell land for redevelopment
 - But if claim title, pay property taxes
 - Governance of favelas in Rio

Summary

- Urbanization & growth go hand-in-hand
- Biggest cities transform from manufacturing to specialized service cities
 - Global cities: finance, arts, design and advertizing, legal
- Limited need for mega-cities
- In urbanization process, biggest cities favored
 - Resist in-migration: slums, denial of services
 - Enhanced inequality