



Econ 137

Urban Economics

Lecture Notes II

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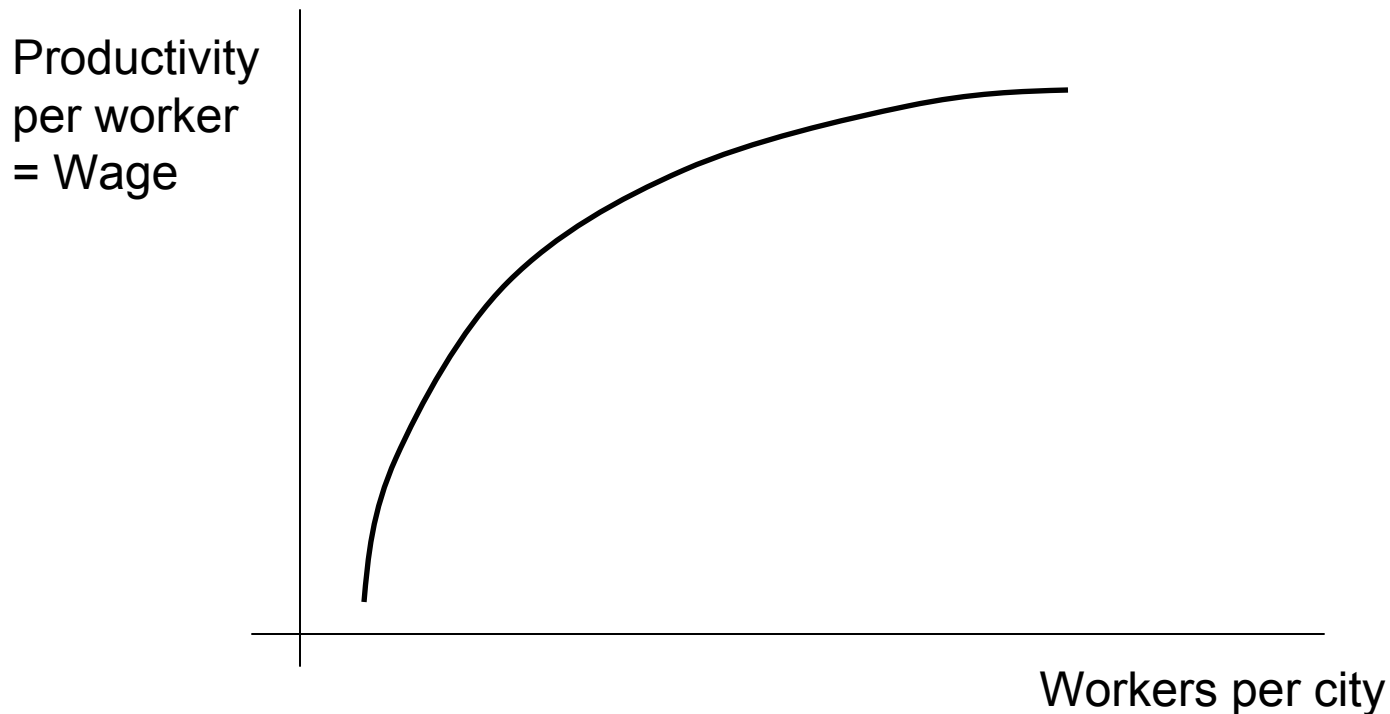


Questions for Lecture Notes II

- Why do we observe cities of different size?
- Why do we observe cities of different type?
- How cities have an impact on income and employment growth?

Benefits from living in a large city

- As the number of workers increase, agglomeration economies are more important and wages increase.
- Agglomeration economies increase at a decreasing rate (different industries have different patterns).



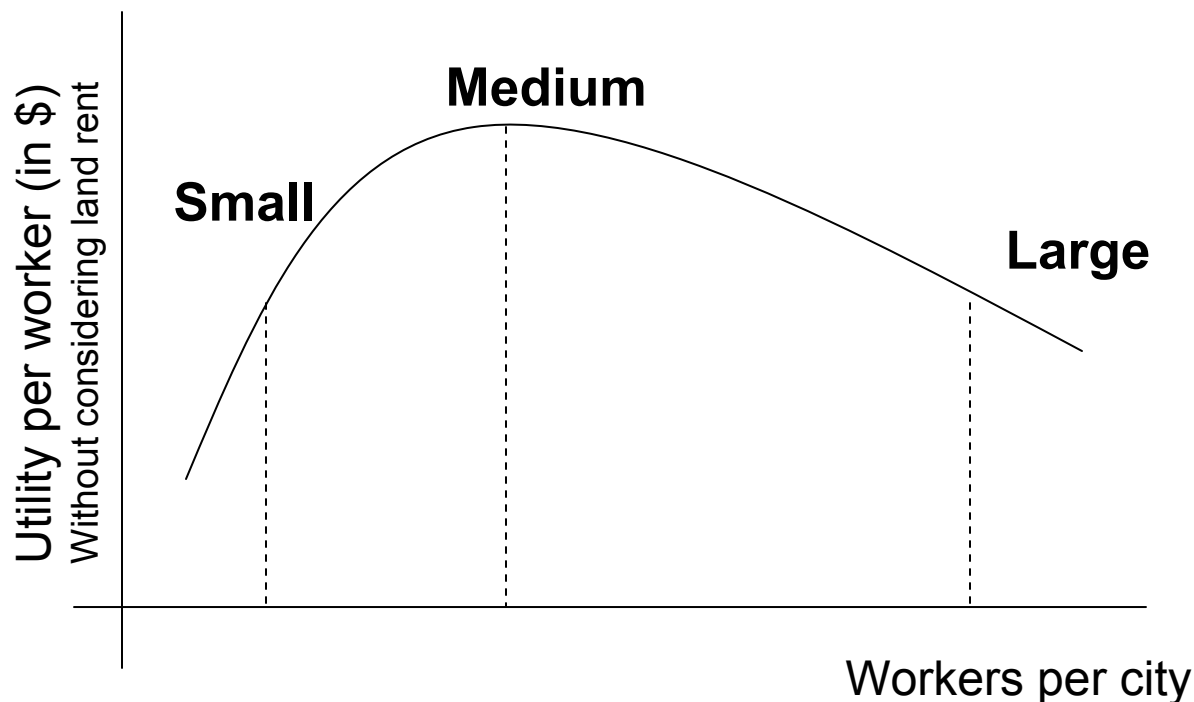


Costs from living in a large city

- As the number of workers increase:
 - More commuting costs.
 - More density and congestion.
 - Noise, pollution, traffic, crime, etc.
- These costs increase at a constant or even at an increasing rate.

Utility and City Size

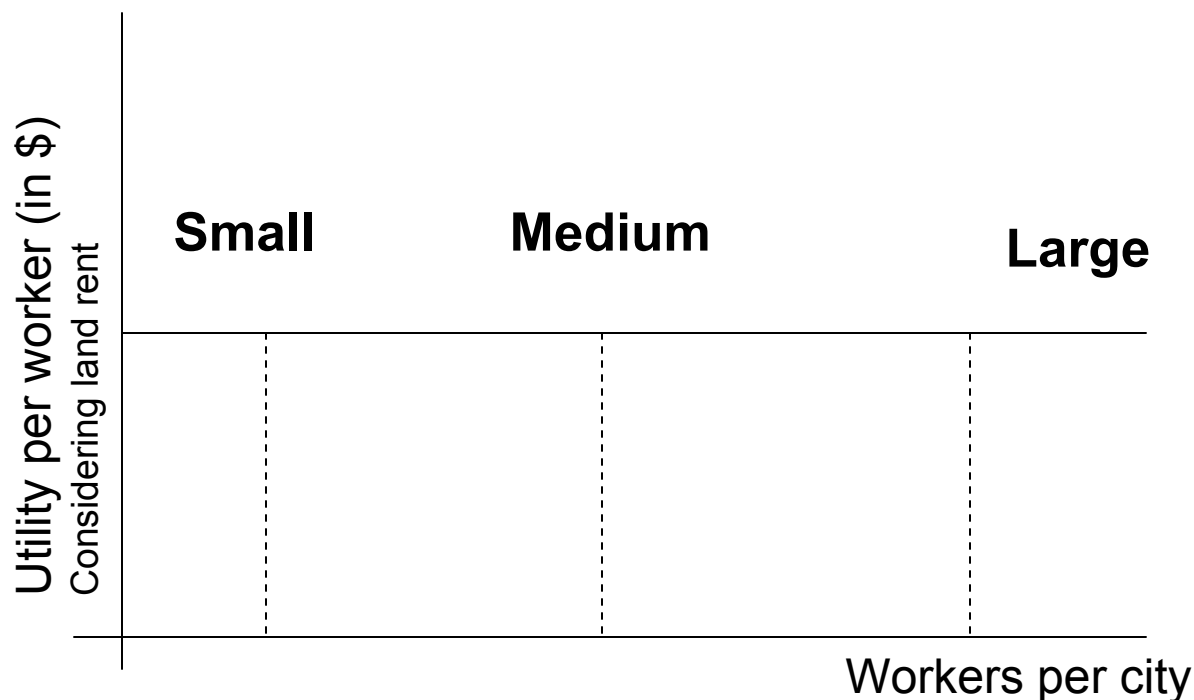
Tension between agglomeration economies and diseconomies of scale



Why not all workers live in Medium cities?

Because land rent would be very high in M and some workers would prefer to move to S and L !!!

Utility and City Size



$$Utility = Income - urban \text{ and } commute \text{ costs} - land \text{ rent}$$

People should be indifferent about living in any of the cities

Real question

Will a region have many small cities or few large ones

Size Distribution

Rank-Size Rule (Zipf's Law)

Rank times population
is constant across cities

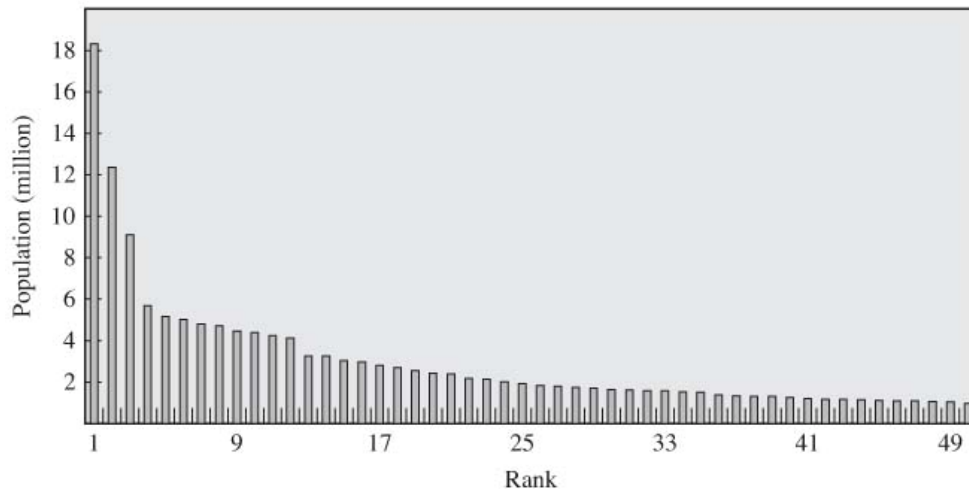
$$\text{Rank} \cdot \text{Size} = K$$

$$\ln(\text{Rank}) + \ln(\text{Size}) = \ln(K)$$

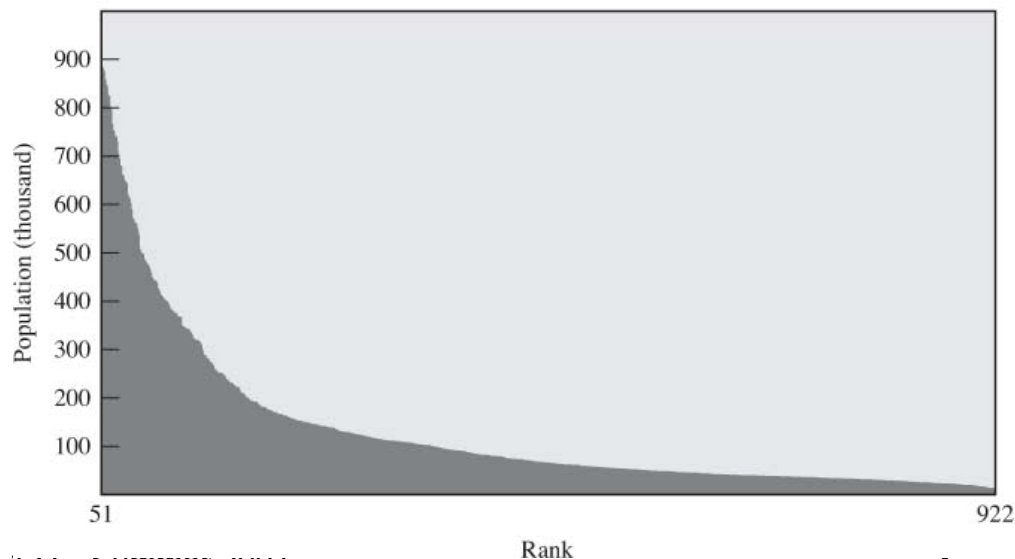
$$\ln(\text{Rank}) = \ln(K) - \ln(\text{Size})$$

FIGURE 4-6 Size Distribution of U.S. Urban Areas, 2000

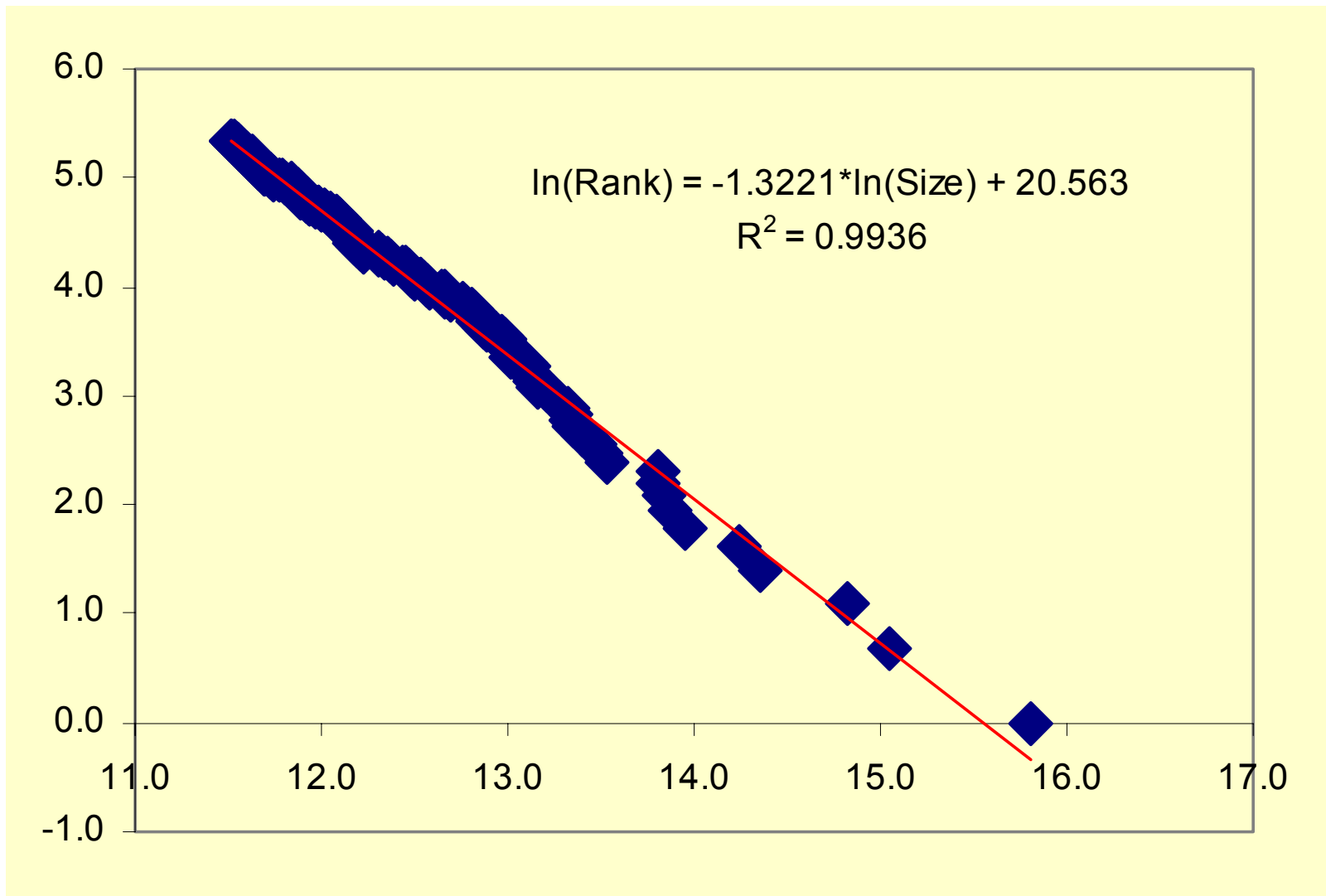
A: Top 50 Urban Areas



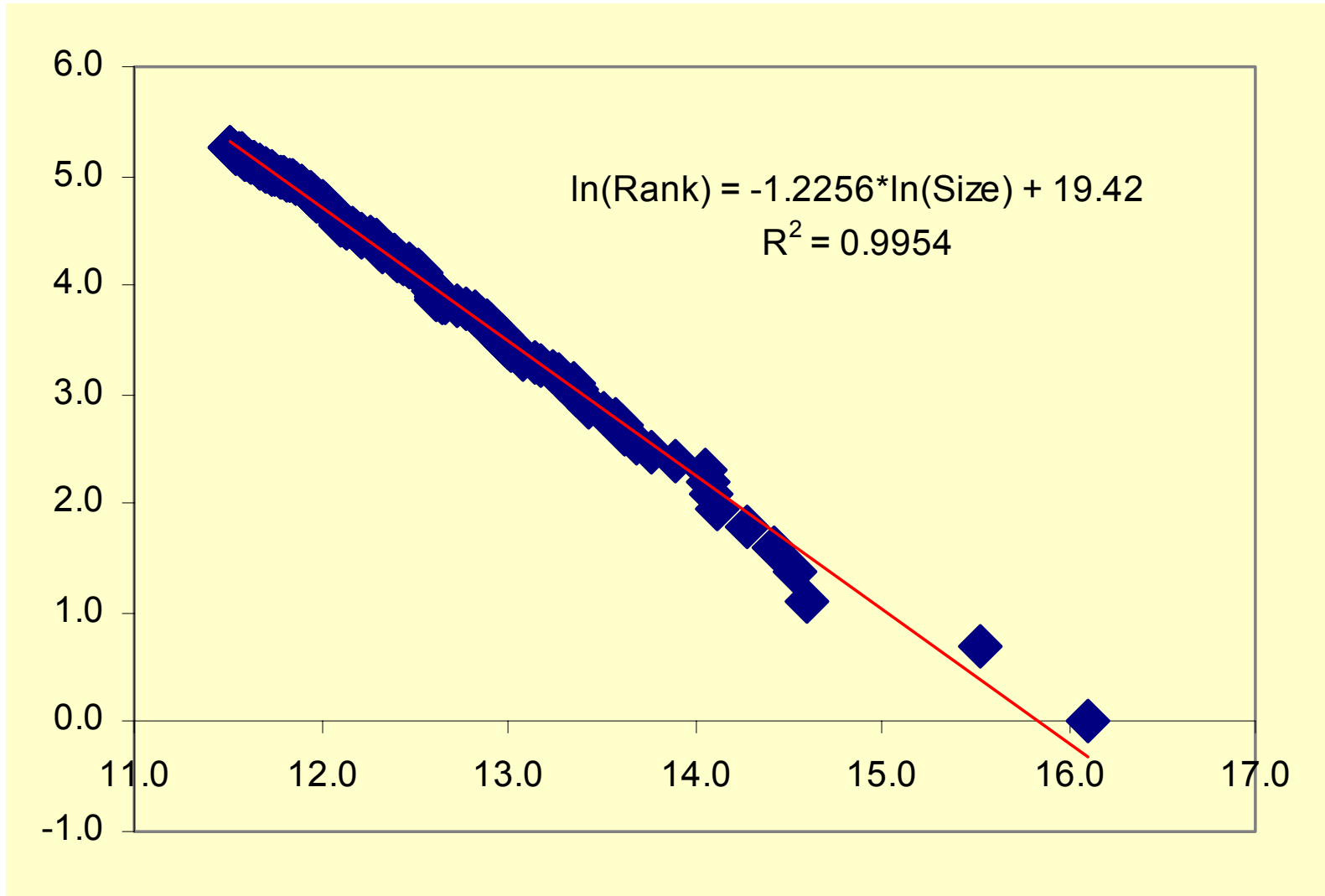
B: 51st through 922nd Urban Areas



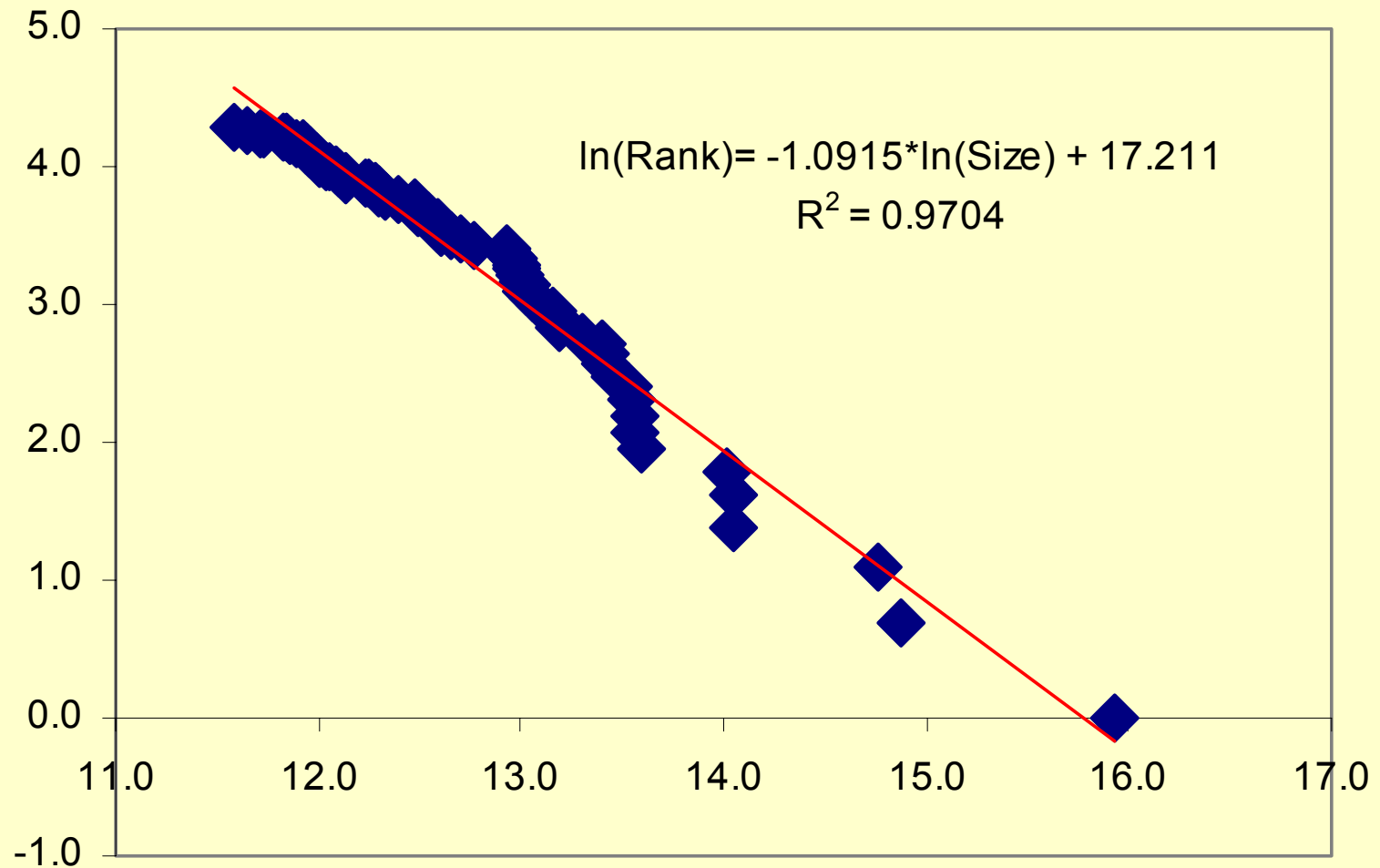
Rank-Size rule (United States)



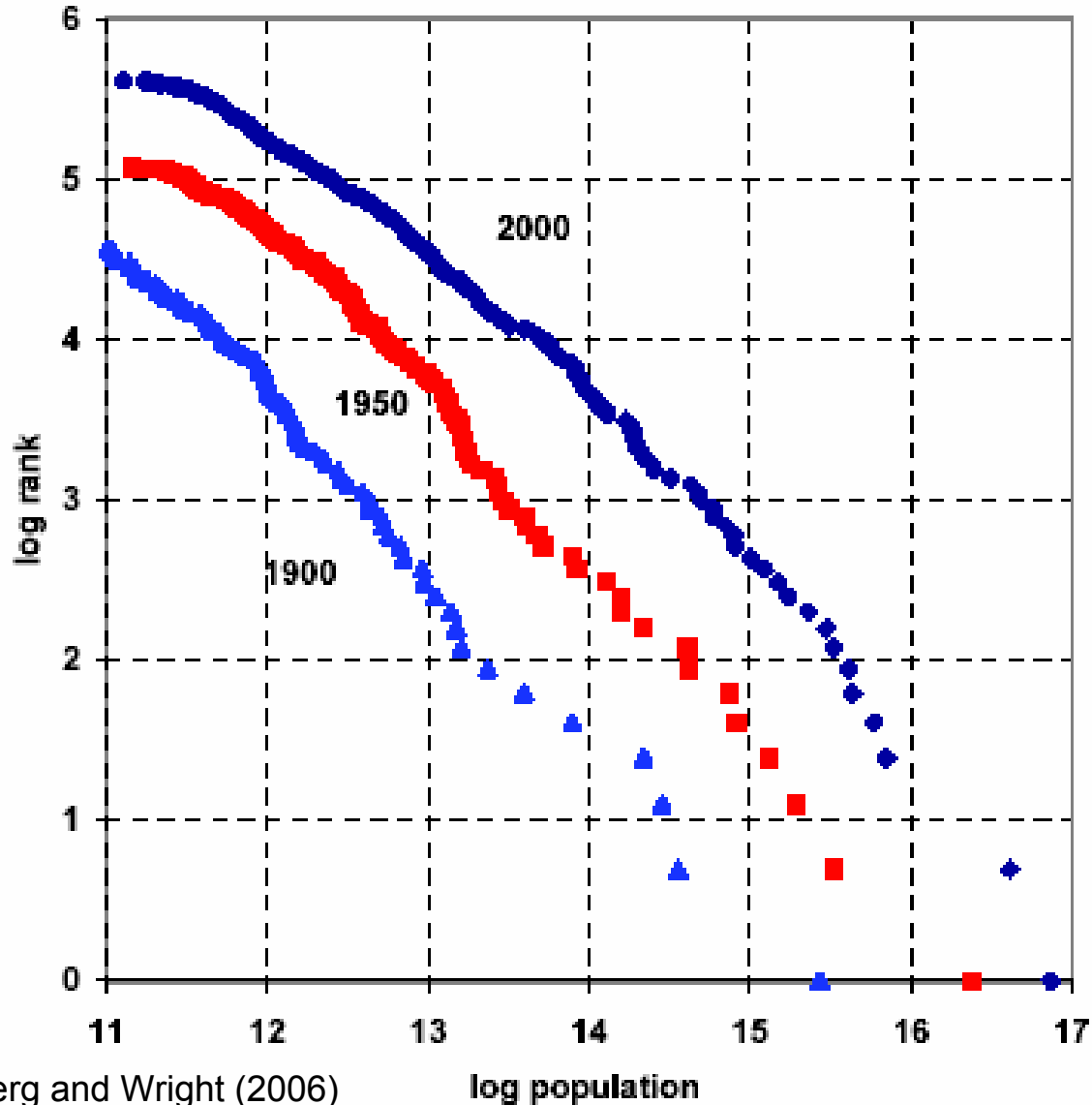
Rank-Size rule (Brazil)



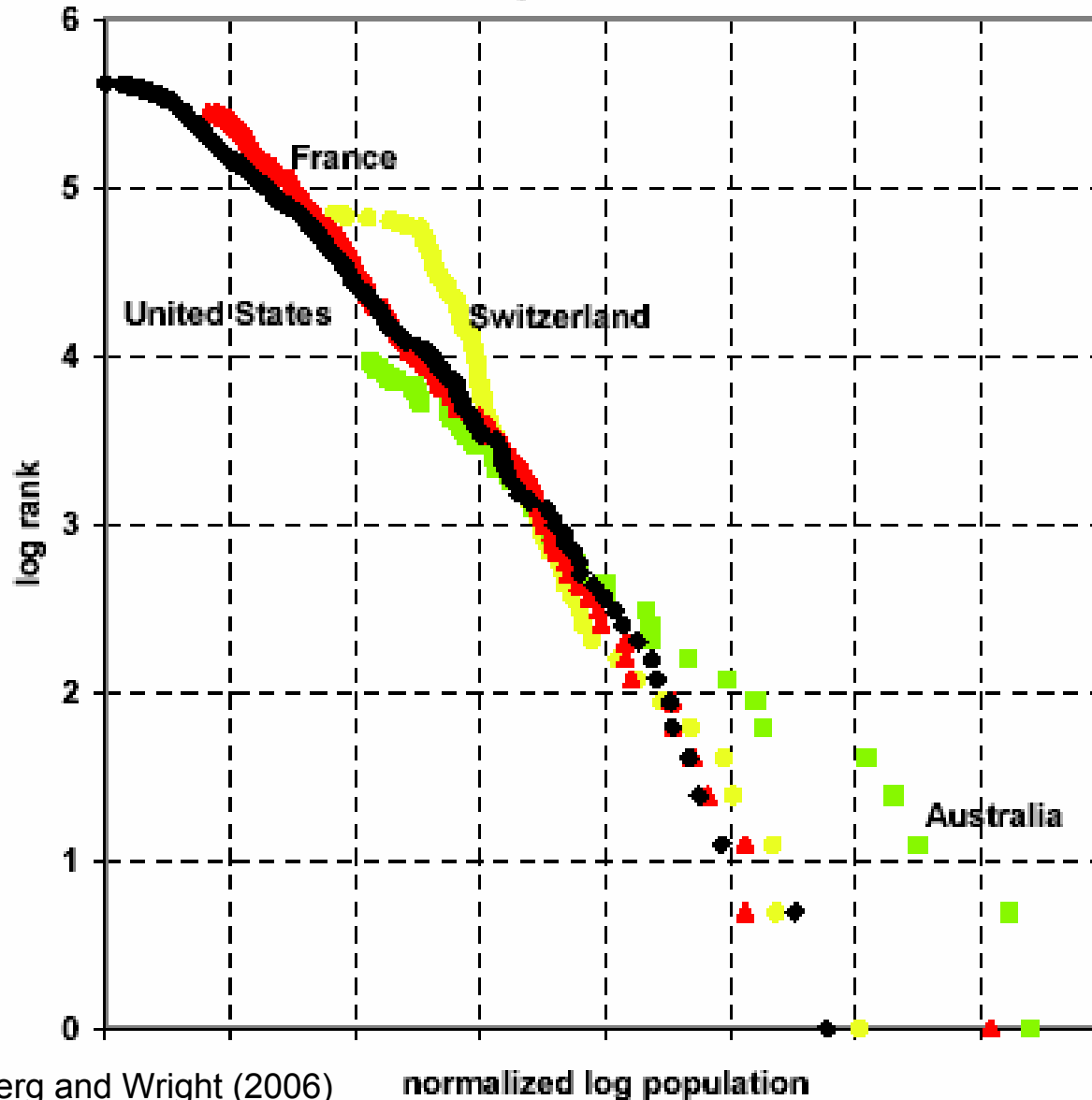
Rank-Size rule (Mexico)



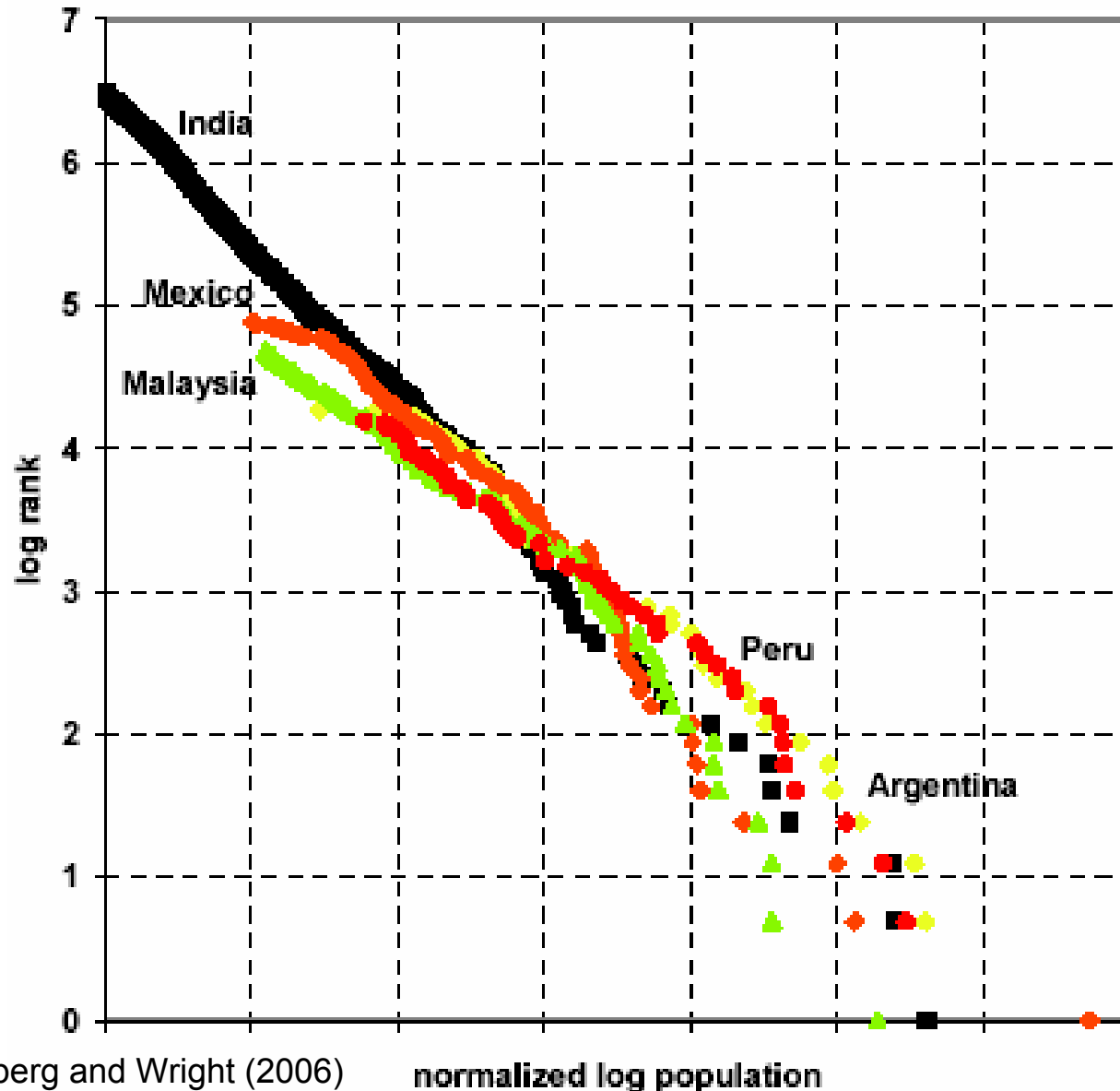
Zipf's Law for the US across time



Zipf's Law in Developed countries



Zipf's Law in Developing countries



Urban Giants

- Large primary city
 - Economies of scale on trade
 - Trade restrictions (Krugman, 1996)
 - Dictators (Ades and Glaeser, 1995)
 - Roman Circuses
- We will analyze the case of New York, the US urban colossus (in these lecture notes).



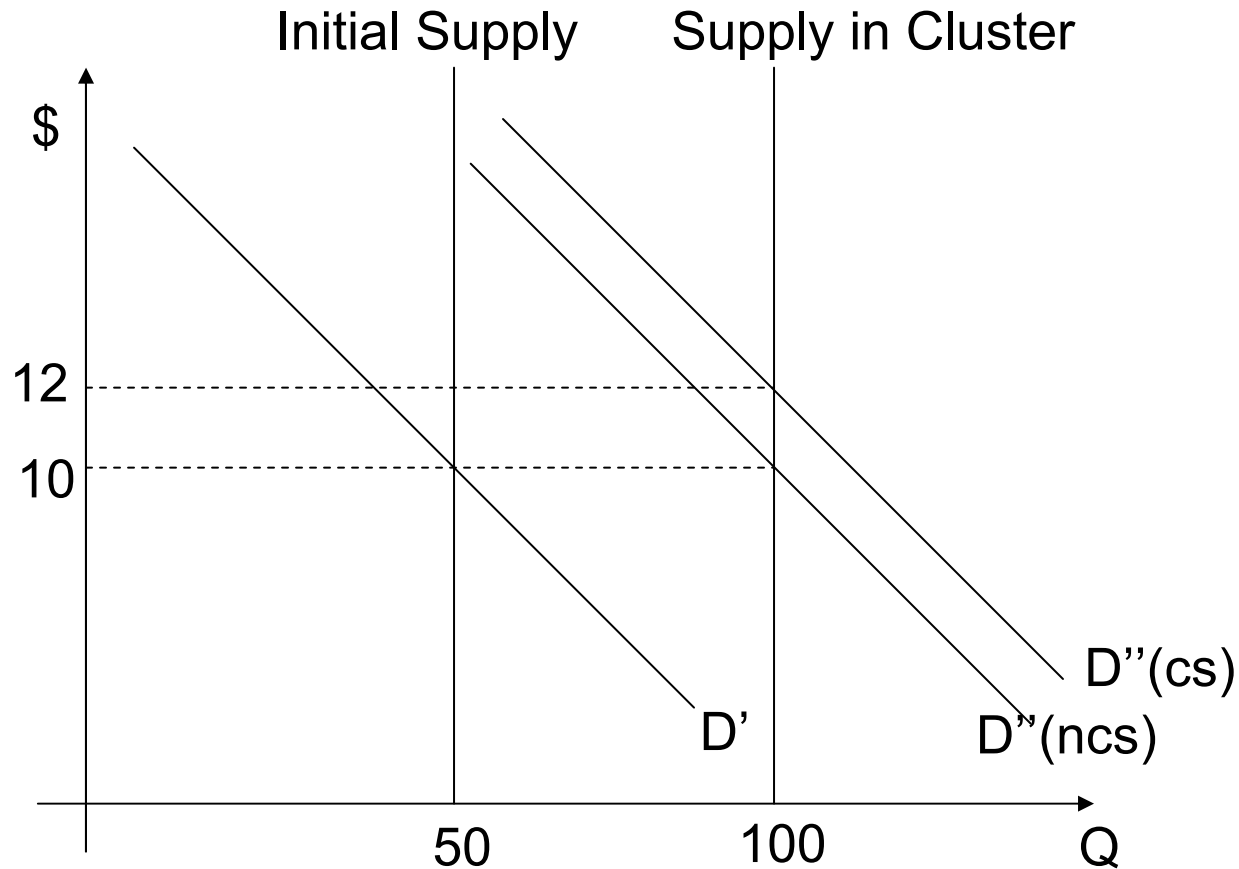
Why do cities come in different size and varieties?

- Localization Economies
- Urbanization Economies (amplification effect)
- Consumption Goods [local industries] (amplification effect)
 - NBA franchise
 - Brain Surgery

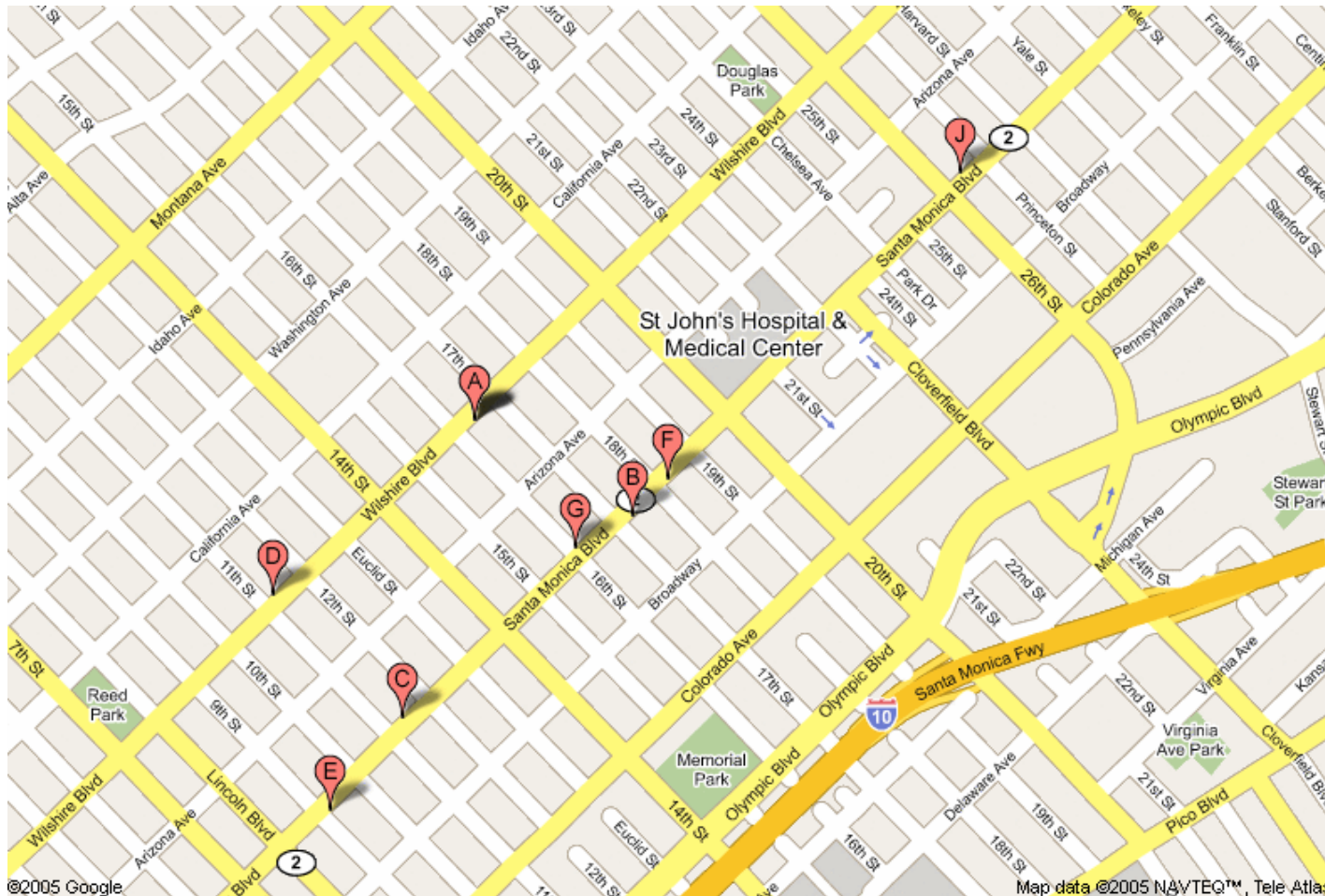
Consumption Goods

- Population base- >variety > **local employment**- >city size
- **Agglomeration economies in Marketing**- >retail clusters
→ *market cities* and concentration within cities (malls, shopping centers...)
 - Shopping externalities
 - Imperfect Substitutes:
 - For example, Santa Monica Blvd.
 - Complementary Goods:
 - For example, Restaurants + Cinemas in Westwood Village

Imperfect Substitutes–Comparison Shopping



Example: Car Dealers in Santa Monica



- A Mercedes-Benz
- B Honda
- C BMW
- D Cars With Class
- E Infiniti
- F Saab
- G Nissan
- H Mercedes-Benz
- J Car Factory

Consumer City

Glaeser, Kolko and Saiz (2001)

Productivity Premium + Amenity Premium = Rent Premium

- Now cities can find a justification from a consumer perspective.
- Interesting Fact:
Wages have increased less than housing prices in cities !!!

MORE AMENITY PREMIUM!!!

City Size and Heterogeneity [Quigley, 1998]

<i>Factor</i>	<i>Example</i>	<i>Theoretical Argument</i>
1. Scale Economies		
in production, within firms	larger plant size	Mills (1967), Dixit (1973)
in consumption	public goods: parks, sports stadiums	Arnott and Stiglitz (1979)
2. Shared Inputs		
in production	repair, accounting, legal, advertising	Krugman (1993)
in consumption	theater, restaurants, high/low culture	Rivera-Batiz (1988)
3. Transaction Costs		
in production	labor market matching	Helsley and Strange (1990), Acemoglu (1996)
in consumption	shopping districts	Artle (1959)
4. Statistical Economies		
in production	unemployment insurance	David and Rosenbloom (1990)
in consumption	resale market for assets	Helsley and Strange (1991)
	substitute goods	Mills and Hamilton (1984)

Different types of city

- Specialized cities (Important Localization Economies)
- Diverse cities (Important Urbanization Economies)
- Model of laboratory cities.
 - Industries born at diverse cities where innovation (highly dependent on UE) is very important.
 - Once mature, industries move to specialized cities where LE are more important for standardized production.
 - Evidence: 70% of firms that change location go from diverse to specialized cities (Duranton and Puga (01)). This pattern is much more important for research and development firms.

The Future of Cities

- Telecommunication and face2face contact:
Complements or Substitutes?
- Gaspar and Glaeser (1998)
 - imperfect substitutes
 - increase in number of relationships
- Complementarity argument
 - Demand for one type of communication affects the demand of others.

Summary Ch. 4 O'Sullivan

- Differences in city size are caused in part by differences in localization economies across industries. Any underlying differences in city size are amplified by urbanization economies and the provision of local goods and services.
- The incubation process (laboratory cities) results from localization and urbanization economies. A large city provides a nurturing environment that helps firms and industries in the early stages of product development.
- Innovations in telecommunication technology will not cause cities to disappear because some activities require face time, so there will always be a need for cities and the physical proximity they provide.
- A shopping externality occurs if the sales of a particular store increase as other retailers move closer to the store. These agglomerative economics in marketing cause the clustering of retailers. Comparison shopping causes the clustering of firms selling imperfect substitutes. One-stop shopping causes the clustering of firms selling complementary goods.

Economic Growth

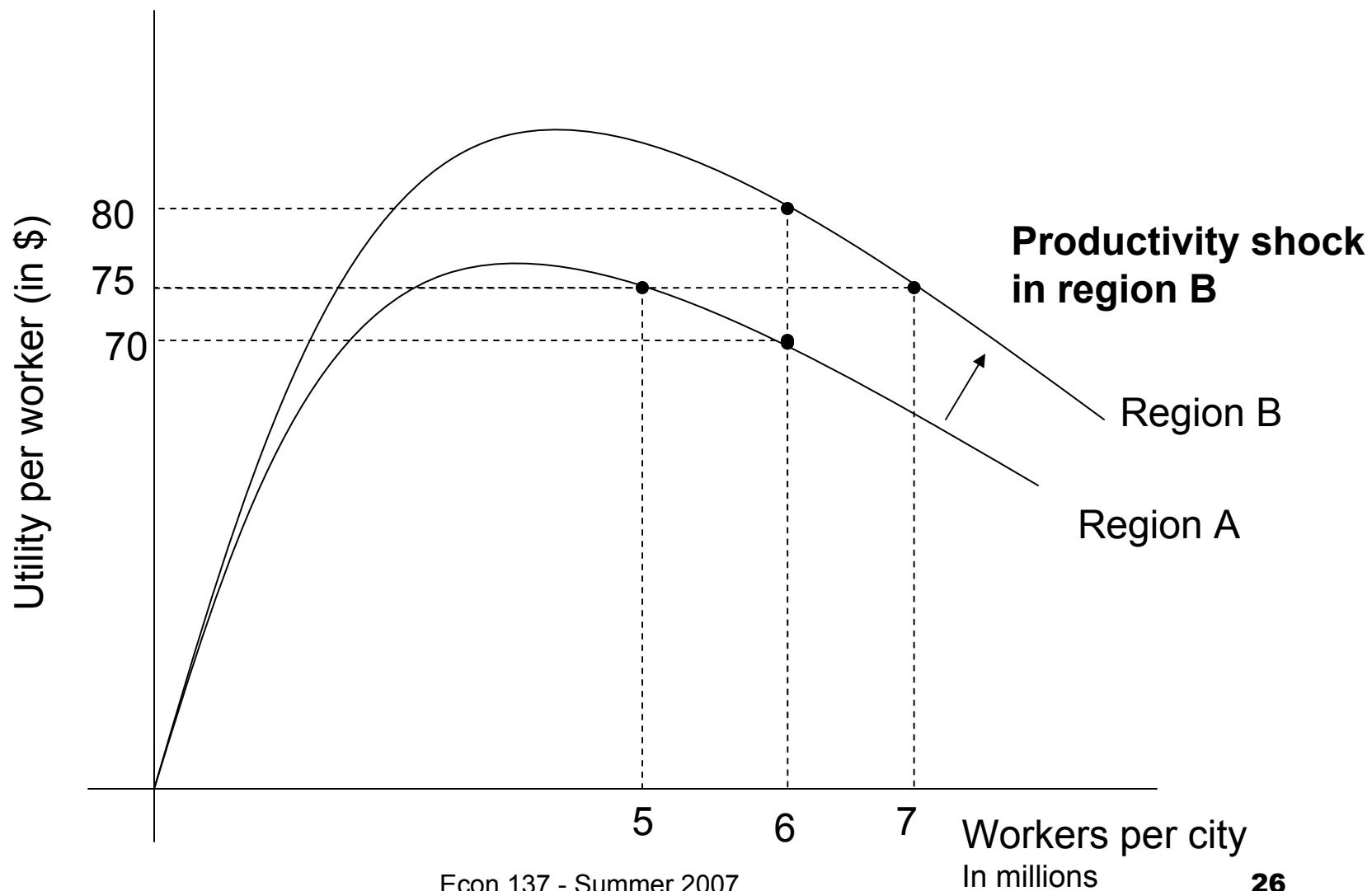
- Classical sources of growth:
 - Capital deepening (increase in capital per worker)
 - Increases in human capital (improve in knowledge and skills through more education and experience)
 - Technological progress (new ideas and inventions)
- Urban source of growth
 - Agglomeration economies (by physical proximity)



Economic Growth

- Gibrat's Law of cities
 - Mean and variance of the growth rate of a city are independent of its size.

Growth spreading across cities

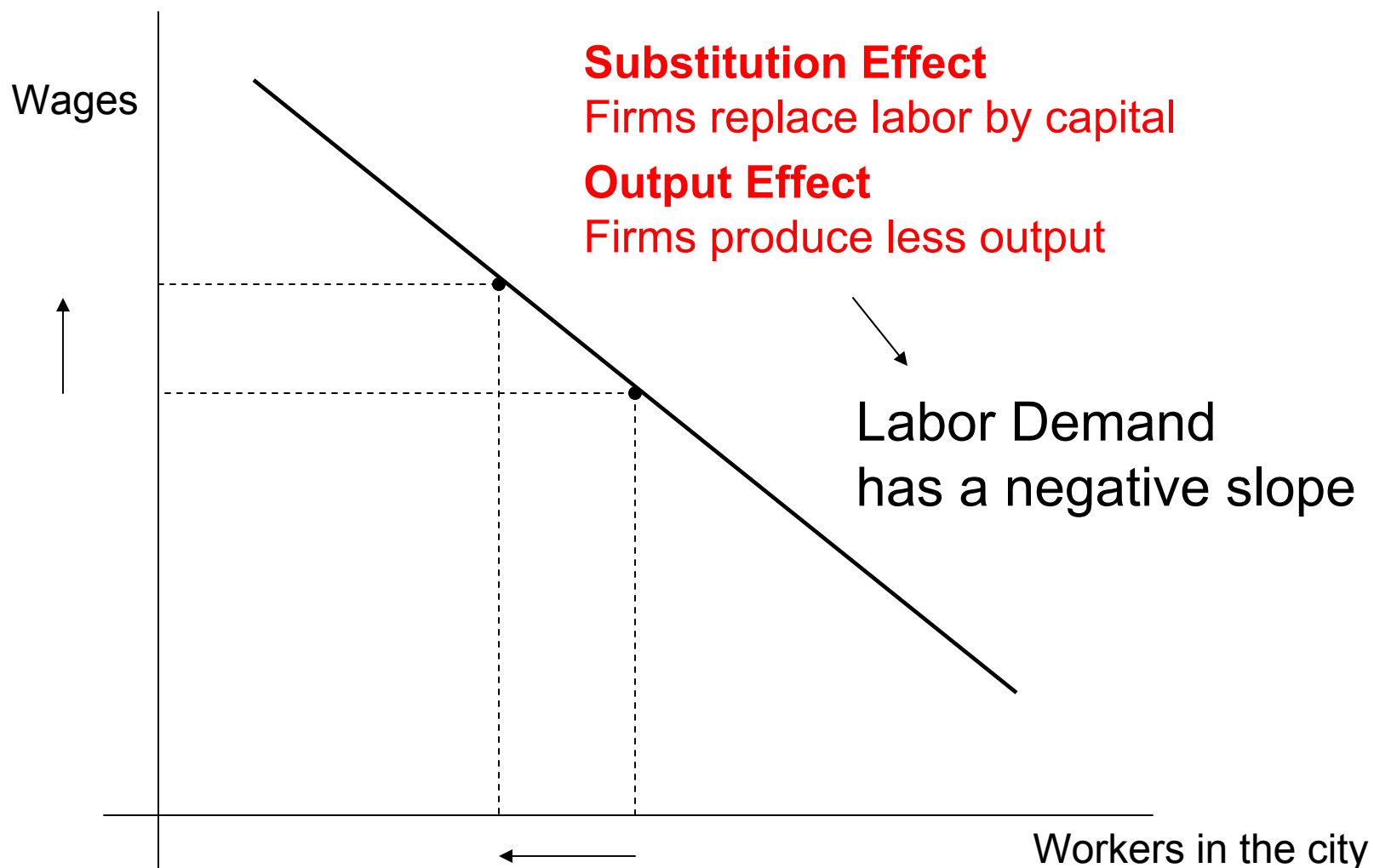




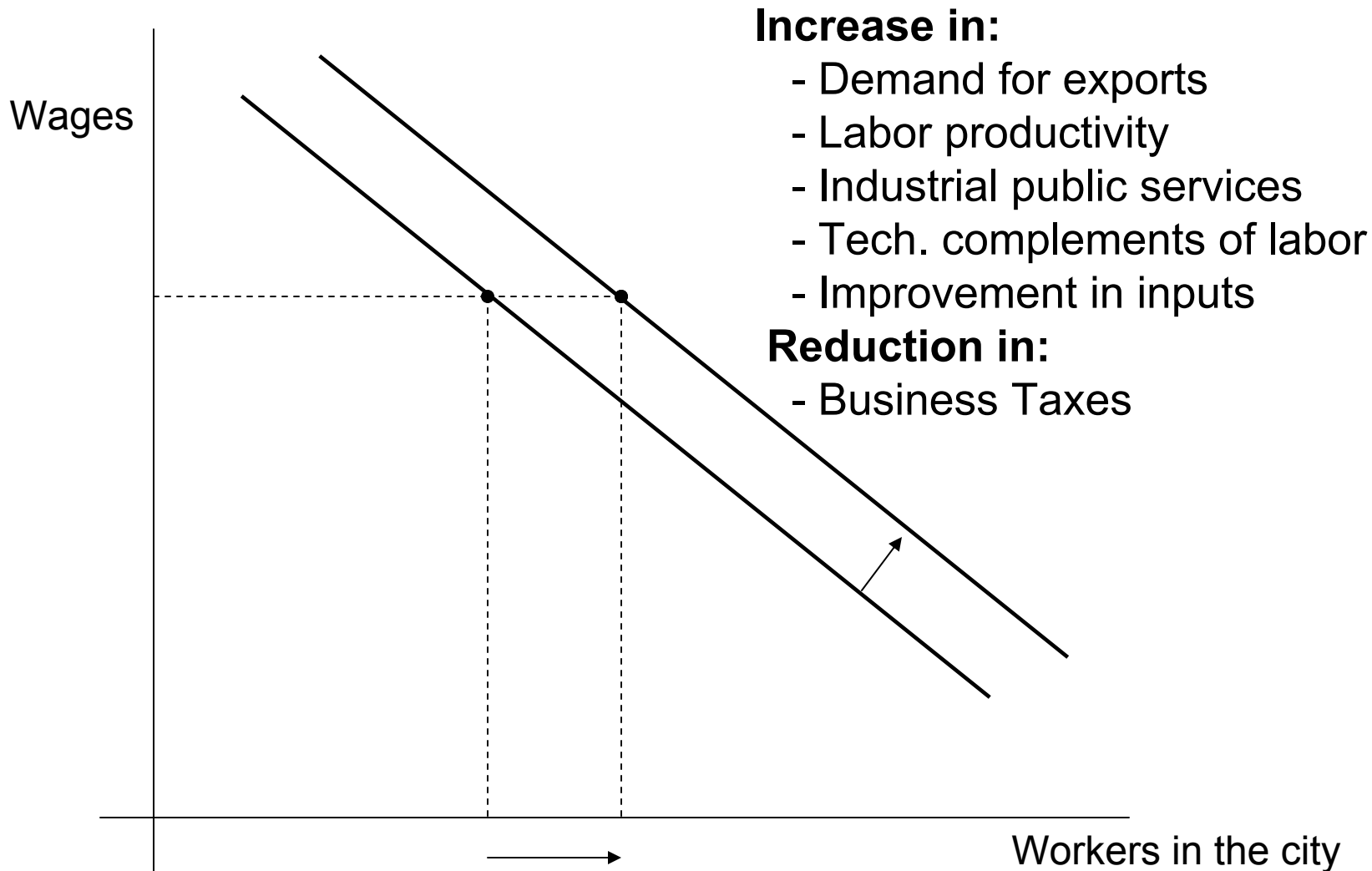
Urban Employment Growth

- Assume a region with many cities.
 - Workers have a fixed number of hours to work
 - Participation rate is fixed
 - Workers can move freely across cities inside the region

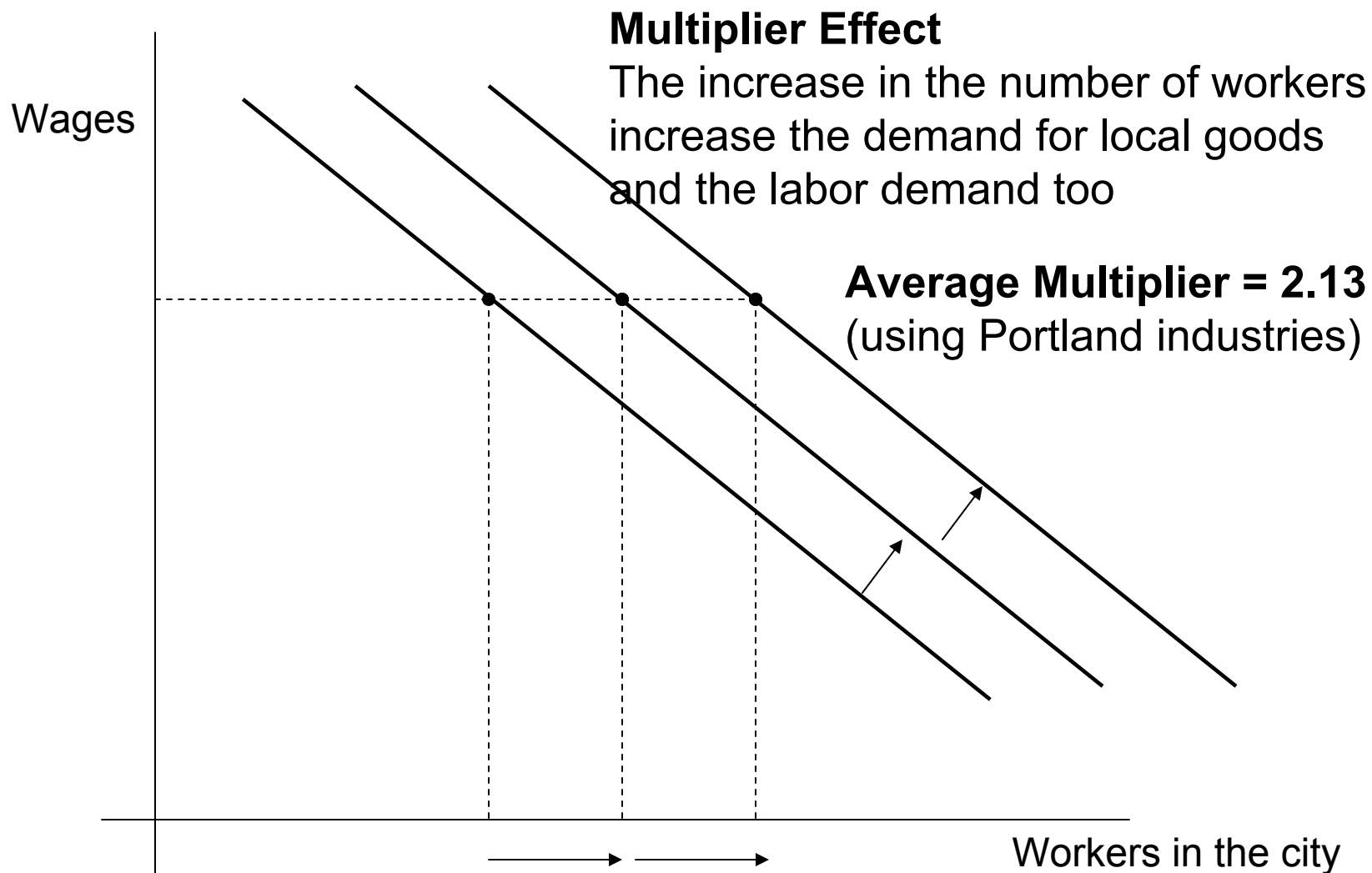
Urban Employment Growth – Labor Demand



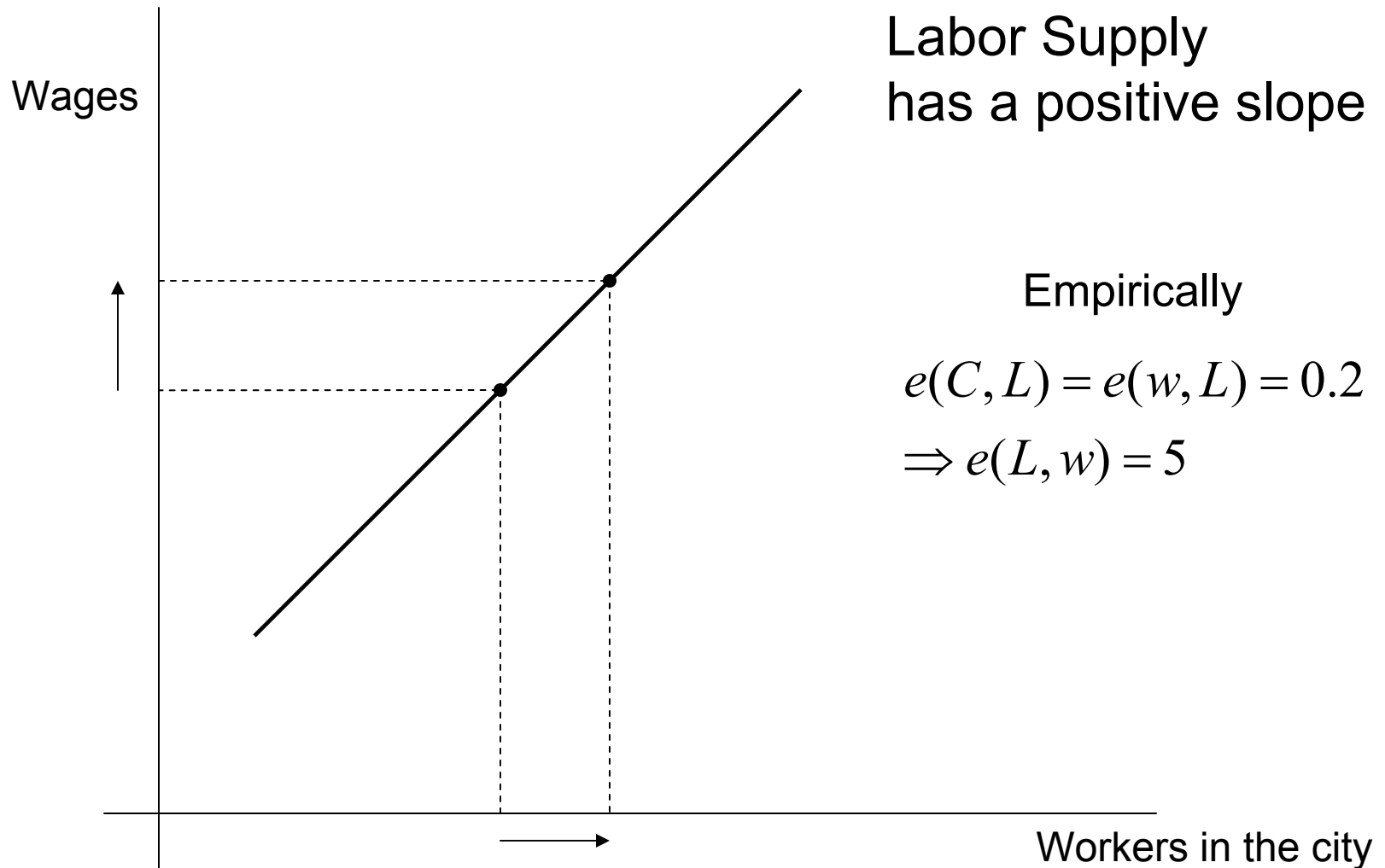
Urban Employment Growth – Labor Demand



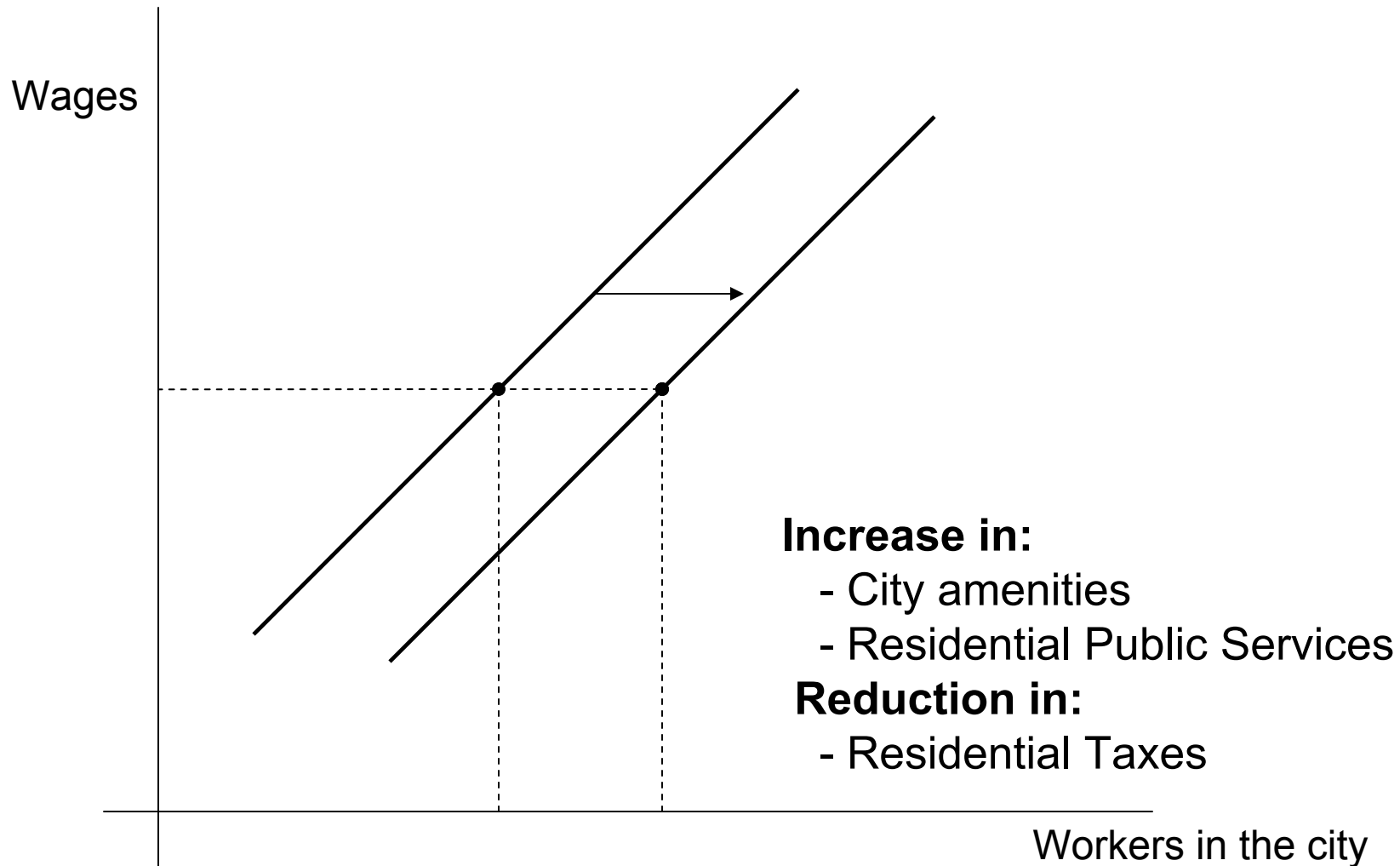
Urban Employment Growth – Labor Demand



Urban Employment Growth – Labor Supply

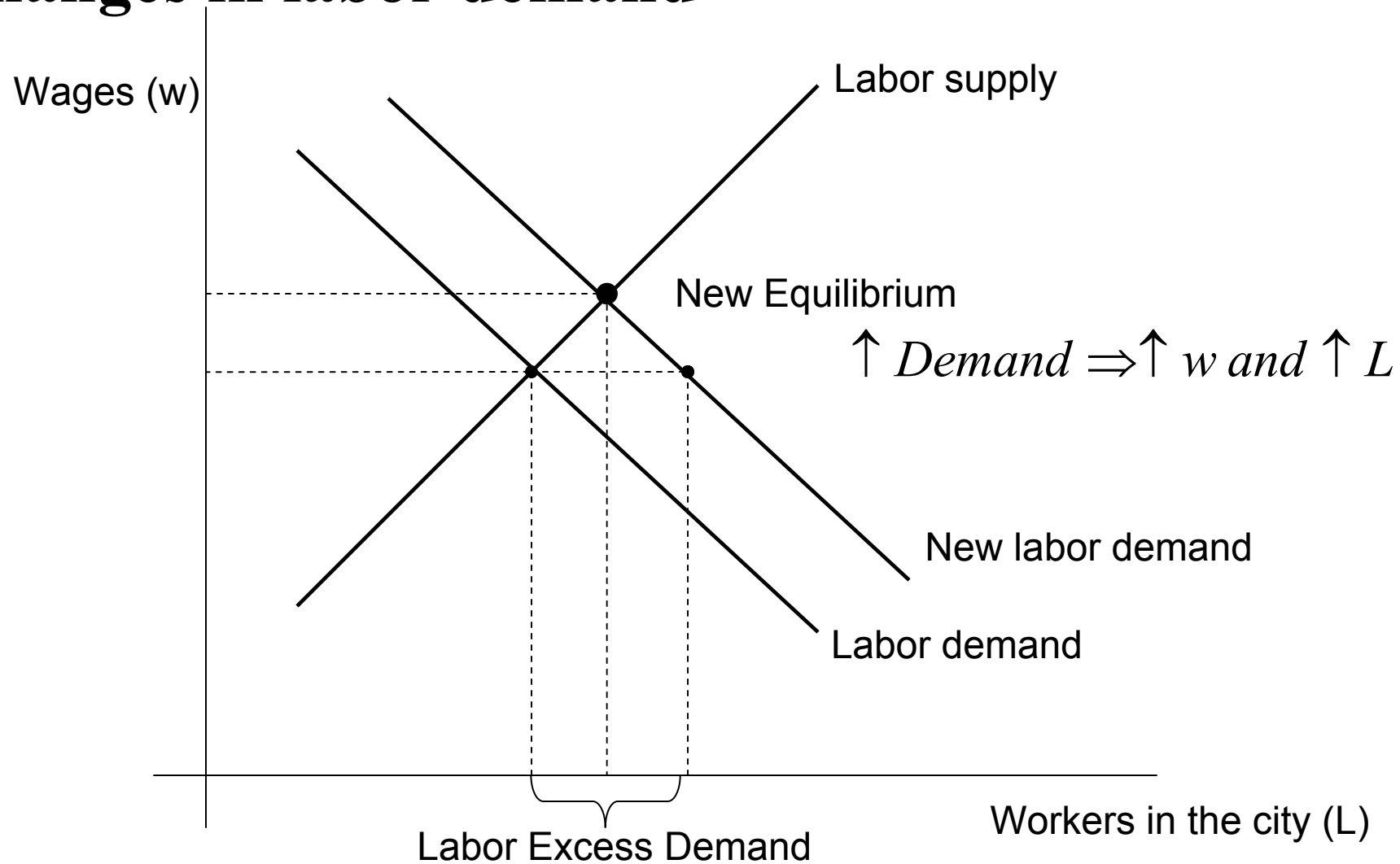


Urban Employment Growth – Labor Supply



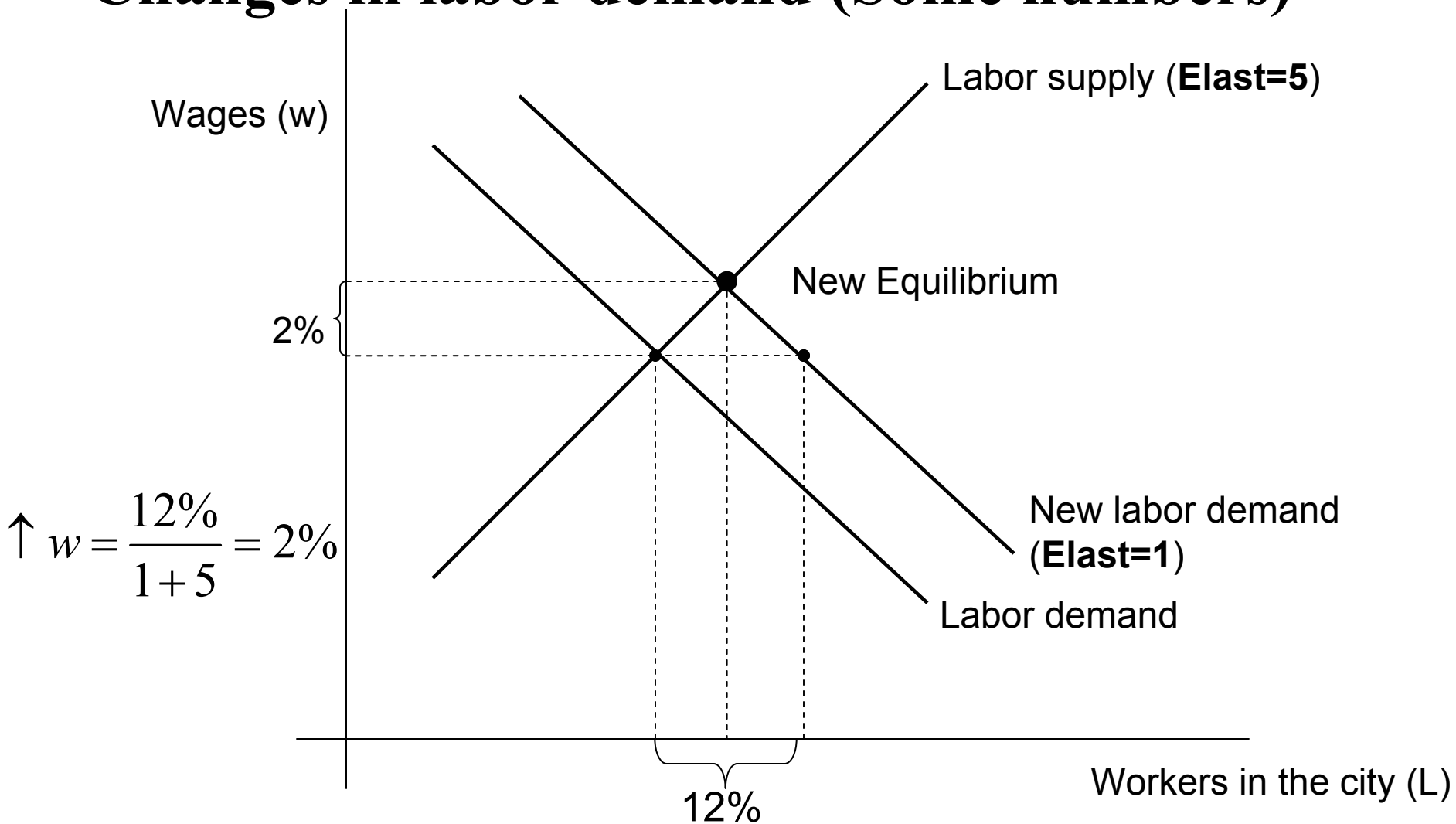
Urban Employment Growth

Changes in labor demand



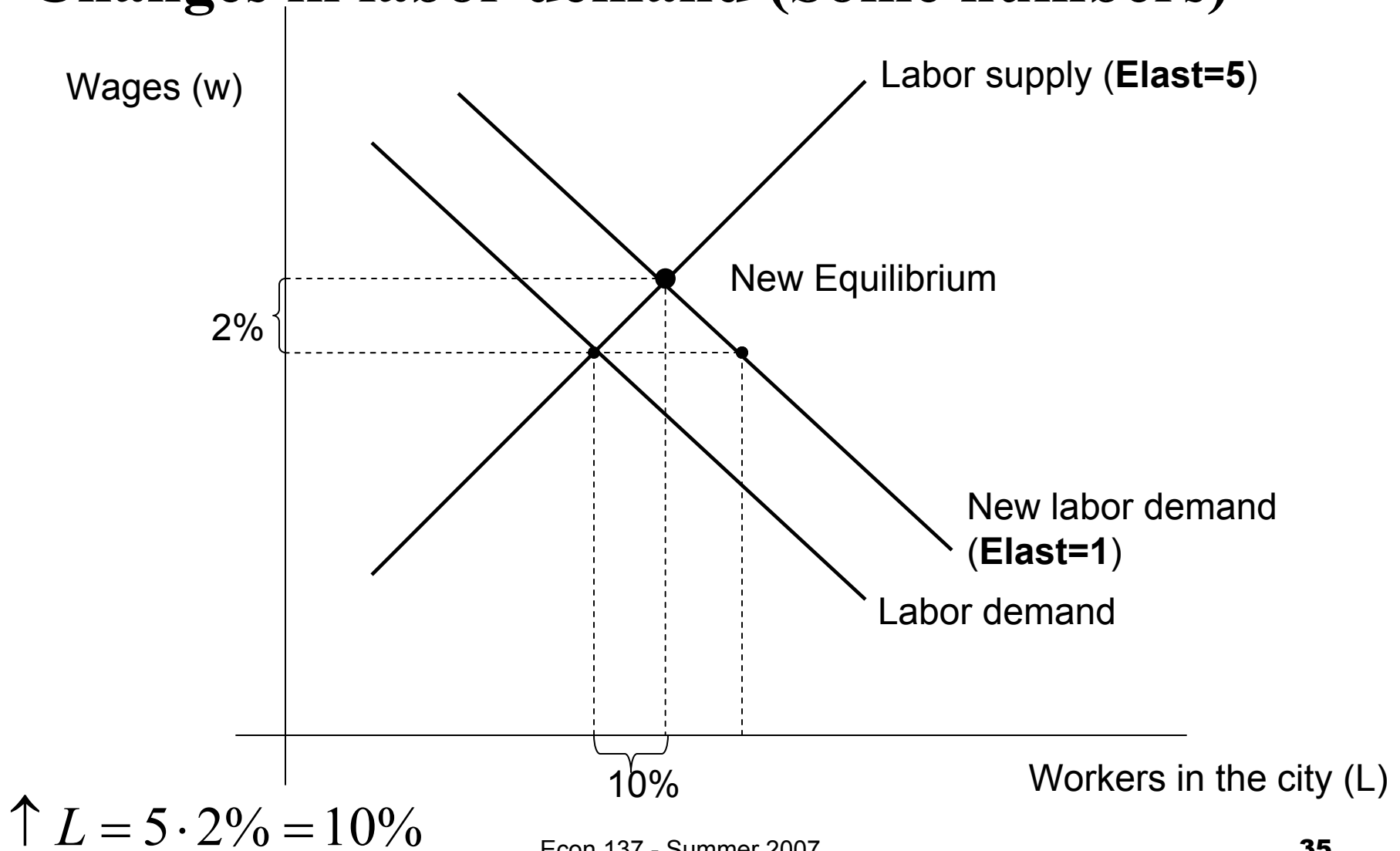
Urban Employment Growth

Changes in labor demand (Some numbers)



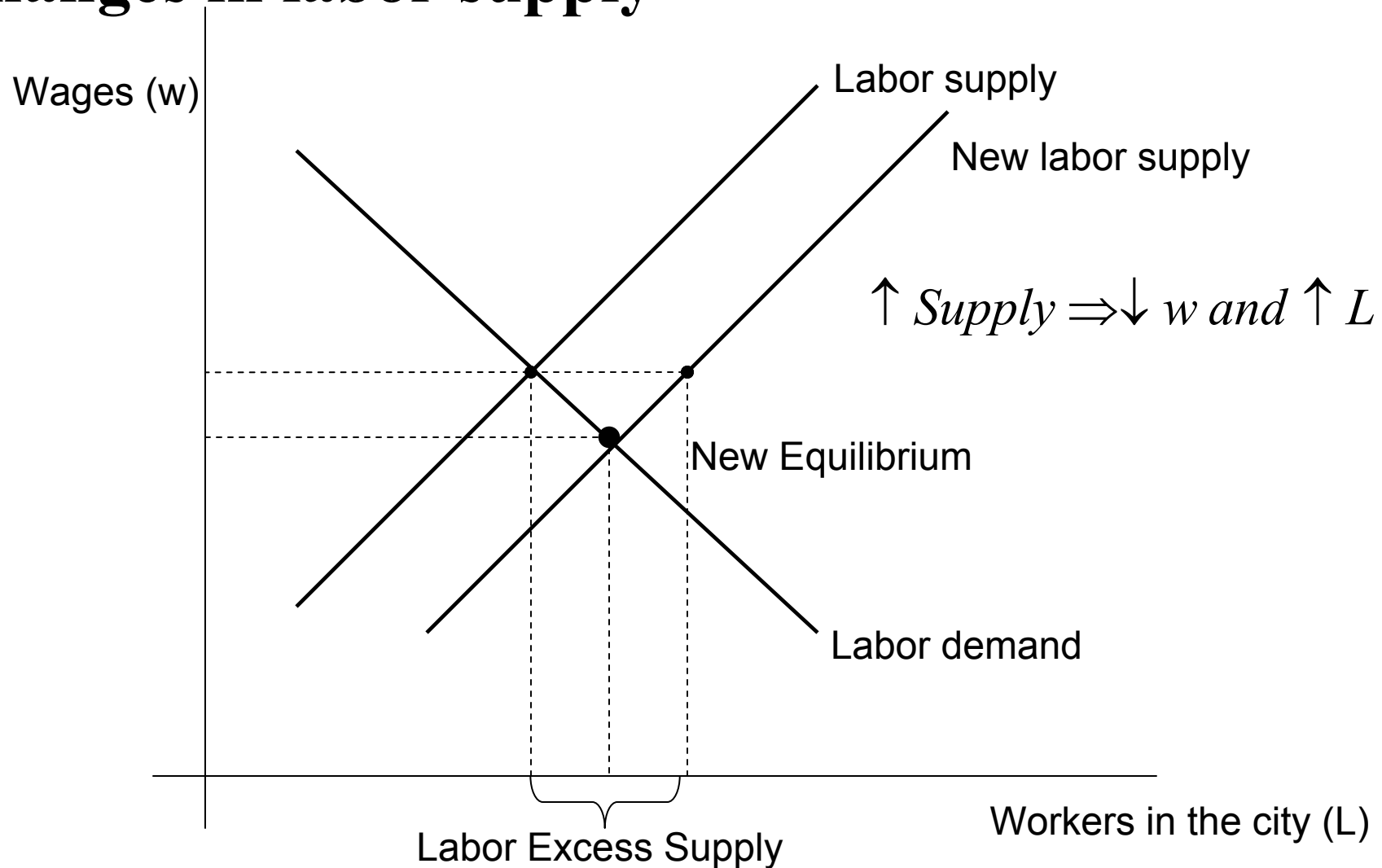
Urban Employment Growth

Changes in labor demand (Some numbers)



Urban Employment Growth

Changes in labor supply



Local policies that increase employment

- Policies that tend to increase labor demand
 - Tax reduction
 - A 10% decrease in business taxes increase business activity in the metropolitan area by 1-6% and in the municipality by 10-30% (locations are better substitutes).
 - Depends how extra collection is used
 - Public Services
 - High impact
 - Subsidies and Incentives
 - Small effects. Perverse effects in most cases.
- Policies that tend to increase labor supply
 - Environmental Quality
 - This policy also decrease labor demand. The final effect on employment is not clear

Summary Ch. 5 O'Sullivan

- An increase in per-capita income results from capital deepening, increases in human capital, technological progress and agglomeration economies.
- An increase in export employment increases local employment through the multiplier process.
- Local government can increase urban employment through reducing taxes or giving subsidies, but mostly by providing public services.



New York: The US urban colossus

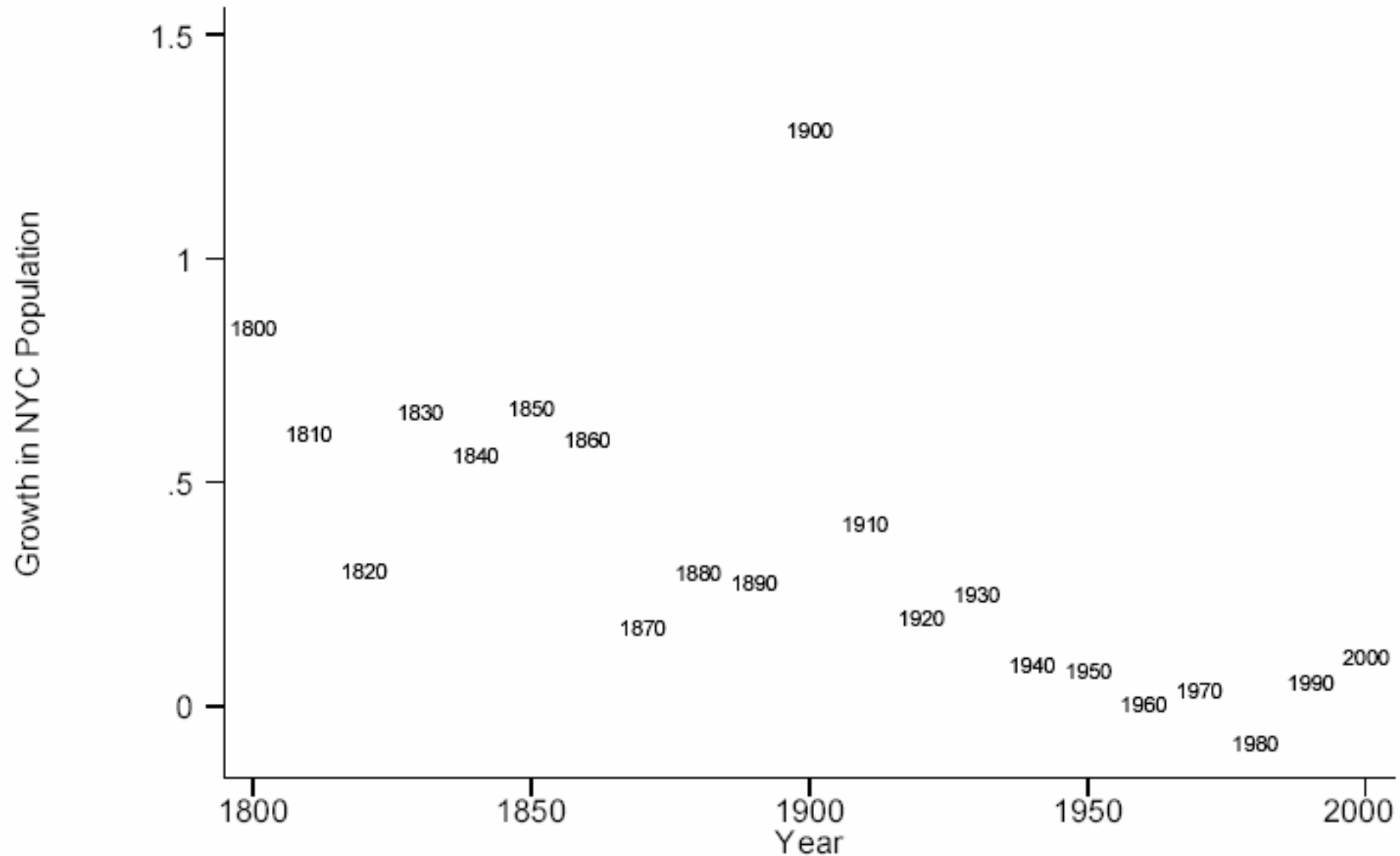
- For two centuries, New York has been the largest city in the nation.
- More than 8 million people.
- Population grew by 9% in the last decade.
- NY's history is one of almost unbroken triumph (the worst crisis, which occurred in the seventies, lasted for less than a decade).

What accounts for this steady success?

New York: The US urban colossus

- The ultimate success of New York comes from its role as the center of the global trading network.
- Manufacturing, immigration and finance followed from maritime supremacy.
- NY is a living example of the importance of:
 - Agglomeration economies
 - Scale economies
 - Localization economies
 - Benefits from specialization
 - Transportation costs (first in manufacturing and now in information technologies)
 - “Idea city”.

New York: The US urban colossus



New York: The US urban colossus

- 1624- 1790: The early city.
 - “A deep water port at the heart of the Hudson”. However, at that time, NY was not the most important port (Boston, Philadelphia, New Orleans).
- 1790- 1860: The rise to dominance.
 - Population went from 33K to 813K.
 - Domination of American shipping and immigration (technical advantages of NY’s port, hub and spoke transportation network).
 - Explosion of manufacturing (sugar refineries, printing and publishing and garment industries).

New York: The US urban colossus

- 1860- 1920: The immigrant city
 - Population went from 813K to 7900K.
 - Immigration encouraged by declining in both transatlantic and intra-city travel costs but still high inter-cities travel costs.
 - Immigration encouraged by immigrant specific social and political infrastructure.
 - Economically static structure and increase in the possibility of scale economies.

New York: The US urban colossus

- 1920- 2000: The information city.
 - Decline in inter-cities travel costs. Cars and trucks.
 - Collapse of local manufacturing.
 - Orientation towards finance and corporate management (encouraged by the existence of the port and related risk sharing of sea voyages).
 - High value of knowledge and easiness of information flow.
- Future of New York?
 - Reduction in the costs of exchanging information.
 - Face2face contacts.
 - Consumption amenities

New York: The US urban colossus

City name	Population		Percent growth in population				Population
	1930	1950-1960	1960-1970	1970-1980	1980-1990	1990-2000	2000
New York City, NY	6,930,446	-0.01	0.01	-0.10	0.04	0.09	8,008,278
Chicago, IL	3,376,438	-0.02	-0.05	-0.11	-0.07	0.04	2,896,016
Philadelphia, PA	1,950,961	-0.03	-0.03	-0.13	-0.06	-0.04	1,517,550
Detroit, MI	1,568,662	-0.10	-0.09	-0.20	-0.15	-0.07	951,270
Los Angeles, CA	1,238,048	0.26	0.14	0.05	0.17	0.06	3,694,820
Cleveland, OH	900,429	-0.04	-0.14	-0.24	-0.12	-0.05	478,403
St. Louis, MO	821,960	-0.12	-0.17	-0.27	-0.12	-0.12	348,189
Baltimore, MD	804,874	-0.01	-0.04	-0.13	-0.06	-0.12	651,154
Boston, MA	781,188	-0.13	-0.08	-0.12	0.02	0.03	589,141
Pittsburgh, PA	669,817	-0.11	-0.14	-0.17	-0.13	-0.10	334,563
United States	151,325,798	0.19	0.13	0.11	0.09	0.13	281,421,906

Note: All data comes from U.S. Census of Population.



Questions for Lecture Notes II

- Why do we observe cities with different size?
- Why do we observe cities of different type?
- How cities have an impact on income and employment growth?



Practice Exercises - Lecture Notes II

- O'Sullivan

- Chapter 4. Exercises 2, 3 and 5.
- Chapter 5: All exercises.