

Quick Review

- Urban economics: geography + economics
- 5 stylized facts in urban economics and cities
 1. People and economic activities are concentrated in cities.
 2. Developing countries have larger cities.
 3. Cities are expensive to live.
 4. Cities are different.
 5. City sizes follow a mysterious Zipf's law.

Agglomeration and Cities

RE420: URBAN AND REGIONAL ECONOMICS

Introduction

- Economics is the study of the allocation of scarce resources. Urban economics focuses on the allocation of resources across space.

Recall the Stylized Fact 1

Introduction

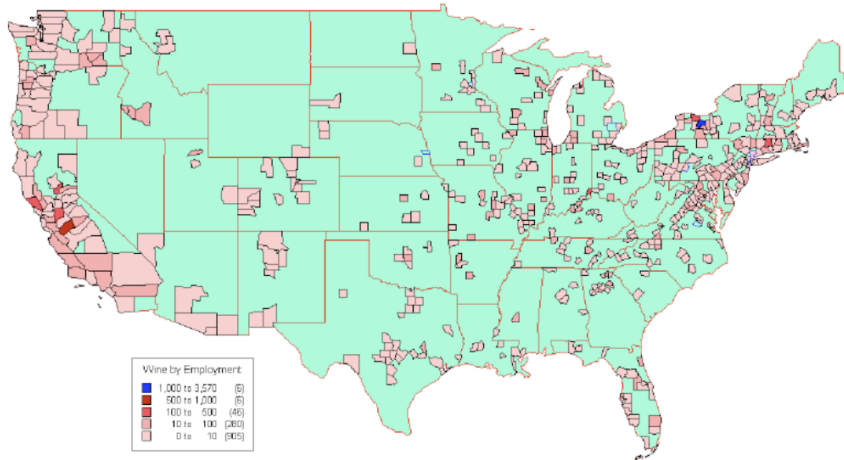
- Economics is the study of the allocation of scarce resources. Urban economics focuses on the allocation of resources across space.

Recall the Stylized Fact 1

- Economic activity is highly concentrated.
 - More than 80 percent of Americans live in cities, and yet these cities occupy only 3 percent of the entire land area of the country
 - In 1992 only 1.9% of land in the US was built-up or paved (Duranton and Puga, 2004)
 - Almost all new development is less than a km away from earlier development

Introduction

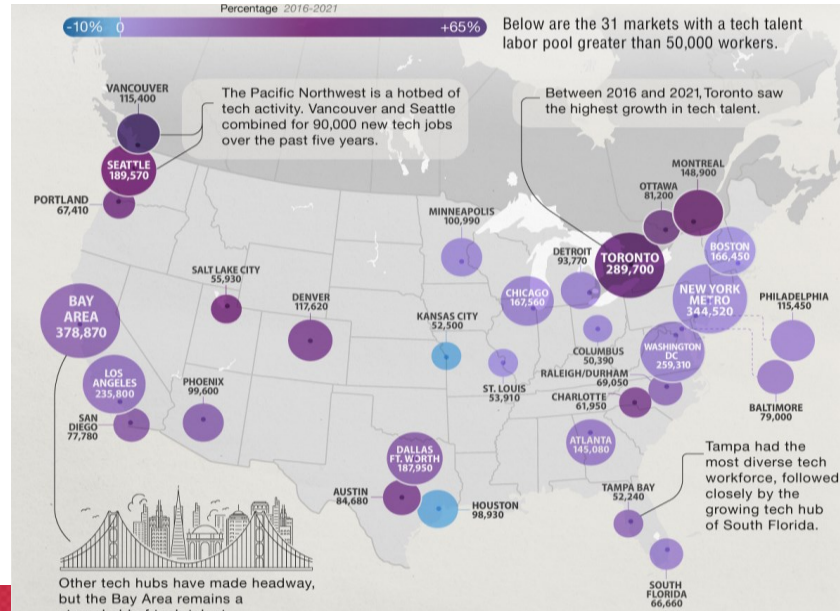
- Individual industries are concentrated too.
 - E.g., wine production is concentrated in California, Washington, and New York.



Source: Fourth Quarter 2002; Source: Dun and Bradstreet; Rosenthal and Strange (2003a)

Introduction

- Individual industries are concentrated too.
 - E.g., the largest tech talent hubs are concentrated in SF Bay Area, New York City, and Seattle.



Agglomeration Economies

- Agglomeration: external economies of scale

Agglomeration Economies

- Agglomeration: external economies of scale
 - The benefits that come when firms and people locate near one another together in cities and industrial clusters (Glaeser, 2010)
- *External economies of scale* exist when the long-run cost declines in response to an increase in the size of a city or the size of an industry in a city.
- *Internal economies of scale* arise when the average cost at a given factory declines induced by an increase in the level of productivity at the factory.

Types of agglomeration economies

1. Cost advantages
2. Labor market advantages
3. Knowledge spillovers

Cost advantages

- Firms may cluster around the intermediate input producer for cost advantage
 - Internal economies of scale
 - Shipping cost
 - Face-to-face communication
- Clustering also allow firms to share some resources and reduce cost
 - Security services, cafeteria

Cost advantages

Examples

- Cluster of dressmakers around a button maker (Vernon, 1972)
 - Rapid changes in fashion and output: Firms are small & nimble
 - Scale economies in buttons large relative to demand of single dressmaker
 - Face time required to design and fabricate buttons to fit dresses
 - Modification cost required to make a perfect match
- Rise of the semiconductor industry in Silicon Valley
 - “The elaboration of interfirm supplier networks reinforced the advantages of locating in Silicon Valley, even as production was becoming globally footloose.” (Saxenian, 1994)

Labor market advantages

- Large labor market lowers hiring cost
 - Search, interviewing, and re-location
- Larger worker pool facilitates better worker-firm matching
 - Firms will have higher productivity → offer higher wage

Labor market advantages

- **An example:** Rise of the semiconductor industry in Silicon Valley
 - Home to numerous universities and research institutions
 - Silicon Valley's growing reputation attracted global talent
 - "The role of Stanford University and electrical engineering professors Fred Terman and John Linvill. They recruited the brightest graduate students and trained them to work in the semiconductor industry, and in 1951 Terman was instrumental in establishing the first university-based research and industrial park at Stanford." (Henton and Waldhorn, 1988)

Knowledge Spillovers

- Sharing of knowledge provides an incentive for firms to cluster as innovation leads to lower cost and higher profits
 - Could occur within an industry or across industries
- **An example:** Rise of the semiconductor industry in Silicon Valley
 - Latest information is extremely valuable, but its value lasts only for a short time
 - “*Waggonwheel Bar*, which is located only a block from Intel, Raytheon, and Fairchild, was known as the fountainhead of the industry because this was where the semiconductor men socialized, exchanged information, and hired employees.” (Braun and Macdonald, 1982)

Agglomeration Dis-Economies

- We can also think about **agglomeration dis-economies**

Agglomeration Dis-Economies

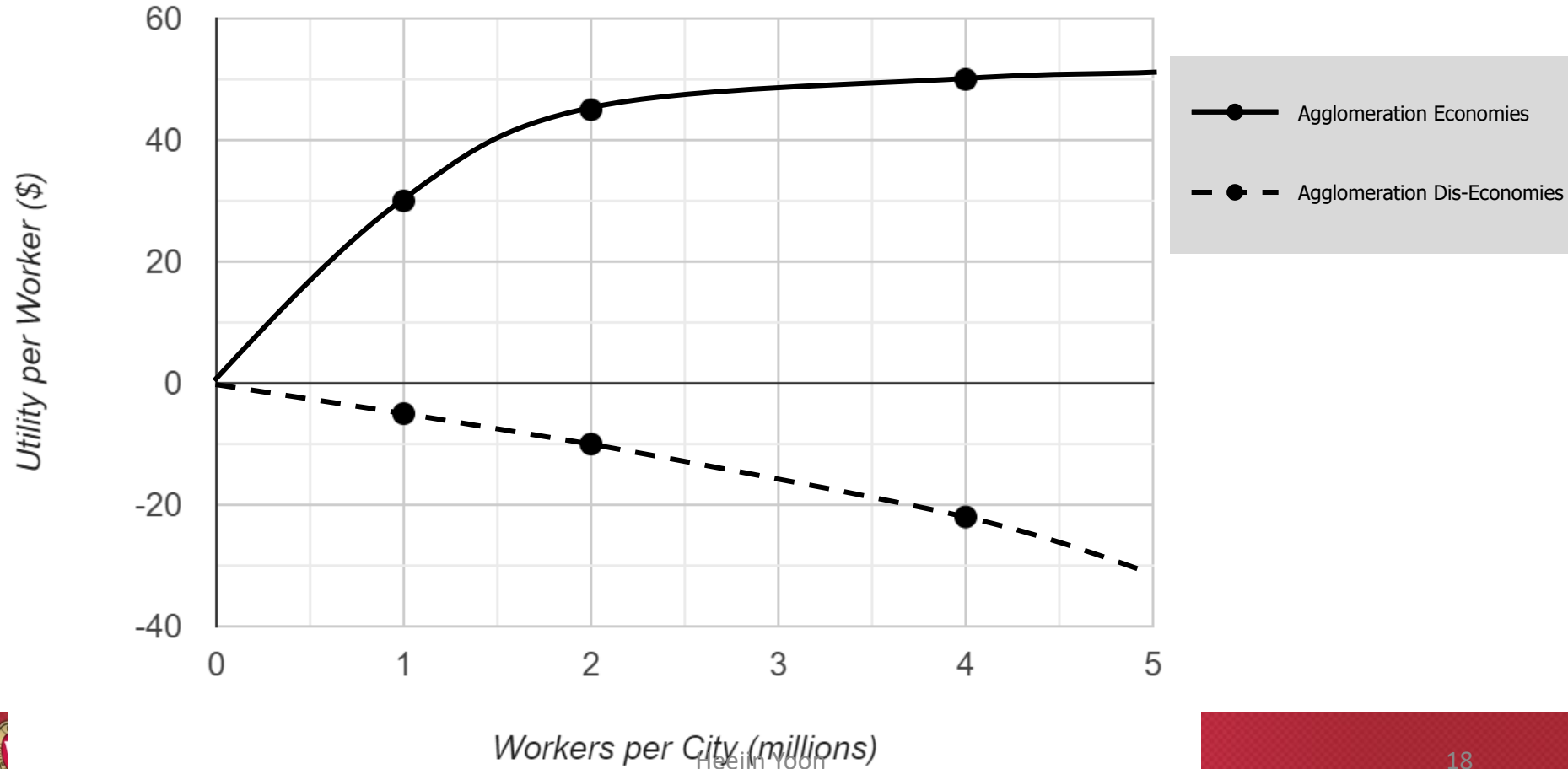
- We can also think about **agglomeration dis-economies**
 - Longer commuting distance/time
 - Insufficient land spaces for housing and firm
 - Pollution

Illustration with a numerical example

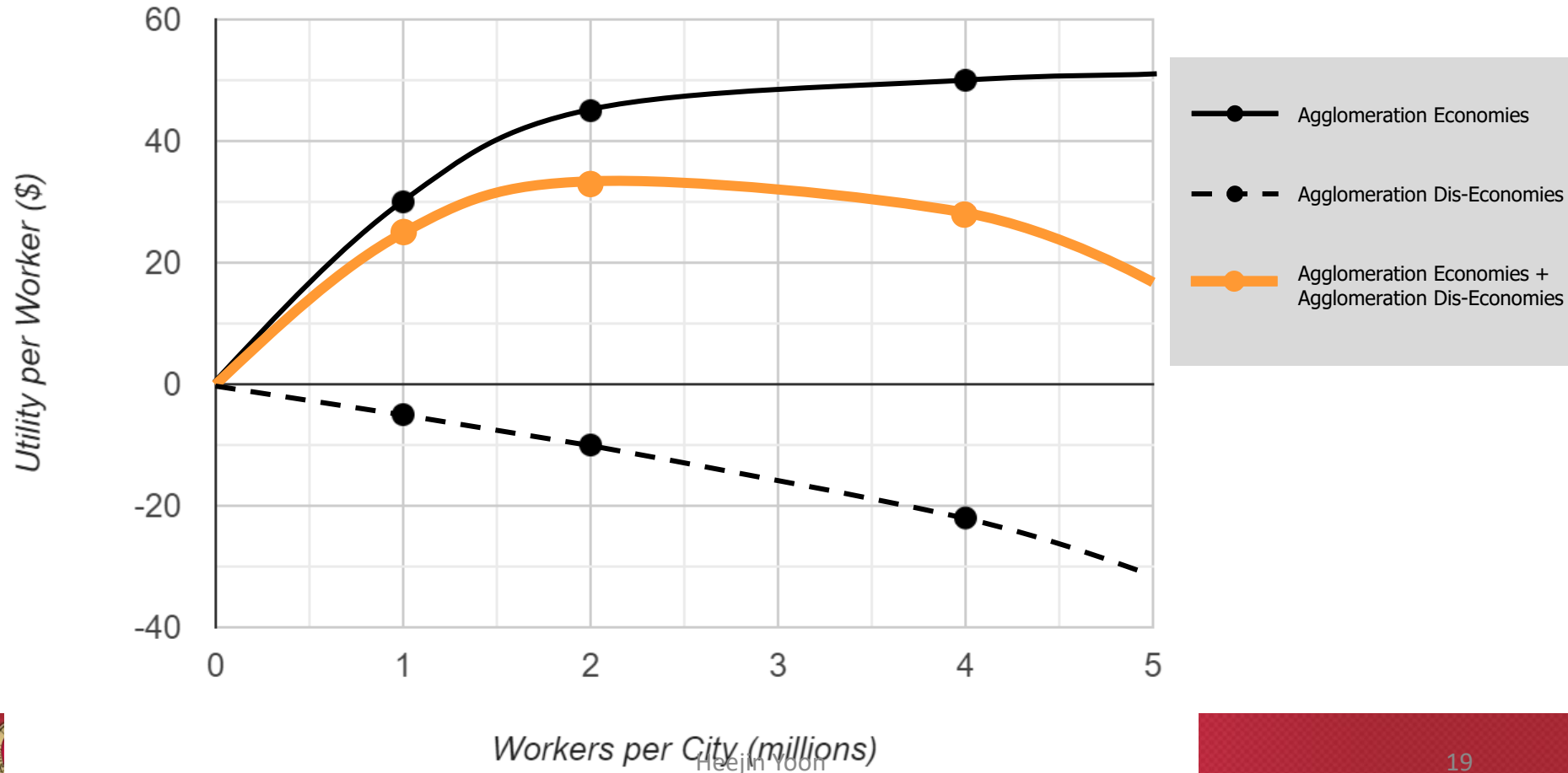
- Agglomeration economies from input sharing, labor skill matching, and knowledge spillovers increase firm productivity
→ **wage** ↑ → **worker utility** ↑
- Agglomeration also increases commuting time & distance
→ **commuting cost** ↑ → **worker utility** ↓

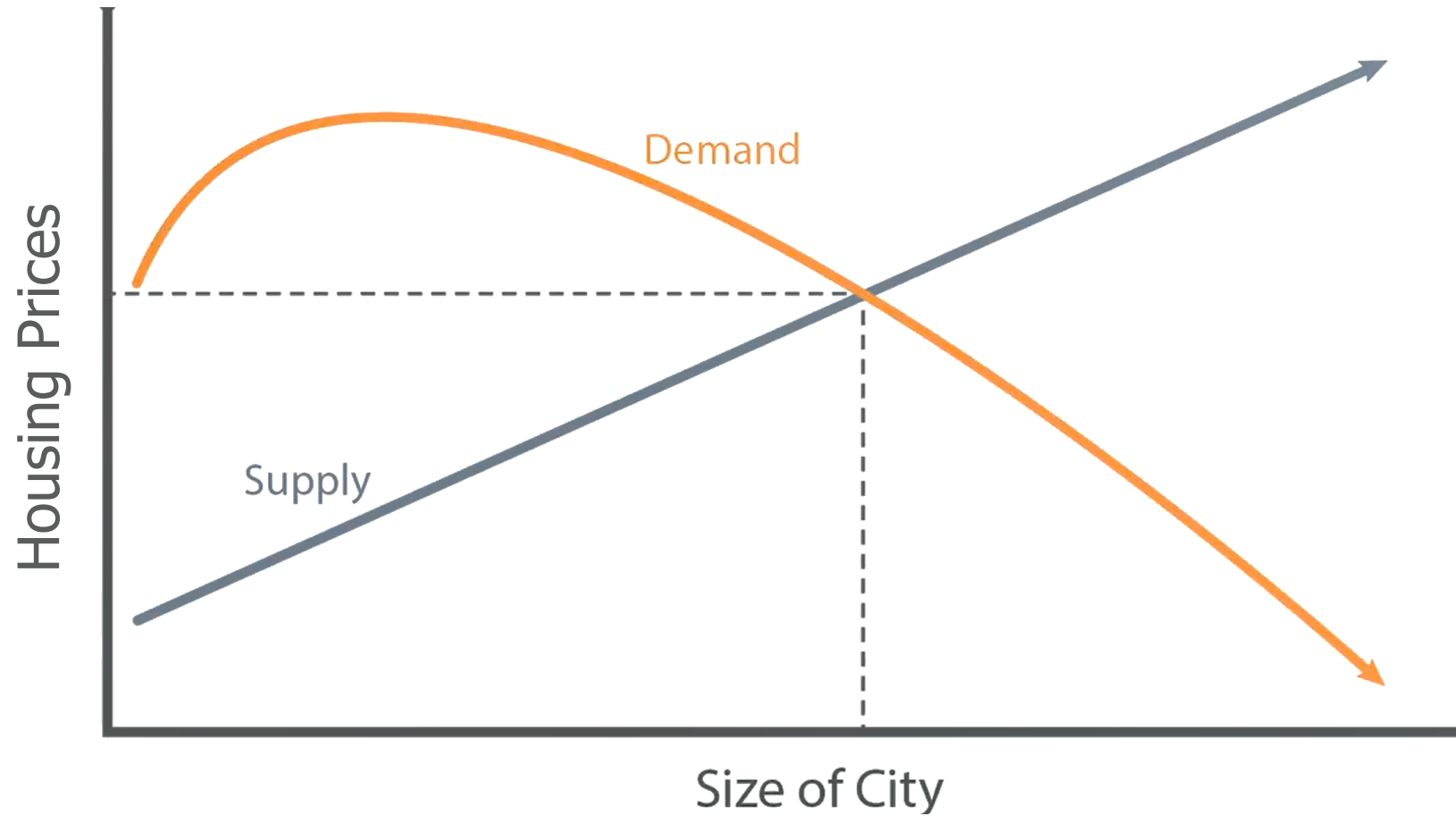
Workforce (millions)	Labor Income	Commuting Cost	Utility
1	\$30	-\$5	\$25
2	\$45	-\$10	\$35
4	\$50	-\$22	\$28

Agglomeration Economies and Dis-Economies



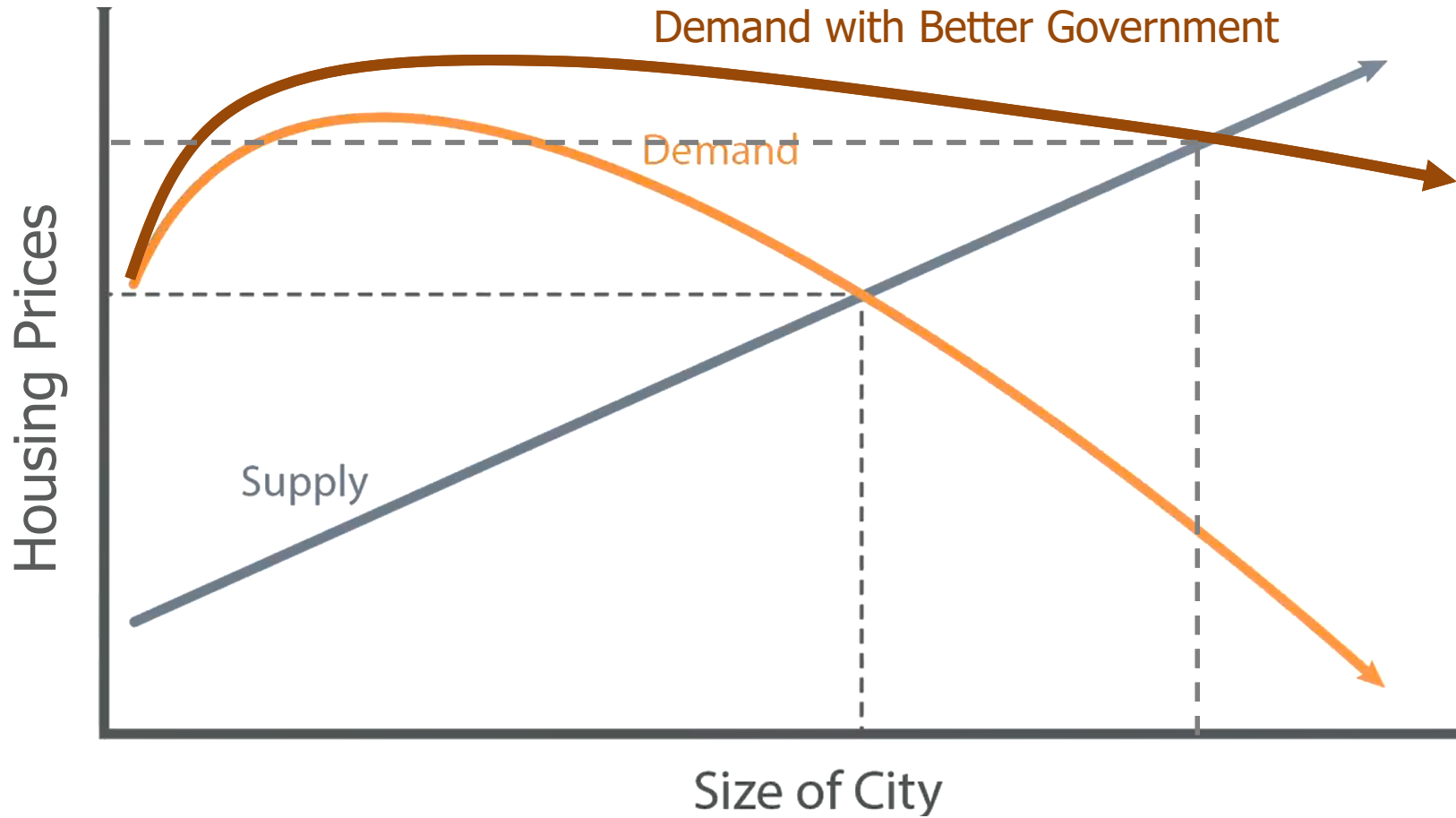
Agglomeration Economies and Dis-Economies





Role of better government

- Government can address agglomeration dis-economies issues by
 - improving public transportation system (e.g., subway lines)
 - providing underutilized land spaces for firms and housing (re-zoning)



Video Clip

Why Tech Firms Flock to Expensive Cities (6:05)



Key Takeaways

- Understand the concept of agglomeration economies and agglomeration dis-economies.
- Understand the key benefits that make firms and people concentrated in urban areas.
- Using the concept of agglomeration (dis-)economies, explain how better governments can facilitate urban growth
- Optional Readings:
 - Jan K. Brueckner, *Lectures on Urban Economics*. Chapter 1, "Why Cities Exist"
 - Arthur O'Sullivan, *Urban Economics*, 9th Ed., Chapter 4, Chapter 15.
 - Glaeser, E. L., Gottlieb, J. D., "The Wealth of Cities: Agglomeration Economies and Spatial Equilibrium in the United States", *Journal of Economic Literature* 47(4), 983-1028.
 - McDonald & McMillen, Two Case Studies of Agglomeration Economies