Reflection Questions

Please consider the following questions before class begins:

- What sort of businesses do not exhibit economies of scale?
- What sort of businesses locate within cities?
- What are two or three ways in which we can relax the base bid-rent model?

Determinants of Value and Urban Considerations, Continued

HADM 4200, Spring 2024

Professor Lauri Kytömaa

Upcoming assignments

- PS1 is live and due on Thursday (February 1st) @ 6:00PM
- Reminder of policies:
  - Each worth 5% for a total of 20% of your final grade
  - Unique submission for each student
  - Submit through Gradescope

Readings

- *Chapters 1 & 2* of Lectures on Urban Economics, Brueckner
  - Optional, but central focus of the urban growth
- *Chapters 5 & 6* of Real Estate Principles: A Value Approach, Ling and Archer
  - Chapter 5 (urban growth, bid-rent model),
    Chapter 6 (market research)
- *Pages 341- 352* of Real Estate Finance and Investments, Brueggeman and Fisher
  - Investment strategies and market research

Other business

No in-person class this Thursday

- I will upload recording that transitions us from urban considerations to specific market research and valuation
- Homework 2 is going to cover how we value real estate
- I highly encourage students to use extra time to work through Excel Tutorial videos if they haven't already

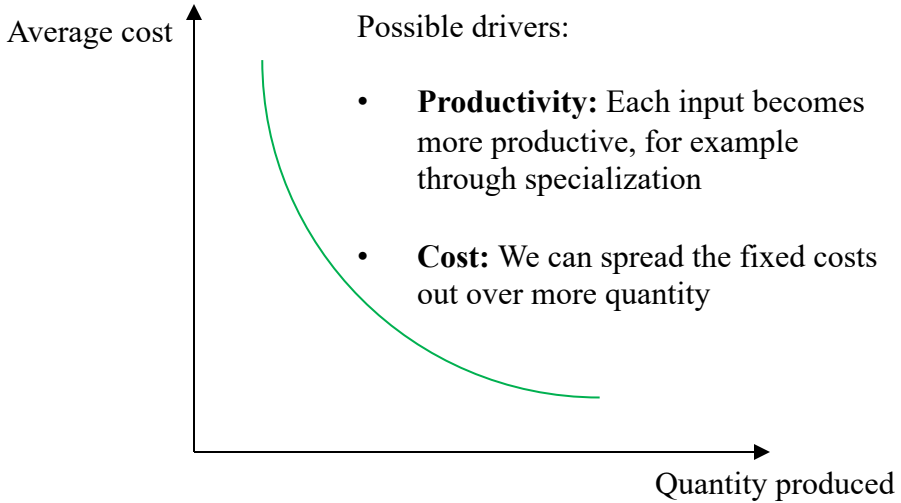
Today's class

- Review (last lecture) economic forces that create urban centers
- Current events related to these forces
- Numerical components and background
- Wrapping up urban portion

Review – Urban economics concepts

Why do we have **cities and towns in the form that we do?**

- *Scale economies*
- *Agglomeration economies*
- *Retail agglomeration*
- *Transportation costs*
- *Bid-rent model*
- *Urban form*



Possible drivers:

- **Productivity:** Each input becomes more productive, for example through specialization
- **Cost:** We can spread the fixed costs out over more quantity

Review – Urban economics concepts

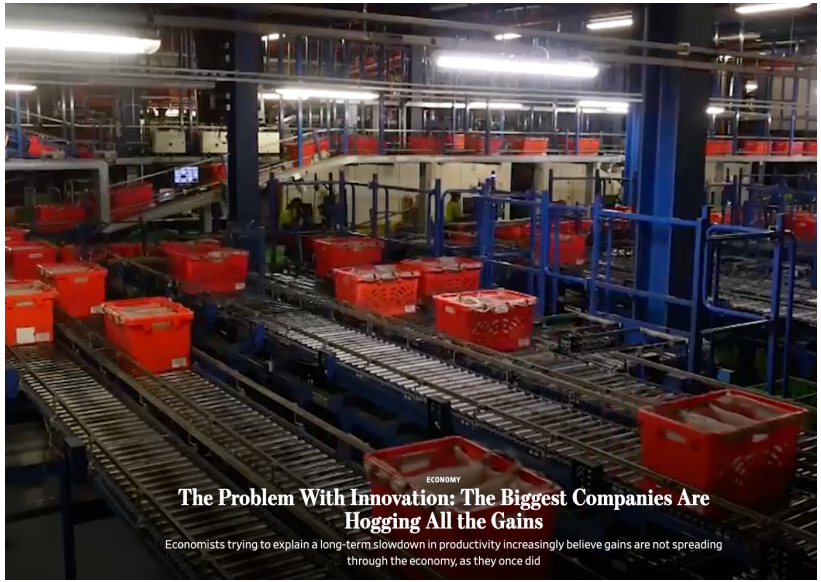
Scale economies

Discuss with a partner(s):

- Think of an example of a business that benefits from strong economies of scale? Why is this the case?

- Think about an example of a business that has no economies of scale or actually diseconomies of scale? Why is this the case?

In the news – scale economies



Source: https://www.wsj.com/articles/the-problem-with-innovation-the-biggest-companies-are-hogging-all-the-gains-1531680310

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Input costs reduced by pecuniary agglomeration

Review – Urban economics concepts

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Academic literature provides strong evidence for technological agglomerations arising from urban areas.

Output productivity is influenced by technological agglomeration

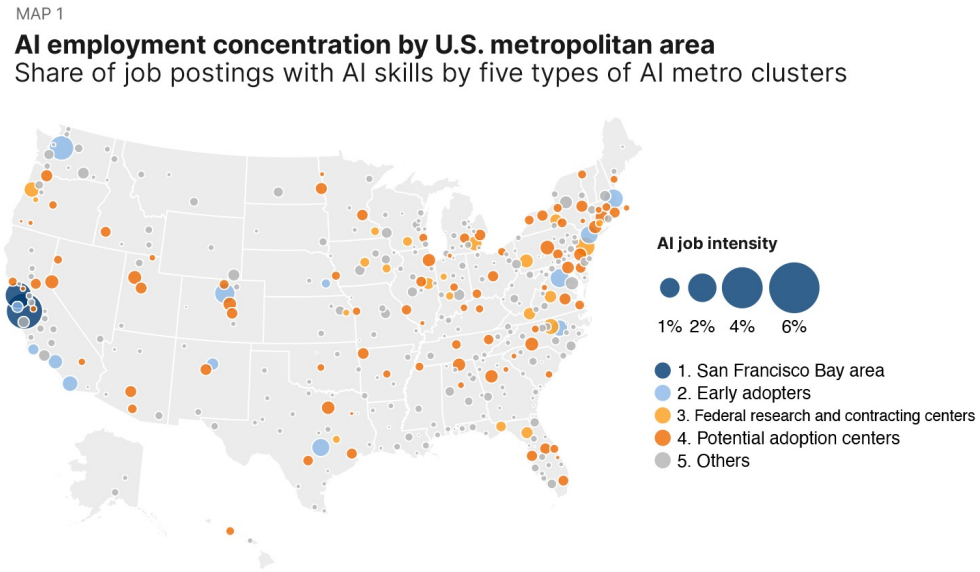
Review – Urban economics concepts

Agglomeration economics

Discuss with a partner(s):

- Can you think of an example of a cost reduction that is driven by (pecuniary) agglomeration?

In the news – Agglomeration and AI employment



- AI activity in the U.S. is highly concentrated in a short list of "superstar" hubs and "early adopter" centers.
- In May 2023, nearly 60% of new generative AI jobs were posted in the Bay Area or one of the 13 early adopter metro areas, including Seattle, home to Microsoft.

Source: https://www.brookings.edu/articles/building-ai-cities-how-to-spread-the-benefits-of-an-emerging-technology-across-more-of-america/

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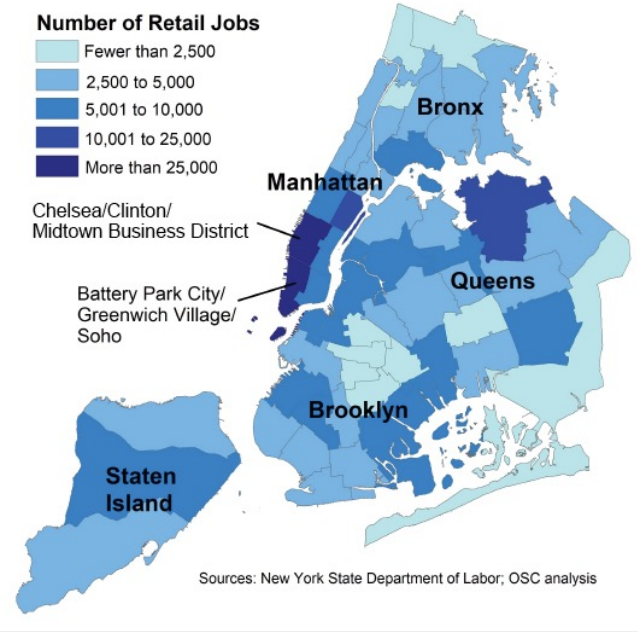
Retail Agglomeration in NYC



- ~30% of all retail employment, was located in Manhattan Business District or Battery Park/Greenwich Village neighborhoods
- Pandemic has intensified trends toward online shopping and away from brick-and-mortar retailers.
- Basic consumer items such as groceries and medical items have received increased demand that is likely to stabilize over time.

Source: https://www.osc.ny.gov/reports/osdc/retail-sector-new-york-city-recent-trends-and-impact-covid-19

Review – Urban economics concepts

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Review – Urban economics concepts

Transportation costs

What sort of businesses locate within cities?

What sort of businesses locate outside of cities?

Transportation costs and Coca-Cola bottling

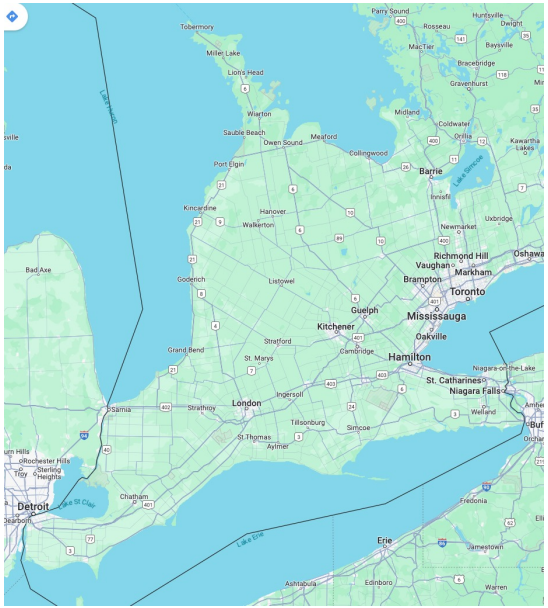

Figure: Part of Ontario

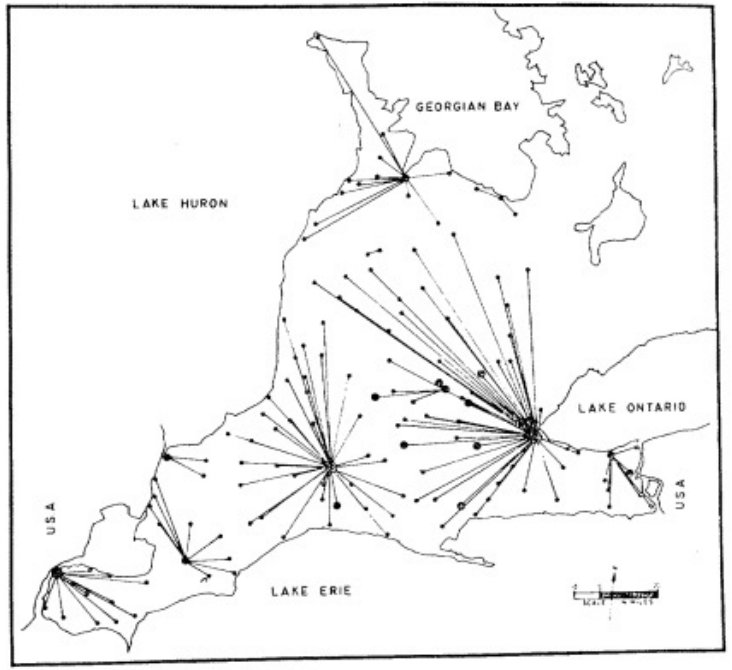

Figure: Optimal plant locations in 1961

Source: Osleeb & Cromley (1978) https://www.jstor.org/stable/142780

Transportation costs and Coca-Cola bottling

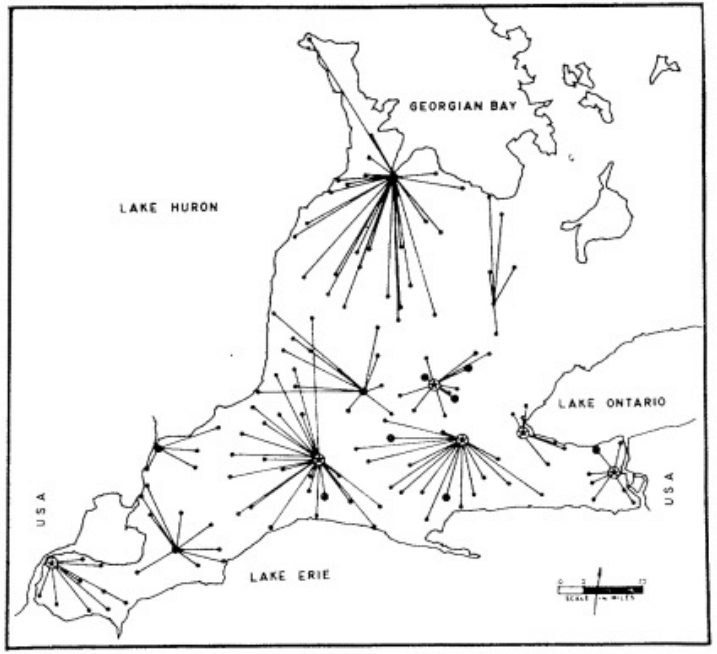

Figure: **Actual** plant locations in 1961

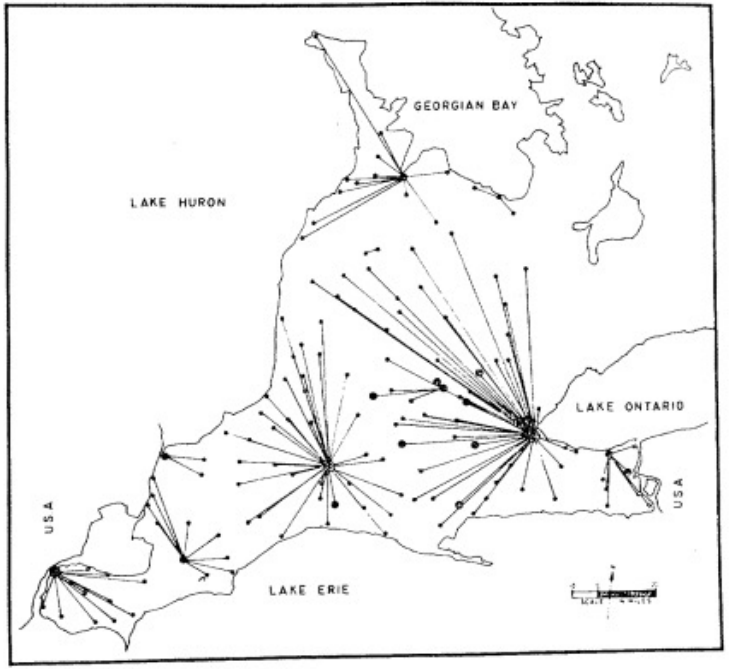

Figure: **Optimal** plant locations in 1961

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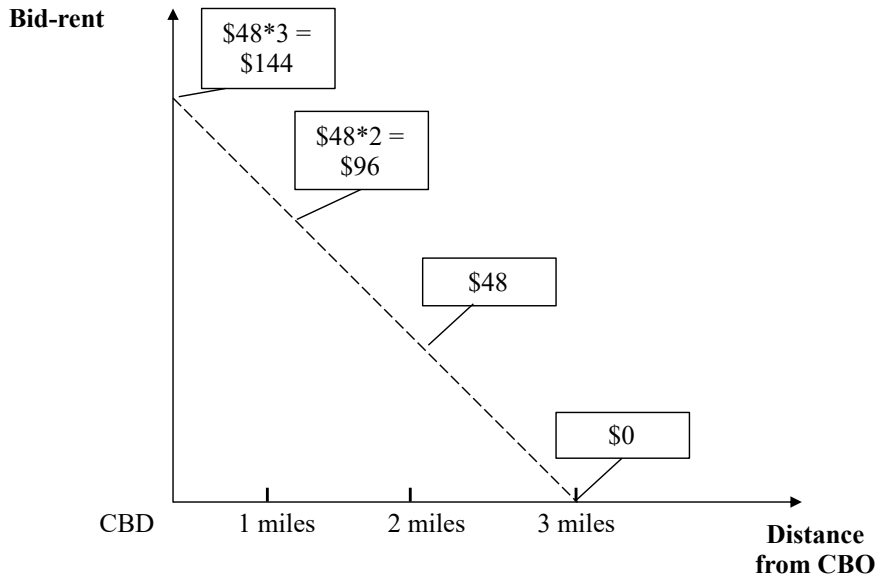


Review – Urban economics concepts

Bid rent model

What are two or three ways in which we can relax the base bid-rent model?

Flattening bid-rent curves

Journal of Financial Economics 146 (2022) 594–636

Contents lists available at ScienceDirect

Journal of Financial Economics

journal homepage: www.elsevier.com/locate/jfec

Flattening the curve: Pandemic-Induced revaluation of urban real estate

Arpit Gupta[a], Vrinda Mittal[b], Jonas Peeters[c], Stijn Van Nieuwerburgh[b,1,*]

[a] Stern School of Business, New York University, 44 W. 4th Street, New York, NY 10012, United Kingdom
[b] Columbia Business School, 3022 Broadway, Uris Hall, New York, NY 10027 United Kingdom
[c] Wharton School, University of Pennsylvania, 3733 Spruce Street, Philadelphia, PA 19104 United Kingdom

Abstract

We show that the COVID-19 pandemic brought house price and rent declines in city centers, and price and rent increases away from the center, thereby flattening the bid-rent curve in most U.S. metropolitan areas. Across MSAs, the flattening of the **bid-rent curve is larger when working from home is more prevalent**, housing markets are more regulated, and supply is less elastic. Housing markets predict an urban revival with urban rent growth exceeding suburban rent growth for the foreseeable future, as working from home recedes

Source: Gupta et al (2022), https://www.sciencedirect.com/science/article/pii/S0304405X21004694

Flattening bid-rent curves

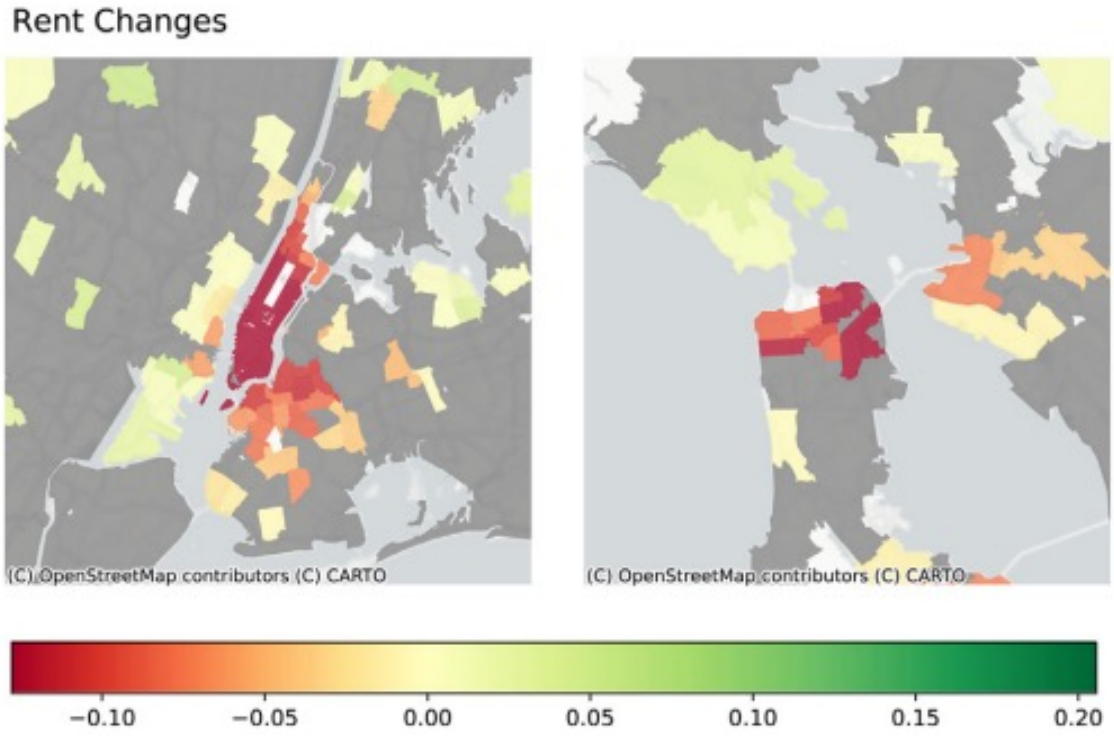
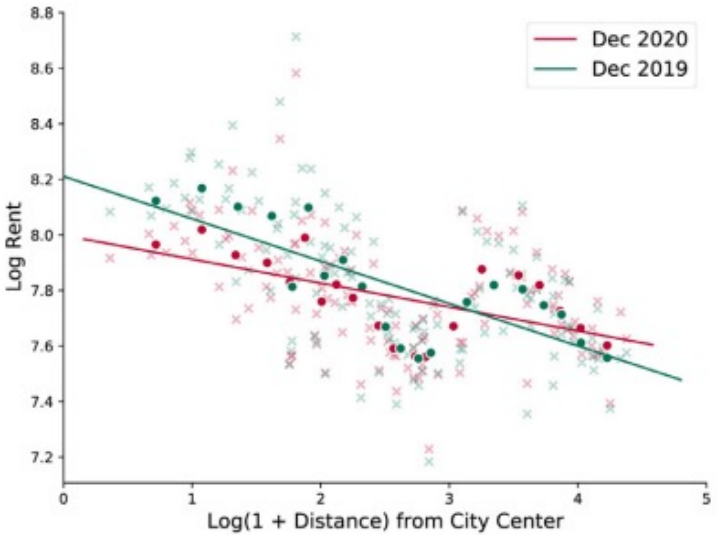


Fig. 2. Price and Rent Growth, NYC and SF This map shows year-over-year changes in prices (top four panels) and rents (bottom two panels) for the New York and San Francisco MSAs at the ZIP code level over the period December 2019–December 2020. The bottom two rows zoom in on the city center. Darker green colors indicate larger increases, while darker red colors indicate larger decreases. (For interpretation of the references to colour in this figure legend, the reader is referred to the web version of this article.)

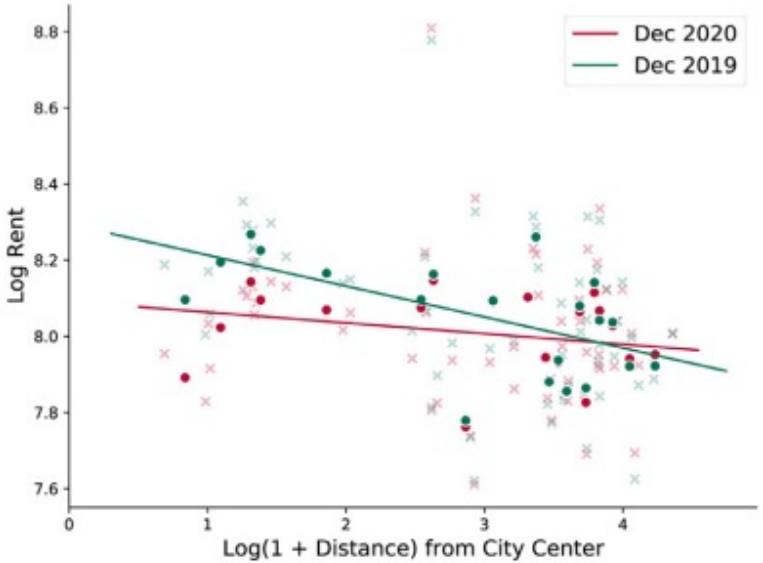
Source: Gupta et al (2022), https://www.sciencedirect.com/science/article/pii/S0304405X21004694

Flattening bid-rent curves

Panel A: New York — Rent



Panel C: San Francisco — Rent



Source: Gupta et al (2022), https://www.sciencedirect.com/science/article/pii/S0304405X21004694

Not Review – Urban economics concepts

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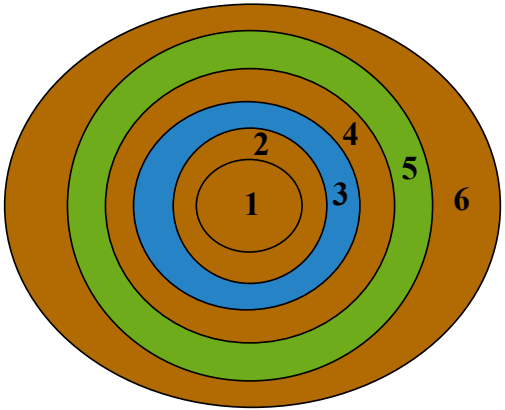
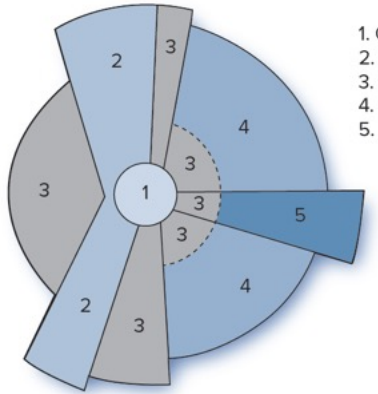
Historical patterns of urban form

Burgess, Concentric Circle Model, 1923



1. Industrial and downtown
2. Warehouse
3. Transition
4. Blue collar
5. White collar clerical
6. Executive

Hoyt – Sector model, 1939



1. CBD
2. Wholesale and light manufacturing
3. Lower-class residence
4. Middle-class residence
5. Upper-class residence

Changing urban form

- Harris and Ullman (1945) observed multinuclei pattern,
  CBD no longer single center of activity

- Technological change has been driver for changing cities since 1920s:
  - U.S. Automotive revolution and expansion of highways
  - Production revolution with birth of assembly line, growth of robotics and automation
  - Decentralization caused by telephone, Internet and smart phones
  - Advances in offices and retailing

- COVID-19 experience and increasing remote-work may continue to push decentralization

Urban form – Takeaways for rest of class

1. Location of a property relative to the rest of the urban property mix matters for value.

2. The value of a location depends on the type of use being considered.
   - As an example, a weak location for a retail store may be a strong location for a warehouse

3. Cities do not grow evenly; some areas of activity may grow faster than others.

4. Urban patterns and transportation networks respond to technological changes and market changes, but this process can be very slow and take many years.

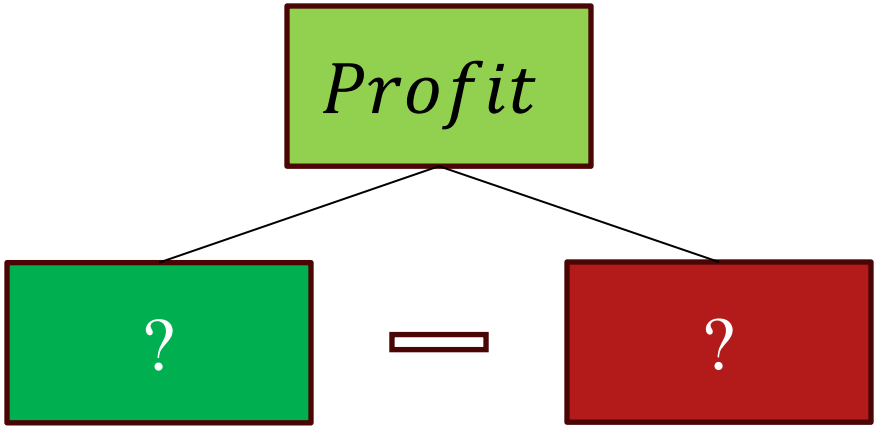
Numerical questions and assessment

- Numerical questions will make up the vast majority of assessment in this course
  - Need to keep practicing, both lecture slide math and through homeworks

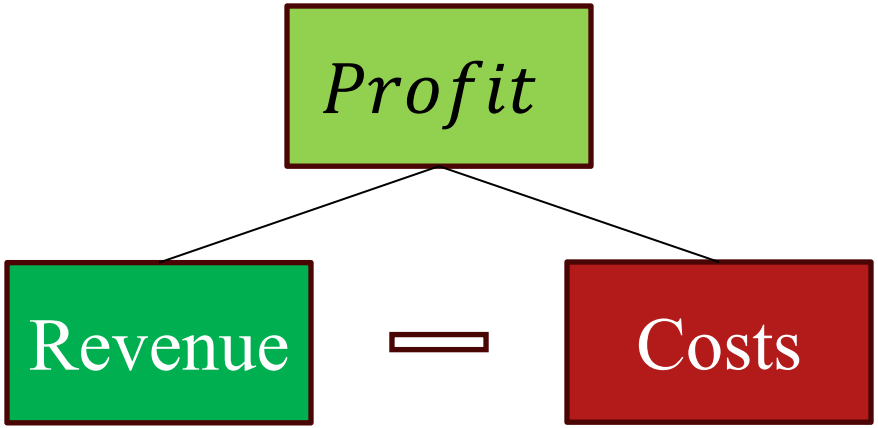
- Before exams I will provide a list of practice problems from the textbooks (L&A, B&F) and maybe one or two exercises related to the optional textbook

- For slightly more complicated calculations I will generally provide formulas, but you will not always get a formula for a typical profitability problem

Review – Firm profits



Review – Firm profits



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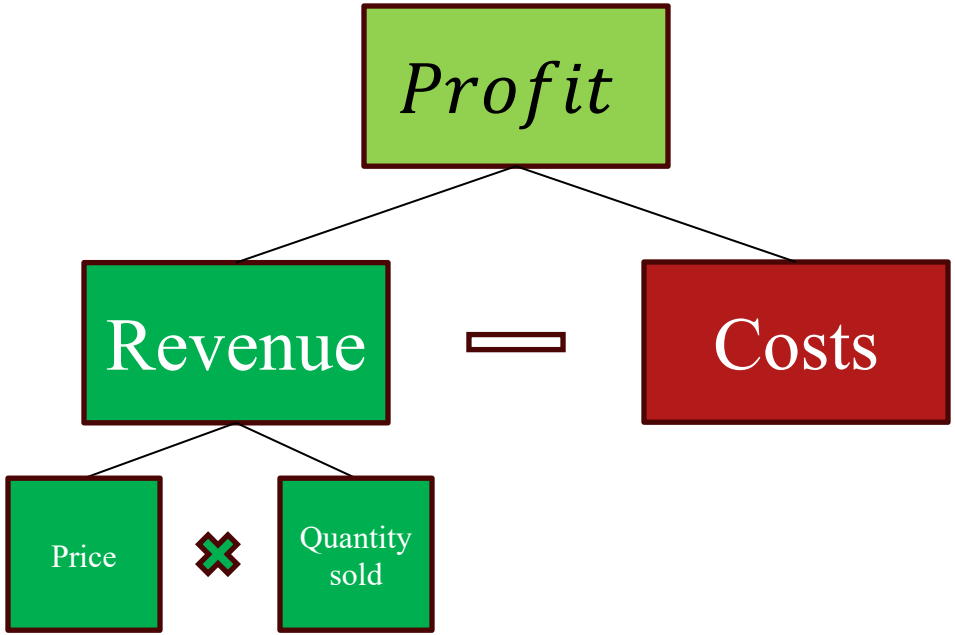

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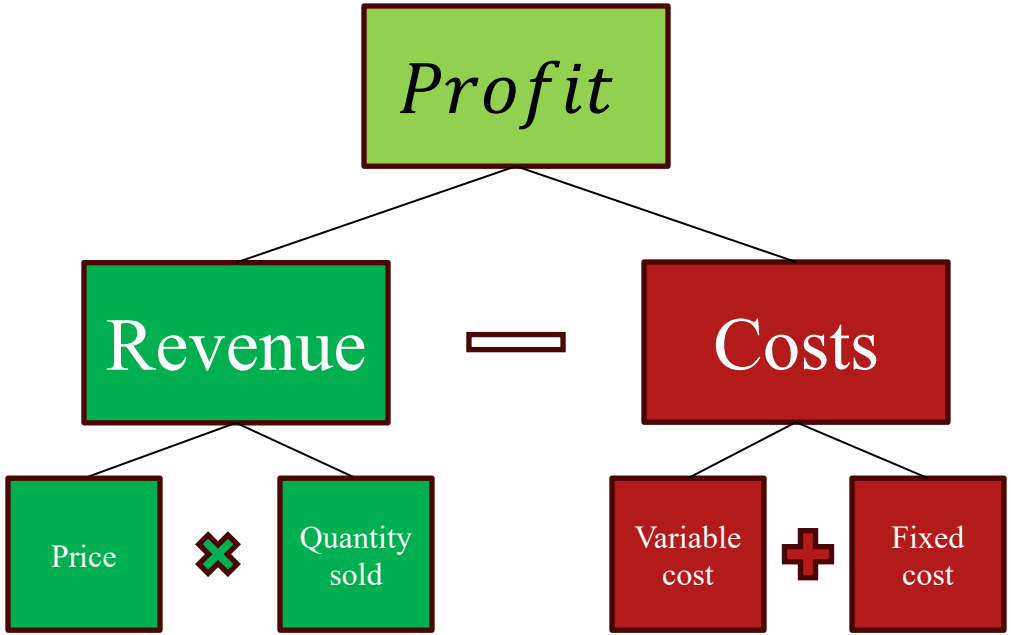

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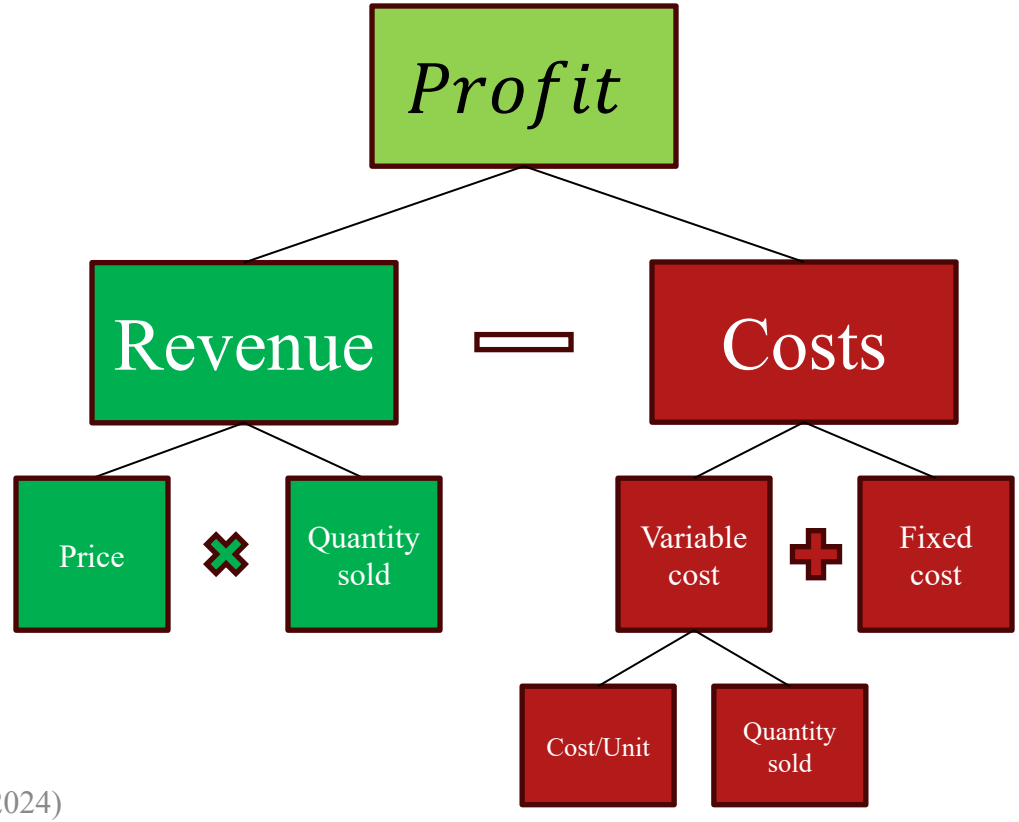

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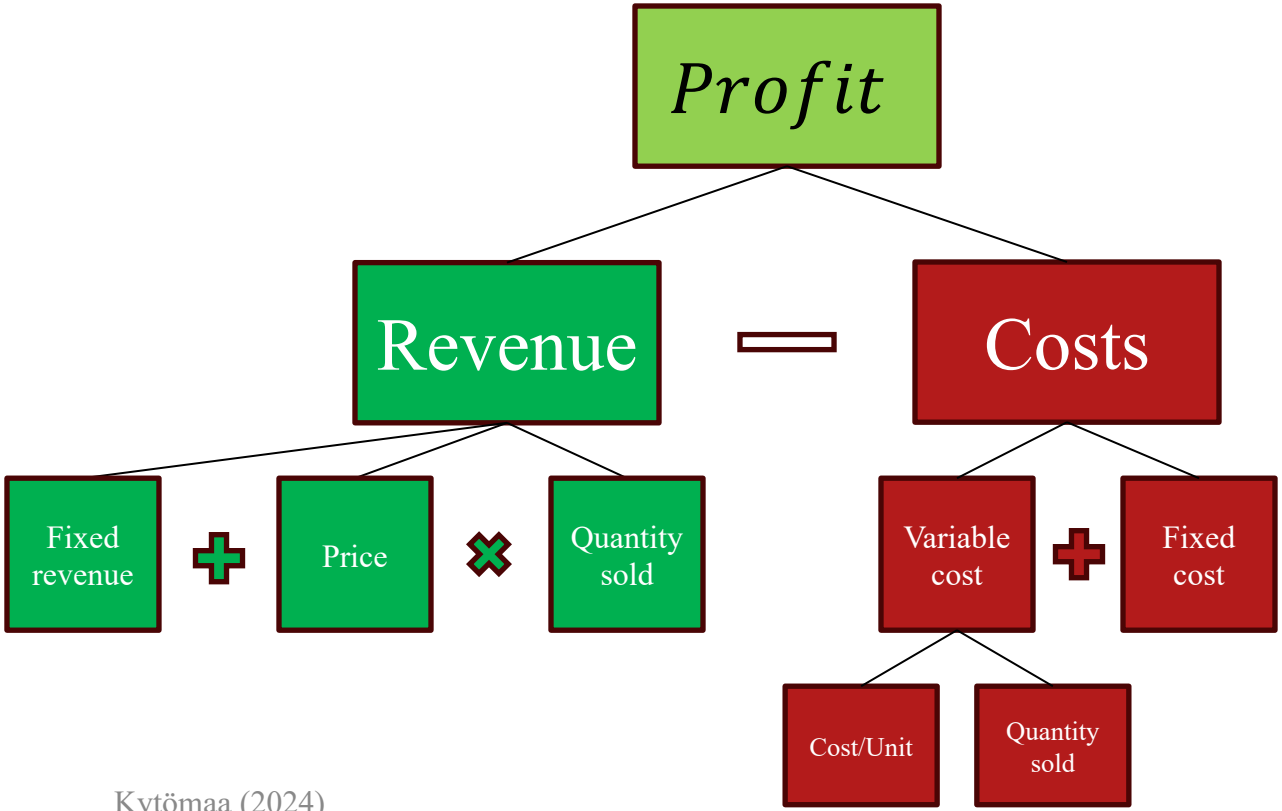
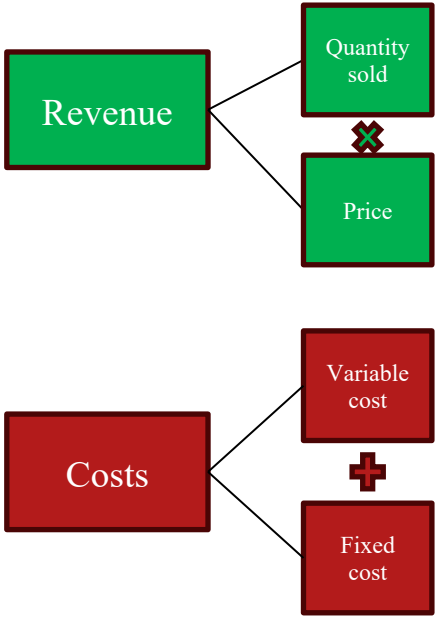


Review – Firm profits

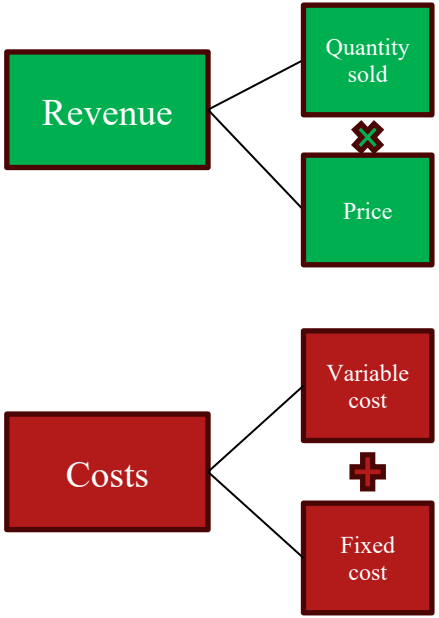
MONTHLY RENT?

Review – Back to the factory problem



(a) Factories	(b) Worker/ factory	(c) Output/ Worker	(d) Factory cost	(e) Car price	(a)x(b)x(c) Total output
1	100	100 cars	$100m	$15k	10,000 cars
100	1	15 cars	$1.1m		1,500 cars

Review – Back to retail agglomeration problem

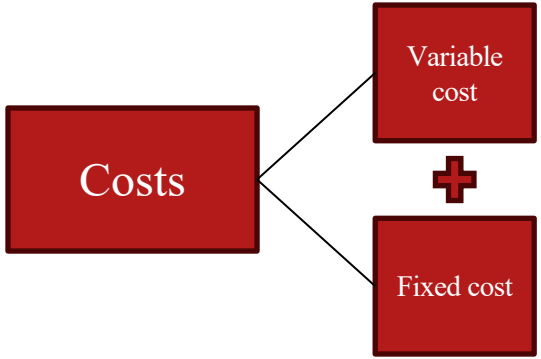


	Profit in isolation	Required sq ft
Clothing	$80,000	6,000
Toy	$7,000	500
Shoe	$5,000	250

Assume:

$$Developer\ profit = (Gross\ profit\ of\ stores) - \left(\frac{Price}{Sq\ ft}\right) \times (Sq\ ft)$$

Review – Back to transportation costs problem



Cost factor	Price
Cost of shipping raw good	$12 / mile
Cost of shipping final good	$10 / mile
Terminal cost	$1,000

$$Total\ transport\ cost = \left(Miles \times \frac{Cost}{mile}\right) + Terminal\ cost$$

Summing Up

After this lecture (and HW1), you should have:

1. a good sense of how economic forces shape urban settings.

2. an understanding for the bid-rent model and how it can represent rental pricing in a city.

3. An idea of how technology has impacted urban form.