Econ 330: Urban Economics

Lecture 12

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Lecture XIV: Housing Policy

Schedule

Today

1) **Introduction**

2) **Two Models**

3) **Cross-City Variation**

4) **Two Policies**

Upcoming

- **HW3**
- **Reading** (Chapter 9)

Homeownership

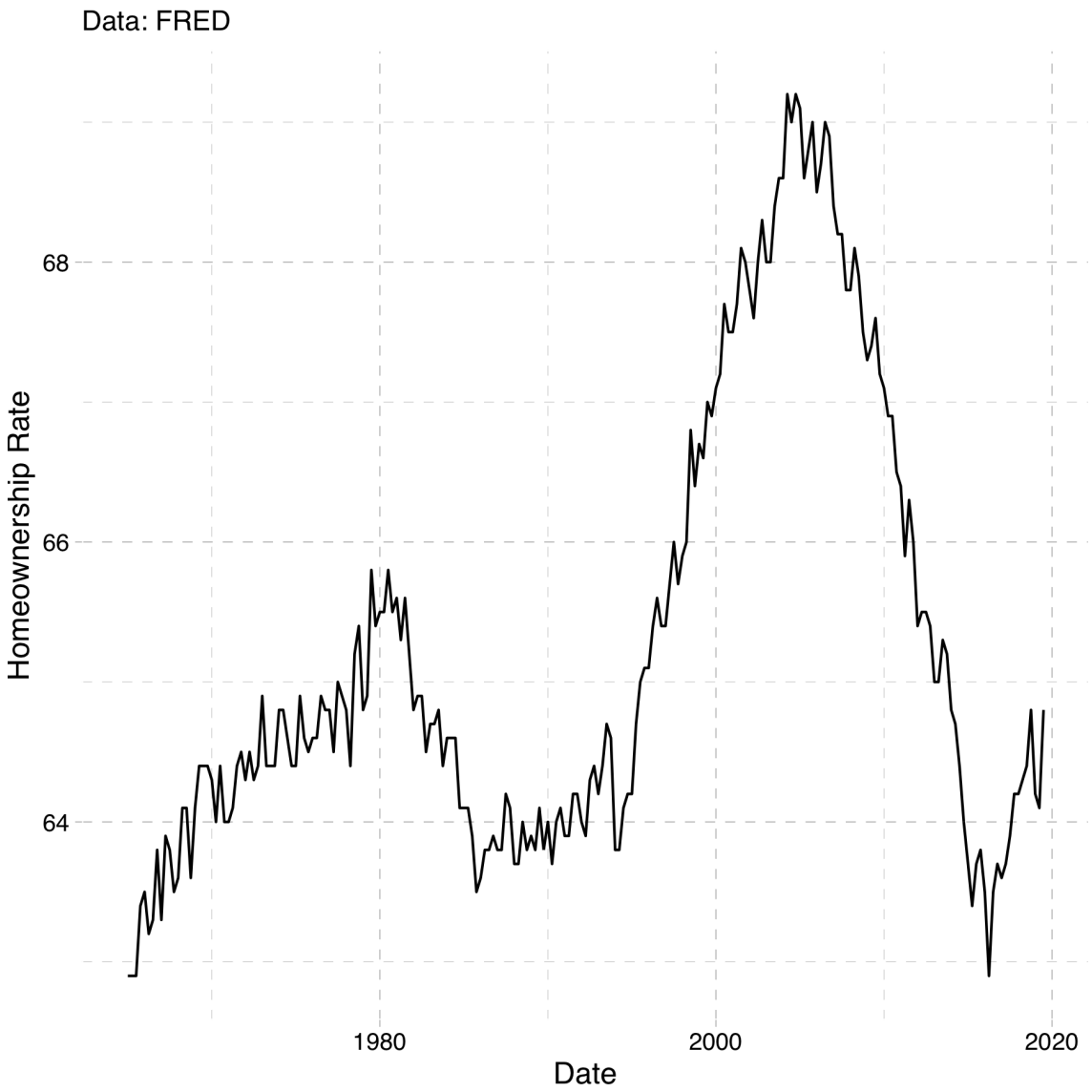
Why is buying a home different than buying a pair of jeans? (other than the difference in price)

A house is a store of value. This value is subject to uncertainty. (This is what I mean by asset)

- Fundamentally, purchasing a home is a dynamic (forward-looking) decision
- Jeans (a pure consumption good) is not really a store of value

We will focus on renters. But first let's take a look at some data

Rentals vs Homeowners



Checklist

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Rental Market Model

Just like labor markets, each city has its own market for rental units

- Consists of suppliers (absentee landlords)
- Individuals making optimal housing demand decisions

Important: Structure of the market has big implications for policy

Competitive Model

Very similar to the competitive labor market model

1) No individual landlord can influence the price of rents

2) Landlords decide how much housing to provide

3) The amount of housing they provide will again come from profit maximization

Important: Labor market model: firm was deciding how much labor to hire. Now we will model the landlord as picking a quantity of housing to provide

Competitive Model Math

Profit function given by:

$$\pi(Q) = P * Q - TC(Q)$$

- **Note**: Now cost is a function of quantity
  - Implicitly we are assuming that at any quantity, the firm will use the optimal level of labor and capital

Marginal profit equals zero, $\frac{\Delta\pi(Q)}{\Delta Q} = 0$:

$$\frac{P * \Delta Q}{\Delta Q} - \frac{\Delta TC(Q)}{\Delta Q} = 0$$

$$P = \frac{\Delta TC(Q)}{\Delta Q}$$

$$P = MC(Q)$$

The Monopoly Model

Now let's consider the monopoly situation:

1) One seller of the good (rental units)

2) Ability to set prices

3) Still profit maximizing

Monopoly: Math

Again, the monopolist will still be a profit-maximizer

- TR is now given by: $TR = P(Q) * Q$
  - Quantity that the monopolist produces impacts the price
  - $P(Q)$ *is* the inverse demand function (what you are used to seeing for demand)

Profit is given by

$$\pi(Q) = P(Q) * Q - TC(Q)$$

Monopoly: Profit Maxing

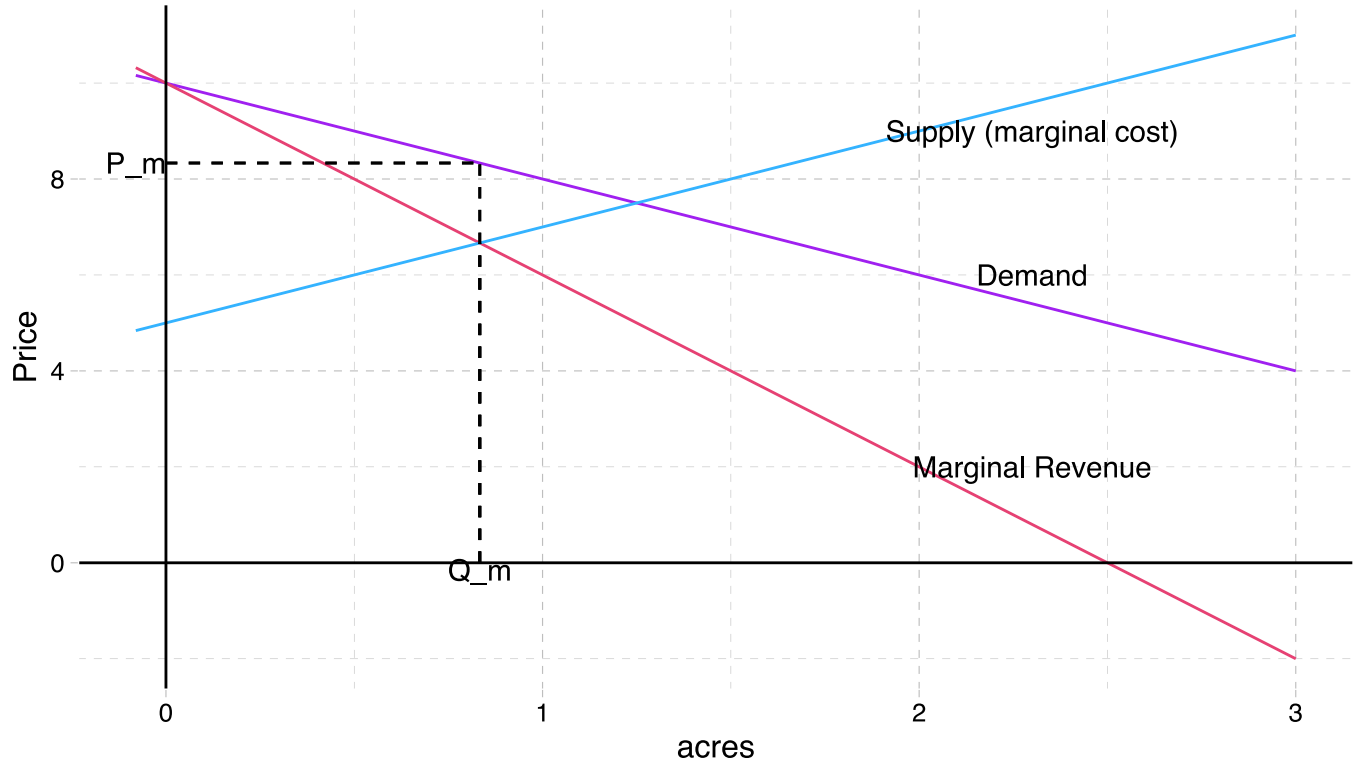
Profit Maximization gives us the familiar $\frac{\Delta \pi(Q)}{\Delta Q} = 0$

$$\frac{\Delta P(Q) * Q}{\Delta Q} - \frac{\Delta TC(Q)}{\Delta Q} = 0$$

$$MR(Q) = MC(Q)$$

Note: Now, $\frac{\Delta P(Q) * Q}{\Delta Q} \neq P$.

Monopoly Graph



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Rents Across Cities

Key Question:

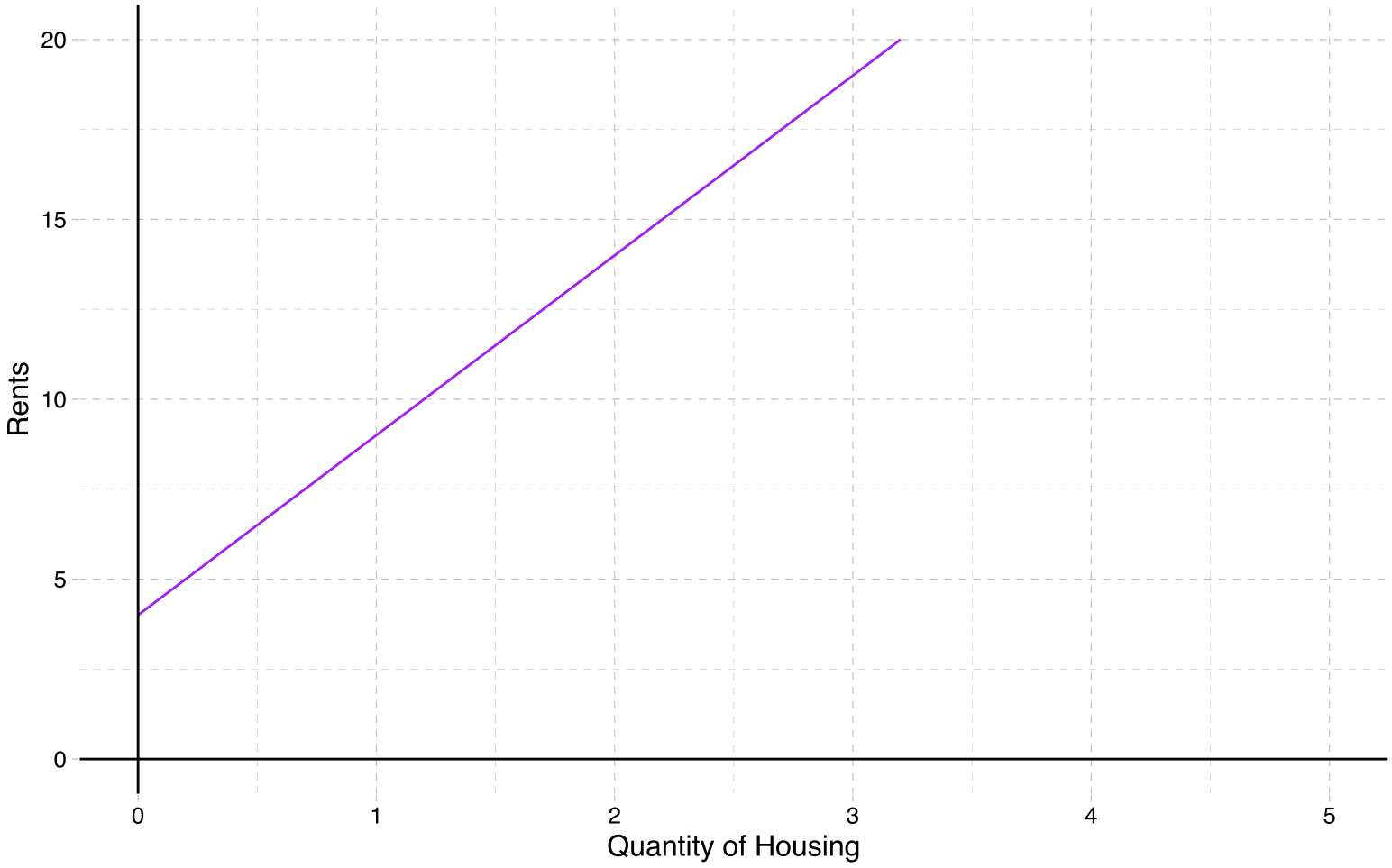
- What causes rental curves to vary across cities? (both in intercept and slope)

In general, supply curves across cities are impacted by: local construction costs, land available for development, and land-use regulations

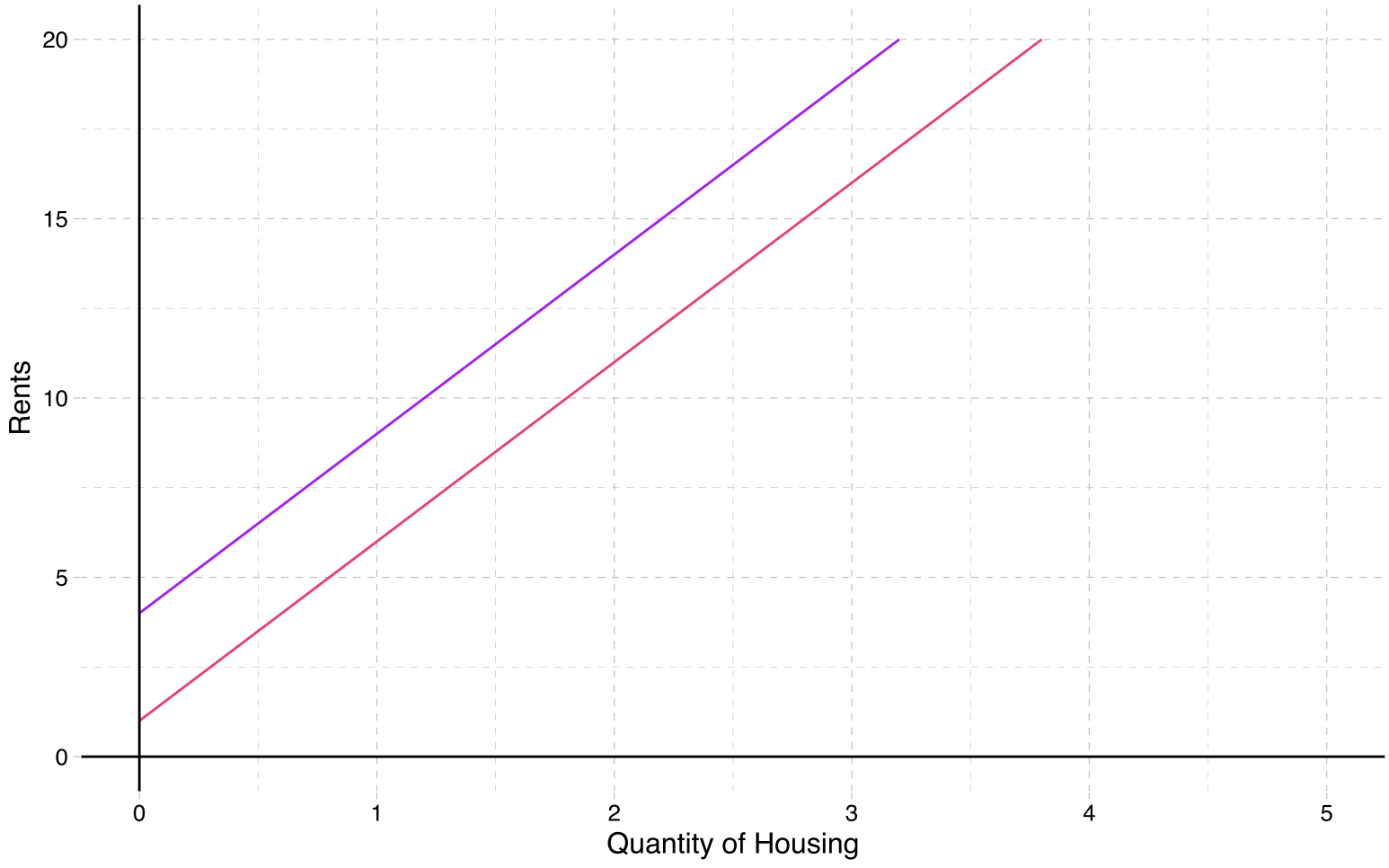
- **Local construction costs**: shifts intercept (labor is more expensive for all firms in one area vs another)
- **Land available for development** and **land use regulations**: slope (changes **marginal cost**) of developing land. Why?

A: Less land available to develop $\rightarrow$ **oppurtunity cost of developing increases** for each next plot of land. Prices get bid up faster. Similar intuition with land-use regulations

Urban Housing Supply Curves

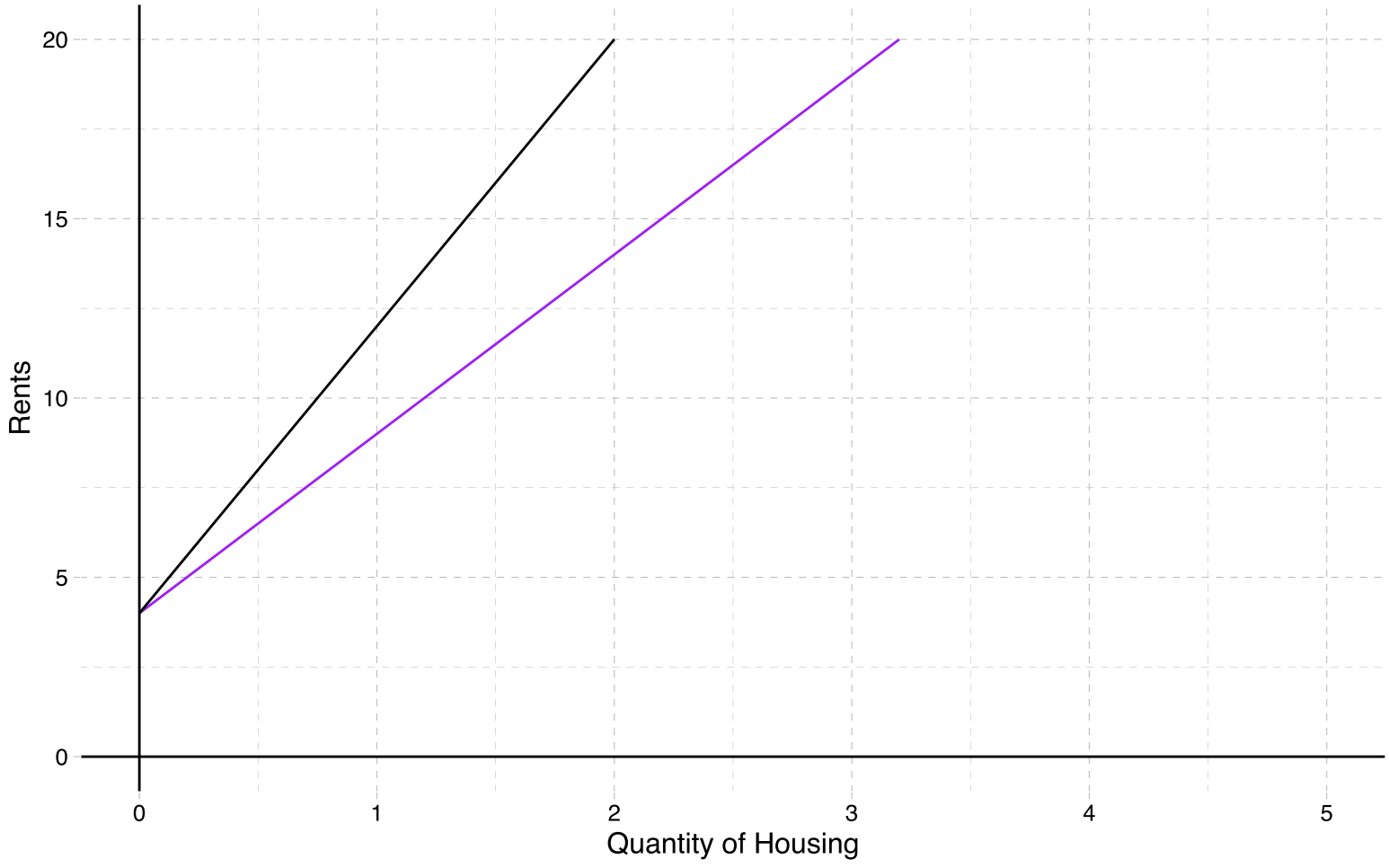


Urban Housing Supply Curves



- **pink**: lower construction cost (lower intercept)

Urban Housing Supply Curves



- **black**: higher land use regs or less available land for development

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Two Policies

- We will focus on two policies:

1) Rent Control

2) Land-Use Restrictions (you are familiar with these already)

- We will also look at how these could interact

Rent Control

Defn Rent Control: A *price ceiling* set on rental units

- Price Ceiling: Max allowed price on the market

Brief History (US):

- Started around WW1. Expanded during WWII
- 1970: Nixon puts 90-day freeze on prices to combat inflation
- *Mostly* a **place based policy**.
    - SF, NY, LA, Oakland, DC, Berkeley, West Hollywood
    - Oregon: first state to have .pink[state-wide rent control]

Rent Control

Rent Control in Oregon

- In 2019: Oregon passes **state-wide** rent control
- Limits annual rent increases to inflation + 7% (inflation is usually 2-3%)
- If tenants leave on their own accord, landlords can increase rent without limit

Question: Are the ramifications from state-wide rent-control different than local rent control? Why?

Land Use Restrictions

Land use restrictions limit what one can do with developable land.
Examples:

1. Density Restrictions
2. Min Lot Sizes
3. Park Requirements
4. Sidewalk and street size requirements
5. Height Restrictions

Not all of these are bad things. But they do make developing land more expensive.

Wharton Index

Table 5: WRLURI2018 Values for CBSAs with Ten or More Observations

CBSA Name	WRLURI	# Obs	CBSA Name	WRLURI	# Obs
1. San Francisco-Oakland-Hayward, CA	1.18	18	23. Dallas-Fort Worth-Arlington, TX	0.17	49
2. New York-Newark-Jersey City, NY-NJ-PA	1.04	57	24. Hartford-West Hartford-East Hartford, CT	0.14	14
3. Providence-Warwick, RI-MA	0.93	14	25. Portland-South Portland, ME	0.13	16
4. Seattle-Tacoma-Bellevue, WA	0.73	22	26. Kansas City, MO-KS	0.13	17
5. Los Angeles-Long Beach-Anaheim, CA	0.73	48	27. San Antonio-New Braunfels, TX	0.10	10
6. Riverside-San Bernardino-Ontario, CA	0.68	18	28. Buffalo-Cheektowaga-Niagara Falls, NY	0.05	12
7. Washington-Arlington-Alexandria, DC-VA-MD-WV	0.66	16	29. Harrisburg-Carlisle, PA	0.01	15
8. Miami-Fort Lauderdale-West Palm Beach, FL	0.66	35	30. Lancaster, PA	-0.01	14
9. Phoenix-Mesa-Scottsdale, AZ	0.64	11	31. Columbus, OH	-0.01	17
10. Portland-Vancouver-Hillsboro, OR-WA	0.60	18	32. Houston-The Woodlands-Sugar Land, TX	-0.04	16
11. Madison, WI	0.60	13	33. Pittsburgh, PA	-0.06	56
12. Philadelphia-Camden-Wilmington, PA-NJ-DE-MD	0.48	49	34. Minneapolis-St. Paul-Bloomington, MN-WI	-0.10	48
13. Albany-Schenectady-Troy, NY	0.47	10	35. Chicago-Naperville-Elgin, IL-IN-WI	-0.10	94
14. Denver-Aurora-Lakewood, CO	0.41	16	36. Atlanta-Sandy Springs-Roswell, GA	-0.12	27
15. Youngstown-Warren-Boardman, OH-PA	0.32	10	37. Worcester, MA-CT	-0.23	16
16. Boston-Cambridge-Newton, MA-NH	0.30	44	38. Cleveland-Elyria, OH	-0.28	19
17. Indianapolis-Carmel-Anderson, IN	0.30	14	39. Grand Rapids-Wyoming, MI	-0.31	24
18. Scranton--Wilkes-Barre--Hazleton, PA	0.30	10	40. Rochester, NY	-0.38	26
19. Syracuse, NY	0.25	11	41. Charlotte-Concord-Gastonia, NC-SC	-0.38	12
20. Milwaukee-Waukesha-West Allis, WI	0.24	22	42. Cincinnati, OH-KY-IN	-0.38	26
21. Allentown-Bethlehem-Easton, PA-NJ	0.22	14	43. Detroit-Warren-Dearborn, MI	-0.42	60
22. Nashville-Davidson--Murfreesboro--Franklin, TN	0.17	12	44. St. Louis, MO-IL	-0.51	37

Note: There are 1,107 communities within these 44 CBSAs.

Higher values of the Wharton index $\Longrightarrow$ tighter land use restrictions

Example

A Model

Do Land-Use regs and rent control interact? Absolutely! Let's model it

$$P(Q_d) = 20 - 2 * Q_d$$
$$P(Q_s) = 8 + Q_s$$

Compute the equilibrium. Graph it, if that is helpful

- Now suppose the government ratchets up land-use regs. New supply is given by:

$$P(Q_s^{new}) = 8 + 2 * Q_s^{new}$$

Example

Old eq: $Q^* = 4$, $P^* = 12$

New eq: $Q^* = 3$, $P^* = 15$

Government comes in and says the rents are too high. Rent control set at 12 per unit. Now you have:

$$12 = 8 + 2 * Q_s \implies Q_s = 2$$
$$12 = 20 - 2 * Q_d \implies Q_d = 4$$

So we have a shortage of two units at the **old** equilibrium price. 😟

A Note

We won't have time (but it might be good practice) for you to think through what would happen if the market was a **monopoly**

- Similar to the **monopsonist**, rent control can actually lower prices in a completely monopolized housing market
- Let's take a (quick) look at some recent empirical evidence

Empirics

Empirical Evidence: Diamond et. al (2019)

- 1979: Rent control in SF put in place for all standing buildings with 5 apartments or more
  - New buildings exempt (to promote developers to continue building)
  - Small multi-family apartment buildings ("mom & pop") exempted
- 1994: Exemption for small multi-family buildings removed. All apartments **built before 1980** subject to rent control

Empirics: Findings

In this study:

- **Treatment**: Those living in small apartment complexes (5 or less) built in 1979 or before
- **Control**: Those living in small apartments complexes (5 or less) built after 1979 (not subject to rent control)

A fair comparison? Maybe concerned that those living in apartments built before or after 1979 are systematically different

- **Main Findings**:

1) Renter mobility was reduced by about 20%

2) Housing Supply was reduced by about 15%

So What?

Moral of the story: Yes, in SF:

- Are rent controls the best fix?
  - In SF, probably not
  - Evidence that land-use regs are voted for by older, whiter homewoners: here

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- Land-Use Regulations
- Rent Control