Economics 1: Introduction to Economics

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Administrivia

February 17, 2016 8-9 AM
Wheeler Auditorium, U.C. Berkeley

Webtools and Other Matters…

- http://www.bradford-delong.com/course-syllabus-econ-1-spring-2016-uc-berkeley.html and https://bcourses.berkeley.edu/courses/1411451/assignments/syllabus
  - Section exercise answer files…
  - Problem Set 2 answers this weekend...
  - No Tuesday sections (unless your GSI thinks your class is behind, and needs it)...
  - Problem Set 3 due Feb 24/25...
  - Paper Assignment: Dasgupta, Slee, Friedman and Friedman, or any two…
    - Details to follow…

Meta-Announcement

- We are moving announcements and administrivia out of lecture time and onto the “announcements” bCourses page…
- That is all…

Where We Are in the Runup to the Midterm…

- We are moving announcements and administrivia out of lecture time and onto the “announcements” bCourses page…
- That is all…

To Your i>Clickers!

- Problem Set 2 was:
  A. Too short and too easy
  B. Too short and too hard
  C. Just right
  D. Too long and too easy
  E. Too long and too hard

Origins and Persistence of Monopolies

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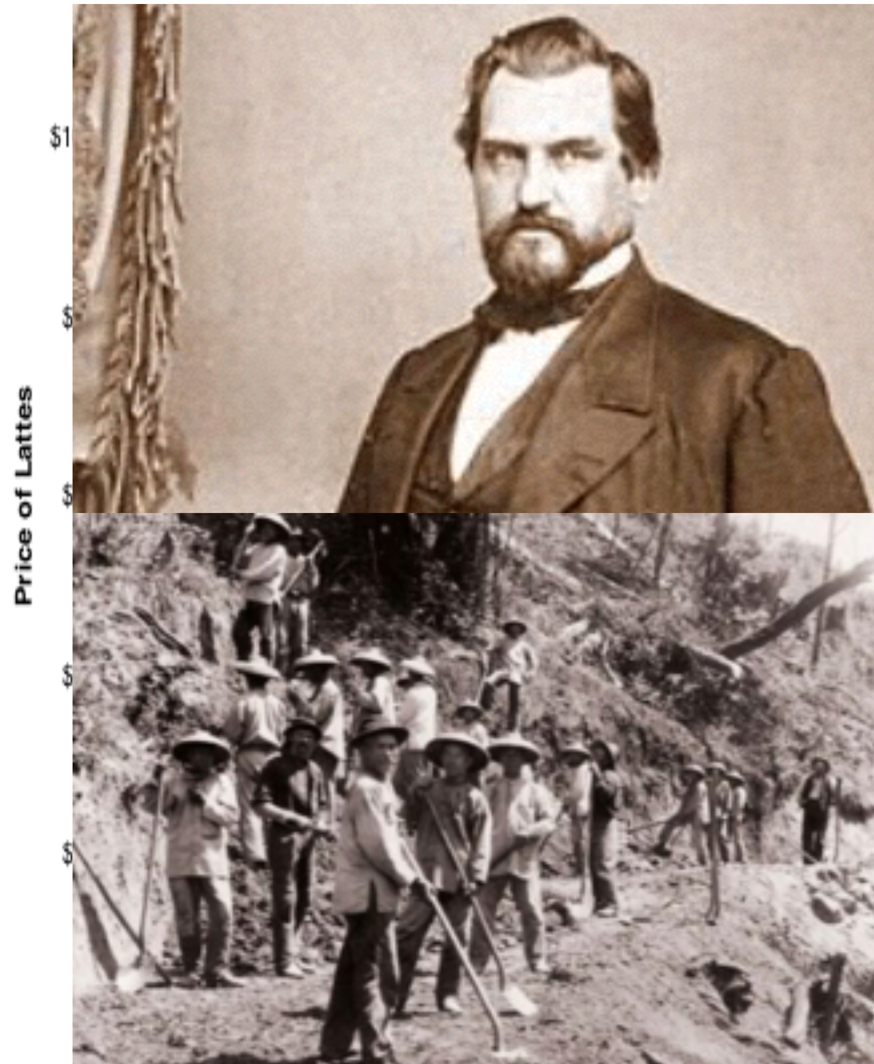
How Is It That Monopolies Arise and Persist?

1. The government establishes them
   - For bad reasons (the rent-seeking society)
   - For good reasons (encourage invention and innovation)
2. They don’t persist—competitors enter and erode them over time
3. Successful strategic game-playing by the monopolist to discourage entry
4. “Natural” monopolies
5. "Network externality" monopolies
   - "21 Jump Street"
   - "The Han Solo Origin Story"



Natural Monopoly

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In the State of Euphoria, in the Metropolis of Esseph

- Cf.: David Lodge, *Small World* and *Trading Places*
- We have the college town of Avicenna in the east, with its public university: Euphoric State (yes, it was funnier in the 1970s)
- We have the college town of Old Stick in the south, with its private university, Crony Capitalism University
- The students of CCU in Old Stick spend their money on two and only two things:
    - Buying drones to fly around the campus and cause trouble
    - High-speed network access services

The Old Stick Network Company

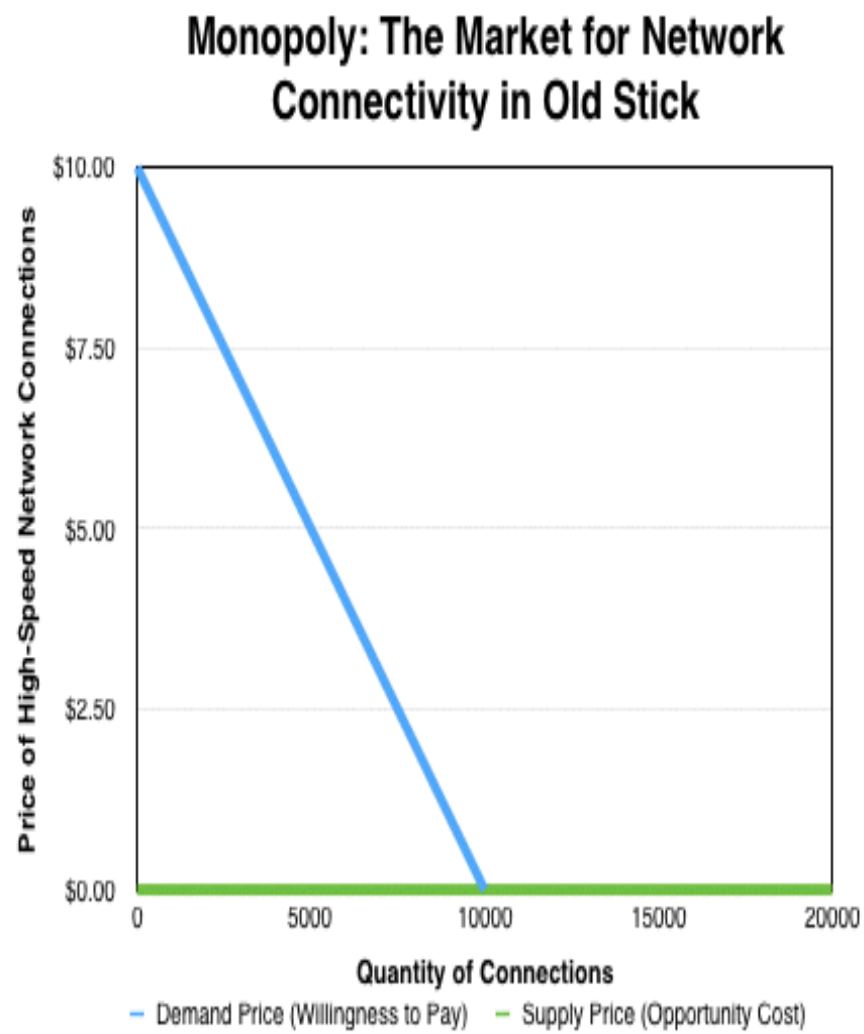
- The students at Crony Capitalism University in Old Stick spend their money on two and only two things:
  - Buying drones to fly around the campus and cause trouble
  - High-speed network access services

Network Services in Old Stick: Demand and Technology

- Demand: P = $10 - 0.001Q

- Technology:
  - You need to spend $20,000,000 to build a network
  - The network lasts for four years—thereafter it is obsolete, and you need to build another one.
  - Once you have built your network, as many people as wish to can connect it and use it for free

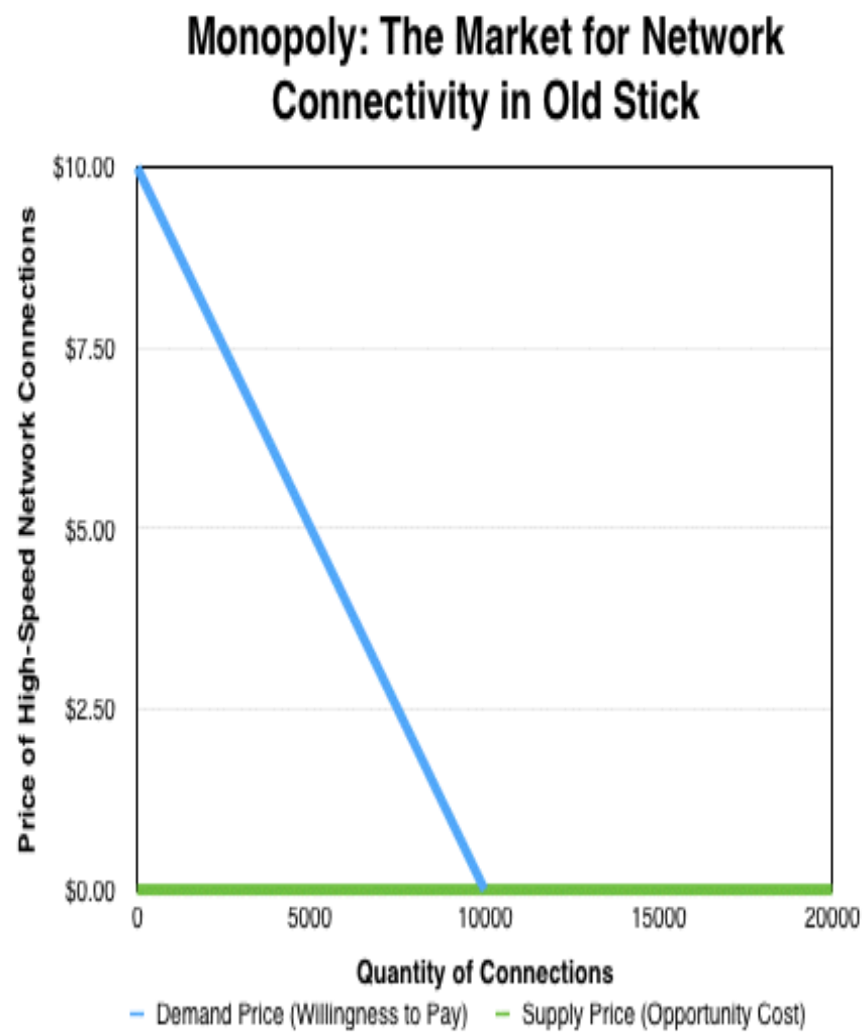
- The graph to the right shows:
  - Demand: P = $10 - 0.001Q
  - Opportunity cost (marginal cost, variable cost): P = 0
  - But there is also a fixed cost of $20,000,000—figure $14,000/day out there…



Can You Make This Business Work?

- Demand: P = \$10 - 0.001Q
- Supply:
    - MC = OC = \$0
    - Fixed costs: \$14,000/day

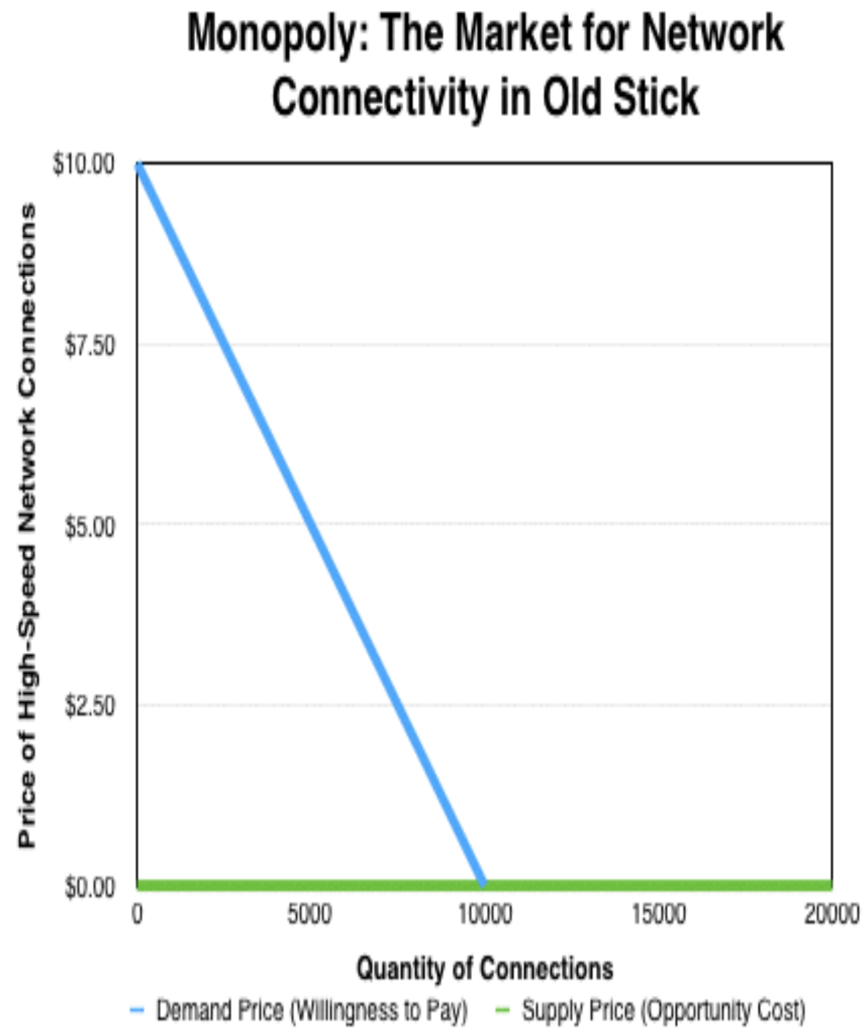
- Suppose that the Old Stick Network Company builds a network
- Suppose that nobody else does
- What happens?



To Your i>Clickers

- Demand: P = \$10 - 0.001Q
- Supply:
  - MC = OC = \$0
  - Fixed costs: \$14,000/day

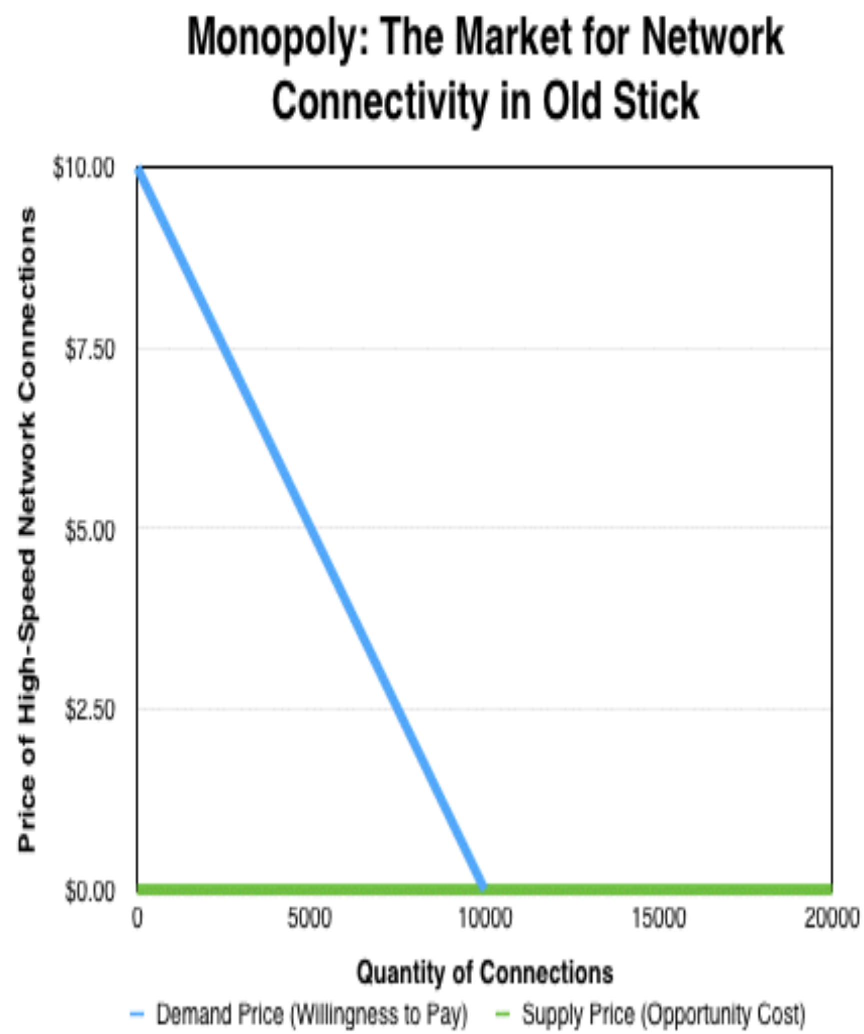
- Ladies and Gentlemen, to your i>Clickers: What is the profit-maximizing monopoly price to charge?
  A. \$10/connection-day
  B. \$0/connection-day
  C. \$7/connection-day
  D. \$5/connection-day
  E. \$14/connection-day



Can You Make This Business Work? II

- Demand: P = $10 - 0.001Q
- Supply:
  - MC = OC = $0
  - Fixed costs: $14,000/day

- $5/connection-day maximizes revenue, and since there are no variable or marginal or opportunity costs, maximizes producer surplus…

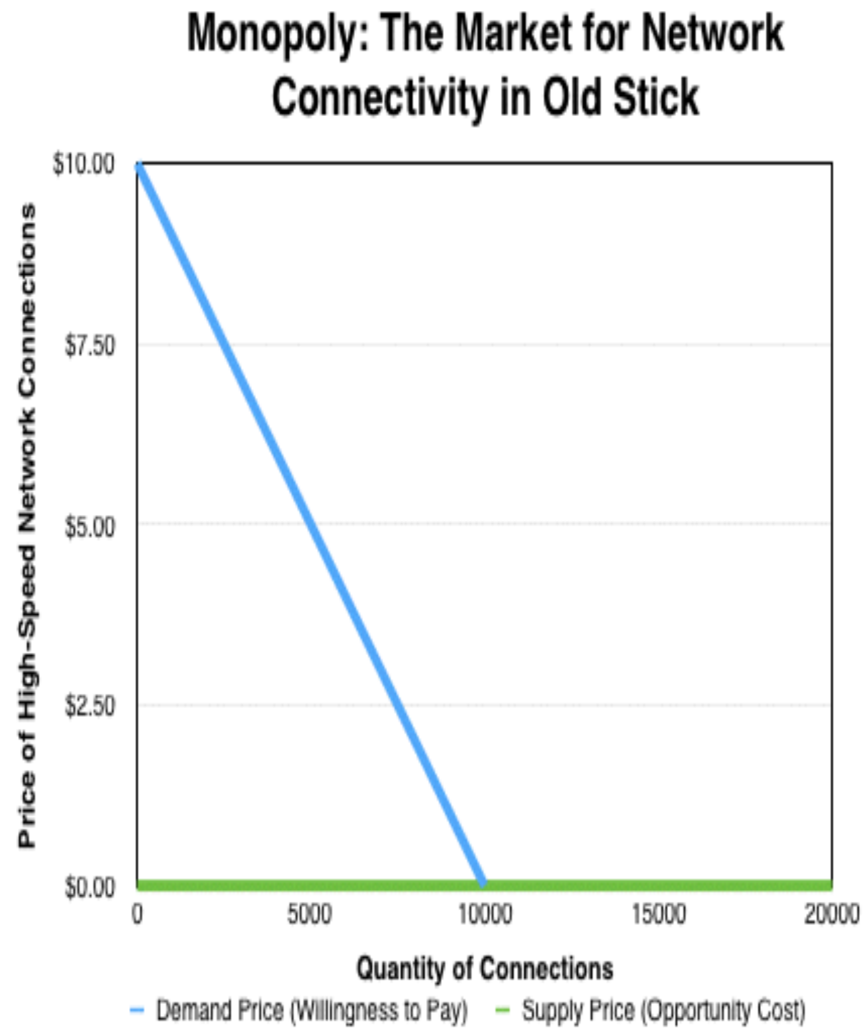


To Your i>Clickers

- Demand: P = \$10 - 0.001Q
- Supply:
    - MC = OC = \$0
    - Fixed costs: \$14,000/day

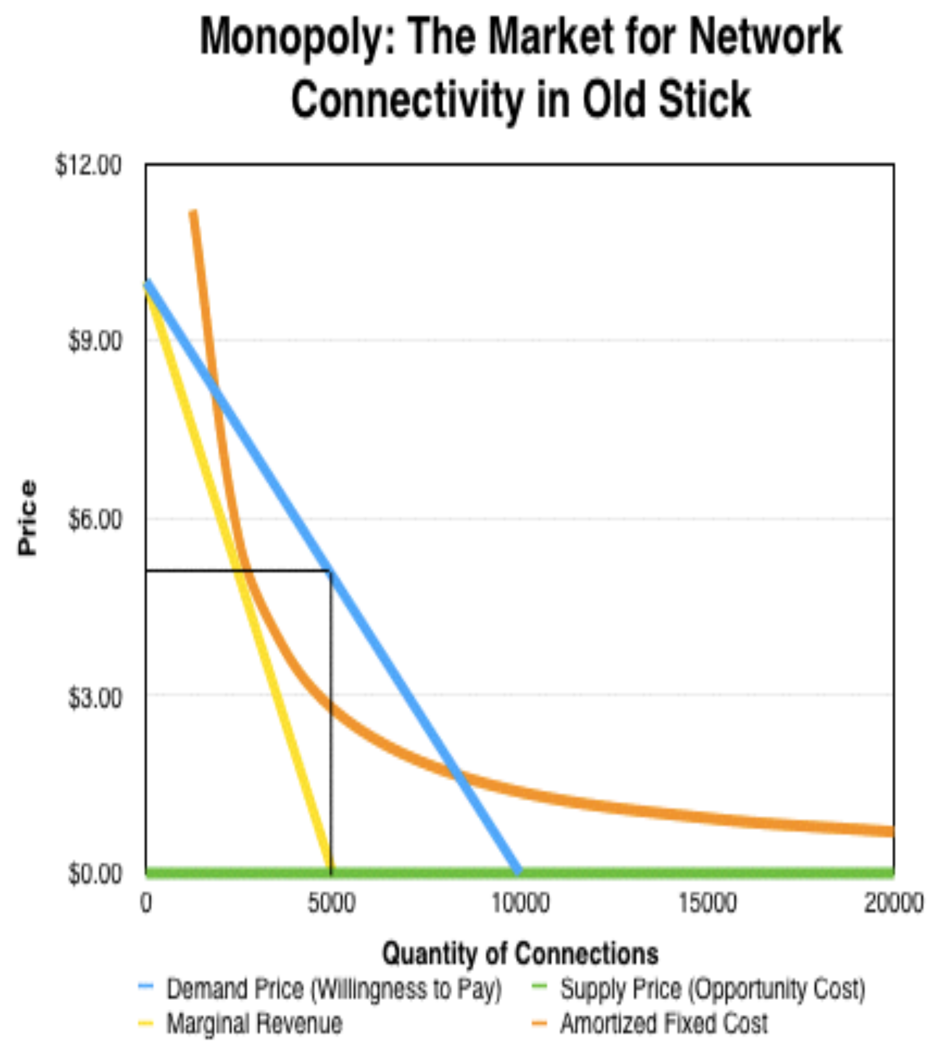
- \$5/connection-day maximizes revenue, and since there are no variable or marginal or opportunity costs, maximizes producer surplus

- Ladies and Gentlemen, to your i>Clickers: How much money does the OSNC make each day during the four-year life of its network?
    A. \$25000/day
    B. \$0/day
    C. \$11000/day
    D. \$50000/day
    E. I do not have enough information to tell



Can You Make This Business Work? III

- Demand: P = \$10 - 0.001Q
- Supply:
  - MC = OC = \$0
  - Fixed costs: \$14,000
  - Fixed costs: \$14,000/Q
- \$5/connection-day maximizes revenue, and profit
- With 5000 connections, your fixed costs are \$2.80/connection-day
- So you make \$2.20/connection-day
  - \$11,000/day
  - \$15M over the life of the network

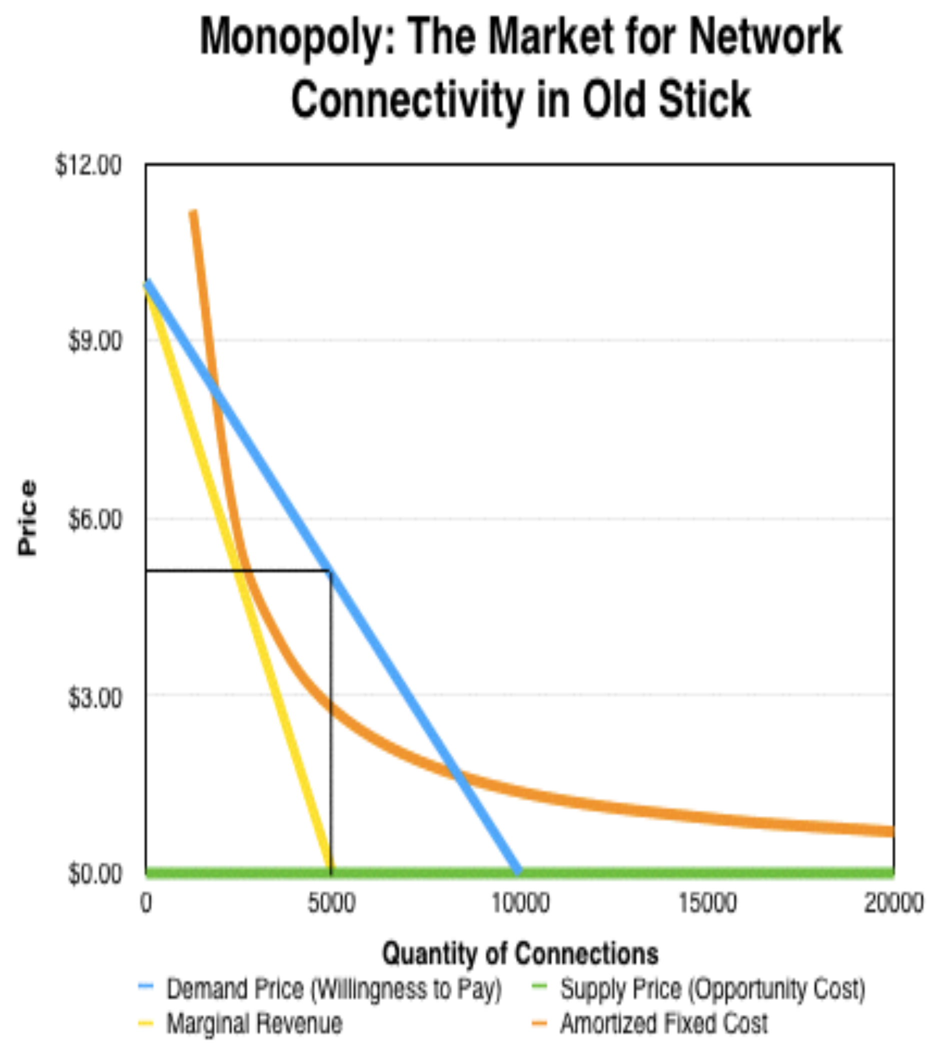


Do You Fear Competition (Much)?

- Demand: P = \$10 - 0.001Q
- Supply:
  - MC = OC = \$0
  - Fixed costs: \$14,000/Q

- Suppose that you have decided to go ahead, and have spent most of your money and are close to finishing and turning on your network…

- But other people could build a network too--you don't have a patent on the idea or the technology of a network



Do You Fear Competition (Much)? II

- Demand: P = \$10 - 0.001Q
- Supply:
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  - Fixed costs: \$14,000/Q

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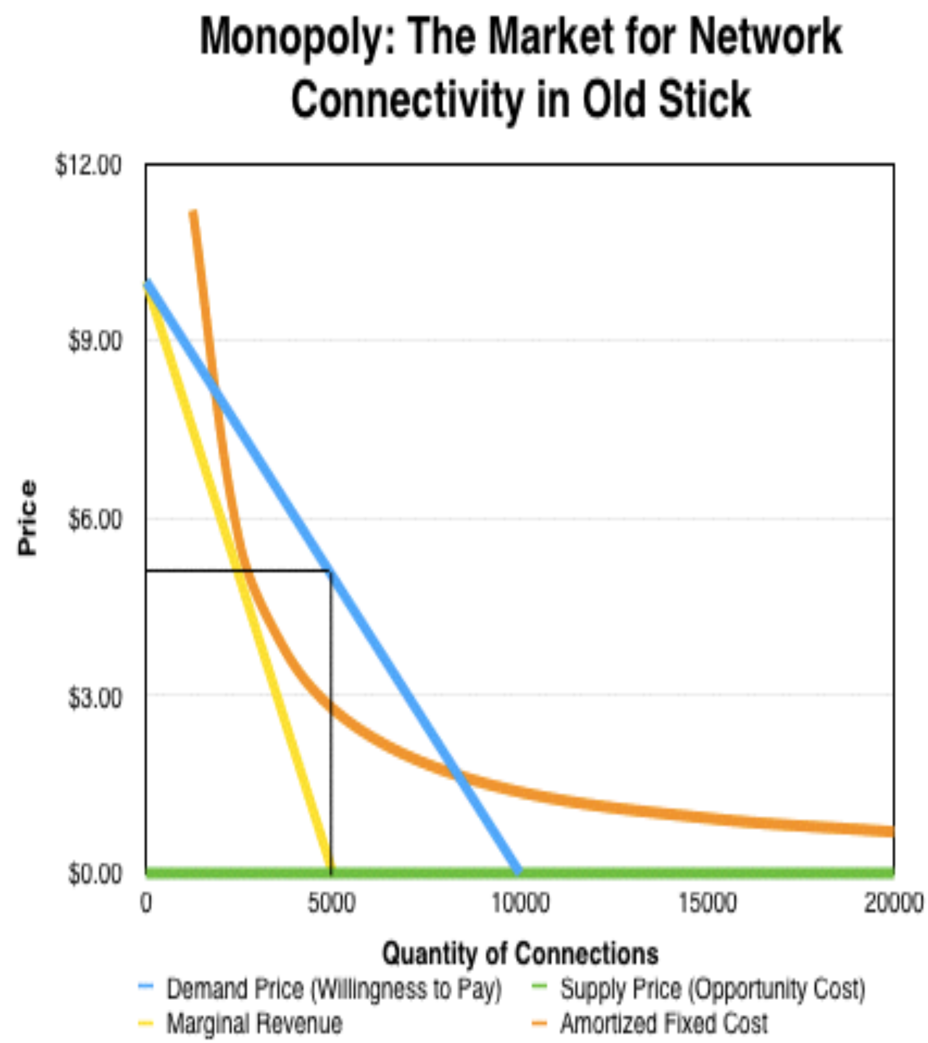
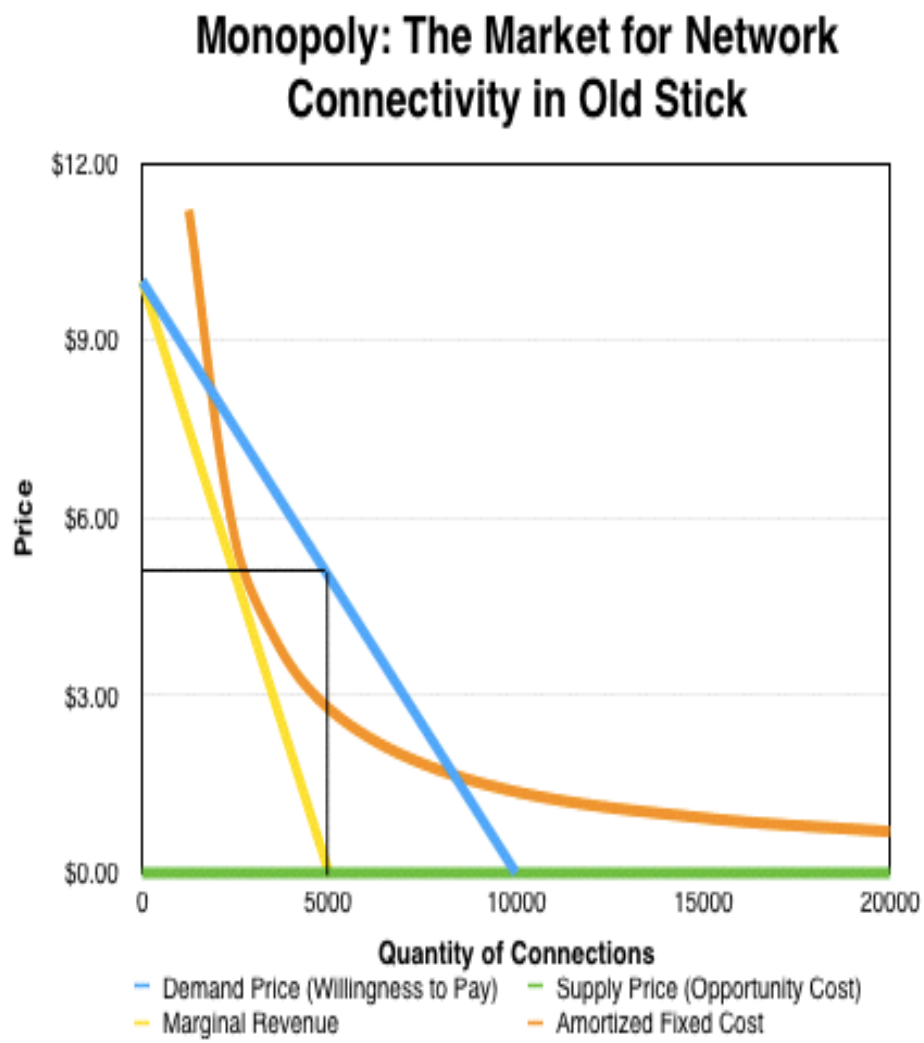


To Your i>Clickers

- Demand: P = $10 - 0.001Q
- Supply:
  - MC = OC = $0
  - Fixed costs: $14,000/Q

- Suppose that you have decided to go ahead, and have spent most of your money and are close to finishing and turning on your network…

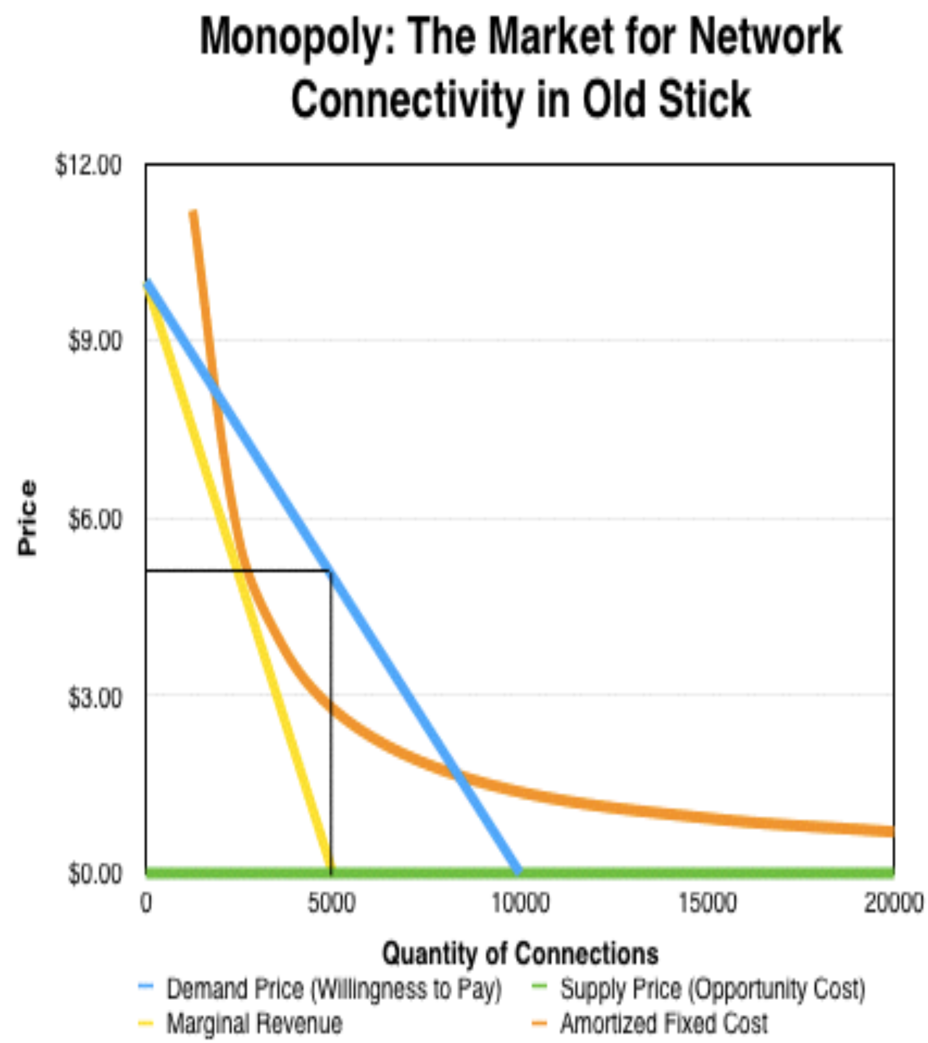
- Ladies and Gentlemen, to your i>Clickers: Do you fear competition (much)?
  A. Yes
  B. No



Do You Fear Competition (Much)? III

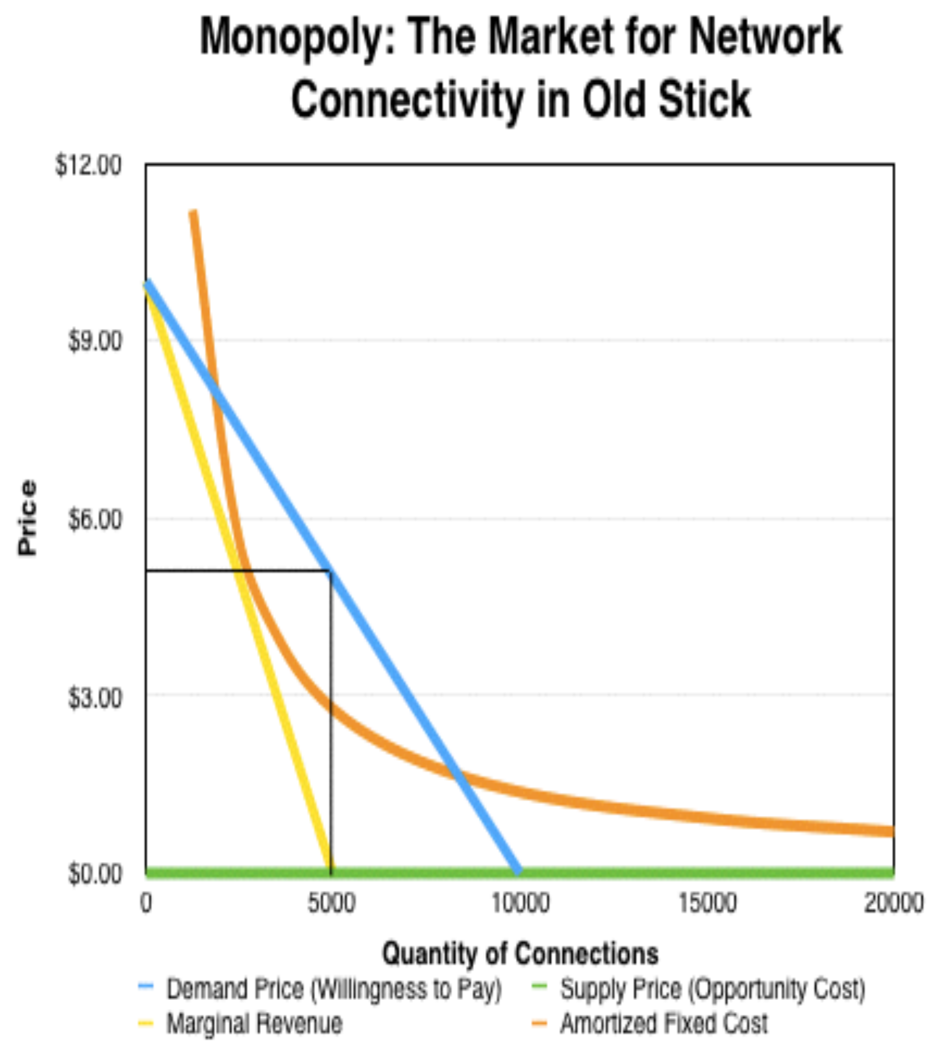
- Demand: P = \$10 - 0.001Q
- Supply:
  - MC = OC = \$0
  - Fixed costs: \$14,000/Q
- Your money is spent, and your network almost finished

- You've spent your money. You might as well turn your network on—you can't unbuild it
- So if somebody else builds a network, the two of you share a maximum of \$25,000/ day in revenue
- The two of you have \$28,000/day of fixed costs to amortize—that's -\$3,000/day
- And you are not going to blink and turn off your network



This Is a *Natural Monopoly* for the First-Mover

- You moved first
- Now that you have moved, nobody else can enter, compete, and make a profit in the market competing against you
- Nobody can induce you to shut down your network
- So nobody wants to compete
- So you can charge what seems best to you
- And, if the monopoly numbers work, profit!



Regulating Natural Monopoly

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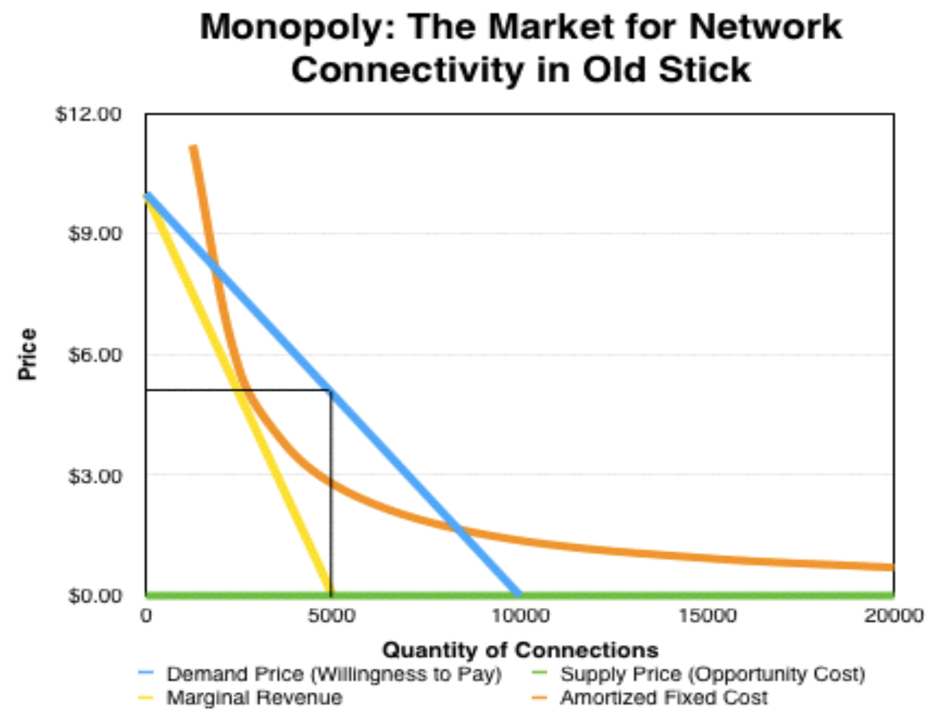
This Is a *Natural Monopoly* for the First-Mover I

- This is a market that cannot support a competitive equilibrium

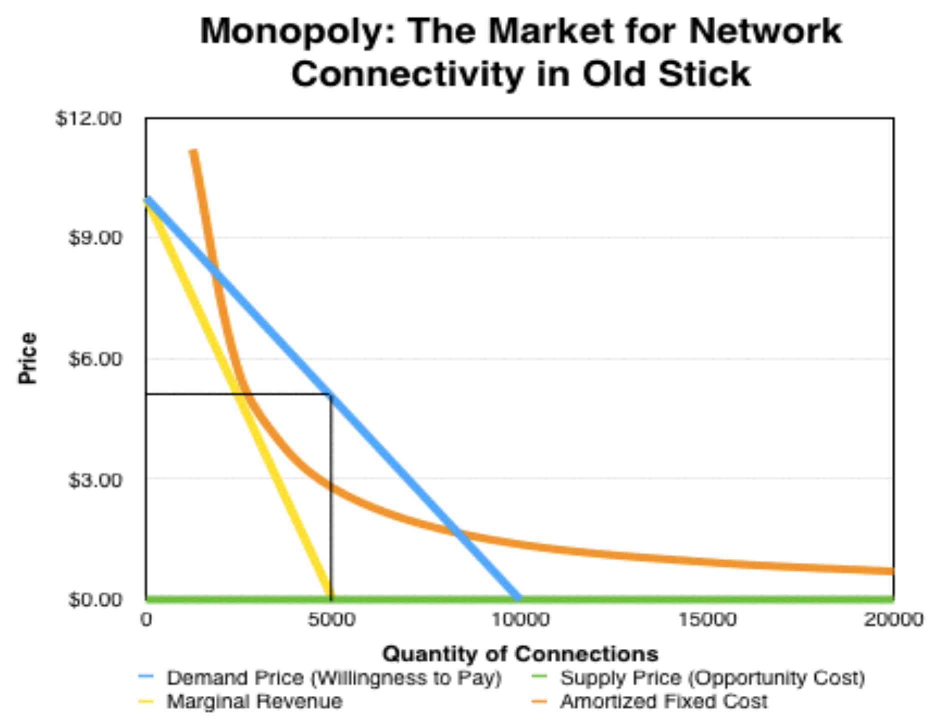
- *Non-rivalry*, increasing-returns, economies of scale

- Market logic: the price charged to you is technological and resource necessity transmitted to you via your incentives



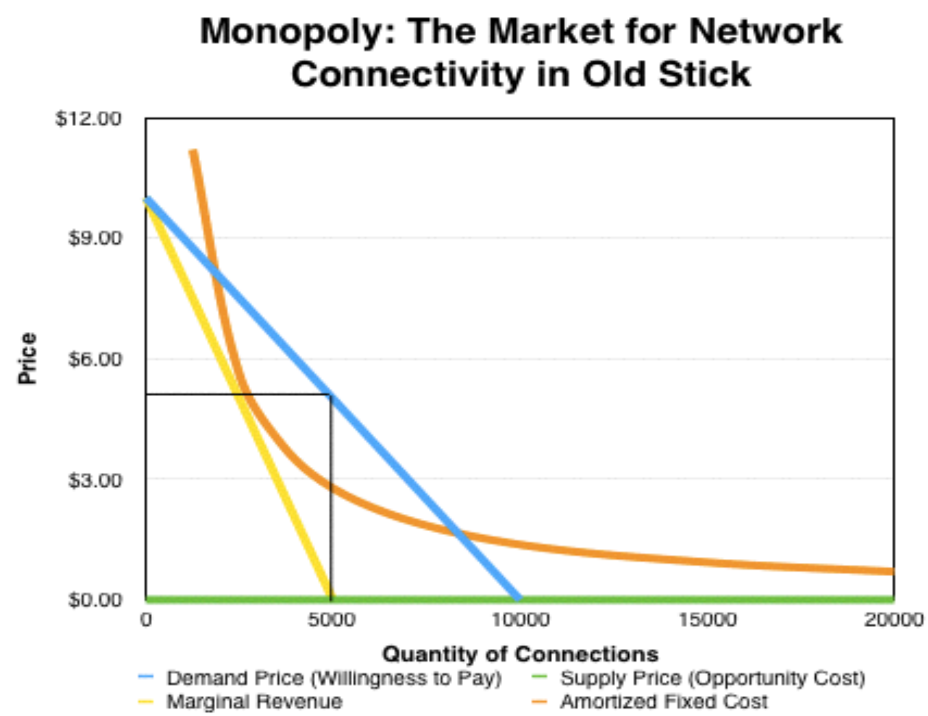
This Is a *Natural Monopoly* for the First-Mover II

- This is a market that cannot support a competitive equilibrium
- *Non-rivalry,* increasing-returns, or economies of scale
- Market logic: the price charged to you is technological and resource necessity transmitted to you via your incentives
- Market logic only works where the good you are buying is *rival*
- If *non-rivalry*, then charging you the opportunity cost does not lead to a sustainable industry
- If *non-rivalry*, then charging you enough to cover firm costs leaves win-win exchanges on the sidewalk and uncaptured



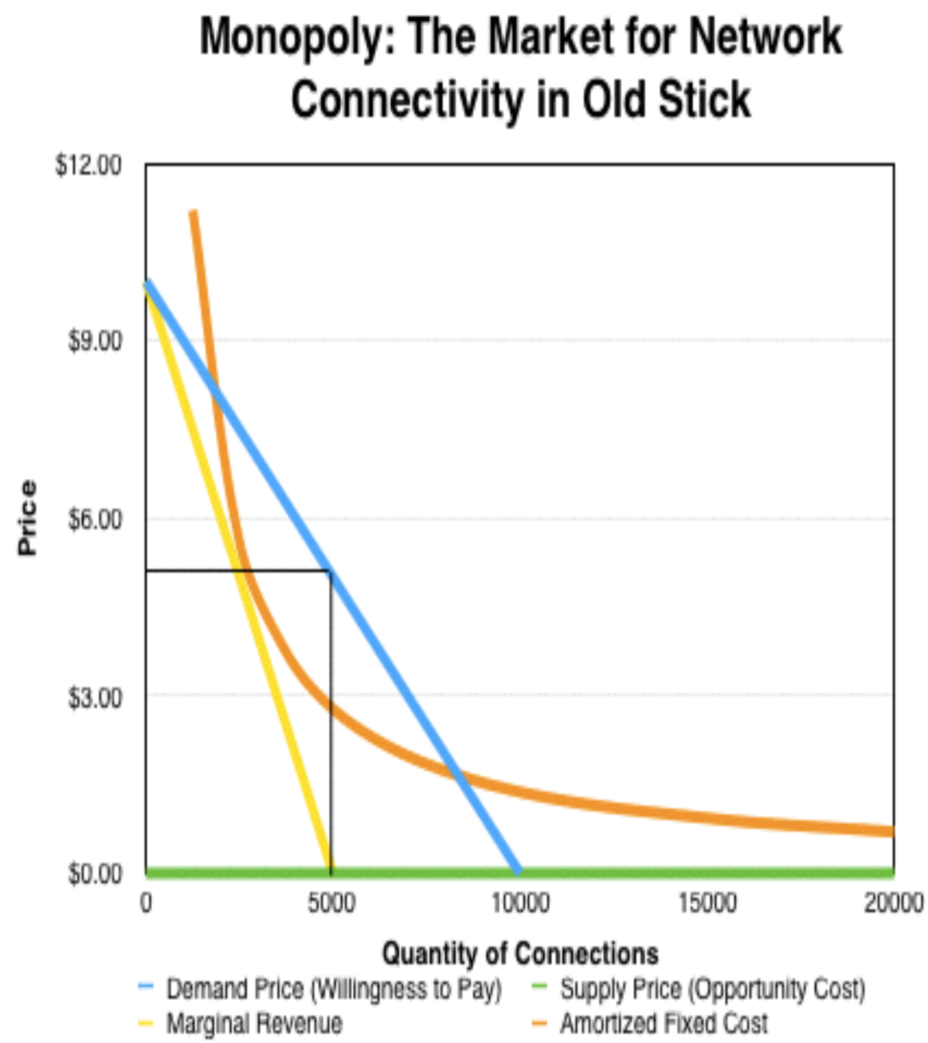
This Is a *Natural Monopoly* for the First-Mover III

- What do you do with a natural monopoly?
    - Government ownership
    - Price regulation
    - Make potential producers bid for the monopoly
    - Vigorous antitrust enforcement
    - Benign neglect—let the monopoly rip



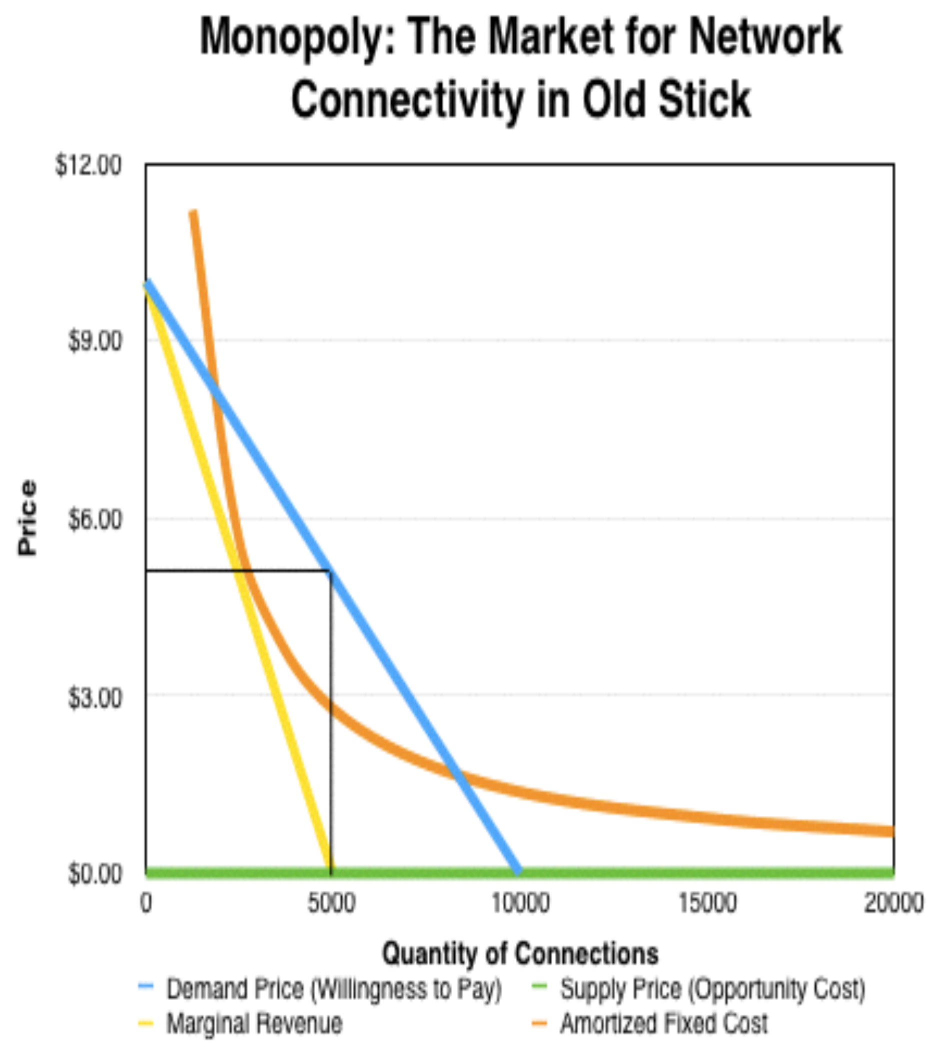
Government Ownership…

- Suppose you decide to have the government build the network
- Then what should the government do?



To Your I>Clickers

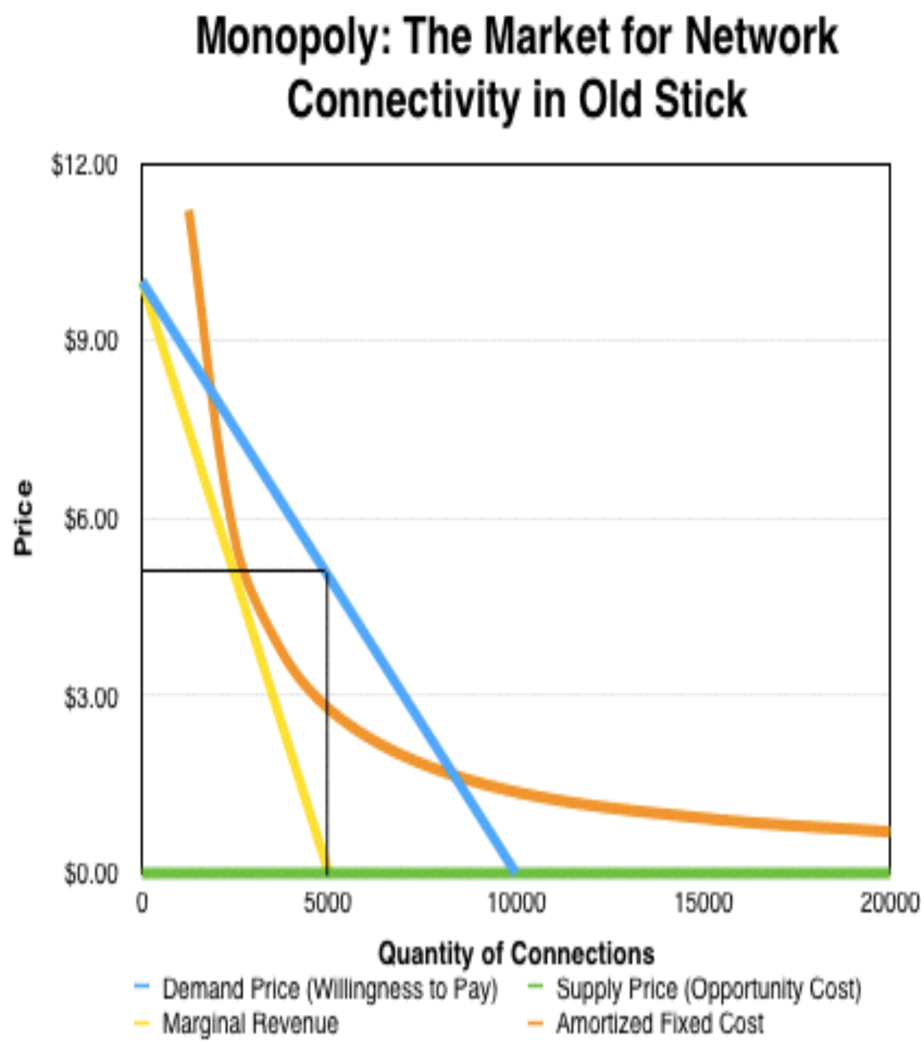
- Suppose you decide to have the government build the network
- Then what should the government do?
    A. Charge the profit-maximizing monopoly price of $5/ connection
    B. Charge a price that just covers costs—it looks like $1.60/ connection
    C. Give it away for free and run a deficit
    D. Give it away for free and raise taxes to cover the cost
    E. Privatize and let the monopoly run it in order to encourage innovation for the future



Government Ownership…

- Have the government build the network
- Let everybody connect to it for free
- $Q_{socialism}$ = 10000
- $AWTP_{socialism}$ = \$5

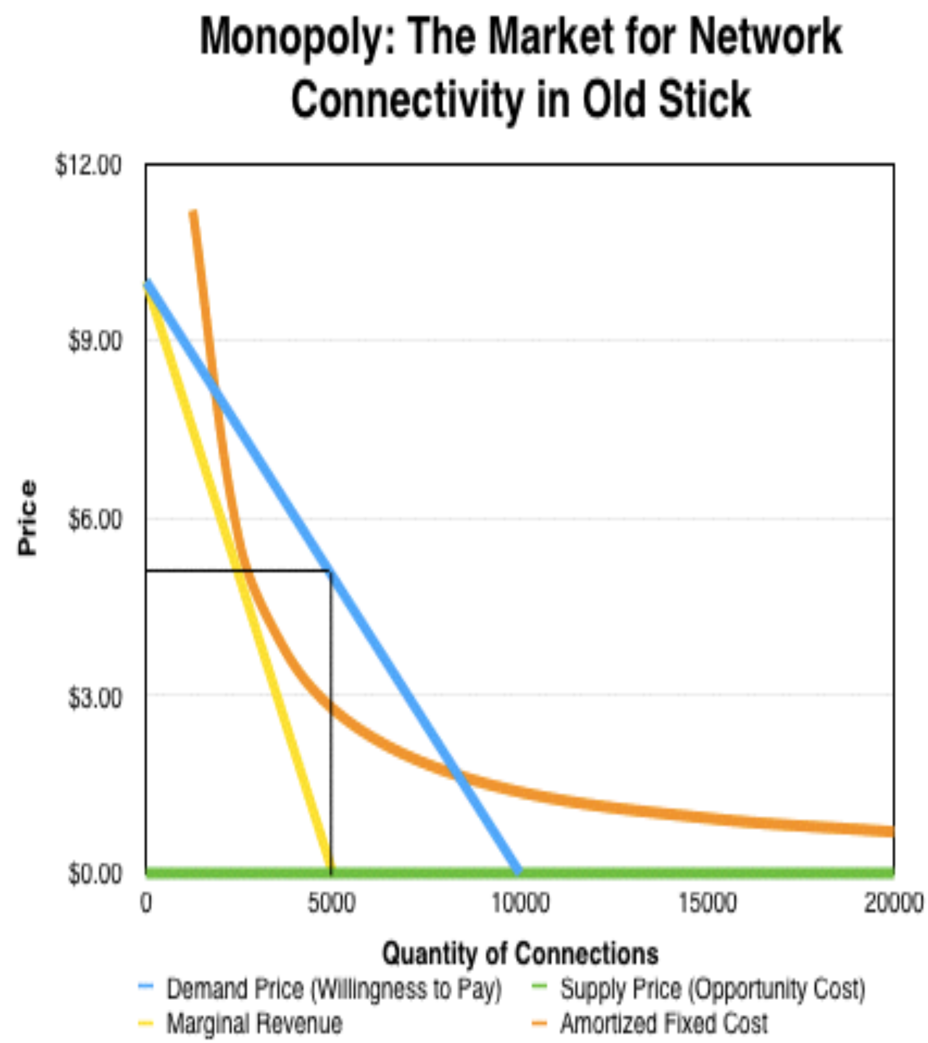
- (AWTP - P) x Q = (\$5-\$0)(10,000) = \$50,000/day of consumer surplus generated
- But: \$14,000/day of fixed costs to amortize
- \$36,000/day of societal surplus
  - Or is it?



Let the Monopoly Rip…

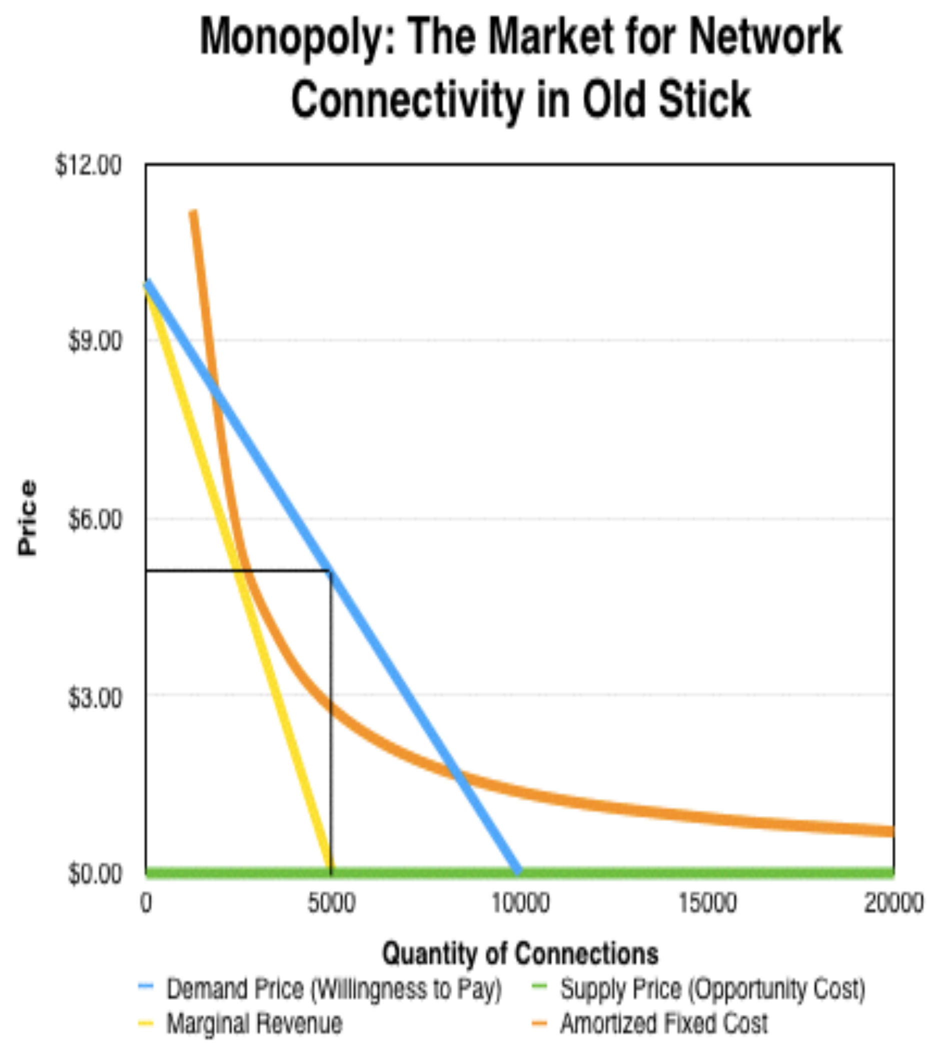
- Suppose you decide to have the monopoly build the network
- And then let the monopoly rip
- You let the OSNC collect its monopoly profits
- Charges $5/connection-day
- $Q_{monopoly}$ = 5000
- $AWTP_{socialism}$ = $7.50

- $12,500/day of consumer surplus generated
- $11,000/day of monopoly profit generated from
  - +$25,000/day of monopoly revenue
  - -$14,000/day of fixed costs amortized
- $23,500/day of societal surplus
  - Or is it?



To Your i>Clickers

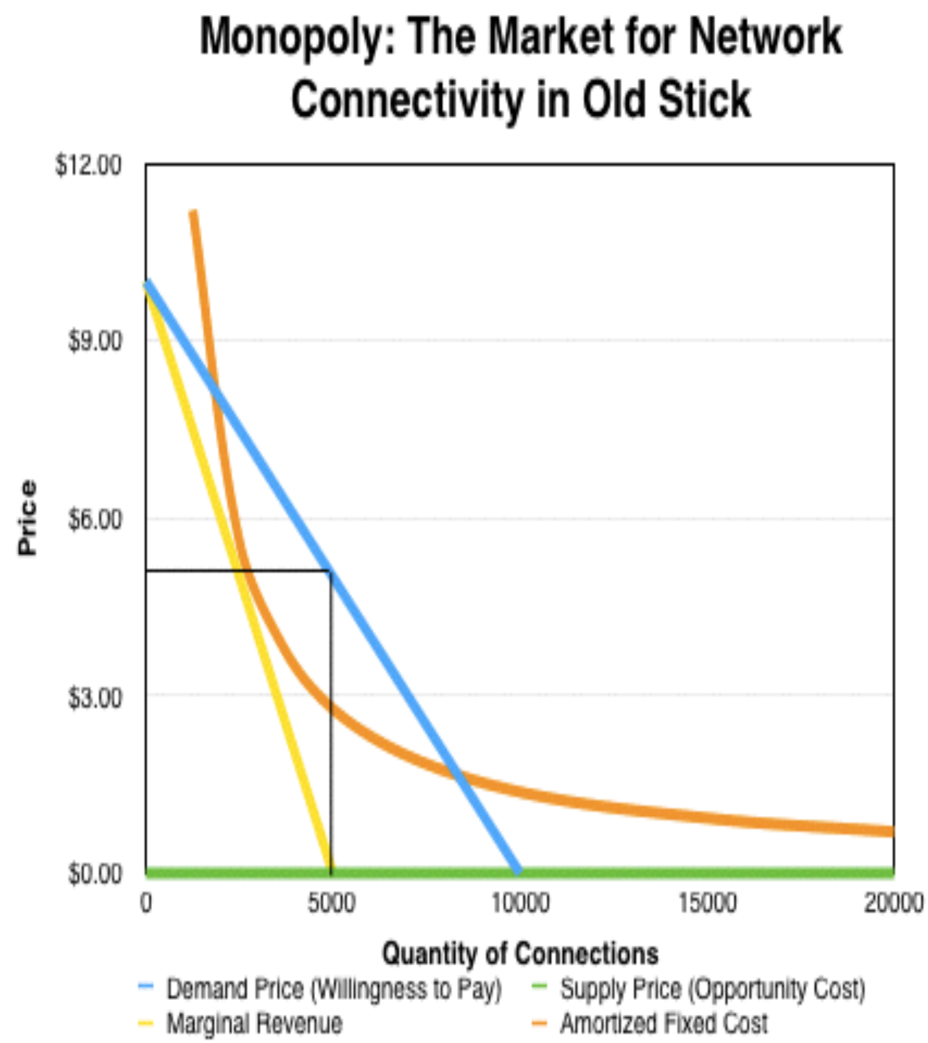
- Suppose you decide to have the monopoly build the network
- And then let the monopoly rip
- You let the OSNC collect its monopoly profits
- What does the monopoly charge?
    A. $10/connection-day, the maximum willingness to pay
    B. $1.6?/connection-day, to cover its costs
    C. $5/connection-day, to maximize its profits
    D. $0/connection-day, to collect data on your preferences and earn goodwill
    E. $8/connection-day—it is where costs are covered by revenues



Let the Monopoly Rip… II

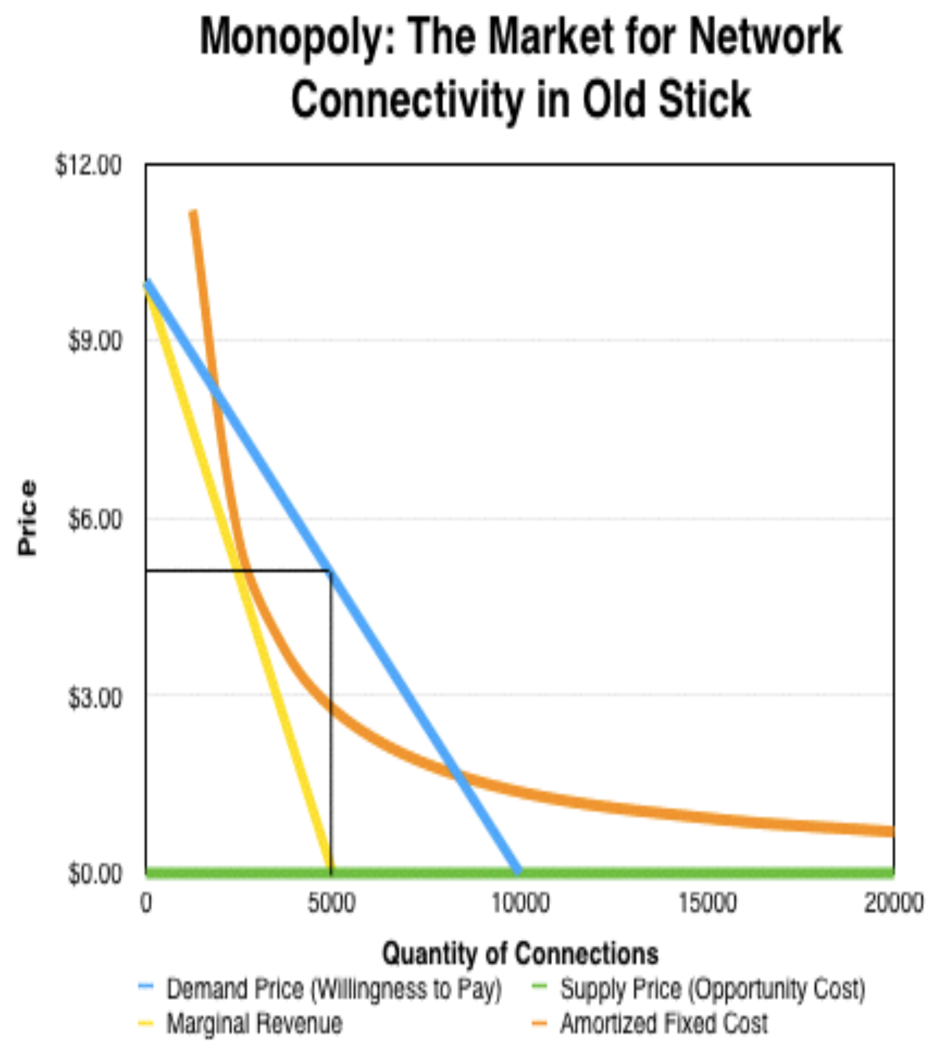
- Let the OSNC collect its monopoly profits
- Charges $5/connection-day
- $Q_{monopoly}$ = 5000
- $AWTP_{socialism}$ = $7.50

- $12,500/day of consumer surplus generated
- $11,000/day of monopoly profit generated from
  - +$25,000/day of monopoly revenue
  - -$14,000/day of fixed costs amortized
- $23,500/day of societal surplus
  - Or is it?



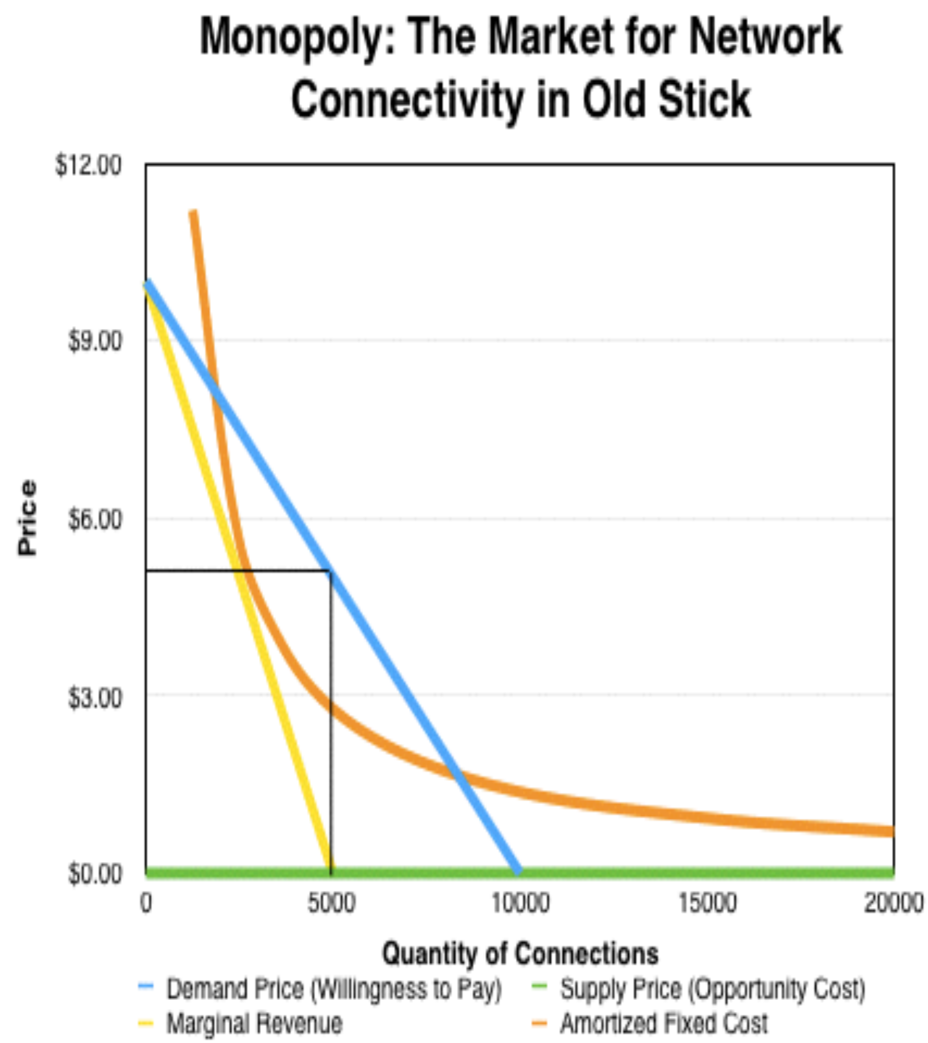
Rate Regulation I

- Government sets up a Public Utility Commission
- PUC sets a rate
- What rate does the the PUC set?



To Your i>Clickers!

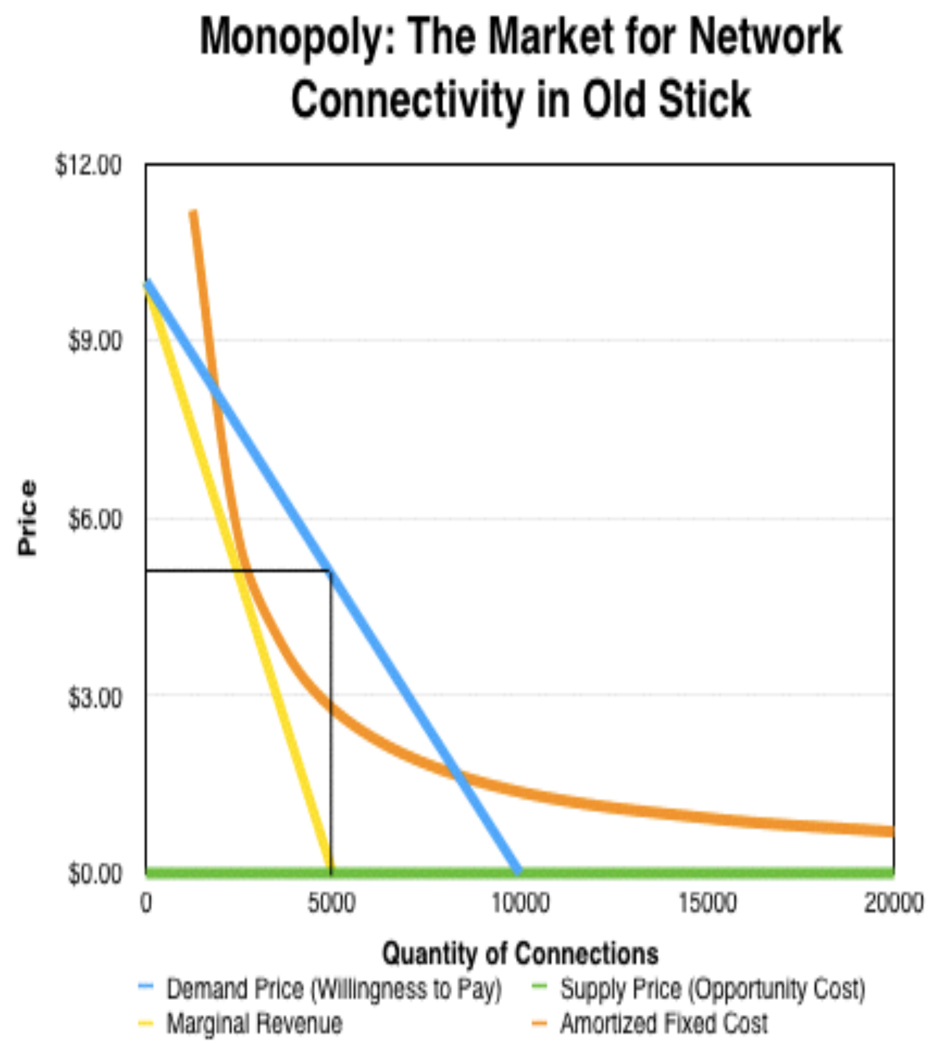
- Government sets up a Public Utility Commission
- PUC sets a rate
- What rate does the the PUC set?
    A. $1.684
    B. $5
    C. $0
    D. $8.316
    E. $10



Rate Regulation II

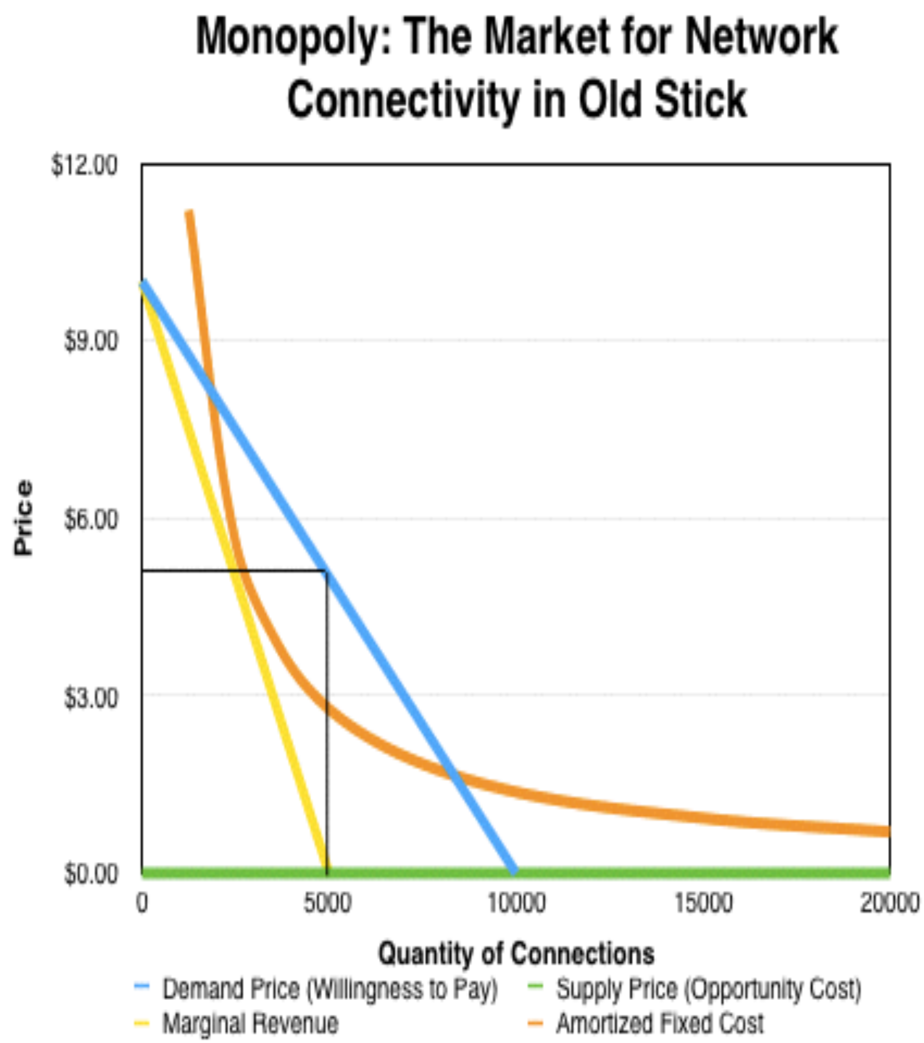
- Government sets up a Public Utility Commission
- PUC sets a rate
- The price is fixed, the monopoly has no incentive to reduce output, and so produces to satisfy demand...
- What rate does the the PUC set?

- PUC holds hearings, sets the price of network connectivity at $1.684:
  - 8316 connections
  - $34,580 of consumer surplus
  - $14,000 of revenue that just amortizes the OSNC's fixed costs.
  - $34,580/day of societal surplus
    - Or is it?



Make Potential Producers Bid—Privatization Auctions

- Trying to be clever about rate regulation
- Induce businesses to bid against each other to set the price—low bidder then gets the contract to build/ operate the network
- A more informationally-efficient mode of rate regulation
  - Or is it?



“Vigorous Enforcement of Antitrust Laws”

- This is the first point at which I think FBAH get one very and substantially wrong.

- They are opposed to “vigorous enforcement of antitrust laws”

- FBAH: “Federal antitrust officials spent more than a decade trying to break up IBM Corporation in the belief that it had achieved an unhealthy dominance in the computer industry. That view was proved comically wrong by IBM’s subsequent failure to foresee and profit from the rise of the personal computer. By breaking up large companies and discouraging mergers between companies in the same industry, antitrust laws may help to promote competition, but they also may prevent companies from achieving economies of scale…”

- I think that interpretation of US vs. IBM and of the rise of the personal computer industry and then the supersession of IBM by Microsoft as dominant firm is... To quote FBAH, "comically wrong". But I don't have time to get into this here and now...

The Theory of Games and Strategic Behavior

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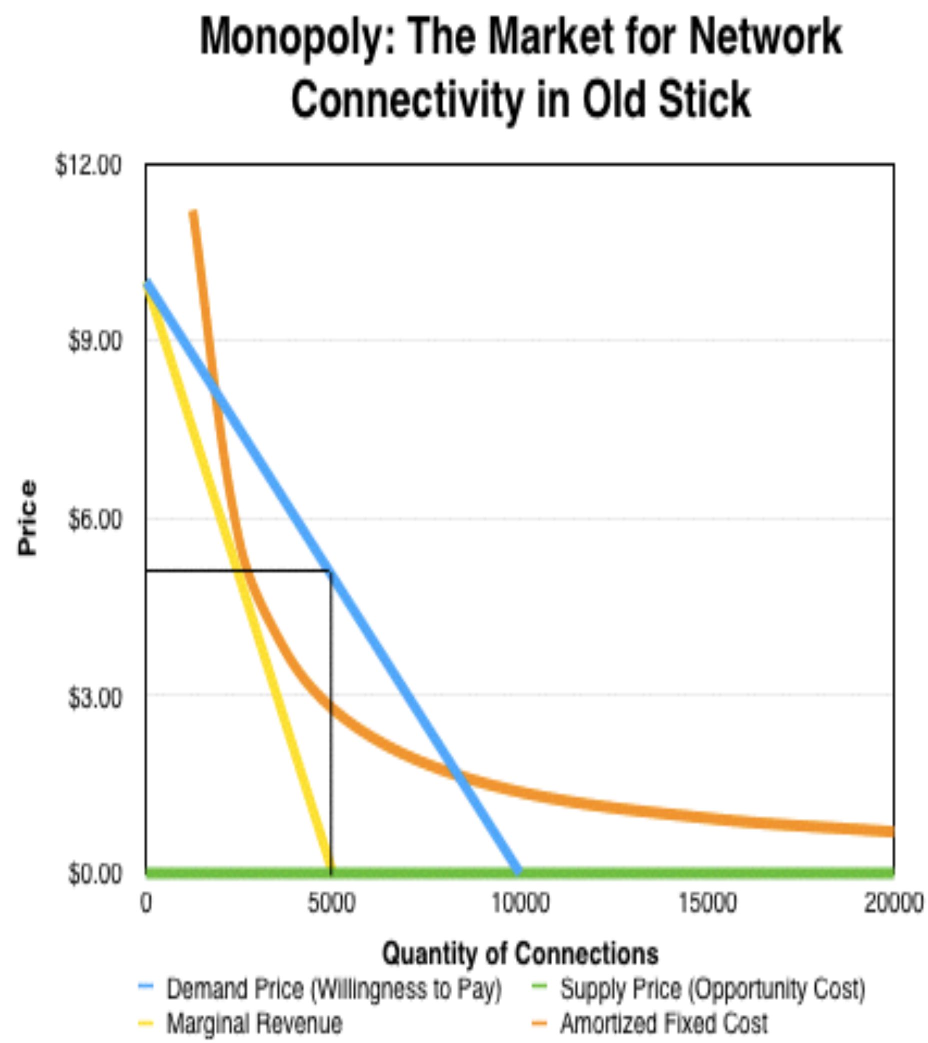
Remember This Slide?: Do You Fear Competition (Much)? III

- Demand: P = $10 - 0.001Q
- Supply:
  - MC = OC = $0
  - Fixed costs: $14,000/Q
- Your money is spent, and your network almost finished



- You've spent your money. You might as well turn your network on—you can't unbuild it
- So if somebody else builds a network, the two of you share a maximum of $25,000/day in revenue
- The two of you have $28,000/day of fixed costs to amortize—that's -$3,000/day
- And you are not going to blink and turn off your network

We Have a Game!

- A symmetric game…
- What is going to happen?

	Don't Build	Build-Drop	Build-Stay
Don't Build	\$0 \$0	\$0 \$11,000	\$0 \$11,000
Build--Drop If Chal-lenged	\$11,000 \$0	\$11K or -\$14K \$11K or -\$14K	-\$14,000 \$11,000
Build--Stay	\$11,000 \$0	\$11,000 -\$14,000	-\$3,000 (or -\$3,000 (or worse)

The First Mover…

- The symmetry in the game is broken because blue is the first mover

	Don't Build	Build-Drop	Build-Stay
Don't Build	$0 $0	$0 $11,000	$0 $11,000
Build--Drop If Chal-lenged	$11,000 $0	$11K or -$14K $11K or -$14K	-$14,000 $11,000
Build--Stay	$11,000 $0	$11,000 -$14,000	-$3,000 (or -$3,000 (or worse)

The First Mover…

- The symmetry in the game is broken because blue is the first mover
- Red knows that we are not going to wind up in the first row…

	Don't Build	Build-Drop	Build-Stay
Don't Build	$0 $0	$0 $11,000	$0 $11,000
Build--Drop If Chal-lenged	$11,000 $0	$11K or -$14K $11K or -$14K	-$14,000 $11,000
Build--Stay	$11,000 $0	$11,000 -$14,000	-$3,000 (or -$3,000 (or worse)

Walking Down the Strategy Tree…

- Once we know we are not in the first row…

	Don't Build	Build-Drop	Build-Stay
~~Don't Build~~	~~$0 $0~~	~~$0 $11,000~~	~~$0 $11,000~~
~~Build-- Drop If Chal- lenged~~	~~$11,000 $0~~	~~$11K or -$14K $11K or -$14K~~	~~-$14,000 $11,000~~
Build-- Stay	$11,000 $0	$11,000 -$14,000	-$3,000 (or -$3,000 (or worse)

Walking Down the Strategy Tree…

- Once we know we are not in the first row…
- It is always better for blue to choose the third row rather than the second…

	Don't Build	Build-Drop	Build-Stay
Don't Build	$0 $0	$0 $11,000	$0 $11,000
Build--Drop If Chal-lenged	$11,000 $0	$11K or -$14K $11K or -$14K	-$14,000 $11,000
Build--Stay	$11,000 $0	$11,000 -$14,000	-$3,000 (or -$3,000 (or worse)

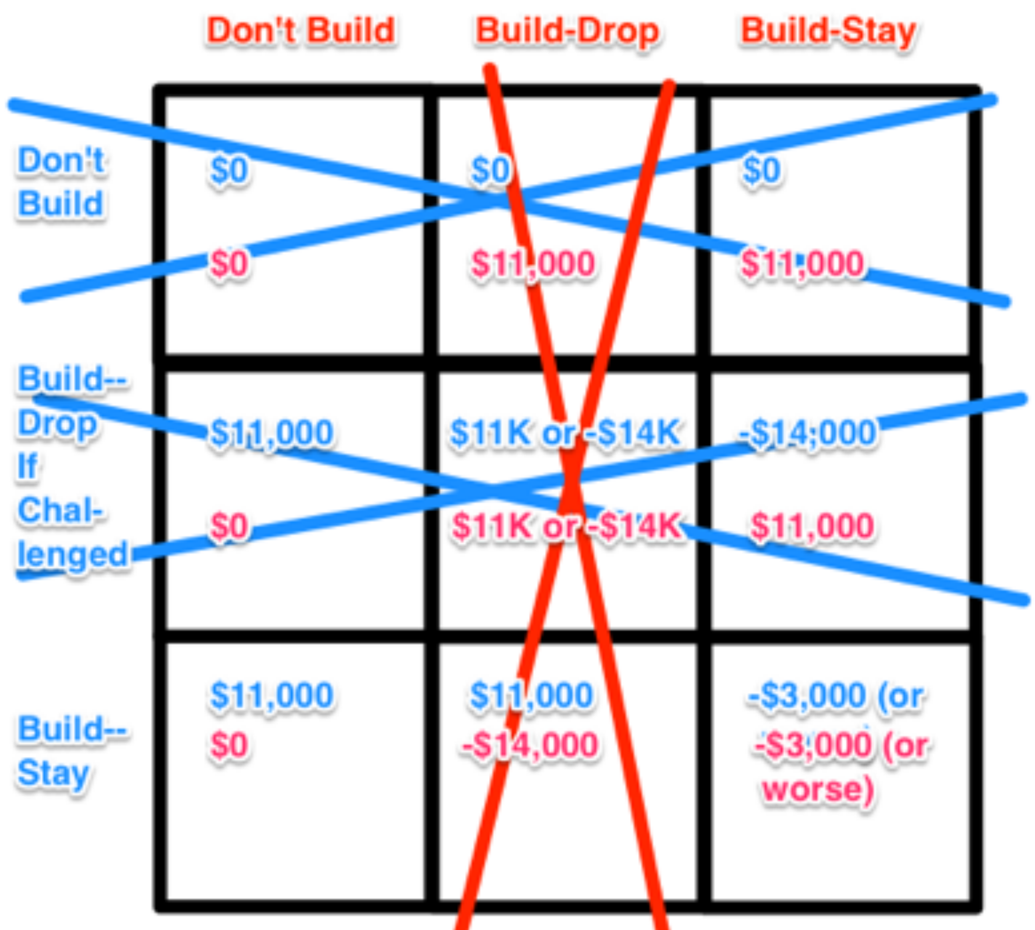
The Only Way for Red to Win…

- Given that we are in the third row…

	Don't Build	Build-Drop	Build-Stay
Don't Build	$0 $0	$0 $11,000	$0 $11,000
Build--Drop If Chal-lenged	$11,000 $0	$11K or -$14K $11K or -$14K	-$14,000 $11,000
Build--Stay	$11,000 $0	$11,000 -$14,000	-$3,000 (or -$3,000 (or worse)

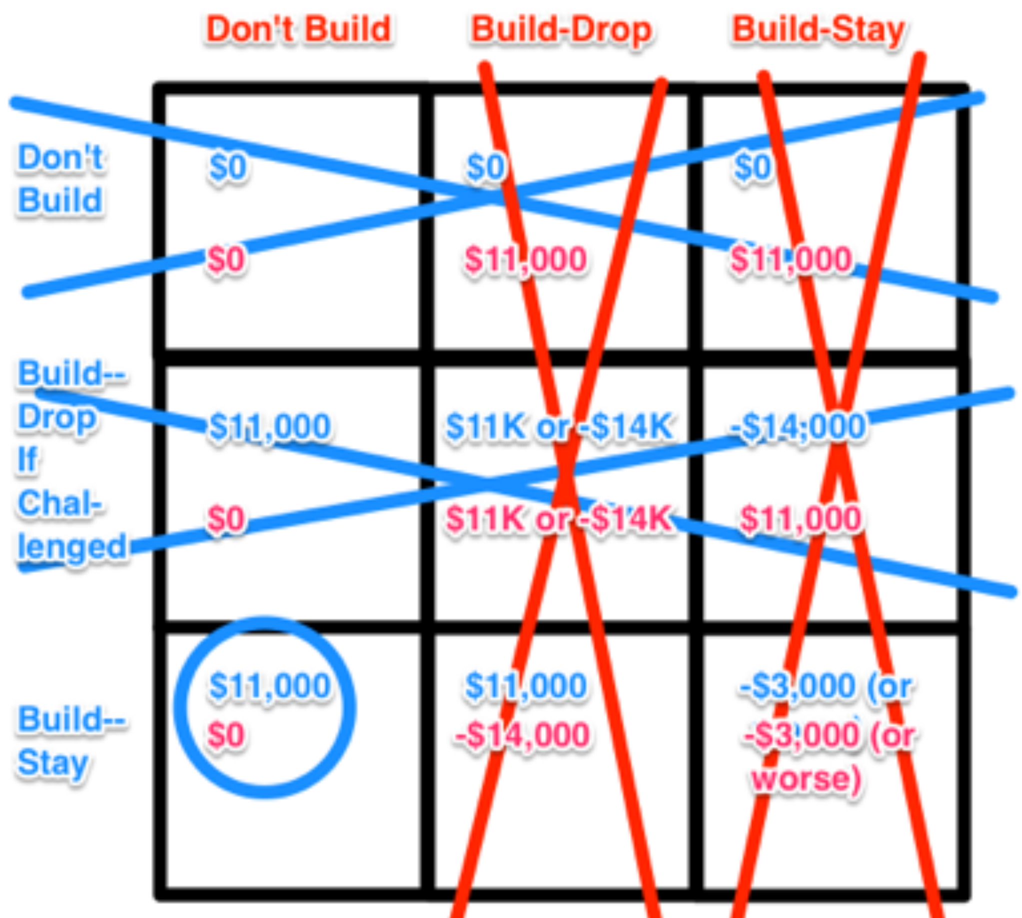
The Only Way for Red to Win…

- Given that we are in the third row…
- Red really does not want to choose the second column



…Is Not to Play

- Given that we are in the third row…
- Red really does not want to choose the second column
- And in fact does not want to choose the third column either



…Is Not to Play

- Therefore we arrive at our equilibrium—if blue moves first…

	Don't Build	Build-Drop	Build-Stay
Don't Build	$0 $0	$0 $11,000	$0 $11,000
Build--Drop If Chal-lenged	$11,000 $0	$11K or -$14K $11K or -$14K	-$14,000 $11,000
Build--Stay	$11,000 $0	$11,000 -$14,000	-$3,000 (or -$3,000 (or worse)

How Many of You Have Seen "Dr. Strangelove"?

- Dr. Strangelove: Of course, the whole point of a Doomsday Machine is lost, if you *keep* it a *secret*! Why didn't you tell the world, EH?
- Ambassador de Sadesky: It was to be announced at the Party Congress on Monday. As you know, the Premier loves surprises.

The Market System: Balance Sheet

February 17, 2016 8-9 AM
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The Market Balance Sheet: Pro

- The competitive market in equilibrium, from the perspective of a utilitarian seeking to achieve the greatest-good-of-the-greatest-number:

  1. Allocates the roles of producers and sellers to those who can make and sell in a way least costly to society's resources, those with the lowest *opportunity cost*.
  2. Produces at a scale that exhausts all possible *win-win exchanges*
  3. Allocates the goods produced to those with the greatest *willingness-to-pay*—those who, by the money standard, need and want it the mos

The Market Balance Sheet: Con

1. Out of Equilibrium
2. Government Malfeasance: the market can be messed up by a government that imposes quotas or fixes prices
3. Market Power: Luck, license, or entrepreneurial skill can cause the growth of a *monopoly*
4. Natural Monopoly I: Competition can be unsustainable because of *non-rivalry* or increasing-returns
5. Natural Monopoly II: Competition can be inefficient because of *non-rivalry* or increasing-returns
6. Monopolistic Competition: Market power can be baked into the structure of the economy


CHAPTER 8

Monopoly, Oligopoly, and Monopolistic Competition

MONOPOLY SELLERS ALMOST ALWAYS OFFER DISCOUNT PRICES TO BUYERS WHO ARE WILLING TO MAIL IN A REBATE COUPON OR ENDURE SOME OTHER TYPE OF INCONVENIENCE

Some years ago, schoolchildren around the country became obsessed with the game of Magic: The Gathering. To play, you need a deck of Magic Cards, available only from the creators of the game. But unlike ordinary playing cards, which can be bought in most stores for only a dollar or two, a deck of Magic Cards sells for upward of $10. And since Magic Cards cost no more to manufacture than ordinary playing cards, their producer earns an enormous economic profit.

In a perfectly competitive market, entrepreneurs would see this economic profit as cash on the table. It would entice them to offer Magic Cards at slightly lower prices, so that eventually the cards would sell for roughly their cost of production, just as ordinary playing cards do. But Magic Cards have been on the market for years now, and that hasn't happened. The reason is that the cards are copyrighted, which means the government has granted the creators of the game an exclusive license to sell them.

The holder of a copyright is an example of an imperfectly competitive firm, or **price setter**—that is, a firm with at least some latitude to set its own price. The competitive firm, by contrast, is a price taker, a firm with no influence over the price of its product.

LEARNING OBJECTIVES

After reading this chapter, you should be able to:

LO1 Distinguish among three types of imperfectly competitive industries (monopoly, oligopoly, and monopolistic competition) and describe how imperfect competition differs from perfect competition.

LO2 Identify the five sources of market power and describe why economies of scale are the most enduring of the various sources of monopoly power.

LO3 Apply the concepts of marginal cost and marginal revenue to find the output level and price that maximize a monopolist's profit.

LO4 Explain why the profit-maximizing output level for a monopolist is too small from society's perspective.

LO5 Discuss why firms often offer discounts to buyers who are willing to jump some form of hurdle.

LO6 Discuss public policies that are often applied to natural monopolies.

Questions?