Economics 1: Introduction to Economics

J. Bradford DeLong <delong@econ.berkeley.edu>
Administrivia

February 8, 2016 8-9 AM
Wheeler Auditorium, U.C. Berkeley
Webtools and Other...

• Webtools
• Problem Sets and Exercises
• Topics: We Are Now About to Start Storming Through “Market Failure”
Webtools...

• Webtools:
  • http://www.bradford-delong.com/course-syllabus-econ-1-spring-2016-uc-berkeley.html, and
  • https://bcourses.berkeley.edu/courses/1411451/assignments/syllabus
Exercises...

• Problem Sets and Exercises:
  • Problem Set 1 answers up...
  • Section exercise answer files up...
  • Problem Set 2 due later this week...
  • Then skip a week: Problem Set 3 due around February 24...
Topics...

• Topics:
  • We Are Now About to Start Storming Through “Market Failure”
  • That will take us four weeks
  • And then it will be time to take our breath, look back, try to gather everything together, and get ready for the midterm...
We—and the first seven chapters of FBAH—have built up the basic toolkit: the supply-and-demand apparatus.

It leads to very optimistic conclusions about the market.

The rest of the textbook—and the lectures—apply this toolkit.

And partly walk back the optimism.

Mechanical reliance on supply-and-demand creates a bad economist.

As J.R. McCulloch said: “We must beware of becoming parrots...”
Algebra: The Marshallian Toolkit II

• As I said, it took economists 150 years to get this (largely) right

• By John Maynard Keynes’s teachers, Alfred (and Mary Paley) Marshall

• The toolkit starts with individuals capabilities, resources, incomes, and preferences

• Derives opportunity cost, income, willingness to pay...
Algebra: The Marshallian Toolkit III

- It starts with individuals capabilities, resources, incomes, and preferences

- Derives opportunity cost, willingness to pay

- Constructs:
  - Demand: \( P = P_{d0} - dQ \)
  - Supply: \( P = P_{s0} + sQ \)

- Solves for market equilibrium quantity and price:
  - \( Q^* = (P_{d0} - P_{s0})/(s+d) \)
  - \( P^* = (d/(d+s))P_{s0} + (s/(d+s))P_{d0} \)

- Toolkit built up by Alfred and Mary Paley Marshall
Algebra: Evaluating the Marshallian Outcome I

- Demand: \( P = P_{d0} - dQ \)
- Supply: \( P = P_{s0} + sQ \)
- \( Q^* = (P_{d0} - P_{s0})/(s+d) \)
- \( P^* = (d/(d+s))P_{s0} + (s/(d+s))P_{d0} \)

- Consumer surplus:
  - Average-willingness-to-pay = \( AWTP = (P_{d0} + P^*)/2 \)
  - \( CS = (AWTP - P^*) \times Q \)
- How valuable the opening-up and existence of this market is to consumers

Algebra: Evaluating the Marshallian Outcome II

• D: \( P = P_{d0} - dQ \) & \( S: P = P_{s0} + sQ \)
• \( Q^* = (P_{d0} - P_{s0})/(s+d) \)
• \( P^* = (d/(d+s))P_{s0} + (s/(d+s))P_{d0} \)

• Producer surplus:
  • Average Opportunity Cost = AOC = \( (P_{s0} + P^*)/2 \)
  • \( PS = (P^* - AOC) \times Q \)
• How valuable the opening-up and existence to this market is to producers

• \( TS = CS + PS \)

What Good Is This Marshallian Toolkit?

• At one level simply chicken scratches...

• ...that guide you to performing near-rote calculations...

• that allow you to gain our approval...

• ...and so (perhaps) open doors to well-paying jobs in the future...
What Good Is This Marshallian Toolkit? II

• At one level simply chicken scratches...

• At another level a sophisticated and subtle analysis...

• ...of how production and distribution of a particular commodity is guided by our societal economic institutions...

• ...and what the benefits of these institutions are...

• https://en.wikipedia.org/wiki/Richard_Cantillon
An Analysis That, Once Done...

• ...we can then adapt and replicate whenever it turns out to be useful...

• And there are many, many opportunities to adapt and replicate this analysis

• And the chicken scratches allow us to do so very quickly

• [https://en.wikipedia.org/wiki/Adam_Smith](https://en.wikipedia.org/wiki/Adam_Smith)
All We Need Is…

• Four things needed: the demand intercept $P_{d0}$; the demand slope $d$; the supply intercept $P_{s0}$; the supply slope $s$

• The chicken scratches lead us to be able, nearly immediately, to reach powerful, subtle—and largely accurate—conclusions

• That brings us to the end of FBAH, ch. 7…
The Market System: Balance Sheet

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

• The competitive market in equilibrium, from the perspective of a utilitarian 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 most

• But the market:
  • Can be out of equilibrium
  • Can be messed up by a government that imposes quotas (then the price adjusts to make the best of a bad situation)
  • Can be messed up by a government that fixes prices (then people respond to the wrong price signals)
What Can Go Wrong with the Market?

• It can be out of equilibrium
• It can be messed up by a government that imposes quotas
  • (Then the price adjusts to make the best of a bad situation)
• It can be messed up by a government that fixes prices
  • (Then people respond to the wrong price signals)
• Today we add: it can fail to be competitive
Understanding Monopoly

February 8, 2016 8-9 AM
Wheeler Auditorium, U.C. Berkeley
Monopoly and Imperfect Competition

• In competitive markets firms (and buyers) do not think about how their decisions affect the equilibrium market price because they don’t

• In markets with monopoly or market power firms do, and take account of those effects when they decide what to do

• Sources of monopoly power:
  • Exclusive control over inputs; patents and copyrights; government licenses; economies of scale and so-called “natural monopolies”; network economies...
Start with a Monopoly Already Established

• A single seller...

• Has to decide how much to produce and what price to sell what it produces for...

• What does it do?

• So suppose a bunch of alumni of Crony Capitalism University in Old Stick establish a monopoly over latte production in Avicenna

The Pre-Monopoly Equilibrium

• Suppose before the monopoly we had:
  • D: P = $10 - 0.0002Q
  • S: P = $2

• To your iClickers: what was the pre-monopoly price and quantity?
  A. $10/latte and 0 lattes
  B. $6/latte and 20000 lattes
  C. $4.67/latte and 25000 lattes
  D. $2/latte and 40000 lattes
  E. $2/latte and 50000
The Pre-Monopoly Equilibrium

• Suppose before the monopoly we had:
  • D: \( P = 10 - 0.0002Q \)
  • S: \( P = 2 \)

• To your iClickers: what was the pre-monopoly price and quantity?
  A. $10/latte and 0 lattes
  B. $6/latte and 20000 lattes
  C. $4.67/latte and 25000 lattes
  D. $2/latte and 40000 lattes
  E. $2/latte and 50000
The Monopolist’s Problem

• How much should the monopolist produce? And what price should it charge?
• Remember: \( P = 10 - 0.0002Q \)

• To your iClickers: How much profit would the monopolist make if it produced 40000 lattes?
  A. $80000
  B. $0
  C. $90000
  D. $160000
  E. I haven’t given you enough information to say
The Monopolist’s Problem II

• How much should the monopolist produce? And what price should it charge?

• To your iClickers: How much profit would the monopolist make if it produced 40000 lattes?
  A. $80000
  B. $0
  C. $90000
  D. $160000
  E. I haven’t given you enough information to say

• Why is profit zero at a production level of 40000 lattes?
The Monopolist’s Problem III

• The monopolist also makes zero in profit if it produces 0 lattes.

• To your iClickers: At what production level do you think profit is maximized?
  
  A. 10000  
  B. 20000  
  C. 30000  
  D. 37500  
  E. 25000
The Monopolist’s Problem IV

• To your iClickers: At what production level do you think profit is maximized?
  A. 10000
  B. 20000
  C. 30000
  D. 37500
  E. 25000

• I’m not going to mark off for not choosing (B). But it is (B). Let’s figure out why…
Marginal Revenue of a Monopolist

• When a monopolist cuts price, it:
  • Sells more
  • But gets less for each unit that it had already sold

• Its extra—marginal—revenue $MR$ is thus less than the price it charges

• And expanding production into where $MR < \text{marginal cost } MC$ is a way to make less—or to lose—money
Marginal Revenue of a Monopolist

• FBAH say: “Consider a monopolist with a straight-line demand curve whose vertical intercept is \([P_{d0}]\). The marginal revenue curve also will have a vertical intercept of \([P_{d0}]\), and... be twice as steep...”

• And FBAH say: “If you have had calculus, this relationship is easy to derive, but even without... you can verify it by working through a few numerical examples...”

• But this is Berkeley.

• We—that is, you—can do better...
Marginal Revenue of a Monopolist

- We are going to start out producing and selling some level of production.

- We are going to ask: What is the revenue from selling an extra unit?

- The revenue gained from selling an extra unit is...
  - \( RG = P_d \)
  - \( RG = P_{d0} - dQ \)
Marginal Revenue of a Monopolist

• Revenue gained from selling an extra unit...
  • RG = P_d
  • RG = P_{d0} - dQ

• But you had to cut the price in order to see that extra unit

• The revenue lost from cutting the price to sell the extra unit is...
  • RL = - Q x d

• Subtract the second from the first:
Marginal Revenue of a Monopolist

• Revenue gained from selling an extra unit...
  • RG = P_d
  • RG = P_{d_0} - dQ
• Revenue lost from cutting the price to sell the extra unit...
  • RL = - Q x d
• Subtracting the second from the first:
  • MR = P_{d_0} - dQ - dQ
  • MR = P_{d_0} - 2dQ
• Marginal revenue MR is how much more revenue you get by producing and selling one more, not ...
Marginal Revenue of a Monopolist

VI

• For a monopolist
  • \( MR = P_{d0} - dQ - dQ \)
  • \( MR = P_{d0} - 2dQ \)

• Profit is maximized when \( MR = MC \) — what would be the opportunity cost on the supply curve in a competitive market

• Question: why don’t FBAH show this diagram—in which the black revenue-gain rectangle is \( P_{d0} - dQ \) and the orange revenue-loss rectangle is \( dQ \)?

• I haven’t figured this out yet...