

# Economics 1: Fall 2012: Market Elasticity (and Related Concepts)

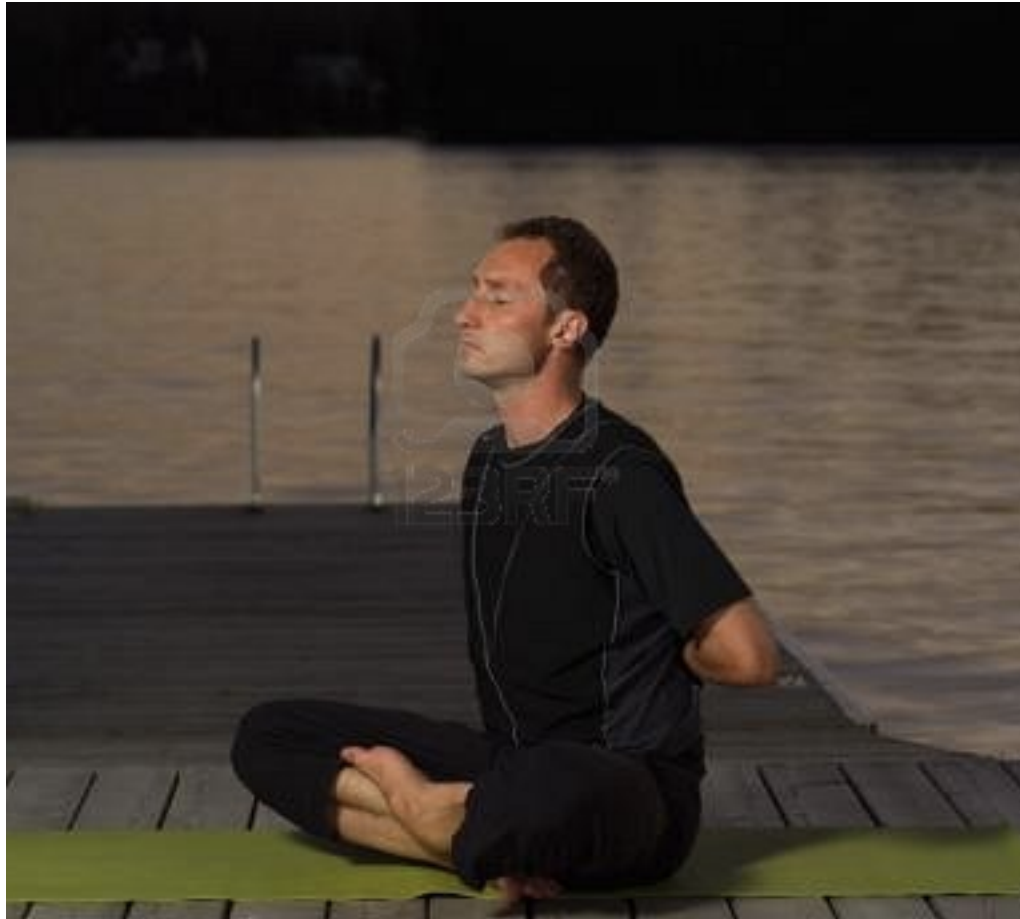
<http://delong.typepad.com/sdj/econ-1-spring-2012/>

<http://tinyurl.com/delong-Econ1Sp12>

February 1, 2012, 11-12

Wheeler Auditorium, U.C. Berkeley

# The Yoga Market Once Again...



## Lots of People Had Questions About Question 14 on Problem Set 1

- 14. Suppose customers are willing to pay \$4 each for lattes and \$45 for yoga lessons. Who should Joe assign to teach yoga? To pull lattes? How many lattes will the economy make and how many yoga lessons will it teach?

# The Answer to (14) I

- $45/4 = 11.25$
- People should pull lattes if:
- A. They can make more lattes than teach yoga lessons.
- B. They can teach more yoga lessons than they can make lattes.
- C. They can make more than 11.25 times as many lattes as yoga lessons.
- D. They can teach more than 11.25 times as many yoga lessons as they can make lattes.
- E. They can only teach less than 11.25 times as many yoga lessons as they can make lattes.

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# The Answer to (14) II

- Our productivity levels:
  - Yoga: An Lushan 8; Chingachgook 8; Ibn Sina 4; Galla Placidia 3; Lucy 1; Ethel 1; Ricky 1; Fred 0.
  - Lattes: An Lushan 3; Chingachgook 20; Ibn Sina 12; Galla Placidia 2; Lucy 20; Ethel 10; Ricky 10; Fred 5.
- To your iClickers
  - An Lushan
  - A. Lattes?
  - B. Yoga?

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- To your iClickers
  - An Lushan
  - A. Lattes?
  - B. Yoga?

# The Answer to (14) III

- Opportunity cost of yoga:
  - An Lushan  $3/8$ ; Chingachgook  $20/8$ ; Ibn Sina  $12/4$ ; Galla Placidia  $2/3$ ; Lucy  $20/1$ ; Ethel  $10/1$ ; Ricky  $10/1$ ; Fred  $5/0$ .
- An Lushan, Galla Placidia, Chingachgook, Ibn Sina, Ethel, and Ricky should combine to teach 25 yoga lessons.
- Fred and Lucy should combine to make 25 lattes.



# Lots of Questions About Question 17

- Suppose that the price of lattes is \$4 each. Let the price of yoga lessons vary from \$0 to \$100, and draw the supply curve for yoga lessons.

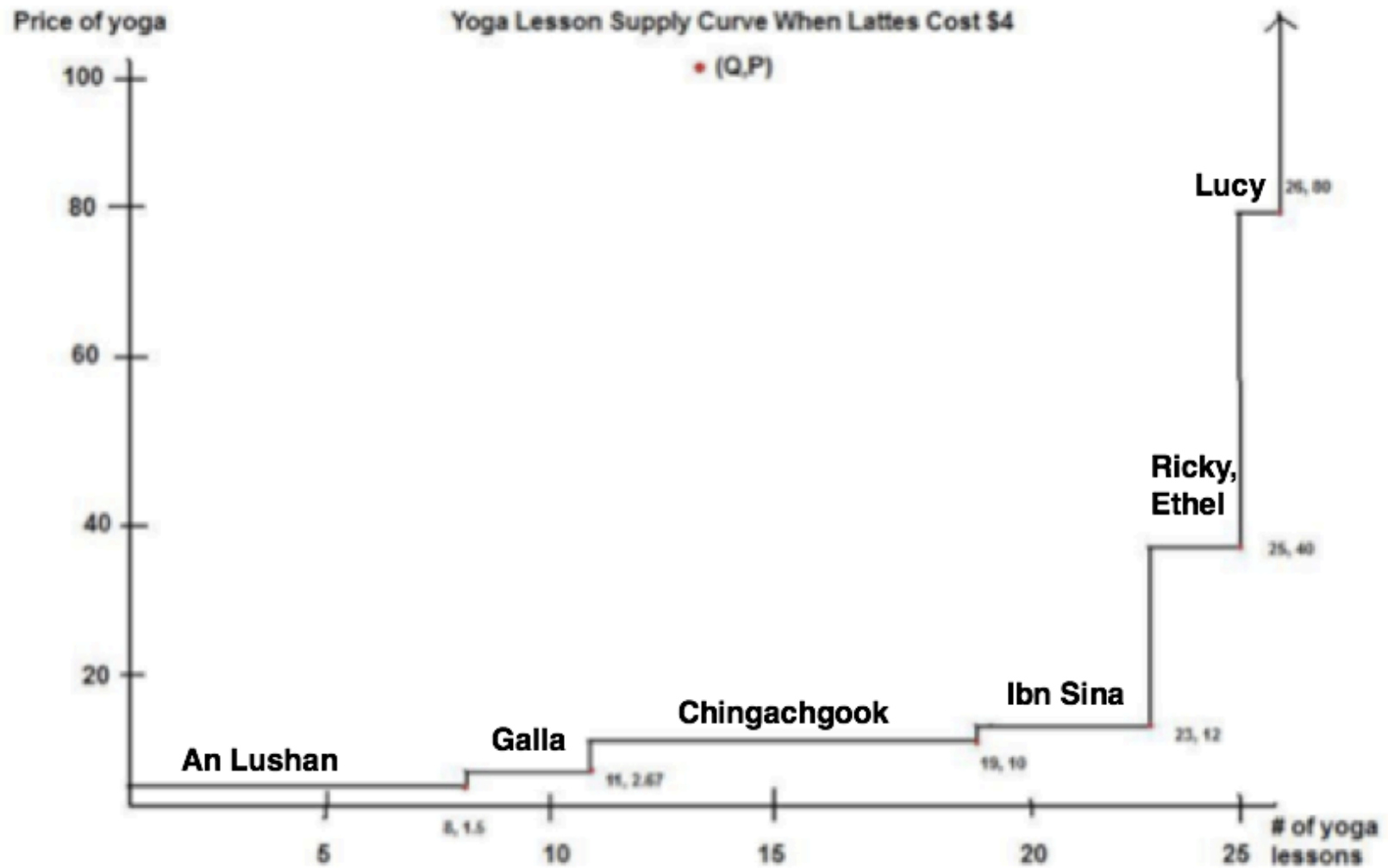
# The Answer to (17) I

- Opportunity cost of yoga:
  - An Lushan  $3/8$ ; Chingachgook  $20/8$ ; Ibn Sina  $12/4$ ; Galla Placidia  $2/3$ ; Lucy  $20/1$ ; Ethel  $10/1$ ; Ricky  $10/1$ ; Fred  $5/0$ .
- Price of lattes: \$4
- An Lushan should teach yoga if the price of yoga lessons is greater than: A. anything; B. \$1.50; C. \$12; D. Never; E. \$80.
- Lucy, Fred, Ibn Sina

# The Answer to (17) I

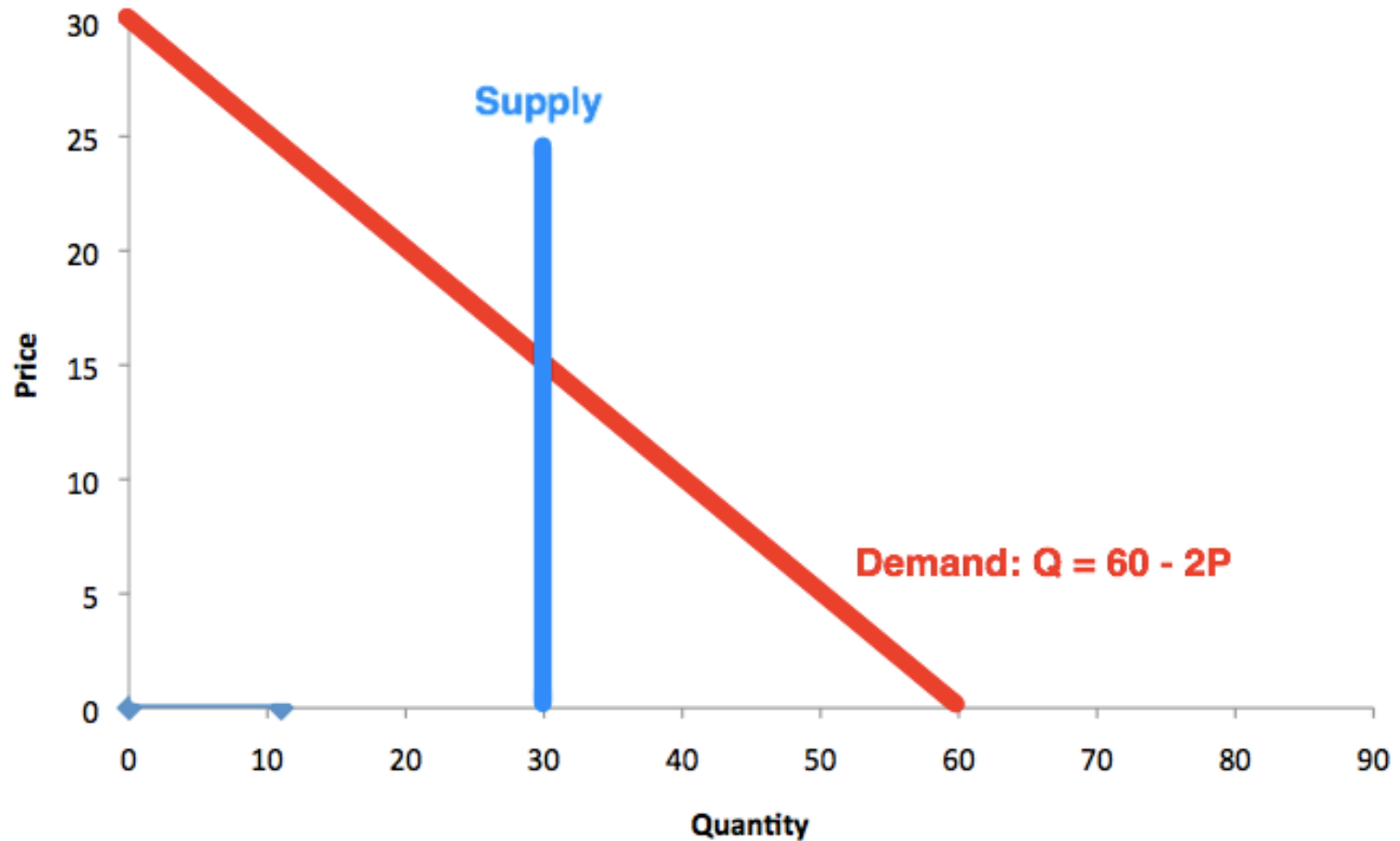
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- Price of lattes: \$4
- An Lushan should teach yoga if the price of yoga lessons is greater than: A. anything; B. \$1.50; C. \$12; D. Never; E. \$80.
- Lucy, Fred, Ibn Sina

# The Answer to (17) II



# The Market Day

## The Market for Yoga Lessons



# Market Equilibrium

- What will happen if the price is above 15?
  - Excess supply
- What will happen if the price is below 15?
  - Excess demand
- Some adjustment process out there
  - If the price is above 15, the disappointed sellers will be willing to offer to take less and bid business away from the satisfied sellers
  - If the price is below 15, the disappointed buyers will be willing to offer more
- The market should “grope” itself to the price of 15, where
  - There are no disappointed would-be sellers who wish to cut their prices
  - And no disappointed would-be buyers who wish to raise their prices

# The Market Day

- Demand goes up to...  $80 - 2P$ . Price goes to...
  - A. \$15
  - B. \$20
  - C. \$25
  - D. \$30
  - E. None of the above

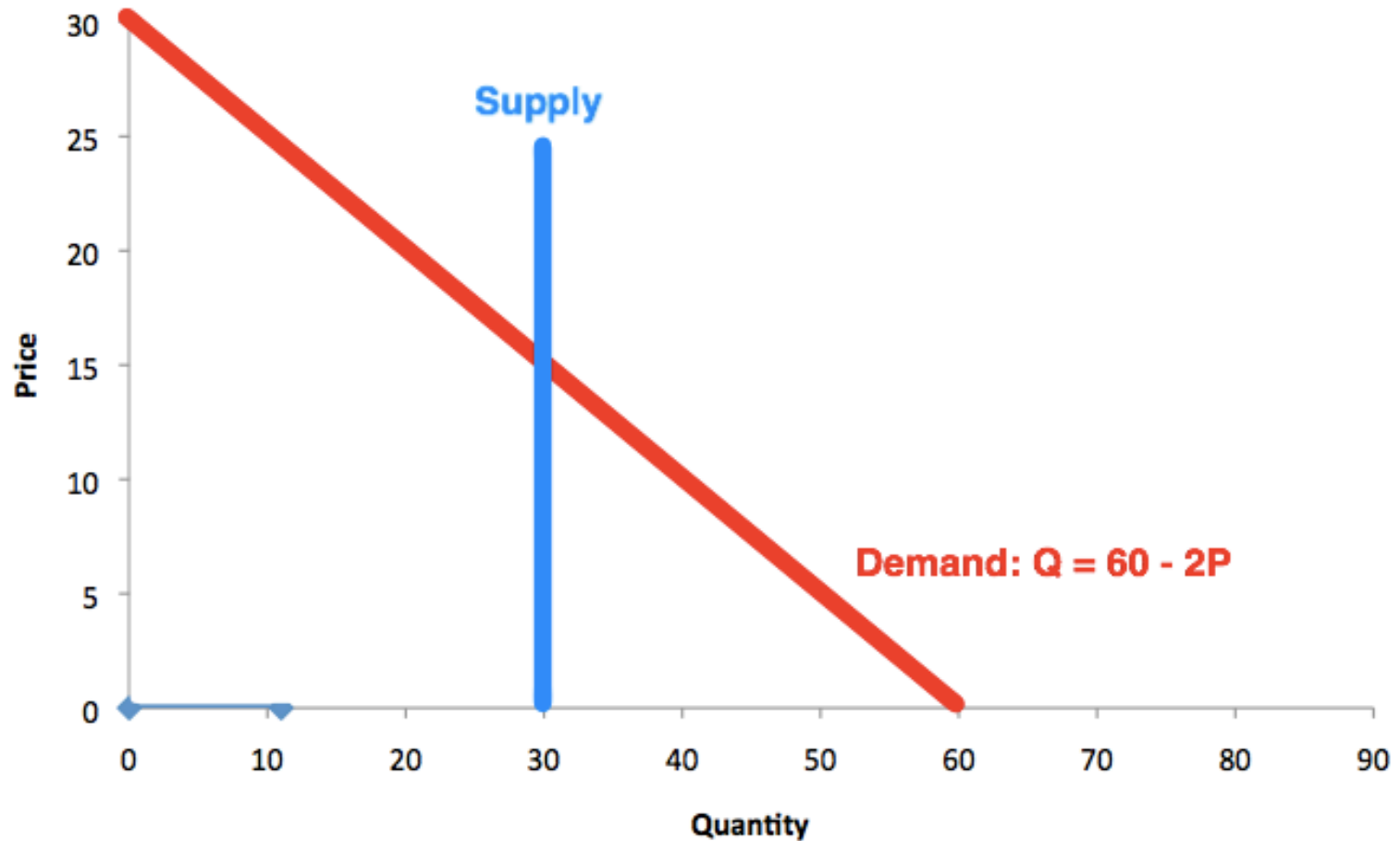
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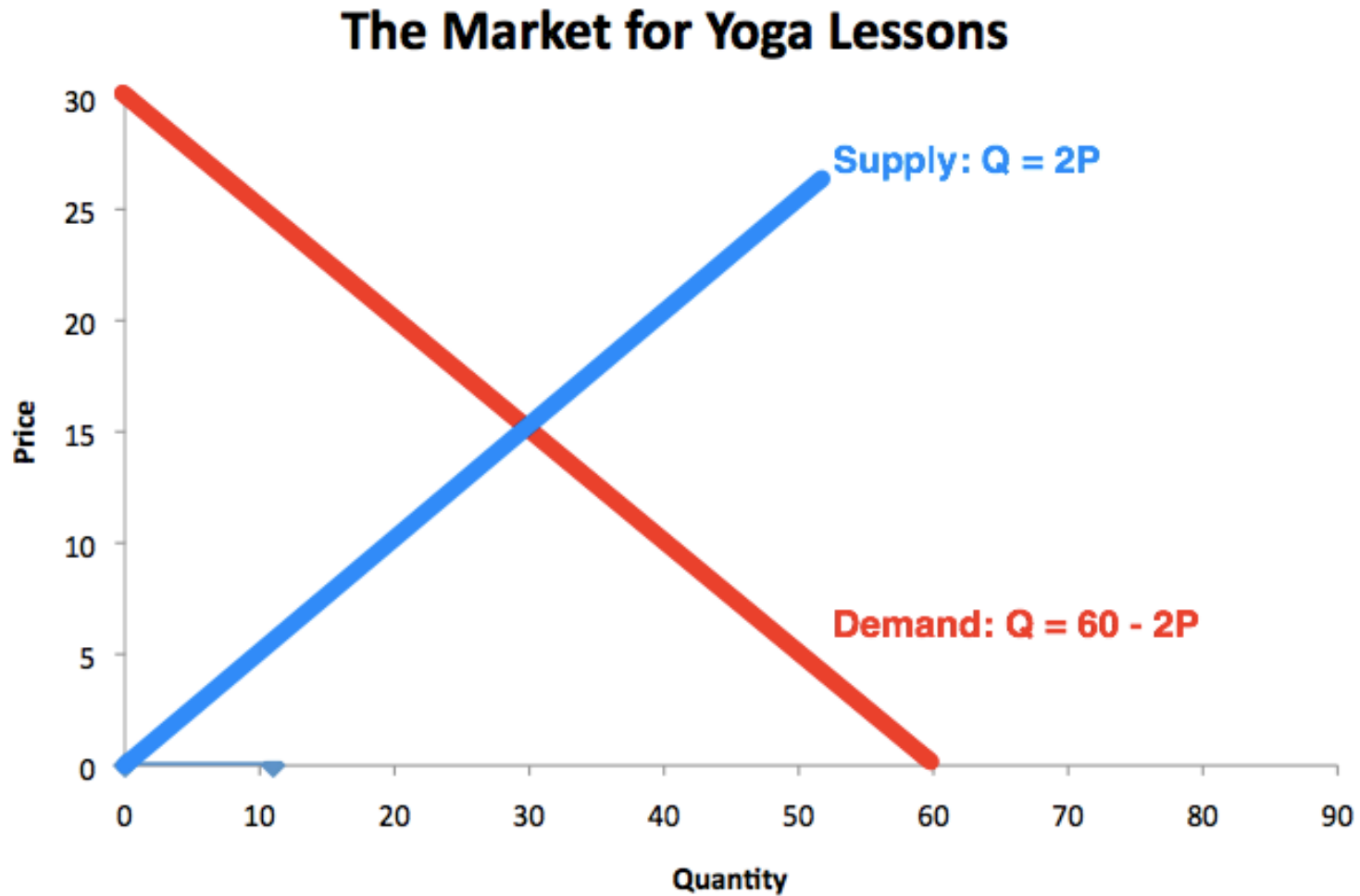


# The Market Day

## The Market for Yoga Lessons



# The Short Run: Labor Flexible



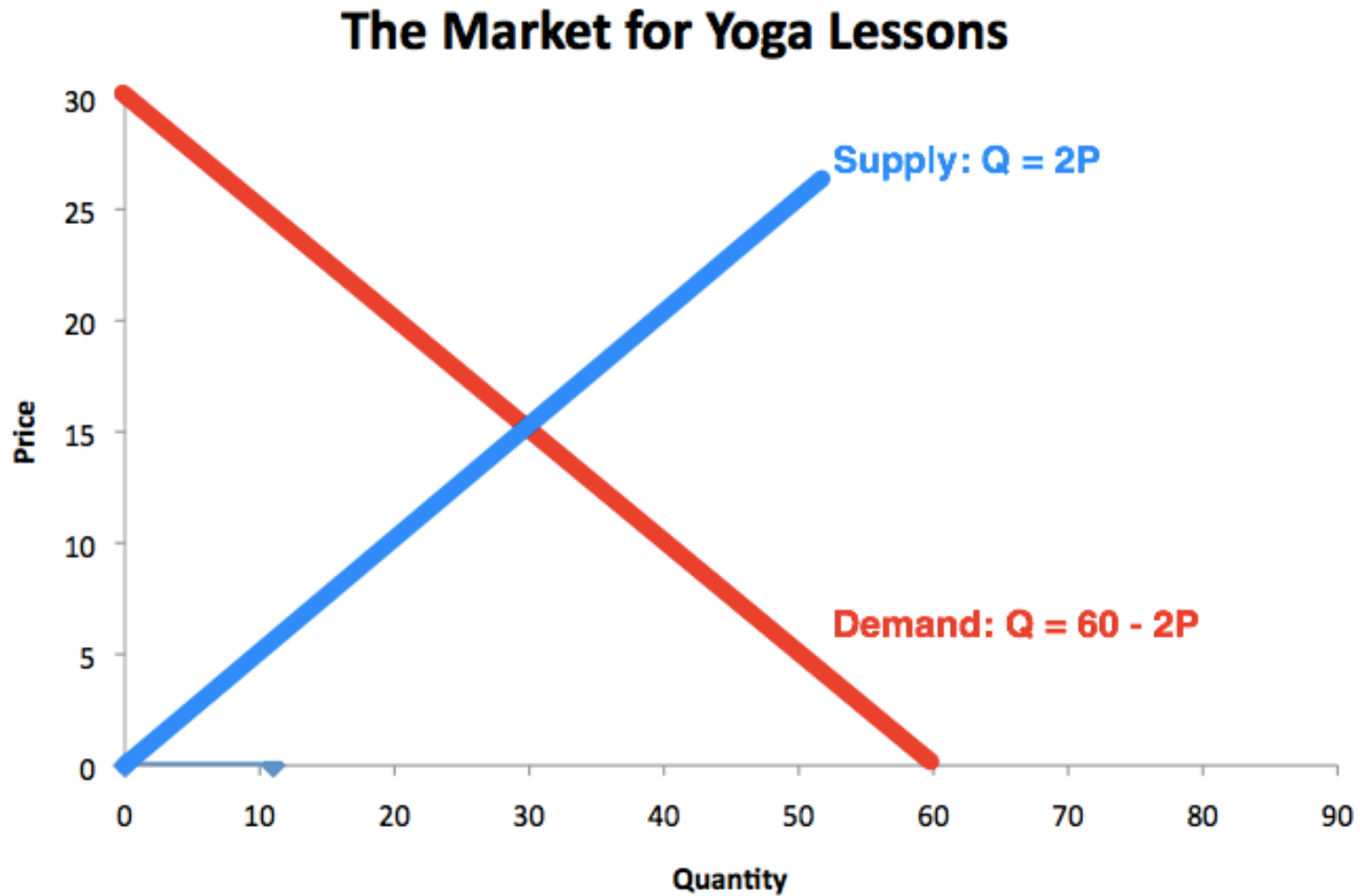
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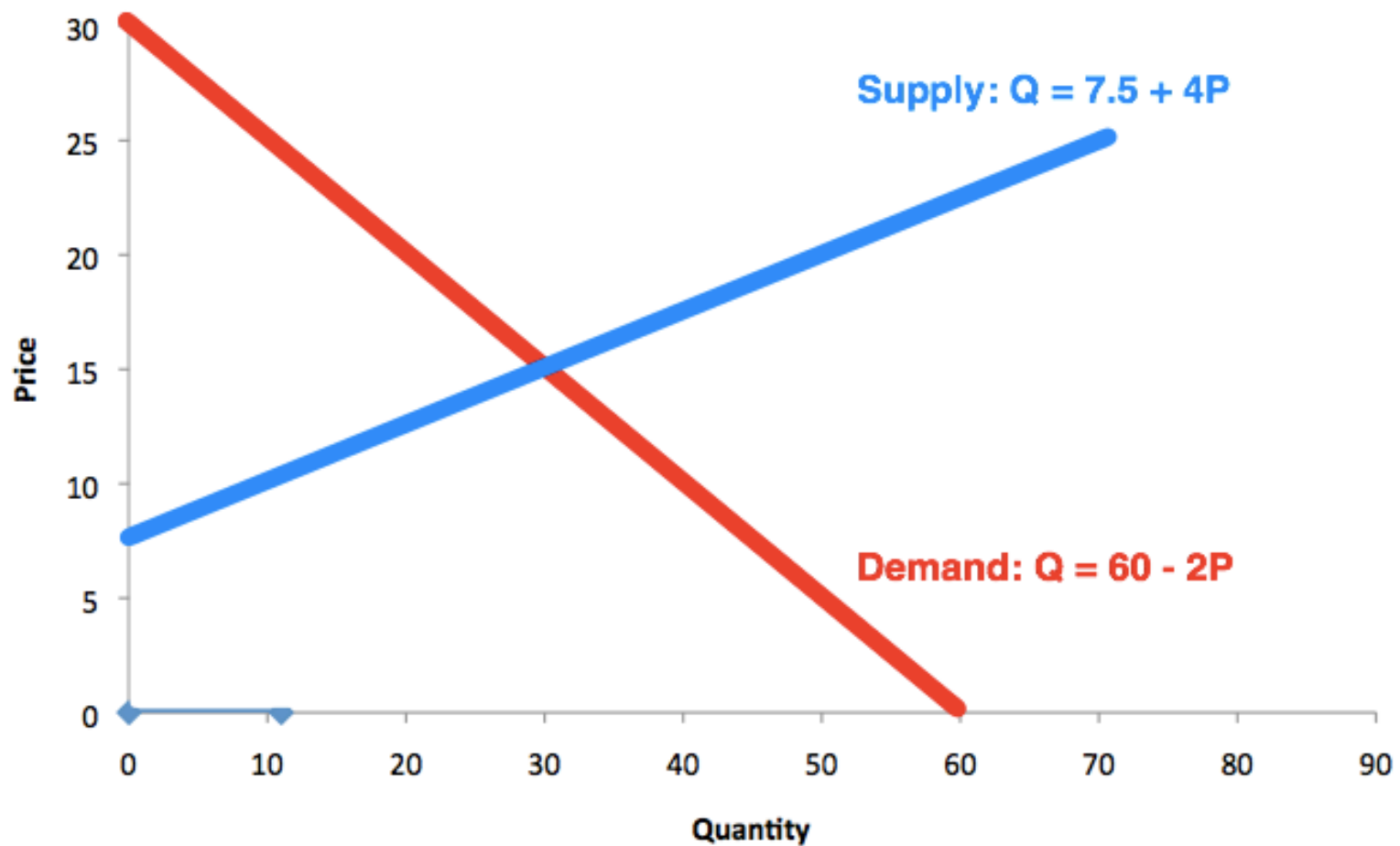
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# The Short Run: Labor Flexible



# The Long Run: Labor and Capital Flexible

## The Market for Yoga Lessons



# The Long Run

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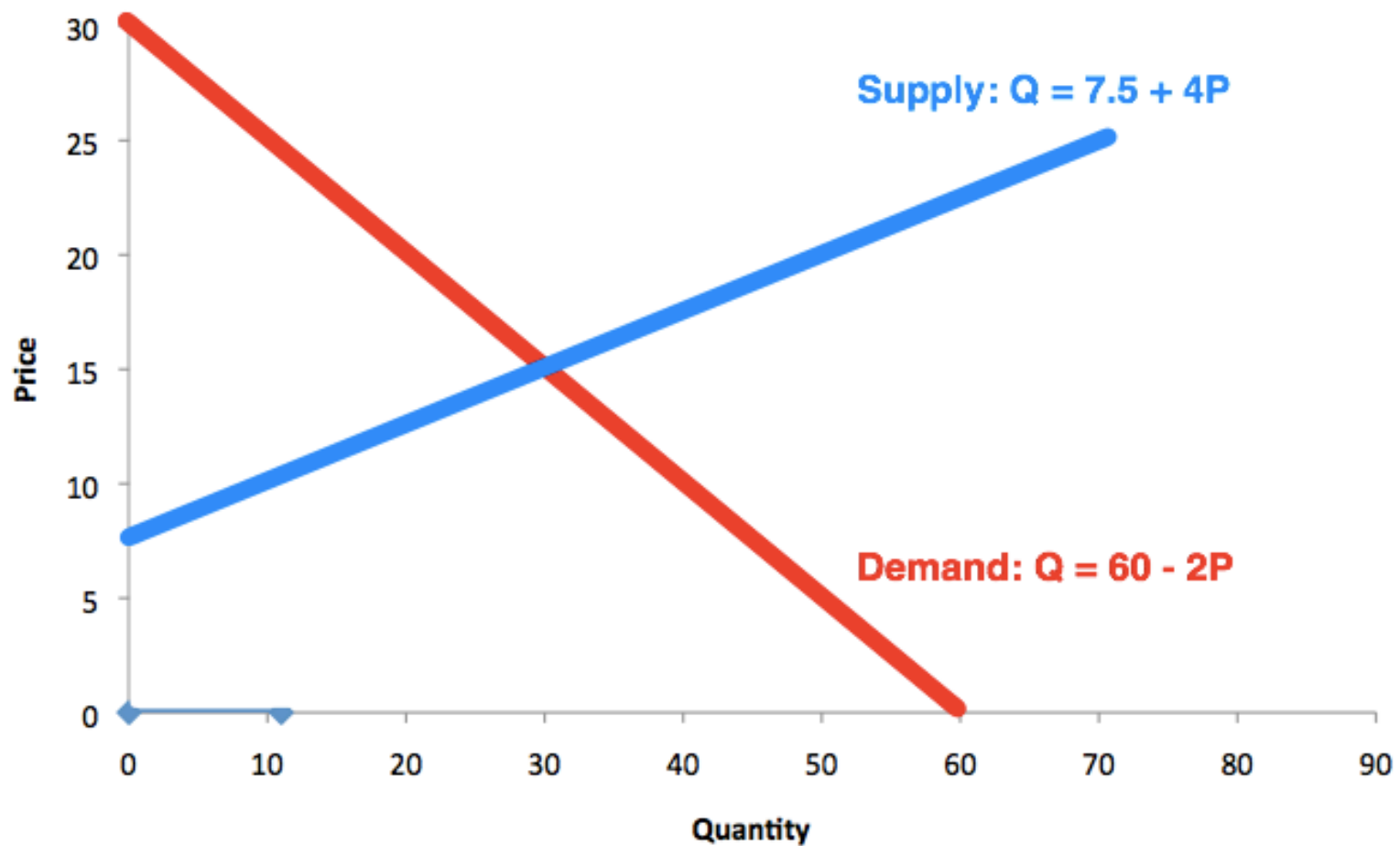
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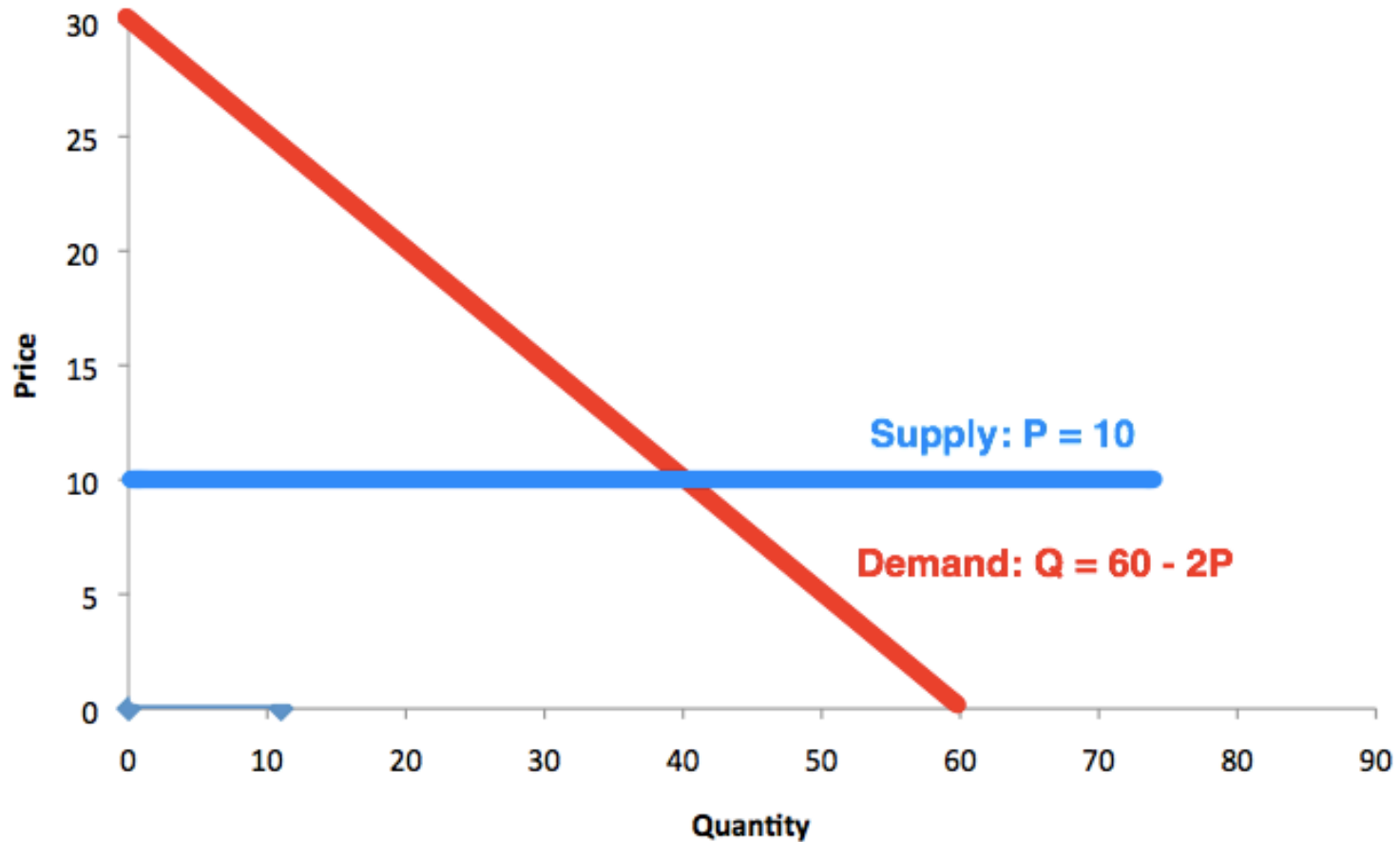
# The Long Run: Labor and Capital Flexible

## The Market for Yoga Lessons



# The Very Long Run: Labor, Capital, and Organization Flexible

## The Market for Yoga Lessons



# The Very Long Run

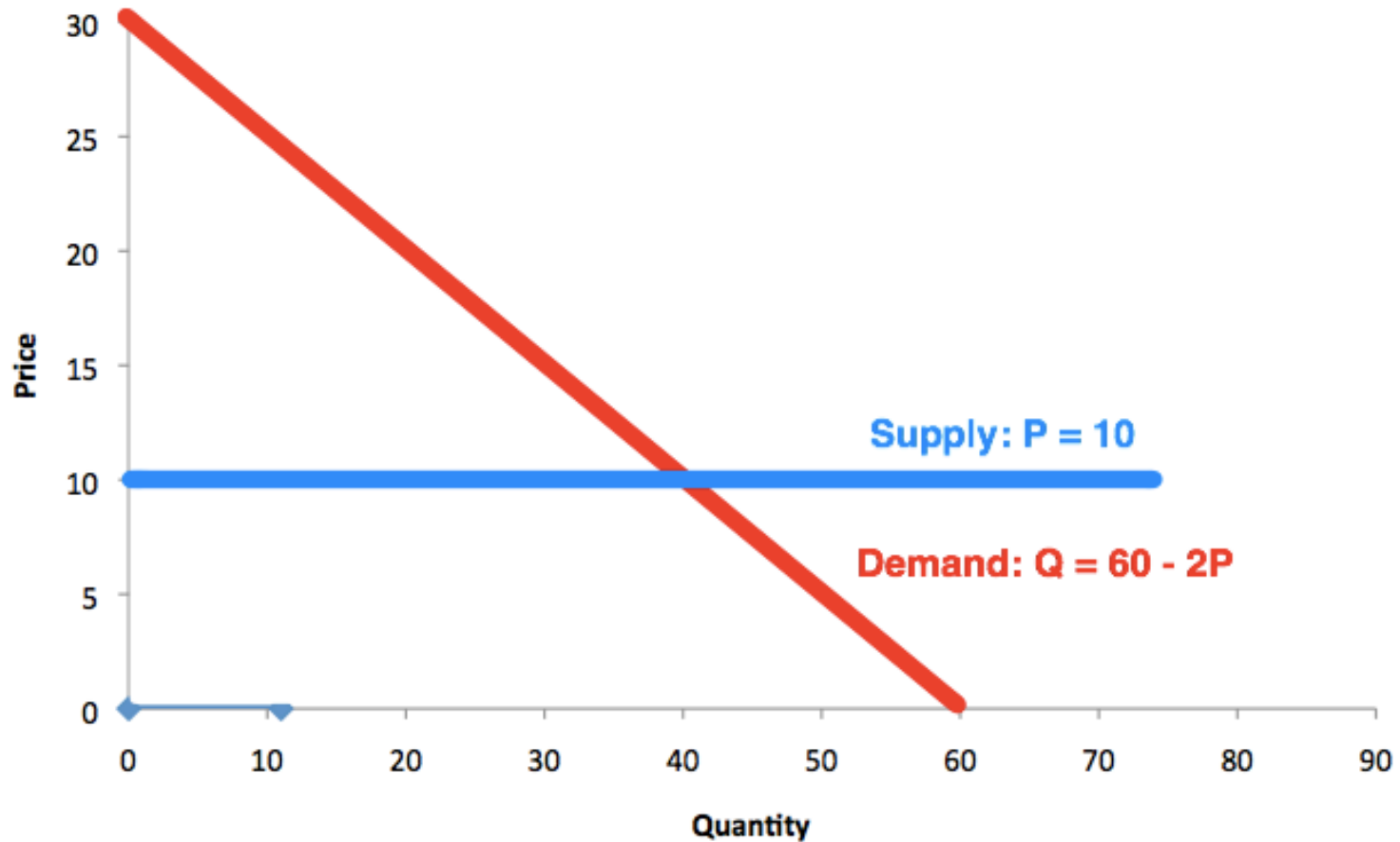
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# The Very Long Run: Labor, Capital, and Organization Flexible

## The Market for Yoga Lessons



# Other Possible Demand Curves...

- Linear demand:  $Q = 60 - 2P$
- Unit elasticity:  $PQ = 450$ 
  - Doubling the price halves the quantity, and vice versa: increasing the price by 1% reduces the quantity by 1%
  - Total revenue is constant
- Price elasticity of  $\frac{1}{2}$ :  $PQ^2 = 13500$ 
  - Increasing the price by 1% reduces the quantity by  $\frac{1}{2}\%$
  - More revenue the higher the price because elasticity is less than one
  - Price-inelastic demand
- Price elasticity of 2:  $PQ^{(1/2)} = 82.158$ 
  - Increasing the price by 1% reduces the quantity by 2%
  - More revenue the lower the price because elasticity is greater than one
  - Price-elastic demand

# My Lords, Ladies, and Gentlemen, to Your i>Clickers...

- About how much does use of markets rather than command amplify societal economic productivity?
  - A. None
  - B. Doubles it
  - C. Triples it
  - D. Quadruples it
  - E. Quintuples it

# Consumer Surplus

- Add up all the consumer surplus of all the people getting it
- And it is equal to the area of the triangle
- Note how the surplus from the availability of yoga lessons at a price of \$15 is distributed
  - Some people get a lot—because they really like yoga, would pay through the nose for it, and so get a really good deal
  - Some people get only a little surplus—because they are “meh” about yoga, especially at \$15 a lesson
  - Is this fair?
  - Aristotle says fairness consists in treating equals equally, and unequals unequally. Is it fair for the people who really enjoy the class to only have to pay as much for it as the people for whom it is barely better than a poke in the eye from a sharp stick?



# Producer Surplus

- Add up all the producer surplus of all the people getting it
- And it is equal to the area of this... well, not really a triangle
- Note how the surplus from the availability of yoga lessons at a price of \$15 is distributed
  - Some people get a lot—because they really like to give yoga lessons and would almost give them for free, and so get a really good deal
  - Some people get only a little surplus—because they are “meh” about giving yoga lessons, especially at a measly \$15 per student per lesson
  - Is this fair?
  - Aristotle says fairness consists in treating equals equally, and unequals unequally. Is it fair for the people who really love teaching the class to receive as much for teaching it as the people for whom teaching a yoga class is barely better than a poke in the eye from a sharp stick?

# Properties of the Market Equilibrium

- It is where the supply and demand curves cross
- Nobody is rationed out of the market
- It is stable
- It produces the maximum dollar-value social surplus
  - No other possible arrangement produces more social surplus
  - Other arrangements have
    - Some of the wrong people teaching the classes
    - Some of the wrong people taking the classes
    - Too few classes being offered
    - Too many classes being offered

# Other Arrangements Leave Side Deals

- Potential side deals
  - Some of the wrong people teaching
    - Teachers and non-teachers should swap
  - Some of the wrong people taking
    - Students and non-students should swap
  - Too many people teaching
    - Teachers and students should agree to go home
  - Not enough people teaching
    - Non-teachers and non-students should find a way to offer and attend a class
- A competitive market equilibrium leaves no side deals

# My Lords, Ladies, and Gentlemen, to Your i>Clickers...

- But is a competitive market equilibrium fair? Should we impose an excess profits tax on Albus, Tom, Hermione, and Harry, and an excess education fee on yogastudent#1 through yogastudent#10?
  - A. Yes on both the teachers and the students, because it is unfair to the rest of us that they like yoga so much
  - B. Yes on the teachers, because they are getting a job they really, really like, but not on the students because it is not their fault that they like yoga and they should not be penalized.
  - C. Yes on the students, because it is not fair that they get to pay so little for something so valuable to them, but not on the teachers because it is not their fault that they are good at teaching and enjoy what they do and they should not be penalized.
  - D. No on both: we cannot help how we are made, or what we like and dislike.
  - E. What is this “fair”? And once you start taxing people not for what they do but for how they feel, don’t you create a huge problem of deception and lies that you will not be able to untangle? The task here is to figure out what maximizes the total value we create rather than trying fruitlessly to ensure that nobody is enjoying themselves too much.