

Economics 1: Fall 2012: Market Equilibrium

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

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

January 30, 2012, 11-12

Wheeler Auditorium, U.C. Berkeley

My Lords, Ladies, and Gentlemen, to Your iClickers...

- iClickers?
 - A. Huh?
 - B. Have and registered
 - C. Have and not registered
 - D. Don't have

My Lords, Ladies, and Gentlemen, to Your iClickers...

- Do you want me to get the names for examples from...
 - A. Movie characters [**]
 - B. TV show characters
 - C. Books
 - D. Politicians
 - E. Celebrities [*]

My Lords, Ladies, and Gentlemen, to Your iClickers...

- If celebrities...
 - A. Accomplished actors and actresses [**]
 - B. Ingenues and juveniles
 - C. People who couldn't survive if they weren't celebrities [*]
 - D. Why are these people celebrated?
 - E. Captains of industry--robber barons

My Lords, Ladies, and Gentlemen, to Your iClickers...

- If movie characters...
 - A. Harry Potter [***]
 - B. Star Wars Universe
 - C. Twilight
 - D. Old Hollywood
 - E. Bollywood

Fundamentals of Supply and Demand

- Let's say that we have eight potential yoga teachers: Hermione, Ron, Harry, Letitia, Severus, Tom, Albus, and Hagrid.
- And let's say we have *unlimited* and *highly elastic* demand: the people of Berkeley won't pay more than \$10/hour for a group yoga lesson (they think that would be unfair)—but as many people as we offer seats... mats... are willing to pay \$10/hour.
- And let's say each of our eight can teach a class of at most the following number of students: Hagrid, 50; Hermione, 12; Harry, 10; Severus, 4; Ron, 3; Letitia, 2; Albus, 1; and Tom, -2—you then have to take the people in Tom's class, refund their money, and find them places in another class just to undo the damage and restore them to the *status quo ante*.

Now We Are the PDC Committee...

- We have to decide:
 - Who we assign to teach yoga.
 - How much we pay them out of the \$10/lesson that is the willingness to pay of the entire Berkeley population.
- MEMO: Productivities: Hagrid, 50; Hermione, 12; Harry, 10; Severus, 4; Ron, 3; Letitia, 2; Albus, 1; and Tom, -2.

My Lords, Ladies, and Gentlemen: to Your iClickers...

- Start with Hagrid:
 - A. Yes
 - B. No
- And how much should we pay him?
 - A. 0
 - B. \$40
 - C. \$60
 - D. \$500
 - E. Something else...
- MEMO: Productivities: Hagrid, 50; Hermione, 12; Harry, 10; Severus, 4; Ron, 3; Letitia, 2; Albus, 1; and Tom, -2.

What PDC Decides...

- Hagrid: Yes; not sure what to pay...
- Hermione: Yes; \$60
- Harry: Yes; \$40
- Severus: No
- Ron: No
- Letitia: No
- Albus: No
- Tom: No

The Downward-Facing Dog



Some More Information...

- Productivities: Hagrid, 50; Hermione, 12; Harry, 10; Severus, 4; Ron, 3; Letitia, 2; Albus, 1; and Tom, -2.
- Reservation wages:
 - Hagrid, \$1000 (really wants to raise dragons instead); Harry, \$50; Severus, \$50; Letitia, \$25; Ron, \$20; Hermione, \$0 (she can go back in time, remember, so it doesn't keep her from doing something else); Albus, -\$10 (he likes teaching yoga); Tom, -\$50 (he really likes teaching yoga)

How Did PDC Do?

- Hagrid: $-\$1000 + 50 \times \$10 = -\$500$
- Hermione: $-\$0 + 12 \times \$10 = \$120$
- Harry: $-\$50 + 10 \times \$10 = \$50$
- Severus:
- Ron:
- Letitia:
- Albus:
- Tom:
- Number of students: 72
- Value created: $-\$330$

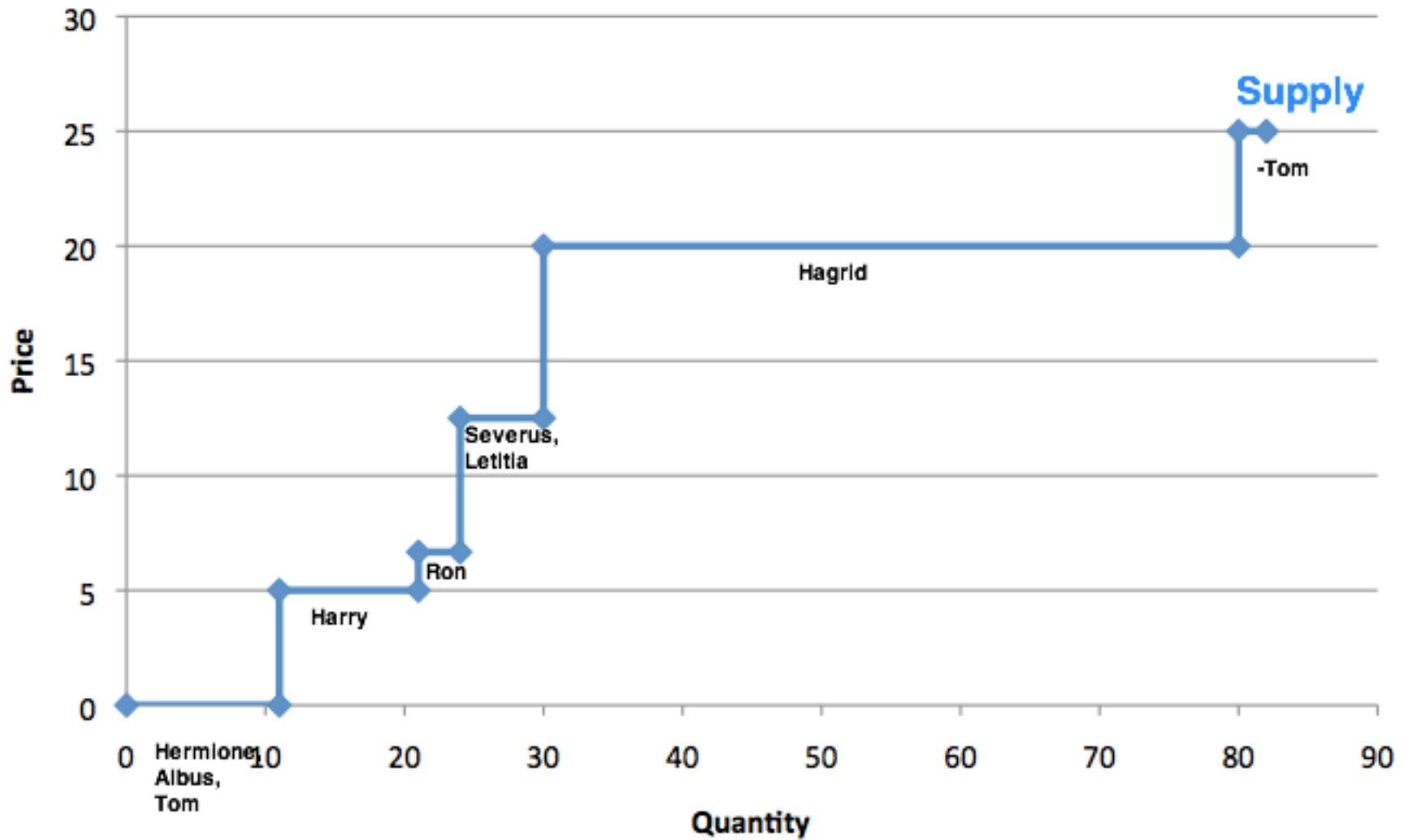
Calculating Opportunity Costs...

- Opportunity costs:
 - Hagrid, \$20; Harry, \$5; Severus, \$12.50; Letitia, \$12.50; Ron, \$6.67; Hermione, \$0; Albus, -\$10; Tom, \$25.
- Productivities:
 - Hagrid, 50; Hermione, 12; Harry, 10; Severus, 4; Ron, 3; Letitia, 2; Albus, 1; and Tom, -2.
- Reservation wages:
 - Hagrid, \$1000; Harry, \$50; Severus, \$50; Letitia, \$25; Ron, \$20; Hermione, \$0; Albus, -\$10; Tom, -\$50.

How to Draw a Supply Curve

- A supply curve is a tool for telling us what will happen if we have a market
- Start out at a price of zero
- Raise the price until somebody is willing to sell
- Keep raising the price, and watch how other sellers enter the market

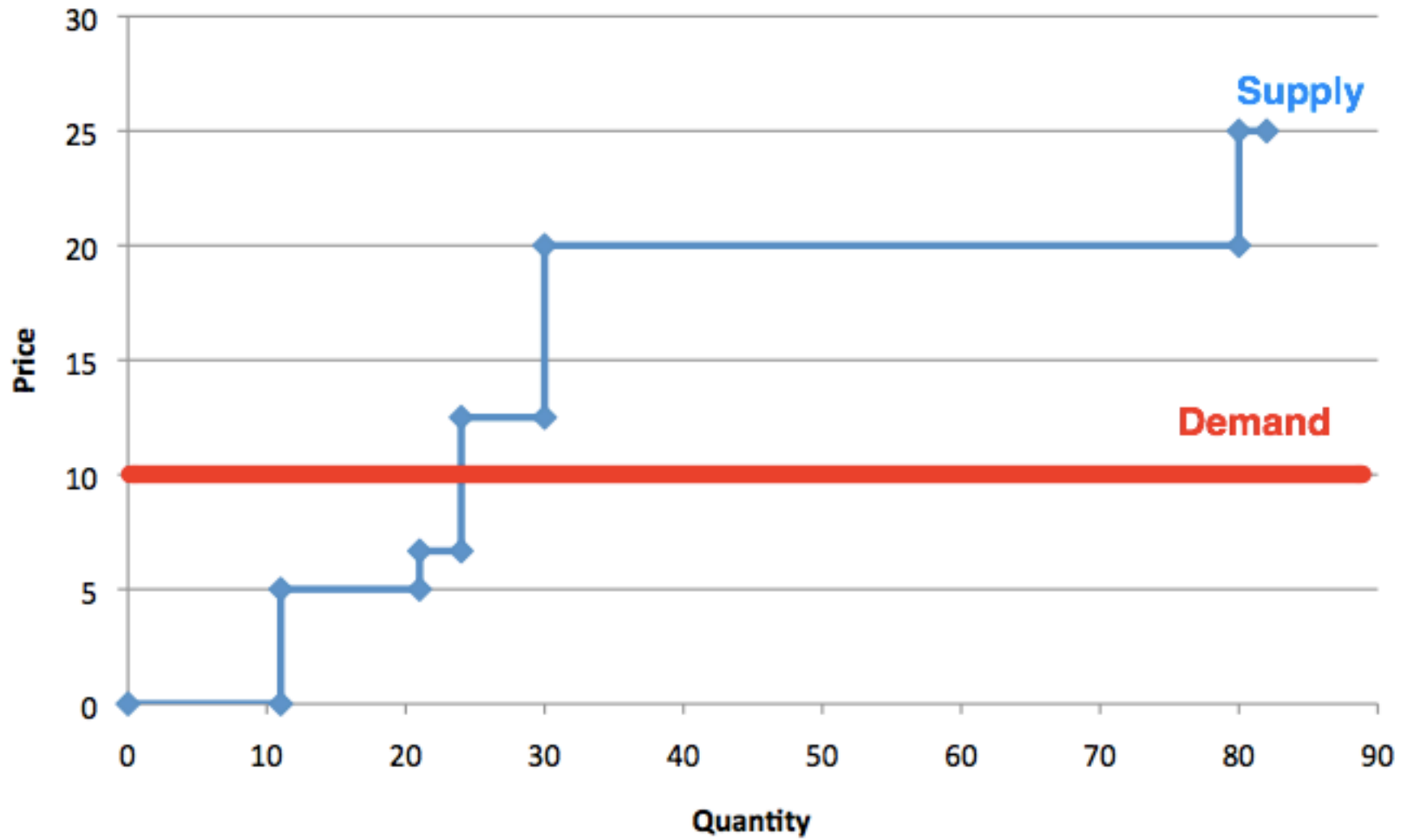
The Market for Yoga Lessons



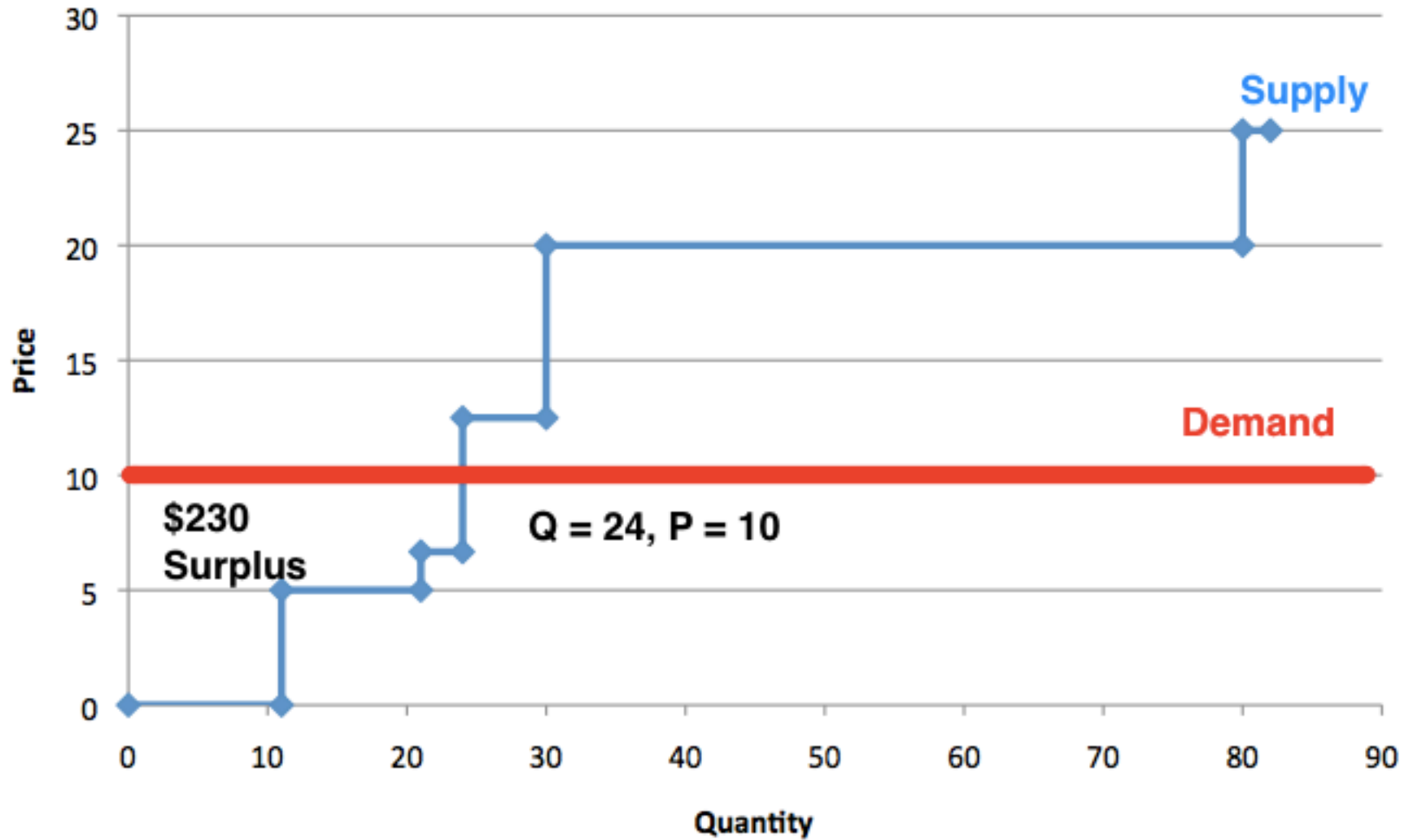
What Would the Market Do?

- Elastic demand fixes the price at \$10/hour/student...
- Property in your own person means you keep the money you charge...
 - Hagrid passes...
 - Hermione teaches 12 students and winds up +\$120...
 - Harry teaches 10 students and winds up +\$50...
 - Severus passes...
 - Ron teaches 3 students and winds up +\$10...
 - Letitia passes...
 - Albus teaches 1 student and winds up +\$20 to the good...
 - Tom teaches -2 students and winds up +\$30 to the good...
- Total surplus: +\$230
- Total students: 24
- Compare to PDC's central planning allocation:
 - Total surplus: -\$330
 - Total students: 72

The Market for Yoga Lessons



The Market for Yoga Lessons



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

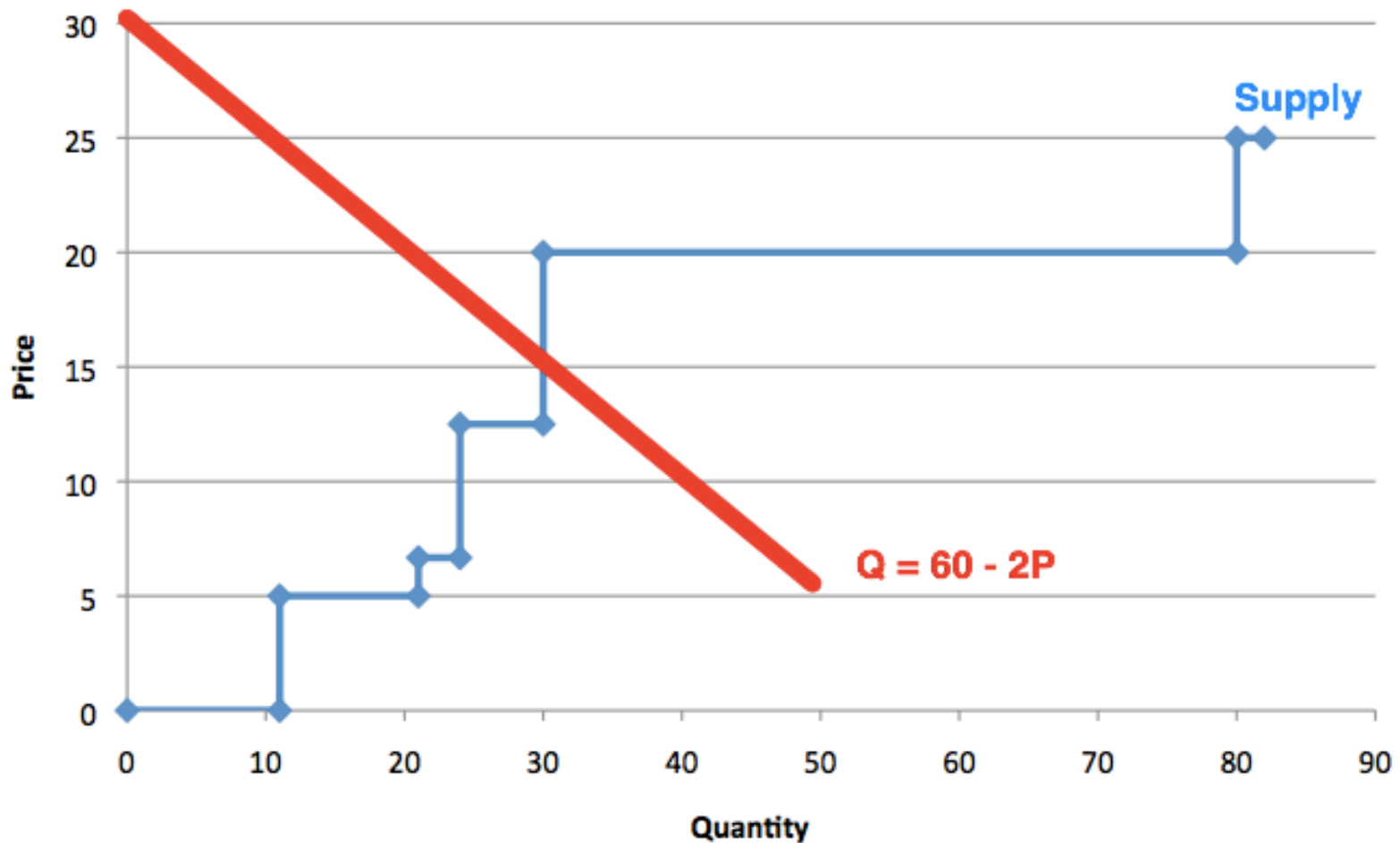
- About how much does use of markets rather than command amplify societal economic productivity?
 - A. None
 - B. Doubles it
 - C. Triples it
 - D. Quadruples it
 - E. Quintuples it

How to Draw a Demand Curve

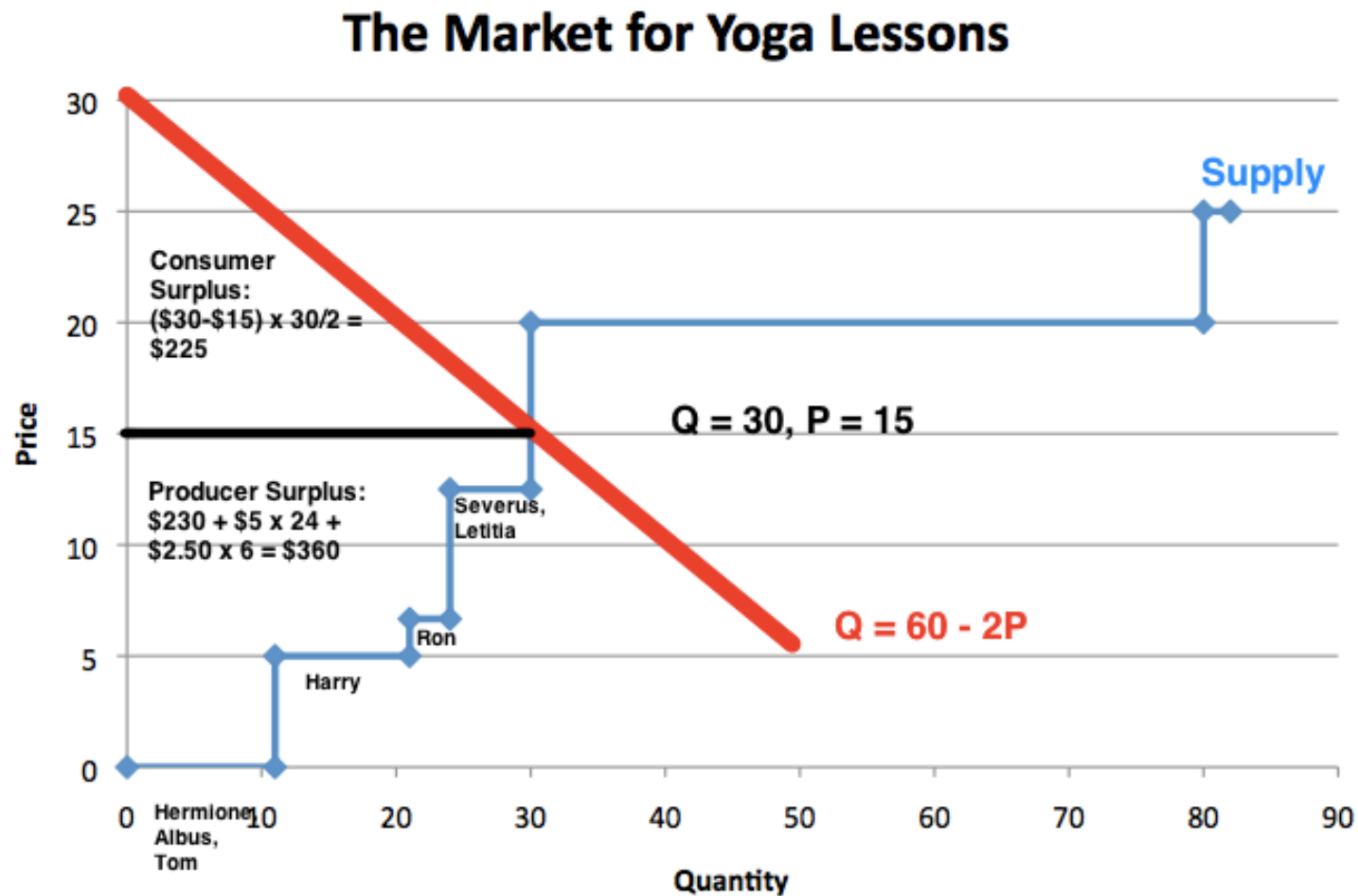
- Start out with a price so high that nobody wants to buy
- Lower the price until the first buyers appear
- Keep lowering it, and watch more buyers appear

We Can Use This Supply Curve with Any Demand Curve

The Market for Yoga Lessons



We Can Use This Supply Curve with Any Demand Curve



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

Consumer Surplus

- Add up all the consumer surplus of all the people getting it
- And it is equal to the area of this 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: Who

- Some of the wrong people teaching the classes
 - If Letitia is assigned to teach a class and Ron is not, then—“Psst. Will you teach my class?” There’s surplus for them to split
- Some of the wrong people taking the classes
 - If yogastudent#10 is not assigned to take a class and yogastudent#50 is, then—“Psst. Will you take my place?” There is surplus for them to split

Other Arrangements Leave Side Deals: How Many

- Too few classes being offered
 - If only Hermione, Albus, and Tom are teaching, then yogastudent#12 through yogastudent#30 meet Harry, Ron, Letitia, and Severus outside the PDC system, and there is surplus for them to split...
- Too many classes being offered
 - If everyone is teaching, then when yogastudent#31 through yogastudent#80 meet with Hagrid, they look at each other and say: “Let’s just pretend we did this”—and in so doing they split $\$30 \times 50 \times \frac{1}{2} = \750 of surplus...

A Competitive Market in Equilibrium Leaves No Side Deals

- No group of students can get together with a teacher and agree to just pretend that they did this
- No group of non-students can get together with a non-teacher and gain surplus by engaging in a transaction
- No student can swap places with any non-student in such a way that they can make a side-payment that makes both happy
- No teacher can swap places with any non-teacher in such a way that they can make a side-payment that makes both happy

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.