Economy Microeconomics 06 Elasticity

Microeconomics Ch 06

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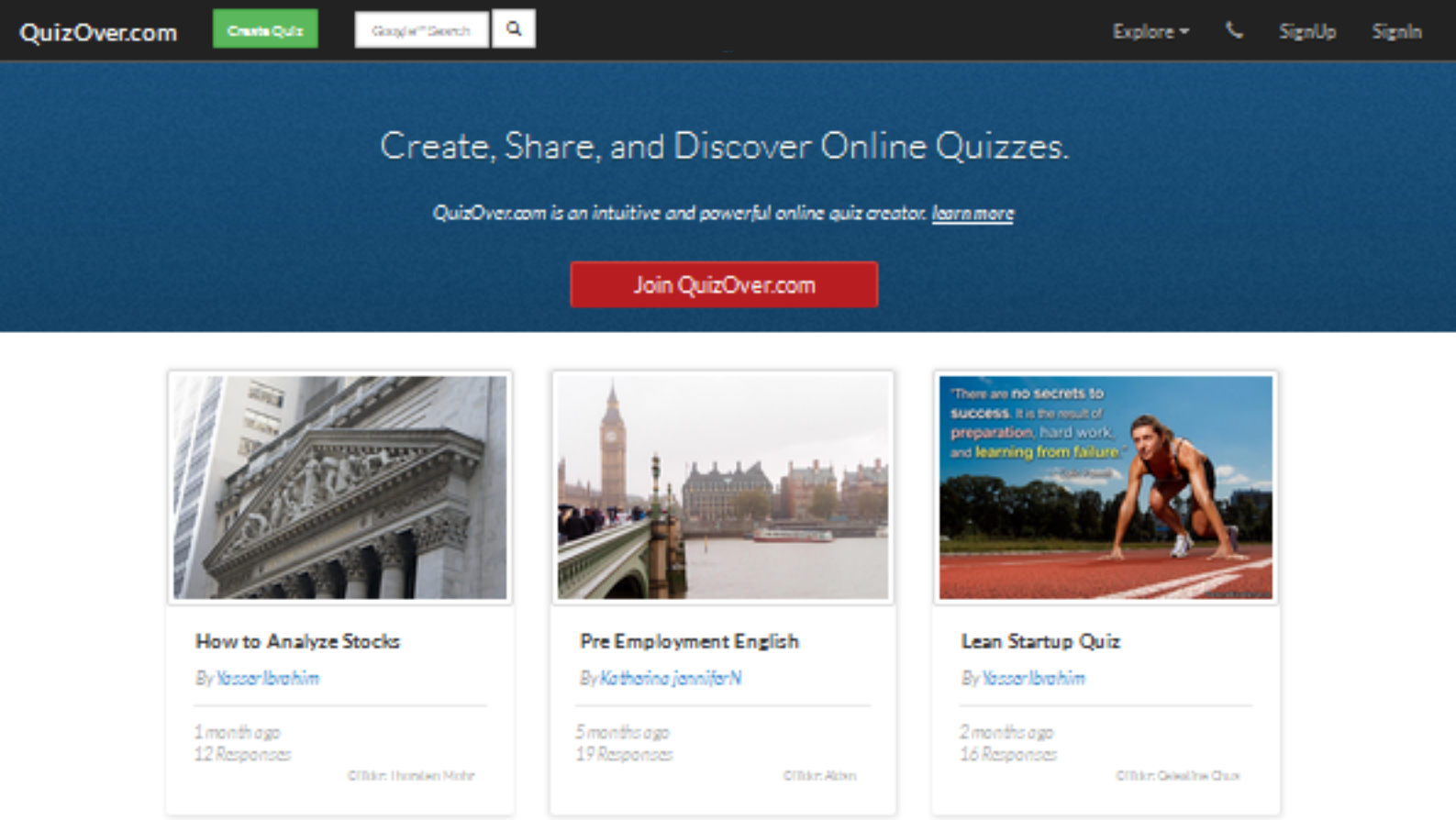

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4. Chapter: Microeconomics 06 Elasticity

1. Microeconomics 06 Elasticity Questions

4.1.1. Jeremy is deeply in love with Jasmine. Jasmine lives where cell pho...

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Jeremy is deeply in love with Jasmine. Jasmine lives where cell phone coverage is poor, so he can either call her on the land-line phone for five cents per minute or he can drive to see her, at a round-trip cost of $2 in gasoline money.

He has a total of $10 per week to spend on staying in touch. To make his preferred choice, Jeremy uses a handy utilimometer that measures his total utility from personal visits and from phone minutes. Using the values given in Table 6.11, figure out the points on Jeremy's consumption choice budget constraint (it may be helpful to do a sketch) and identify his utility-maximizing point.

[TABLE]

Round Trips; Total Utility; Phone Minutes; Total Utility

0; 0; 0; 0

1; 80; 20; 200

2; 150; 40; 380

3; 210 ;60 ;540

4; 260; 80; 680

5; 300; 100; 800

6; 330; 120; 900

7; 200; 140; 980

8; 180; 160; 1040

9; 160; 180; 1080

10; 140; 200; 1100

[/TABLE]

- The rows of the table in the problem do not represent the actual choices available on the budget set; that is, the combinations
  of round trips and phone minutes that Jeremy can afford with his budget. One of the choices listed in

the problem, the six round
trips, is not even available on the budget set. If Jeremy has only $10 to spend and a round trip costs $2 and phone calls cost $0.05
per minute, he could spend his entire budget on five round trips but no phone calls or 200 minutes of phone calls, but no round
trips or any combination of the two in between. It is easy to see all of his budget options with a little algebra. The equation for a
budget line is:
Budget = PRT x QRT + PPC x QPC
where P and Q are price and quantity of round trips (RT) and phone calls (PC) (per minute). In Jeremy's case the equation for the
budget line is:
$10 = $2 x QRT + $.05 x QPC
$10/$.05 = ($2QRT + $.05QPC) / $.05
200 = 40QRT + QPC
QPC = 200 -40QRT
If we choose zero through five round trips (column 1), the table below shows how many phone minutes can be afforded with the
budget (column 3). The total utility figures are given in the table below.
[TABLE]
Round Trips; Total Utility for Trips; Phone Minutes; Total Utility for Minutes; Total Utility
0; 0; 200; 1100; 1100
1; 80; 160; 1040; 1120
2; 150; 120; 900; 1050
3; 210; 80; 680; 890
4; 260; 40; 380; 640
5; 300; 0; 0; 300
[/TABLE]
Adding up total utility for round trips and phone minutes at different points on the budget line gives total utility at each point on the budget line. The highest possible utility is at the combination of one trip and 160 minutes of phone time, with a total utility of 1120.

4.1.2. Take Jeremy's total utility information in Exercise 6.1, and use th...

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Take Jeremy's total utility information in Exercise 6.1, and use the marginal utility approach to confirm the choice of phone minutes and round trips that maximize Jeremy's utility.

- The first step is to use the total utility figures, shown in the table below, to calculate marginal utility, remembering that marginal utility is equal to the change in total utility divided by the change in trips or minutes.
  [TABLE]
  Round; Total; Marginal Utility (per; Phone; Total; Marginal Utility (per
  Trips; Utility; trip); Minutes; Utility; minute)
  0; 0; -; 200; 1100; -
  1; 80; 80; 160; 1040; 60/40 = 1.5
  2; 150; 70; 120; 900; 140/40 = 3.5
  3; 210; 60; 80; 680; 220/40 = 5.5
  4; 260; 50; 40; 380; 300/40 = 7.5
  5; 300; 40; 0; 0; 380/40 = 9.5
  [/TABLE]
  Note that we cannot directly compare marginal utilities, since the units are trips versus phone minutes. We need a common denominator for comparison, which is price. Dividing MU by the price, yields columns 4 and 8 in the table below.
  Start at the bottom of the table where the combination of round trips and phone minutes is (5, 0). This starting point is arbitrary, but the numbers in this example work best starting from the bottom. Suppose we consider moving to the next point up. At (4, 40), the marginal utility per dollar spent on a round trip is 25. The marginal utility per dollar spent on phone minutes is 190. Since 25 < 190, we are getting much more utility per dollar spent on phone minutes, so let's choose more of those. At (3, 80), MU/PRT is 30 < 150 (the MU/PM), but notice that the difference is narrowing. We keep trading round trips for phone minutes until we get to (1, 160), which is the best we can do. The MU/P comparison is as close as it is going to get (40 vs. 70). Often in the real world, it is not possible to get MU/P exactly equal for both products, so you get as close as you can.

4.1.3. Explain all the reasons why a decrease in the price of a product wo...

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Explain all the reasons why a decrease in the price of a product would lead to an increase in purchases of the product.

- This is the opposite of the example explained in the text. A decrease in price has a substitution effect and an income effect.
  The substitution effect says that because the product is cheaper relative to other things the consumer purchases, he or she will tend to buy more of the product (and less of the other things). The income effect says that after the price decline, the consumer could purchase the same goods as before, and still have money left over to purchase more. For both reasons, a decrease in price causes an increase in quantity demanded.

4.1.4. As a college student you work at a part-time job, but your parents ...

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As a college student you work at a part-time job, but your parents also send you a monthly "allowance." Suppose one month your parents forgot to send the check. Show graphically how your budget constraint is affected. Assuming you only buy normal goods, what would happen to your purchases of goods?

- This is a negative income effect. Because your parents' check failed to arrive, your monthly income is less than normal and your budget constraint shifts in toward the origin. If you only buy normal goods, the decrease in your income means you will buy less of every product.

4.1.5. Siddhartha has 50 hours per week to devote to work or leisure. He h...

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Siddhartha has 50 hours per week to devote to work or leisure. He has been working for $8 per hour. Based on the information in Table 6.12, calculate his utility-maximizing choice of labor and leisure time.

[TABLE]

Leisure Hours; Total Utility from Leisure; Work Hours; Income; Total Utility from Income

0; 0; 0; 0; 0

10; 200; 10; 80; 500

20; 350; 20; 160; 800

30; 450; 30; 240; 1,040

40; 500; 40; 320; 1,240

50; 530; 50; 400; 1,400

[/TABLE]

- This problem is straightforward if you remember leisure hours plus work hours are limited to 50 hours total. If you reverse the order of the last three columns so that more leisure corresponds to less work and income, you can add up columns two and five to find utility is maximized at 10 leisure hours and 40 work hours:
  [TABLE]
  Leisure; Total Utility from; Work ;Income;Total Utility from Total Utility from
  Hours; Leisure; Hours ; ;Income ;Both
  0; 0; 50 400; 1,400; 1,400
  10; 200; 40; 320; 1,240; 1,440
  20; 350; 30; 240; 1,040; 1,390
  30; 450; 20; 160; 800; 1,250
  40; 500; 10; 80; 500; 1,000
  50; 530; 0; 0; 0; 530
  [/TABLE]

4.1.6. In Siddhartha's problem, calculate marginal utility for income and ...

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In Siddhartha's problem, calculate marginal utility for income and for leisure. Now, start off at the choice with 50 hours of leisure and zero income, and a wage of $8 per hour, and explain, in terms of marginal utility how Siddhartha could reason his way to the optimal choice, using marginal thinking only.

- Begin from the last table and compute marginal utility from leisure and work:
  Suppose Sid starts with 50 hours of leisure and 0 hours of work. As Sid moves up the table, he trades 10 hours of leisure for 10 hours of work at each step. At (40, 10), his MULeisure = 50, which is substantially less than his MUIncome of 500. This shortfall signals Sid to keep trading leisure for work/income until at (10, 40) the marginal utility of both is equal at 200. This is the sign that he should stop here, confirming the answer in question 1.

4.1.7. How would an increase in expected income over one's lifetime affect...

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How would an increase in expected income over one's lifetime affect one's intertemporal budget constraint? How would it affect one's consumption/saving decision?

- An increase in expected income would cause an outward shift in the intertemporal budget constraint. This would likely increase both current consumption and saving, but the answer would depend on one's time preference, that is, how much one is willing to wait to forgo current consumption. Children are notoriously bad at this, which is to say they might simply consume more, and not save any. Adults, because they think about the future, are generally better at time preference-that is, they are more willing to wait to receive a reward.

4.1.8. How would a decrease in expected interest rates over one's working ...

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How would a decrease in expected interest rates over one's working life affect one's intertemporal budget constraint? How would it affect one's consumption/saving decision?

- Lower interest rates would make lending cheaper and saving less rewarding. This would be reflected in a flatter intertemporal budget line, a rotation around the amount of current income. This would likely cause a decrease in saving and an increase in current consumption, though the results for any individual would depend on time preference.