Introduction to Economics: Problem Set 1

Due on January 26th, 2024 at 11:59pm
Tuesday/Thursday 3:30-4:45, Genome Sciences 100

Robert McDonough - ECON 101

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Question 1

We apply the cost-benefit principle every day. As students, the choice to attend UNC involved big costs and (hopefully) benefits.

(a) Attending UNC involves large out-of-pocket costs, which are listed on UNC's student aid website: https://studentaid.unc.edu/current/costs/. Using this site, find the total yearly cost of attending UNC as an in-state student.

(b) What is the North Carolina state minimum wage? Use the state minimum wage to calculate the foregone wages that you lose by attending UNC for the year.

(c) Not all costs are measured in dollars! Describe some of the nonmonetary costs of spending a year at UNC.

(d) At UNC, most students graduate after 8 semesters (4 years). Setting aside the non-monetary costs, use the numbers you found above to calculate the opportunity cost of earning your degree. Ignore the possibility of student loans and aid, and pretend that you are paying out of pocket.

(e) Explain the cost-benefit principle in a sentence or two. Incorporating the numbers you found above, then explain your decision to attend UNC this year using the cost-benefit principle.

Question 2

Your car needs gas before you can go to work this morning. You decide to go to the gas station that is out of the way, but where gas is \$0.10/gallon cheaper than the gas station on the way to work. This gets you into work 10 minutes later than going to the other gas station. If your wage is \$20/hour and you have to purchase 20 gallons of gas, was this worth it? Why or why not?

Question 3

Tanner and Jasmine are each capable of producing two services: walking dogs or cooking meals. Tanner can cook a meal for 6 people in an hour, or walk 1 dog in an hour. Jasmine can cook a meal for 2 person in an hour, or walk 3 dogs in an hour. They each have 4 hours available to use to cook meals or walk dogs.

(a) Draw a production possibilities frontier showing Tanner's capacity to cook meals or walk dogs, then add another PPF showing Jasmine's ability to cook meals or walk dogs.

(b) Label (including numbers) a point on Tanner's PPF that he could produce at without trading. Do the same for a point on Jasmine's PPF

(c) Who has the comparative advantage in cooking meals? Who has the comparative advantage in walking dogs? Explain both answers.

(d) Tanner and Jasmine decide to specialize in producing one thing, then trade. What will Tanner choose to produce and what will Jasmine choose to produce. Explain your answer.

(e) What can we say about the price that Tanner and Jasmine would both be willing pay to trade meals and dog walks?

(f) Suppose that before trading, Tanner and Jasmine each spent two hours walking dogs and two hours cooking meals. What are the gains to specialization and trade in this situation? Provide an example for how the gains from trade could be distributed so that Tanner and Jasmine each have more of each service than before.

(g) In your example for how the gains of trade could be distributed, how much of each good are Tanner and Jasmine trading to one another? Do these "terms of trade" make sense, given what you wrote in part (e)?

Question 4

Consider the market for a new physical copy of our textbook, *Principles of Economics by Stevenson and Wolfers*. The instructors teaching large classes of ECON 101 at UNC all use this textbook. For each of the following situations, decide if demand will shift, if supply will shift, or if neither will shift. Then, draw a graph clearly illustrating how supply or demand will shift.

(a) The price of textbook ink increases.

(b) UNC mandates that all arts and science majors must take ECON 101.

(c) The price of the textbook rises.

(d) The price of used copies of the old edition of the textbook decrease.

Question 5

Consider the daily market for a cup of coffee in Chapel Hill. Market demand for coffee is given by the equation $P = 80 - \frac{1}{2}Q_d$, and market supply of coffee is given by $P = \frac{Q_s}{38}$.

(a) If the price of coffee is \$0, how many cups would buyers want to consume? How many cups would sellers want to sell?

(b) Calculate the price at which buyers would not want to buy any coffee (i.e., $Q_d = 0$).

(c) Calculate the equilibrium price of coffee and the quantity of coffee cups sold in Chapel Hill every day.

(d) Draw a properly labeled diagram for the market for coffee in Chapel Hill.