Lesson Plan 2 – Opportunity Cost and Incentives

Introduction

This lesson uses examples, videos and three mini-activities to teach about opportunity cost and incentives.

MINI ACTIVITIES:

Auction for three pieces of paper (money price rationing)

Rationing three scarce items (rationing mechanisms)

Marginal Benefit & Marginal Cost of Push-ups (marginal thinking and incentives)

Economic Concepts

Opportunity Cost

Incentives

Price

Marginal Benefit & Cost

Rationing

Demand

Supply

Sunk Cost

Voluntary National Content Standards in Economics

https://www.fte.org/teachers/teacher-resources/voluntary-national-content-standards-in-economics/

STANDARD 2: MARGINAL DECISION MAKING: Effective decision making requires comparing the additional costs of alternatives with the additional benefits. Most choices involve doing a little more or a little less of something: few choices are "all or nothing" decisions.

STANDARD 3: ALLOCATION MECHANISMS: Different methods can be used to allocate goods and services. People acting individually or collectively through government must choose which methods to use to allocate different kinds of goods and services.

STANDARD 4: INCENTIVES: People respond predictably to positive and negative incentives.

STANDARD 5: GAINS FROM VOLUNTARY TRADE: Voluntary exchange occurs only when all participating parties expect to gain. This is true for trade among individuals or organizations within a nation, and among individuals or organizations in different nations.

Materials

- 3 clear plastic baggies
- 1 clean sheet of notebook paper
- 1 wadded up facial tissue
- 1 five-dollar bill
- Three items, of similar market value to auction off. Examples: Energy drink, candy bar, pack of gum/mints.

Presentation Guidelines and Suggestions

1. Review:

ERP-1: People choose, and individual choices are the source of social outcomes.

Scarcity necessitates choices: not all of our desires can be satisfied. People make these choices based on their perceptions of the expected costs and benefits of the alternatives.

   a. Use examples from around the world emphasizing that choices have real impacts and that the poverty of some nations and the wealth of others is not an accident, but the result of choices.

   b. Consider a discussion of policies in Venezuela and their effect on production, foreign investment, standard of living, etc. in the country.

      - Food Shortages: https://www.adamsmith.org/blog/venezuela-food
      - Nationalization and foreign investment: https://foreignpolicy.com/2018/07/16/how-venezuela-struck-it-poor-oil-energy-chavez/

        http://www.npr.org/2016/05/29/479913331/coca-cola-halts-production-in-venezuela-due-to-nation-s-sugar-shortage
      - See also the Fraser Institute's Economic Freedom index for Venezuela: www.freetheworld.com

2. Review

ERP-2: Choices impose costs; people receive benefits and incur costs when they make decisions.

The cost of a choice is the value of the next-best alternative foregone, measurable in time or money or some alternative activity given up.

a. Hold a quick demonstration of price rationing:

- Announce that you will be auctioning off 3 pieces of paper. In full view of the class, prepare the auction items as follows:
- Place a clean sheet of notebook paper in a clear plastic baggie.
- Place a $5 bill in a clear plastic baggie.
- Blow your nose in the tissue. Place the used tissue in the 3rd clear plastic baggie.
- Explain the rules of the auctions:

  Bidders are bidding for the right to dispose of the contents of the bag. The winner must dispose of the contents by first removing it from the bag and then either putting it in the landfill (throw in trashcan), reusing it (put in pocket) or recycling it (throw in recycle can). The same 3 options apply to the plastic baggies, but the paper must have been removed first.

Note to instructors from Dan Benjamin, based on his experience with this activity: I warn students that they must pay cash and that I will keep what they bid. (I once had a student at Wake Forest bid $35 for the green piece, thinking he was cute. He was not happy when I kept his money. I tell them this story to keep them honest in their bidding.)

Typical prices:

money = $4.95 to $5.00

notebook paper = 0 to 25 cents

tissue = (-)25 cents to 0

It does not matter what the prices are and I can always get a price for each good that yields one person who wants it. Most often my total profit or loss lies between plus and

b. Hold English auctions for each piece of paper, separately. Start the bidding at 25 cents. If there are no takers, lower the bid by 5 to 10 cent intervals until there is bidding. If necessary, announce a negative price and pay the winner to take the paper off your hands.

Debrief:

- Ask students what the auction accomplished. Point out that through the process they discovered the price in the market for paper *and* a way to allocate a scarce good.
- Ask students what they learned from the auction: They've learned about the willingness to pay for paper in the classroom. No one was willing to pay more than (highest bid) for a sheet of paper.

- Ask each winner what was given up in order to have the piece of paper.

3. Develop the **opportunity cost** concept from the "trade creates wealth" activity ("The Magic of Markets") that students experienced in the earlier session with the Mentor Teacher.
   a. Solicit examples from students of what they gave up when they chose to trade.
   b. Make a point to state that it was voluntary; no one was forced to give up a good to have another. (Ask what would have happened to satisfaction if they had been "forced" to trade?)
   c. Develop examples of opportunity cost and the "next best" alternative in a variety of contexts. (Re-emphasize that *people* are choosing.)
      - Individual, personal choices - *relate to opportunity cost of coming to EFL this week, as identified in the ice-breaker activity yesterday afternoon*
      - Business decisions
      - Policy decisions – tie back to problem of economic growth
   d. Possible opportunity cost examples:
      - Ask students to raise their hand if they did not receive a ticket this morning for arriving on time. Explore the reasons with the few students without tickets. *(Note: the PCs need to strictly enforce the "on time" policy the first day for this example to work.)* What would they have had to "give up" if they had been on time?
      - Suppose you chose to take a cheaper 1-stop flight rather than a non-stop flight and missed an airplane connection because your first flight was delayed by weather. Does the opportunity cost of your choice depend on the reason you missed the connecting flight? (Weather, mechanical problem, plane detoured to remove sick passenger, etc.)
      - Ask what has happened to cost of the "cheap" ticket in the event that you missed your connection? Does this give you any insight on why multiple stop tickets are sometimes less costly than nonstop tickets, despite the longer distance traveled and extra cost burned on takeoff and landing? Does it give you any insight as to who is likely to purchase non-stop as opposed to multi-stop flights?
      - Suppose you purchased a snack bar for 60 cents. Ask different students what they gave up. Illustrate that the objective cost was 60 cents, but the subjective cost varied.
4. Illustrate characteristics of cost using examples from the news. Highlight the following points:
   a. All costs are costs to the decision-maker and are thus subjective in nature; costs are "to" someone.

b. If you conducted the “paper” auction above, you will find that that the winners faced different opportunity costs based on their judgment of how they would have used the money if they had not bought the piece of paper. Ask one of the unsuccessful bidders why she stopped bidding. The answer should be a statement of “subjective” value: It *was not* worth it to the bidder to pay a higher price – as it *was* to the winning bidder.

c. Emphasize that economics recognizes the “subjective value” nature of individual decisions.

d. Only actions have costs; “things” have no cost independent of decisions about using such things.

e. All costs relevant to decisions lie in the future; the anticipation of future consequences shapes people’s decisions.

f. Costs can change, and when they do, choices are likely to be affected.

5. Provide illustrations of negative and positive, monetary and non-monetary **incentives** and how they shape behavior.

a. Changes in incentives cause people to change their behavior in predictable ways. Develop the example of production on collective farms and on garden plots in the Soviet Union, or how changes in incentives have changed behavior in China.

b. Provide illustrations of how good incentives are designed to change opportunity costs and choices:

- Revisit the airlines (or a similar) example. Assume you are beginning a one-week vacation and you are off to an early start on a 7AM flight.
- What is your opportunity cost of *being on this flight* and not taking the next one 3 hours later? Possibly “sleeping in” a couple of hours more.
- What is your opportunity cost if the airline has overbooked and offers a “free” round-trip ticket to anyone who will give up their seat on this flight for a guaranteed seat on the flight that is departing 3 hours later? Note that sleeping in is not an option because you are already at the airport.
- For some people in the waiting room, this incentive will cause a new decision; that is, they will take the offer and travel on the next flight. For these people, the opportunity cost is “traveling on the first flight,” as that is the alternative they gave up.

6. Illustrate **marginal decision-making**

   a. Demonstration: Marginal Benefit vs. Marginal Cost of Push-Ups

   - Ask for three healthy volunteers and invite them to the front of the room.
   - Ask them, individually, how many "push-ups" they can do (i.e., the maximum), and record the numbers.
   - Ask students to go ahead and do that number of push-ups. Recruit three other students to count and the rest of the class to monitor form (straight back, nose touches floor, etc.)
   - When they have reached the "maximum", ask them whether they can do anymore? Ask those who say they can do more to do so.
   - When all are exhausted, start to pay for push-ups. Start out low, say 25 cents for an additional push-up. Have the counters keep a careful record at this point.
   - When they are exhausted again, ask if they can do more. Raise the price per push-up to elicit additional production.

   b. Show YouTube video "Negotiating with the Dentist" https://youtu.be/SRuCzIO2wb0 *(See slides.) (Note that one of the alternative problems in Lesson 4, Markets in Action, is based on this video. If you intend to use that problem, do not show the video here.)*

7. Choose one or more of the following videos to introduce how scarcity necessitates rationing.

   - https://youtu.be/EQx8ezZbv7M "New iPhone Line on Regent Street Apple Store." *Fast forward through video pausing at 1:36 to show map of line through the park.* 3:18 min
   - http://youtube.com/watch?v=bp6orw9msyI "Long Christmas Checkout Line" *About 3 minutes (says 6, but is repeated). Has voice over. Early on, the videographer comments on "investment of time." Later comments about "bringing lunch," etc.* Discuss: Why did the store deliberately choose this method of rationing? For which customers might the incentive of lower price outweigh the cost of time?
   - https://youtu.be/rFaQ_YXwuRI "Long Lines, no gas: 1979's odd-even gas rationing." Odd-even license plates, rules about no more than ½ tank fill-up, and lines all used as rationing mechanisms in this news clip from 1979.

- http://query.nytimes.com/gst/fullpage.html?res=9E03E7DC163AF931A35757C0A96E958260 Article about lines in Disneyland and how money price –somewhat disguised – is used to get around them.

a. Conduct a rationing exercise to illustrate how alternative rationing mechanisms compare to money price.
   - Display three items, of similar market value. Examples: Energy drink, candy bar, pack of gum/mints.
   - Ask students to write down the "most" they would be willing to pay for each of these items.
   - Then, develop an arbitrary rationing mechanism (first-come, first served; random choice; or quiz show) to allocate two of the goods.
   - The final good is allocated by auction to the highest bidder. You may need to supply credit to students who forget to bring any money to class.
   - After the goods are allocated, compare the "willingness to pay" of the winners to what others were willing to pay. The arbitrary schemes will typically create the greatest allocation inefficiency.