Social Welfare 553

Problem Set One

1. (after Frank) What is the opportunity cost (or costs) of watching “The West Wing” Wednesday evening?

The opportunity cost of watching the West Wing is not being able to do whatever you would have done instead. If you would have watched another program, then your opportunity cost is not watching that program; if you would have studied economics, then your opportunity cost is not studying economics.

2. What kind of a drinker are you? Pick a beverage (water, beer, milk, etc.) and think about how much you value drinking this beverage over the course of the day

Here’s one example.

a. Complete the following chart. Use dollars as your measure of utility.

<table>
<thead>
<tr>
<th>Number of drinks</th>
<th>Total utility ($)</th>
<th>Marginal utility ($)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>4.00</td>
<td>4.00</td>
</tr>
<tr>
<td>2</td>
<td>7.00</td>
<td>3.00</td>
</tr>
<tr>
<td>3</td>
<td>9.00</td>
<td>2.00</td>
</tr>
<tr>
<td>4</td>
<td>9.00</td>
<td>0</td>
</tr>
<tr>
<td>5</td>
<td>8.00</td>
<td>-1.00</td>
</tr>
</tbody>
</table>

b. Draw a graph of the your marginal utility relative to the price of your chosen beverage using Frank’s Figures 1.3 as a guide. You may not reach the point of negative marginal utility within five drinks—if not, then expand the graph beyond five. [Note: this is a rough graph]
3. Frank, Chapter 1, Problem 10 (Residents of your city are charged a weekly fee of $6 for refuse collection…)

Cost-benefit theory predicts that a tag system will decrease the number of cans collected. Assume that the benefit of setting out a can of garbage is the same in both cases. In the first case, the fixed cost of $6/week is a sunk cost. Therefore, for the residents, the cost of disposing an extra can is $0. In the tag system, the cost of disposing an extra can is $2, regardless of the number of cans. Therefore, since the costs are higher, you expect fewer cans to be collected in the tag system.

4. Why does the University of Washington offer the U-Pass? Psychic bonus points for coming up with a graph showing the difference between the world with the UW U-pass and the world without it.

[hint: what equilibrium is changed by the existence of the pass?]

The UW offers the U-Pass to encourage the use of public transportation. The U-Pass lowers the marginal financial cost of a bus ride to zero. In terms of an individual “take bus or not” decision, the U-Pass represents a sunk cost.

Two different graphs could be used to show this. [not drawn here] This could be represented by a marginal benefit/marginal cost graph such as shown in 2b above. This would represent the choice faced by one individual. Another option would be a supply and demand graph for bus rides to the U-district overall. Demand would be downward sloping, but supply would be flat—in the absence of the u-pass, there are a large number of bus rides available at $1.25-$1.75 (depending on time of day and route—you could just draw one flat line and say “price of bus ride”). With the U-Pass, the supply is still flat, but now is located at $0 for U-Pass holders.
5. (after Duncan) Classify the effect of each of the following as a decrease in the demand for fish (i.e., shift in demand curve) or a decrease in the supply of fish (i.e., shift in supply curve) or a change in both. Illustrate each on a diagram like the one below.

![Diagram]

- **a.** The price of chicken falls; as a result households buy more chicken and less fish.
  
  *Shift in demand curve to left. (“shift in”)*

- **b.** People buy less fish because of a rise in fish prices.
  
  *Shift in supply curve to right. (“shift out”)*

- **c.** Polluted waters kill millions of fish.
  
  *Shift in supply curve to right. (“shift out”)*

- **d.** Health researchers find out that the alleged health benefits of eating fish have been overstated.
  
  *Shift in demand curve to left. (“shift in”)*

- **e.** The U.S. Congress kills funding of a program that subsidized the fishing industry.
  
  *Shift in supply curve to right. (“shift out”)*

6. Frank, Chapter 2, Problem 9 (President Reagan negotiated a “voluntary” import quota on Japanese cars…)

   *In the diagram below, $P^*$ and $Q^*$ are the original equilibrium price and quantity of Japanese cars sold in the U.S. If a quota of $Q_1$ is imposed, Japanese car makers will be able to charge $P_1$ for their cars. To get the same quantity reduction by means of a tax, the after tax supply curve must intersect the demand curve at $Q_1$. The result is a price to the U.S. buyer of $P_1$, the same as in the quota case. The difference in the two policies is that in the quota case the price increase goes to Japanese car makers, while in the tariff case it goes to the U.S. government.*
7. Explain in your own words how the slope of an indifference curve provides information about how much a consumer likes one good relative to another (Frank Ch. 3 questions for review 5)

The slope of an indifference curve indicates how much of a good one is willing to give up to get one unit of another and be at the same level of satisfaction. Thus the more of one good that one is willing to give up, the less important is that good relative to the other.

8. Frank, Chapter 3, Problem 1 (The Acme Seed Company charges $2/lb for the first 10 lb you buy of marigold seeds each week…)

![Graph showing the relationship between Y($/wk) and Seeds (lbs/wk) with a downward-sloping line indicating diminishing marginal utility.](image-url)