Problem Set 1
The Economic Approach and Scarcity

Due Monday, April 2 at 7:00pm at TA Session

1. Are there any types of human behavior outside the domain of the economic approach? If it is a useful tool for understanding all types of human behavior, for which type is it least useful/most problematic? Explain.

2. You have a monthly budget of $30 to spend on cups of coffee and bagels. Suppose that the price of coffee is $2 per cup and the price of bagels is $1 per bagel.
   (a) Write down an inequality representing your budget set and graph the budget line. What is the opportunity cost of a cup of coffee? What is the opportunity cost of a bagel?
   (b) Concerned about the health effects of coffee, the government decides to levy a quantity tax of $0.50 on coffee to discourage consumption. Write down your new budget set and graph the budget line on the graph from part (a). What is the opportunity cost of a cup of coffee? What is the opportunity cost of a bagel?
   (c) What value tax could the government levy on coffee that would be identical to the $0.50 quantity tax on coffee?
   (d) The coffee lobby now threatens to cease all campaign contributions if the coffee tax is not repealed; the government caves in but has a trick up its sleeve. What combination of a lump sum tax and value subsidy on bagels could the government levy that would be identical to the coffee tax in (b) and (c)?

3. Suppose you have income $m$ to spend on two goods, $x_1$ and $x_2$. The prices are set so that the more you buy of a given good, the more you have to pay for each unit of that good. In particular, suppose $p_1 = x_1$ and $p_2 = x_2$.
   (a) Write down an inequality representing the budget set.
   (b) Graph the budget line.
   (c) What is the opportunity cost of $x_1$? Does the opportunity cost of $x_1$ get bigger or smaller (in absolute value) as you consume more of it?

4. Suppose the government is considering different ways of expanding health insurance coverage among Americans - in particular, it wants all Americans to have at least $3,000 worth of health insurance. Assume individuals care about how much health insurance they have (measured in dollars) and all other expenditures (measured in dollars). The government is considering the following proposals.
(a) Do nothing.
(b) Offer $3,000 worth of health insurance to all Americans for free. (Assume individuals do not have to accept the insurance.)
(c) A penalty of $1,500 if less than $3,000 is spent on health insurance
(d) A penalty of $0.50 for every dollar less than $3,000 spent on health insurance

Consider an individual with income of $10,000. Draw the budget line for each proposal all on the same graph. Rank these proposals in a way such that if proposal (x) is ranked ahead of proposal (y), then the individual is at least as well off under (x) as she is under (y). For example, the ranking “(a),(b),(c),(d)” would mean that (a) is at least as good as (b), which is at least as good as (c), which is at least as good as (d). If it is impossible to rank the proposals in this way, then explain why it is impossible.

5. Suppose that the leader of the opposition to Bashar al-Assad (President of Syria) cares about the probability of achieving democracy and how many Syrians remain alive after the war. The leader of the opposition knows that each member he recruits to join the opposition faces a significant risk of dying, but also increases the likelihood that the opposition will win.

(a) What are the goods for the leader of the opposition?
(b) Graph the budget set. Explain why you drew it the way you did.
(c) What would an economist mean by the opportunity cost of democracy?
(d) Now suppose that the United Nations warns al-Assad that for every person he kills, there will be a higher chance that they will intervene. Graph the new budget line. What economic term would you use to describe this warning? How does it change the opportunity cost of democracy? Does this make the opposition better off?
(e) Now suppose that al-Assad makes an example of a group of dissidents by torturing them and their families, resulting in a large wave of Syrians leaving the country (assume the leader of the opposition no longer views these people as Syrians). Graph the new budget line. What economic term would you use to describe this phenomenon? Does this make the opposition better off?

6. Think of a situation in your personal life, in the world, or out of this world, where you could apply the idea of a budget set (feel free to make use of a composite good, but you don’t have to). What are the goods? Are there prices, or analogs of prices? Write down an inequality representing your budget set, and graph it if possible. Discuss the notion of opportunity cost in your model. Is there any sense in which a good could be taxed or subsidized? How would one think about a lump-sum tax or subsidy? Try to think of a cool/unconventional/interesting situation, but if you can’t, feel free to use something boring.