Example problems
1/27/2011 lecture

1. Julio receives utility from consuming food (F) and clothing (C) as given by the utility function $u(F, C) = FC$. In addition, the price of food is \$2/unit, the price of clothing is \$10/unit, and Julio's weekly income is \$50.

a. What is Julio's marginal rate of substitution of food for clothing when utility is maximized? Explain.

b. Suppose instead that Julio is consuming a bundle with more food and less clothing than his utility maximizing bundle, though he is still spending his entire weekly income. Would his marginal rate of substitution of food for clothing be greater than or less than your answer in part a? Explain.

2. Antonio buys five new college textbooks during his first year at school at a cost of \$80 each. Used books cost only \$50 each. When the bookstore announces that there will be a 10% increase in the price of new books and a 5% increase in the price of used books, Antonio's father offers him \$40 extra to help him cover the extra cost.

a. What happens to Antonio's budget line given all three changes? Illustrate the change with new books on the vertical axis.

b. Is Antonio worse or better off after the price change? Explain.

3. Consumers in Georgia pay twice as much for avocados as they do for peaches. However, avocados and peaches are the same price in California. If consumers in both states maximize utility, will the marginal rate of substitution of peaches for avocados be the same for consumers in both states? If not, which will be higher?

4. Ben allocates his lunch budget between two goods, pizza and burritos.

a. Illustrate Ben's optimal bundle on a graph with pizza on the horizontal axis.

b. Suppose now that pizza is taxed, causing the price to increase by 20%. Illustrate Ben's new optimal bundle.

c. Suppose instead that pizza is rationed at a quantity less than Ben's desired quantity. Illustrate Ben's new optimal bundle.

4. Maurice spends his entire income on food (F) and a composite representing all other goods (C). He makes \$800/month. Currently, he spends \$200 on food and \$600 on other goods.

a. Illustrate his choice in a graph, with F on the horizontal axis, and C on the vertical axis.

b. Now suppose the government initiates a food stamps program, in which Maurice is given \$400 worth of coupons each month that can only be spent on food. Draw his new budget constraint, and Maurice's optimal bundle.

c. Would Maurice be better off, worse off, or indifferent if the government gave him \$400 in cash instead of in food stamps?