ECONOMICS 311: Intermediate Microeconomic Theory

ASSIGNMENT 2

Answers to this assignment are due back by Wednesday, February 3, 2016.

1. Autos

Several years ago Japan was pressured to accept a “Voluntary Export Restraint” (VER) on the number of cars that it shipped to the United States. Use separate demand and supply diagrams for

a. the market for Japanese cars in the United States, and
b. the market for US cars in the United States,

and show and explain the effect of the introduction of the VER on each market. [Hints: Treat US and Japanese cars as different goods with separate prices and quantities. What does the supply curve for Japanese cars look like after the VER is introduced?]

2. Sugar

Until about 2006, the European Union guaranteed a price of sugar for its farmers that was roughly double the world level.

a. Using a well-labeled diagram of the market for sugar within the EU, show the effect of this policy on the price of sugar within the EU, and the incomes of sugar-beet farmers.

b. The EU then sold the “surplus” sugar on the world market. On a well-labeled diagram of the sugar market in the rest of the world, show the effect of these sales on the world price of sugar.

c. The US has a strict import quota (i.e. limit) on sugar. What effect does this have on the price of sugar in the US? Explain, with the help of a diagram.
   [Background: Americans consumed about 10.7 million tons of sugar in FY2014 (i.e. Oct 2013-Sept 2014), of which 1.9 m tons came from Mexico (from which it may be imported freely), and 1.4 m tons was imported from elsewhere, under strict quotas. The rest was produced domestically, with roughly equal amounts coming from sugar beet and from sugar cane.]

d. Suppose that the US were to allow unimpeded imports of sugar from the rest of the world, where the cost of producing sugar is relatively low. Show the effect of this on the market for sugar in the U.S., noting any gains or losses for consumers and/or producers.

e. “Lifesavers” (a type of candy) used to be made in Michigan but are now manufactured in Canada. Suggest a reason for why the factory moved.
### 3. Indifference curves

Susan is presented with the following bundles of apples and oranges, and she divides the bundles into three groups, as shown. She claims that within each group she likes each bundle equally well, but that this is not so between groups.

<table>
<thead>
<tr>
<th>Group A</th>
<th>Group B</th>
<th>Group C</th>
</tr>
</thead>
<tbody>
<tr>
<td>apples</td>
<td>oranges</td>
<td>apples</td>
</tr>
<tr>
<td>4</td>
<td>20</td>
<td>3</td>
</tr>
<tr>
<td>7</td>
<td>14</td>
<td>4</td>
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<tr>
<td>10</td>
<td>10</td>
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<tr>
<td>20</td>
<td>5</td>
<td>16</td>
</tr>
<tr>
<td>26</td>
<td>4</td>
<td>26</td>
</tr>
</tbody>
</table>

a. Accurately raw Susan's indifference map. Use straight-line segments to draw indifference curves. Indicate which indifference curve has the highest utility level and which has the lowest.

b. Suppose Susan's income were $6. Initially oranges cost 30¢ each and apples cost 30¢ also. Draw the budget constraint. What bundle does Susan purchase?

c. Suppose Susan's income were $6. Initially oranges cost 30¢ each and apples cost 30¢ also. Draw the budget constraint. What bundle does Susan purchase?

d. Suppose the price of apples falls to 20¢. What bundle is purchased now? Is Susan's utility higher or lower than in b?

e. Suppose the price of apples were to rise to 60¢ each. What bundle is purchased now? How does Susan's utility compare with b and c?

f. Suppose now that prices return to 30¢ for each type of fruit, but Susan's income falls to $4.20. What bundle will she buy? Are apples a normal good for Susan?

g. Now inflation sets in. The prices of apples and oranges both double to 60¢. Fortunately for Susan, her income rises to $12. What bundle does she buy now? Is she better or worse off than in b?

### 4. Utility and Demand

On the demand curve shown here, which of the two points (A or B) yields the higher utility? Why?
5. Indifference curves again

Here are three graphs of indifference curves. Which of the usual assumptions are violated in each case?

6. Budget lines

a. The Smith family has an income of $1,000 per month, and currently spends $400 monthly on food. Assume that the initial price of a unit of food is $1, and the initial price of a unit of “all other goods” is also $1. Draw this budget line, and also an indifference curve – which we assume has the standard shape – that the family can just reach, given its budget.

b. The government considers that the Smith family is rather poor, and is discussing a number of possible ways to help. For each of the following, draw the new budget line:
   a. The government provides income support in the form of a grant of $250.
   b. The government provides food stamps worth $250. These may only be spent on food.
   c. The government will sell the family $500 worth of food stamps for a price of $250. In other words, the family will have to pay $250 to the government, and will get $500 worth of food stamps in return.
   d. The government will provide a discount card that will allow the family to buy food at half the usual price, but only for the first $500 worth of food. So, for instance, a $3 loaf of bread will cost the family $1.50, and the government will pay the other $1.50 (up to $500 worth of groceries).
   e. The government will provide a discount card that will allow the family to buy anything at half price, but only for the first $500 worth of purchases.
   f. The government will provide a discount card that will give 50% off the price of food for the first $300 worth, and 25% off the price of food for the next $400 worth of food.

c. Which of the options in 5.b would the Smith family prefer? Why?