1. Word has gotten out that UW social work students are developing expertise in economic-based policy analysis. In fact, this good news has spread as far as “Generoustania,” a small island country known for its high levels of social program spending within a market-based economy.

You get a call asking you to advise the Generoustanian Minister of Education on choosing between several education reform proposals on the matter of child and family well-being. The Generoustanian public schools are notoriously bad and although there are a very large number of private schools with infinite capacity to take on students, only wealthy families can afford these private schools.

The proposals are:
1. A voucher program which would provide up to $20,000 to be used for tuition at private schools. Vouchers will pay the tuition directly.
2. A direct transfer of $20,000 per school-aged child. This transfer would be in cash and can be spent on anything.

The ministry official in charge of hiring you has made two things clear. First, she is concerned only about the short-run effects on the well-being of families and children. (She’s hired another team of consultants to analyze how these policies will affect schools.) Second, she likes to see graphs. They reassure her that the analysts know what they’re talking about.

The Generoustanian currency is the “dollar” ($) and you can assume that prices, wages and family budgets in Generoustania are more or less the same as in the US.

Think about this: What is the general concept represented in this question? To which Frank chapter and section does it correspond?

The general concept is that from a recipient’s point of view, cash transfers are never worse and sometimes better than in-kind transfers. This is the argument that Frank makes about foodstamps and the poor.

Now, compare the two possible programs.

The key to answering this is to look at a family’s budget constraint for the composite good and child education. Assume that a family makes decisions in the same way that an individual does. A voucher would shift the budget constraint out, but since the voucher cannot be used for anything other than education, families would face a kinked budget constraint (solid green line). For some families who spend a lot of their income on children’s education (families with preferences such as represented by the black indifference curves), the voucher would be a net gain. For other families, who spend a smaller portion of their income, the effect of the voucher would be to really shift out their education spending.

i. Which program will likely lead to the larger increase in quality of education for low-income children? The voucher

ii. Which program will likely lead to the larger increase in family well-being? The cash transfer, note the blue indifference curves show that families who spend a relatively small amount of their income on kids’ education could move to a higher level of utility.

iii. Which program would you chose and why? (no graph needed on this one)
2. You are very devoted to eating five fruits or vegetables per day. Due to a horrible combination of bad weather, a sudden rise in gas prices and a teamster strike, prices for all fresh produce triple. Describe the impact of this price hike on your consumption patterns. Specify total-, income- and substitution effects.

The total effect will be that you will likely eat less fruit. The income effect means that if you spend some money on fruits and vegetables, you will have less money all together. However, relative to your overall budget, the amount you spend on fruit is small so that this likely will not be a very large effect. Most of the decrease will probably be due to the substitution effect. Since fresh fruits and vegetables have a ready substitute (frozen, dried or canned fruits and vegetables), you will likely consume those instead since they will have become relatively cheaper.

3. Frank Chapter 17, question 7 parts a and b (c is optional for imaginary bonus points)

The gain in the total value of the herd as a function of the number of steers is given below in the table. {Note: this table is the suggested solution from Frank. In the problem session I also calculated Total gain (cows + bonds)}

<table>
<thead>
<tr>
<th>Number of steers</th>
<th>Price per 2-year-old steer</th>
<th>Total gain in value of herd</th>
<th>Avg. gain in value of herd</th>
<th>Marginal gain in value of herd</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>$1200</td>
<td>200</td>
<td>200</td>
<td>200</td>
</tr>
<tr>
<td>2</td>
<td>1175</td>
<td>350</td>
<td>175</td>
<td>150</td>
</tr>
<tr>
<td>3</td>
<td>1150</td>
<td>450</td>
<td>150</td>
<td>100</td>
</tr>
<tr>
<td>4</td>
<td>1125</td>
<td>500</td>
<td>125</td>
<td>50</td>
</tr>
<tr>
<td>5</td>
<td>1100</td>
<td>500</td>
<td>100</td>
<td>0</td>
</tr>
<tr>
<td>6</td>
<td>1075</td>
<td>450</td>
<td>75</td>
<td>-50</td>
</tr>
</tbody>
</table>

a) If residents make decisions as individuals, they will buy steers until the average gain in value is no lower than the alternative gain they could obtain from bonds. Since the gain on bonds is 110 per year, this means that 4 will buy steers and 2 will buy bonds.

b) The socially optimal number of steers is the one for which the marginal gain in the value of the herd is no lower than the gain on bonds. This means buying 2 steers and 4 bonds.

c) Any grazing fee between 41 and 64 per steer will result in 2 steers being sent onto the commons. The average gain, net of the grazing fee, will be between 134 and 111 when there are 2 steers.
4. Frank Chapter 18, question 5 (this requires a supply and demand graph)

In the diagram below, $D_w$, $D_d$, and $D_c$ denote the original demand curves for wings, drumsticks, and chickens, respectively, under the simplifying assumption that a chicken consists of one wing and one drumstick. $D_c$ is the vertical summation of $D_d$ and $D_w$. $S$ is the supply curve for chickens. The original equilibrium price and quantity of chickens are $P_c$ and $Q$, respectively. Now the demand for wings shifts to $D_{w}'$. The result is to raise the equilibrium prices of chickens and wings, but to lower the equilibrium price of drumsticks, while the equilibrium quantity of all three goods increases to $Q'$. 

To see this, note where the aggregate chicken market is in equilibrium, $Q$ and then $Q'$. This point determines the quantity supplied, the price can then be seen on the demand curve.