Nanyang Technological University
HE2001 Microeconomics II

Tutorial 2

1. Neville's passion is fine wine. When the prices of all other goods are fixed at current levels, Neville's demand function for high quality claret is $q = 0.02m - 2p$, where m is his income, p is the price of claret (in British pounds), and q is the number of bottles of claret that he demands. Neville's income is 7,500 pounds, and the price of a bottle of suitable claret is 30 pounds.

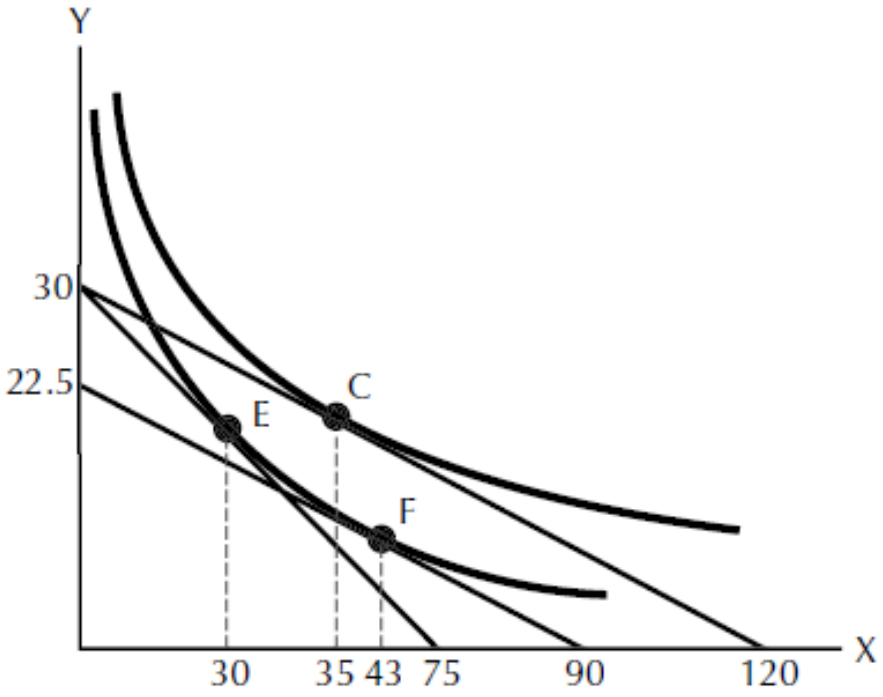
   (a) How many bottles of claret will Neville buy?

   (b) If the price of claret rose to 40 pounds, how much income would Neville have to have in order to be exactly able to afford the amount of claret and the amount of other goods that he bought before the price change? At this income, and a price of 40 pounds, how many bottles would Neville buy?

   (c) At his original income of 7,500 and a price of 40, how much claret would Neville demand?

   (d) When the price of claret rose from 30 to 40, how many less bottles that Neville demanded? How does the substitution effect affect his demand? How about the income effect?

2. Consider the figure below, which shows the budget constraint and the indifference curves of good King Zog. Zog is in equilibrium with an income of \$300, facing prices $p_X = \$4$ and $p_Y = \$10$.



   (a) How much X does Zog consume?

   (b) If the price of X falls to \$2.50, while income and the price of Y stay constant, how much X will Zog consume?

   (c) How much income must be taken away from Zog to isolate the Hicksian income and substitution effects (i.e., to make him just able to afford to reach his old indifference curve at the new prices)?

   (d) How does the total effect of the price change change consumption bundle?

(e) Which movements correspond to the substitution and income effects respectively?

(f) Is X a normal good or an inferior good?

(g) Sketch an Engel curve and a demand curve for Good X that would be reasonable given the information in the graph above. Be sure to label the axes on both your graphs.

3. Mr. Consumer allows himself to spend \$100 per month on cigarettes and ice cream. Mr. C's preferences for cigarettes and ice cream are unaffected by the season of the year.

(a) In January, the price of cigarettes was \$1 per pack, while ice cream cost \$2 per pint. Faced with these prices, Mr. C bought 30 pints of ice cream and 40 packs of cigarettes. Draw Mr. C's January budget line and label his January consumption bundle with the letter J.

(b) In February, Mr. C again had \$100 to spend and ice cream still cost \$2 per pint, but the price of cigarettes rose to \$1.25 per pack. Mr. C consumed 30 pints of ice cream and 32 packs of cigarettes. Draw Mr. C's February budget line and mark his February bundle with the letter F. What is the impact of substitution effect of this price change on his consumption of cigarettes and ice cream? How about the income effect? Is ice cream a normal or inferior good? Why?

(c) In March, Mr. C again had \$100 to spend. Ice cream was on sale for \$1 per pint. Cigarette prices, meanwhile, increased to \$1.50 per pack. Draw his March budget line. Is he better off than in January, worse off, or can you not make such a comparison? How does your answer to the last question change if the price of cigarettes had increased to \$2 per pack?

(d) In April, cigarette prices rose to \$2 per pack and ice cream was still on sale for \$1 per pint. Mr. Consumer bought 34 packs of cigarettes and 32 pints of ice cream. Draw his April budget line and label his April bundle with the letter A. Was he better off or worse off than in January? Was he better off or worse off than in February, or can't one tell?

(e) In May, cigarettes stayed at \$2 per pack and as the sale on ice cream ended, the price returned to \$2 per pint. On the way to the store, however, Mr. C found \$30 lying in the street. He then had \$130 to spend on cigarettes and ice cream. Draw his May budget line. Without knowing what he purchased, one can determine whether he is better off than he was in at least one previous month. Which month or months?

(f) In fact, Mr. C buys 40 packs of cigarettes and 25 pints of ice cream in May. Does he satisfy WARP?

4. In the last tutorial, we studied a problem involving food prices and consumption in Sweden in 1850 and 1890.

(a) Potato consumption was the same in both years. Real income must have gone up between 1850 and 1890, since the amount of food staples purchased, as measured by either the Laspeyres or the Paasche quantity index, rose. The price of potatoes rose less rapidly than the price of either meat or milk, and at about the same rate as the price of grain flour. So real income went up and the price of potatoes went down relative to other goods. From this information, determine whether potatoes were most likely a normal or an inferior good. Explain your answer.

(b) Can one also tell from these data whether it is likely that potatoes were a Giffen good?