Faculté des sciences sociales | Faculty of Social Sciences
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Département de science économique
Department of Economics

ECO1104B - Introduction to microeconomics
Formal Written assignment #1
October 2015
Due date: Thursday 22 October in class

- No papers will be accepted while I am lecturing
- This assignment is not as long nor as difficult as it may first appear.
- You will be graded for the quality and accuracy of your answers and the presentation and organization of your results. Your assignment must be presented consistently from page to page (e.g., same font and font size). Your answers must respect the order in which they are presented in the questionnaire.
- I am late in releasing this assignment, in part not to conflict with the first MT exam.
- Do not forget to use the cover page, available from the Web site on the Assignment page.
- Hand in your assignment on 8.5 in. x 11 in. single sided sheets of paper.
- The assignment should be produced as an MS Word document. Copy and paste the tables and charts from your Excel sheet into your Word document.
- Hand drawn charts should be produced within your document.
- Always keep a back-up copy of your work.

1. Trade and specialization (Chapter 3)

a. A country **(Country A)** has the following production possibility table:

Resources devoted to clothing	Output of clothing	Resources devoted to food	Output of food
100%	28	0%	0
80	25	20	4
60	17	40	11
40	12	60	15
20	7	80	18
0	0	100	21

i. Draw the country's production possibility curve in Excel. (Position clothing on the x-axis). Paste this graph in your Word document. This can be done using the 'scatter plot' option.
ii. What is happening to the opportunity cost of food in terms of clothing when the production of food is increasing? Give the calculations.
iii. If the country is becoming better at the production of food, what will happen to the production possibility curve? Add this new PPF curve to the one you produced in i) by drawing it by hand.
iv. If the country gets equally better at producing both food and clothing, what will happen to the production possibility curve?

b. Suppose another country **(country B)** has the following production possibility table:

Resources devoted to clothing	Output of clothing	Resources devoted to food	Output of food
100%	25	0%	0
80	21	20	7
60	17	40	12
40	13	60	16
20	8	80	19
0	0	100	22

i. Plot the country's production possibility curve in Excel. (Position clothing on the x-axis). Paste this graph in your Word document.
ii. What is the combined (or world) production possibility curve for both countries if the countries do not trade and they devote equal proportionate resources to produce each good? Include in your Word document a

table showing this new production possibilities table. Also include the world PPF curve drawn in Excel for Clothing and Food.

iii. Which country has a comparative advantage in the production of clothing? Which country has a comparative advantage in the production of food? The pattern of comparative advantage is sharper at production combinations that are weighted toward clothing, i.e. on the lower, right portion of the PPF. Explain how you determined your response. (huge hint: compare the opportunity costs evaluated at the lower right side portion of the PPF). If each country were to specialize in the production of the good for which they have a comparative advantage, what would be the total production of clothing? What would be the total production of food?

2. Supply and demand problems (Chapter 4)

Note that this 'algebraic' approach to analyzing supply and demand is presented in the appendix to chapter 4. It also appears in APLIA. It is not overly complicated. The solutions only require basic high school algebra.

a. In an Excel worksheet, construct a table of three columns: one for price, one for quantity demanded, and one for quantity supplied. You have to enter the price variable: enter values from 0 to 40 by increments of unity. Compute the data (using the formulas given) for the quantity demanded at each price data points for $Q_d = 80 - 2*P$. Do the same for quantity supplied using the relationship $Q_s = -20 + 2*P$.

b. What is the sign of the slope of each equation, and why does that make sense?

c. At which price will the market be in equilibrium? Paste the table in your MS Word document and highlight your answer.

d. The reservation price for a demand function is defined as the price at which consumers are indifferent to buying and not buying the good in question. In other words, if the price is raised by $0.01, quantity demanded collapses to zero. What is the reservation price for demand in this case?

e. Graph the supply and demand relationships from part a) in EXCEL. In order to do so, you must express the previous equations as a function of quantity (and not price as they currently are). This task involves inputting values of the Q variable by hand. I suggest entering values of 0 to 100 by increments of 2. Calculate the price for each quantity data

point from your newly expressed demand relationship (*P* as a function of *quantity demanded – $P(Q_d)$*) in Excel. Similarly, calculate the price for each quantity data point from the supply relationship (*P* as a function of *quantity supplied – $P(Q_s)$*).

Present your results in the shape of a table and paste it into your MS Word document.

f. Using the supply and demand curves constructed in order to determine the market equilibrium price and quantity. Compare the results with the values calculated in part c). The results should be consistent.

g. In addition to the data you computed in part e), add to your Excel table the following new market demand relationship (*D'*): $P = 80 - 0.25Q_d$. Include the previously computed data from part e) in your table. Calculate the price values for each quantity data point using this demand relationship. Present your results in a new table and paste it into your MS Word document.

h. Based on your results in part g), construct an Excel line chart of the price data for all three of the relationships that show up in your table. Label them, *D*, *D'*, and *S*. Use the quantity data as your x-axis. Paste this chart in your MS Word document.

i. From part h) what is the new market equilibrium price and quantity? Is the shift from D to D' an increase or a decrease in demand? Explain why in words. Name three factors that could have explained this shift in demand. What is the new reservation price for curve D'? Has it increased or decreased in comparison to D? Explain why this makes sense.

j. In addition to the data you computed in part e), add the following new market supply relationship (*S'*): $P = 35 + 0.5*Q_s$. Include the previously computed data from part e) in a new Excel table. Calculate the price values for each quantity data point using this supply relationship. Present your results in the shape of a table and paste it into your MS Word document. Does this constitute an increase or a decrease in supply? Explain why.

k. Based on your results in part j), construct an Excel line chart of the price data for all four of the relationships that show up in your table. Label them, *D*, *D'*, *S*, and *S'*. Use the quantity data as your x-axis. Label your axis (use the quantity data as your x – axis) and curves. Paste this chart in your MS Word document.

l. Based on the new *S'*, what is the latest market equilibrium price and quantity? Name three factors that could have explained this shift in supply.

3. Questions about elasticity (Chapter 5)

Suppose that business travellers and vacationers have the following demand for airline tickets from Toronto to Montreal:

Price	Quantity demanded (business travellers)	Quantity demanded (vacationers)
$225	2700	1500
300	2500	1200
375	2300	1100
450	2100	900
525	1900	600

i) Calculate the values of total revenue for both vacationers and business travellers. You might find it helpful to input those values given above in a spreadsheet.

ii) As the price of tickets rises from $225 to $300, what is the price elasticity of demand for a) business travellers and b) vacationers? (Use the midpoint method in your calculations.)

iii) Is the value that you obtained consistent with the direction of the change in total revenue?

iv) As the price of tickets rises from $450 to $525, what is the price elasticity of demand for a) business travellers and b) vacationers? (Use the midpoint method in your calculations.)

v) Compare the value for the PED at the higher prices to that obtained over the lower price range. Which one would we expect to be more elastic, and why?

vi) Explain why vacationers might have a different elasticity than business travellers.