

EE211 Assignment #1 (2/2020)

Instructions:

- Assigned date is Thursday the 18th, Feb 2021. Due date is Thursday the 25th, Feb 2021 before class at 08.00 AM.
 - Submission is only received through BE Moodle platform as PDF file.
 - Name your file as StudentID_nickname, such as 1234567489_Bo.
 - There is no need to rewrite the question into your answer sheets, however, indicate clearly question and item number.
 - Write your nickname and student ID on top-right corner of the first page.
 - For those who do not have a digital device to write on, you can write your answers in sheets of paper, take pictures, convert them to PDF and merge them into a single file.
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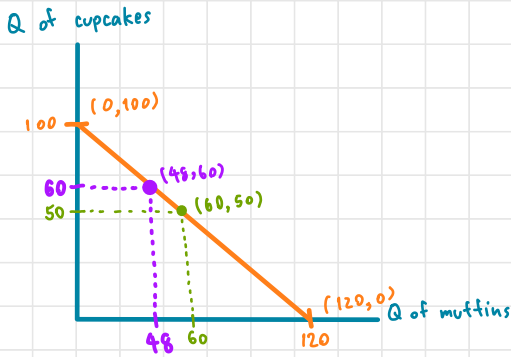
1. Suppose that a baker can produce muffins and cupcakes. If she uses all her resources on producing muffins, she can bake 120 muffins. If she produces only cupcakes, she can bake 100 cupcakes.

(a) Draw the Production Possibility Curve of this baker, where the x-axis represents the quantity of muffins and y-axis represents the quantity of cupcakes. Assume that the PPC is a straight line. What is the opportunity cost of each cupcake?

(b) With her available resources, can this baker make 60 cupcakes and 50 muffins? Justify your answer.

(X) If the baker learns a new technique and now the maximum quantity of muffins she can produce is 150 muffins, while the maximum quantity of cupcakes she can produce is still 100 cupcakes, *ceteris paribus*. Will the opportunity cost of each cupcake increase or decrease, and by what amount? Illustrate the change of the Production Possibility Curve of this baker.

a.)



Muffins Cupcake

60 -50
1 -0.83

$$\text{Opp. Cost} = \frac{-\Delta Y}{\Delta X} = \frac{-50}{60} = -0.83$$

$\therefore$ Cupcake Muffins
-0.83 1
1 -1.2

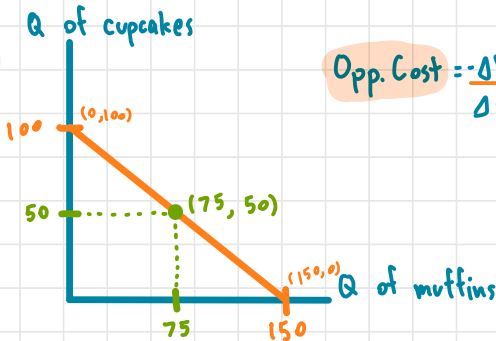
Ans. The opp. cost of each cupcake is -1.2

b.) Cupcake
1
60

Muffins
-1.2
-72

Ans. If there are 60 cupcakes made, there would be 48 muffins made.
 $\therefore$ Baker makes 60 cupcakes, then 50 muffins made is impossible.

x.)



$$\text{Opp. Cost} = \frac{-\Delta Y}{\Delta X} = \frac{-50}{75} = \frac{-2}{3} = -0.66$$

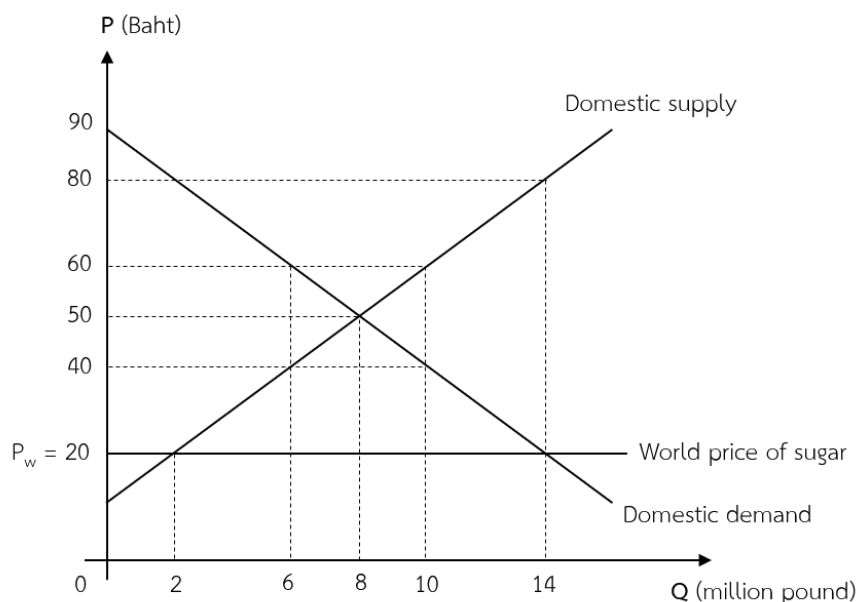
Muffins Cupcakes
75 -50
1 -0.66

Cupcakes Muffins
-0.66 1
1 -1.5

$\therefore$ Opp. Cost of each cupcake is -1.5

Ans. The opp. cost of each cupcake decreases by 0.3

2. Supposed that sugar is traded freely in the world market, Thai people consume domestically produced sugar while the rest is imported. Given that world market price is 20 baht per pound and the government decides to set domestic ceiling price equally to the world price, below graph shows domestic demand, supply and world price level. Answer the following questions.



(a) Supposed that Thailand takes world price, how many pounds of sugar is imported at the world price level?

(b) If the government further decides to collect an import unit tax of 20 baht per pound and the price after tax becomes 40 baht per pound,

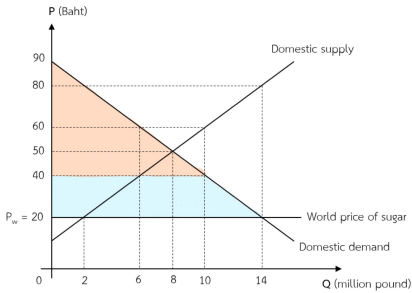
(c) How much of the sugar is domestically produced in Thailand after tax?

(d) After the import tax is imposed, compute the change in consumer surplus. Also highlight the change in consumer surplus in the provided graph. Are the domestic consumers better off or worse off? Clearly explain your answer.

(e) Compute the government revenue from the import tax and identify its area in the provided graph. Clearly explain why the area identified above represents the government revenue from the import tax.

- a.) At world price level, domestic supply is 2 million pounds of sugar. But domestic demand is 14 million pounds. (excess demand) So, there will be 12 million pounds of sugar imported.
- b.) If the price after tax becomes 40 baht per pound, The supplier will set higher price.
- c.) The quantity of domestically produced sugar increases from 2 million pounds to 6 million pounds.

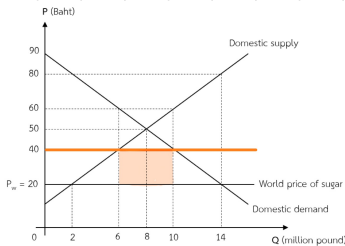
d.)



before the tax is imposed the consumer surplus are fill in the blue. Later on when the tax increase to 40 ฿/pound . This change is filled in orange.

In this situation, domestic consumers are worse off, because they are forced to pay more - when purchasing sugar from abroad. Some might not be able to purchase at all. If willingness to pay is lower than 40 baht per pound.

e.)



* area filled in orange is govt. rev.

The price after tax of sugar is 40 baht per pound. As the graph shown, the domestic supply of sugar is 6 million pound. However, the quantity demanded for 40 baht sugar is 10 million - pound. This shown that apart from 6 million pound from domestic supplier, the rest 4 millions need to be imported from abroad. If the govt. import tax is 20 ฿/pound , The govt. revenue would be $4 \times 20 = 80$ million ฿ .

3. Suppose that the quantity demanded for sweetened green tea at Thammasat University is 5,000 bottles per month at the price 20 baht per bottle. Suppose further that the university imposes an excise tax of 5 baht per bottle so that the new price is 25 baht per bottle. At this new price, the quantity demanded drops to 3,000 bottles per month.

(a) Use POINT elasticity to calculate the price elasticity of demand at the NEW price.

(b) Without any calculation, would the total sale revenue from selling sweetened green tea at Thammasat University decrease or increase? Explain by using the concept of price elasticity of demand.

(c) Suppose that, as a result of imposing this tax on green tea, the quantity demanded for “Super Drink” increases from 2,500 to 3,000 bottles per month, all else constant. Calculate the cross-price elasticity of demand for “Super Drink”, with respect to the price of sweetened green tea.

(d) From part (c), are sweetened green tea and Super Drink complements or substitutes? Explain.

a.) point elasticity of demand = $\frac{P}{Q} \cdot \frac{Q_2 - Q_1}{P_2 - P_1}$

$$= \frac{25}{3000} \cdot \frac{5000 - 3000}{20 - 25} = \frac{25}{3000} \cdot \frac{2000}{-5} = \frac{50}{-150} = \frac{-10}{3}$$

b.) The total revenue from selling sweetened green tea will decrease because the new price elasticity of demand is > 1 . It is an elastic demand so when the price goes up the total revenue will go down.

c.) cross-price elasticity of demand for "super drink"

$$\xi_c = \frac{P^b}{Q^a} \cdot \frac{Q_2^a - Q_1^a}{P_2^b - P_1^b} = \frac{20}{2500} \cdot \frac{3000 - 5000}{25 - 20} = \frac{2}{250} \cdot \frac{-2000}{5} = \frac{2}{250} \cdot -400 = -0.8$$

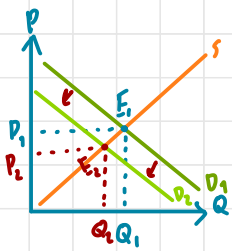
b.) Sweetened green tea and super drink are considered as substitute goods because when sweetened green tea price increase, people would buy super drink instead as it is cheaper.

4. Consider a liquor market in a country, answer the following questions. If you have any specific assumption, please state them clearly within each item.

(a) Supposed that a Health Foundation which is an independent organization decides to put up a campaign showing how bad can alcoholic beverages affect health condition in long-term through several big billboards, what do you think will happen to this market, equilibrium price and quantity. Support your claim with economic reasoning.

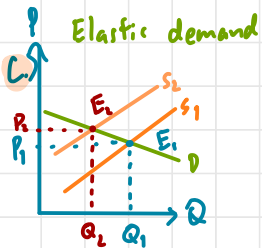
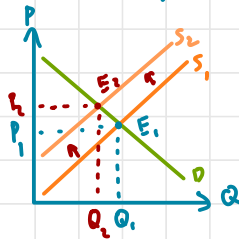
(b) If the government decides to collect unit tax on sellers, show that how would this affects equilibrium price and quantity. Provide a clear explanation with support of a diagram.

(c) There are two groups of liquor consumers: the alcoholic and the occasional drinkers. Does the unit tax affect both groups the same or differently. Provide a clear explanation with support of diagrams.



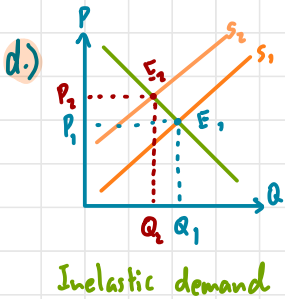
a.) The campaign showing how bad can alcoholic beverages affect health. So, some people might drink less or stop drinking which will shift demand left. Price decreases from P_1 to P_2 . Qd decreases from Q_1 to Q_2 . The new market equilibrium is now at E_2 .

b.) The govt decides to collect unit tax on sellers. The cost of production would increase. Supplier can supply less, so it will shift the supply curve to the left. The price goes up from P_1 to P_2 higher price reduces the Qd from Q_1 to Q_2 . The new market equilibrium price and Qd is now at E_2 .



Occasional drinkers

If the consumer is a group of occasional drinkers. The demand is going to be elastic because they don't consider alcoholic beverages as necessity goods. When the unit tax policy is implemented the price is increased but it doesn't effect on occasional drinkers because they can just stop drinking. The graph shown the price increase a little while the quantity demand decrease a lot.



Alcoholic drinkers

If the consumer is a group of alcoholic drinkers. The demand is going to be inelastic because they consider alcoholic beverages as necessity goods when the unit tax policy. It causes the price increases but Alcoholic still going to purchase with little effect on Qd. The graph shown the price increase by a lot while the quantity demand decrease by a little.