

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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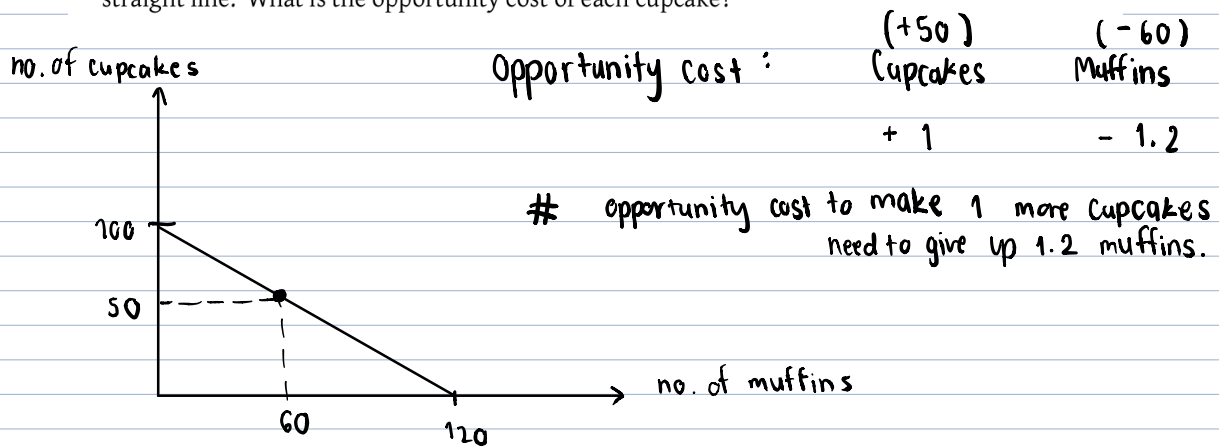
1. Suppose that a baker can produce muffins and cupcakes. If she uses **all her resources on producing muffins**, she can bake **120 muffins**. If she produces only cupcakes, she can bake **100 cupcakes**.

(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?

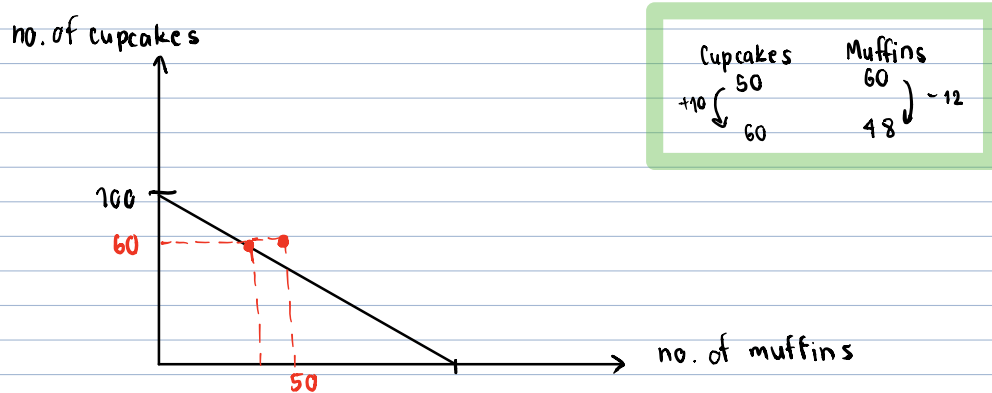
(b) With her available resources, can this baker make 60 cupcakes and 50 muffins? Justify your answer.

(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) 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?



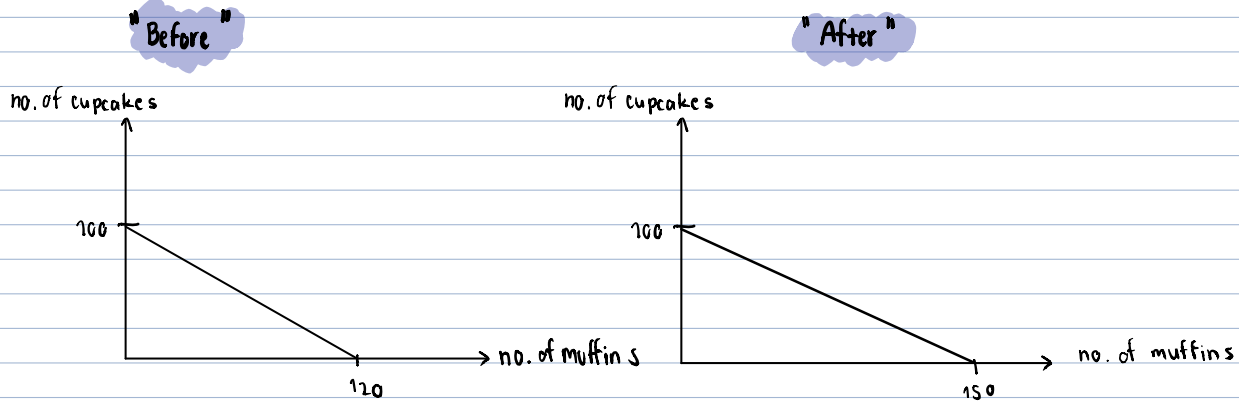
(b) With her available resources, can this baker make 60 cupcakes and 50 muffins? Justify your answer.



The opportunity cost to make cupcakes is 1.2 muffins.

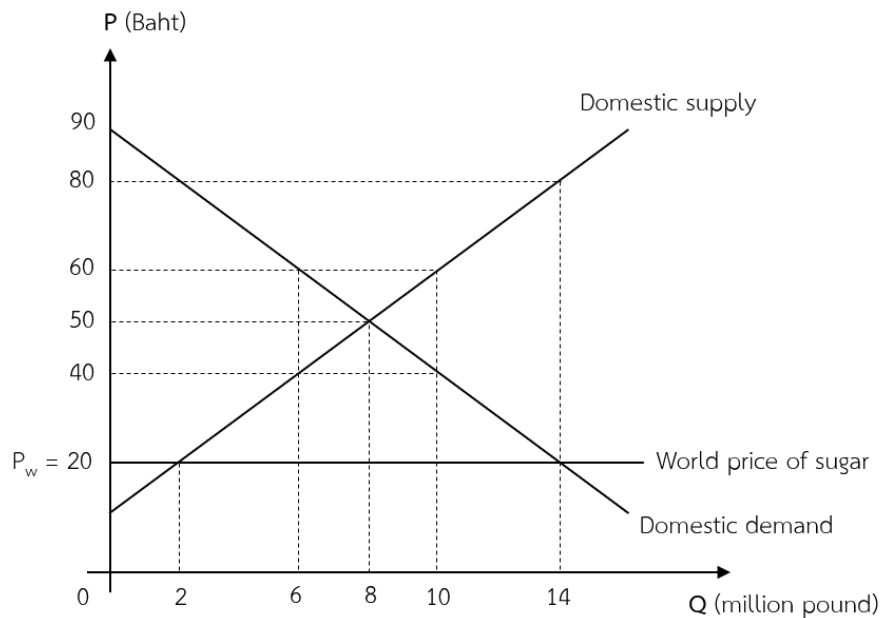
So with her available resources, it's impossible for her to reach the result of making 60 cupcakes and 50 muffins because when making 60 cupcakes her remaining resources can only make 48 muffins.

(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.



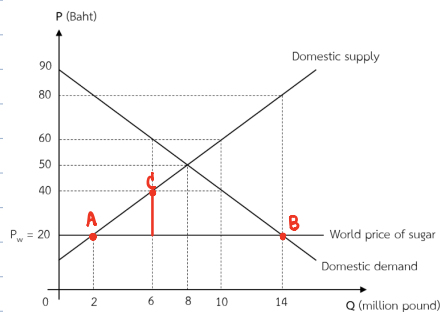
The opportunity cost of each cupcake will increase from 1.2 to 1.5 muffins due to learning a new technique which increases the production of muffins to 150 muffins while the production of cupcakes remain the same which at 100.

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.



- Supposed that Thailand takes world price, how many pounds of sugar is imported at the world price level?
- 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,
- How much of the sugar is domestically produced in Thailand after tax?
- 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.
- 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.

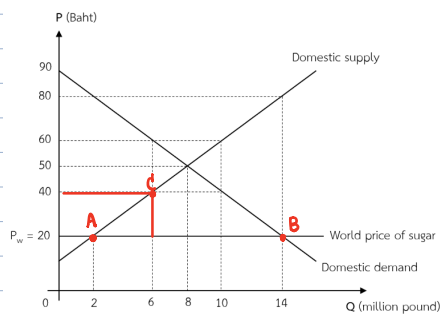
(a) Supposed that Thailand takes world price, how many pounds of sugar is imported at the world price level?



At the world price level, 12 million pounds of sugar need to be imported. As the graph shows at point A suppliers are willing to supply sugar at 2 million pounds however the demand of consumers for sugar is 14 million pounds (point B).

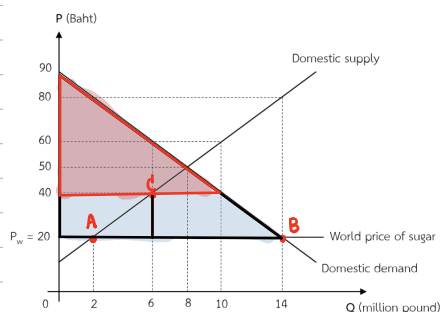
(b) If the government further decides to collect an import unit tax of 20 baht per pound and the price after tax becomes 40 baht per pound,

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



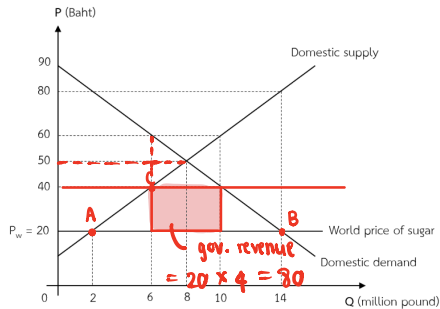
Price after the government collect an import tax is now 40 baht per pound. This event encourage the suppliers to supply more which cause the increase in quantity supply from 2 million pounds to 6 million pounds (point C)

(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.



- Blue area represents before the tax is imposed the consumer surplus.
- Red area represents change after the tax is imposed causing the price after tax increase to 40 baht per pound.
- Domestic consumers are worse off because they have to pay more when purchasing sugar from abroad. Furthermore, other whom the willingness to pay is lower than 40 baht per pound might not be able to purchased too.

(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.



If the government import tax is 20 bath per pound,
(20×4 million per pound)
the government revenue will be 80 million bath which
derived from the domestic supply of sugar (6 million pound)
and the quantity demand for 40 bath sugar (10 million pound).
The domestic supply of sugar cannot support the
domestic demand of people which are 4 million pound
so, this 4 million pound of sugar need to be import.

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.

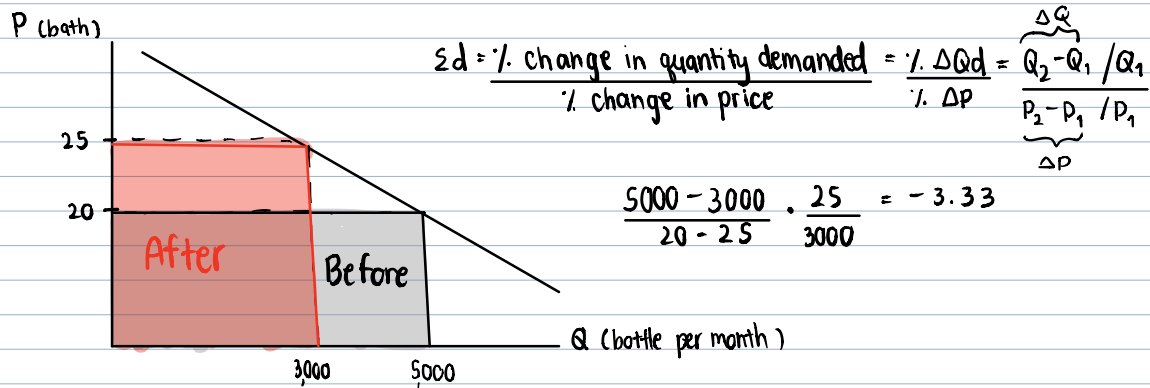
(a) Use POINT elasticity to calculate the price elasticity of demand at the NEW price.

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



The new price elasticity of demand at new price is -3.33

(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.

The total sale revenue from selling sweetened green tea at Thammasat University is decrease because it is an elastic goods ; $|Ed| > 1$ that has others substitution.

$$\frac{\text{new} - \text{old}}{\text{old}}$$

(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.

$$\Sigma_c = \frac{\% \text{ Change in quantity demand}}{\% \text{ Change in another commodity price}} = \frac{\% \Delta Q_d^a}{\% \Delta P^b}$$

$$\frac{3000 - 2500}{25 - 20} \cdot \frac{20}{2500} = 0.8$$

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

Substitutes goods because it is an elastic goods and when sweetened green tea price increase consumers will prefer to have super drink instead this cause the increase in selling of super drink.

sweetened green tea price increases from 20 to 25

quantity demanded from super drink increases from 2,500 to 3,000

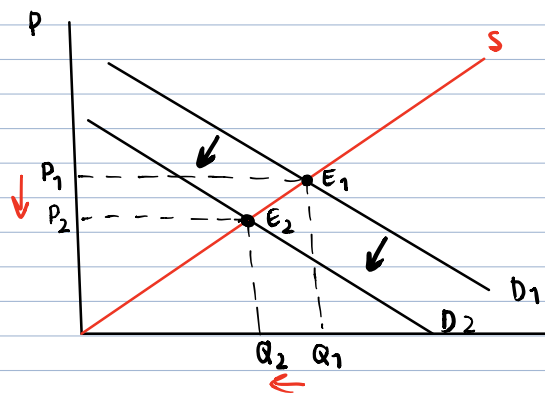
4. Consider a liquor market in a country, answer the following questions. If you have any specific assumption, please state them clearly within each item.

(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.

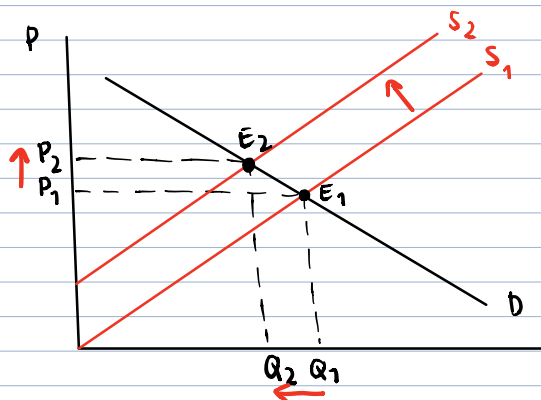
(c) There are two groups of liquor consumers: the alcoholic and the occasional drinkers. Does the unit tax affect both groups the same or differently. Provide a clear explanation with support of diagrams.

(a) 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.



Result from a campaign shows the bad effect of alcoholic beverages makes the demand curve of the market shifts downward. To make the market turn back to its equilibrium point, price decrease from P_1 to P_2 and quantity demand decrease from Q_1 to Q_2 . So the new market's equilibrium is now E_2 .

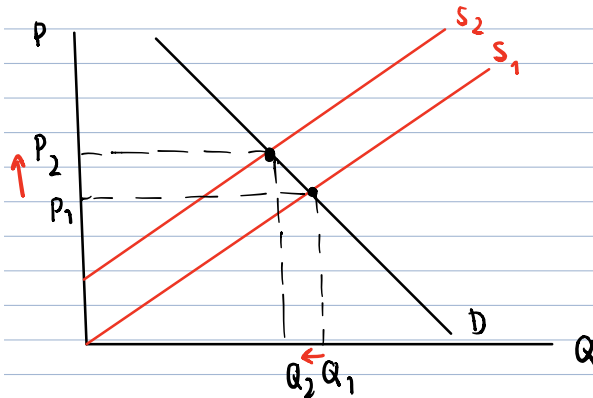
(b) If the government decides to collect unit tax on sellers, show that how would this affects equilibrium price and quantity. Provide a clear explanation with support of a diagram.



The cost of production of each product will increase when government collect tax. Due to the higher cost of production the, supply will decrease makes the supply curve shift upward. To make the market turn back to its equilibrium point, Price increase from P_1 to P_2 and higher price decrease quantity demand from Q_1 to Q_2 . The new equilibrium is now at E_2 .

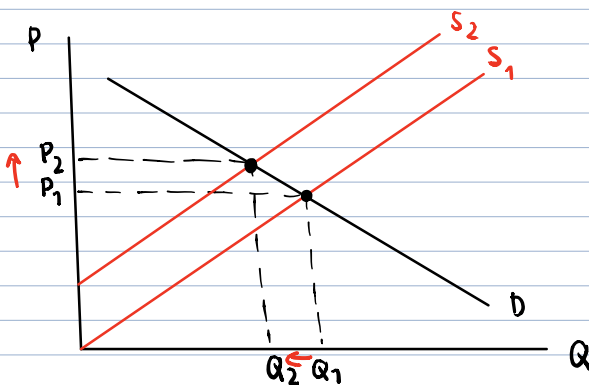
(c) There are two groups of liquor consumers: ¹⁾ the alcoholic and the ²⁾ occasional drinkers. Does the unit tax affect both groups the same or differently. Provide a clear explanation with support of diagrams.

1) Alcoholic Drinkers (inelastic demand)



Even though the tax of alcoholic beverages are higher there's a little effect on the alcoholic drinkers because they are addicted to it (quantity demand decrease a little from $Q_1 \rightarrow Q_2$) and still willing to pay at a higher price ($P_1 \rightarrow P_2$).
* Consumers hold larger tax burden.

2) Occasional Drinkers (elastic demand)



For occasional drinkers alcoholic beverages are not a necessity good for them, so when the tax increases there's a little effect on them (price increase a little $P_1 \rightarrow P_2$ while the quantity demand decreases a lot from $Q_1 \rightarrow Q_2$).
* Sellers hold larger tax burden.