HOME WORK

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**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.

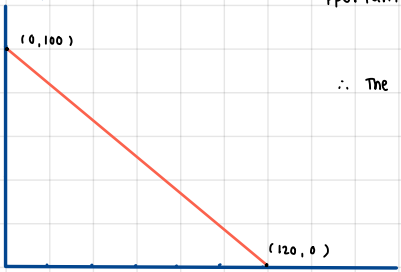
(a) Draw the Production Possibility Curve of this baker, where the x-axis represents the quantity of muffins and y-axis represents the quantity of cupcakes. Assume that the PPC is a straight line. What is the opportunity cost of each cupcake?

(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?

PPC :




Opportunity cost : more cupcakes, less muffins

$\rightarrow \frac{120}{100} = 1.2$

$\therefore$ The opportunity cost of each cupcake is 1.2 #

NOTE : if you produce 60 cupcakes

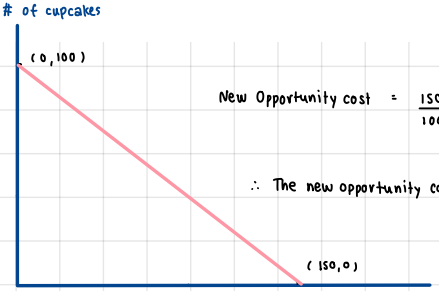
you can produce 40 more cupcakes

$\rightarrow 40 \times 1.2 = 48$ muffins

$\therefore$ resources are insufficient #

(b) With her available resources, can this baker make 60 cupcakes and 50 muffins? Justify your answer. No, due to the resources insufficiency and (60, 50) is out of the production possibilities frontier.

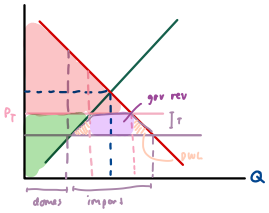
(X) If the baker learns a new technique and now the maximum quantity of muffins she can produce is 150 muffins, while the maximum quantity of cupcakes she can produce is still 100 cupcakes, *ceteris paribus*. Will the opportunity cost of each cupcake increase or decrease, and by what amount? Illustrate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

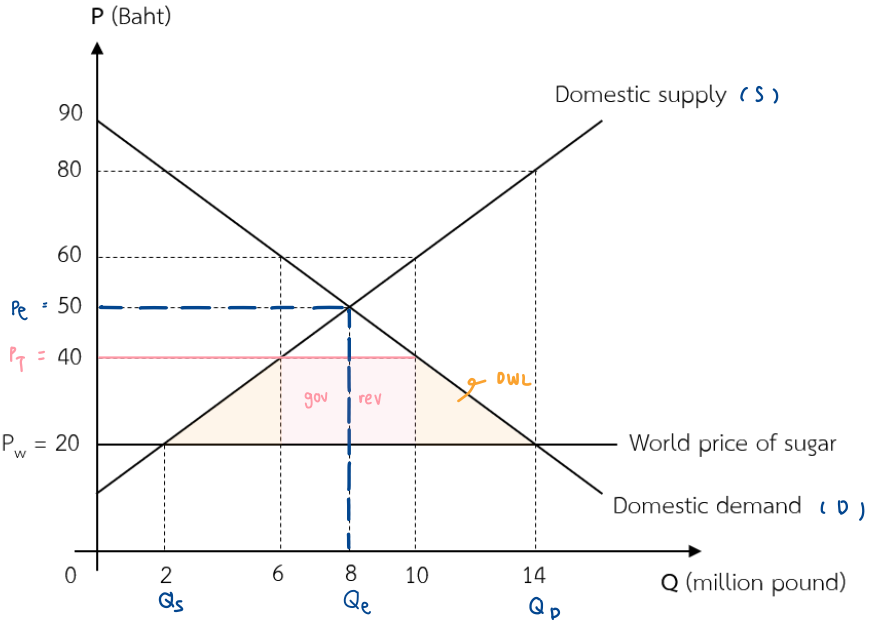



New Opportunity cost $= \frac{150}{100} = 1.5$

$\therefore$ The new opportunity cost will increase and 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? : $Q_S = 2$ , $Q_d = 14$ ∴ Thailand should import 14 - 2 = 12 million pounds #

(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,

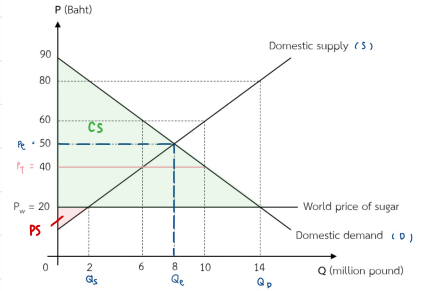
(c) How much of the sugar is domestically produced in Thailand after tax? : 6 million pounds

(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.

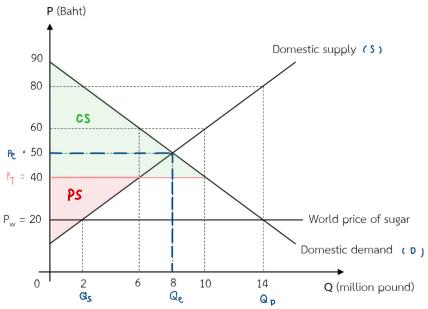
(e) Compute the government revenue from the import tax and identify its area in the provided graph. Clearly explain why the area identified above represents the government revenue from the import tax.

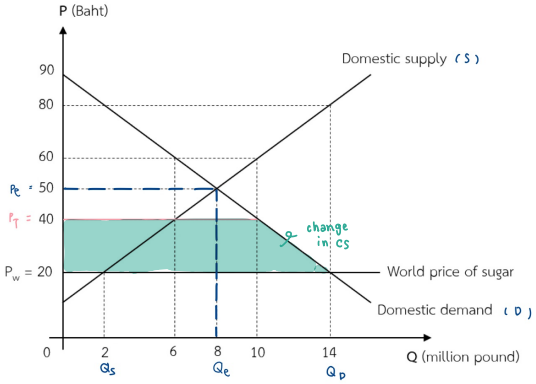
(d) After the import tax is imposed, compute the change in consumer surplus. Also highlight the change in consumer surplus in the provided graph. Are the domestic consumers better off or worse off? Clearly explain your answer.

gov set the ceiling price equal to the world price



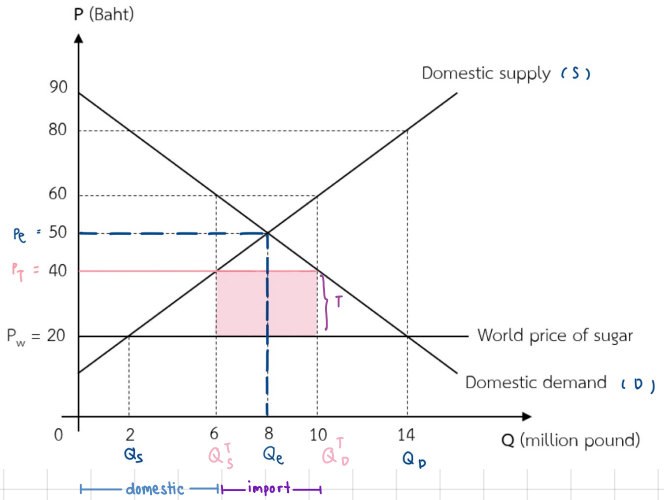

gov set the import tax




∴ The domestic consumers are better off when compare to the equilibrium price. But when compare to the world price, the domestic consumers are worse off because they used to pay 20 Baht per pound but now they pay 40 Baht per pound.

(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.




∴ The government revenue = $T \cdot \Delta Q$

government revenue = $T \cdot [\, Q_D^T - Q_S^T \,]$

-> The government revenue is the imported quantity times the import tax. The imported quantity is the quantity demanded when the price is at 40 Baht per pound subtract the quantity supply that the domestic producer can produce. The import tax is 20 Baht per pound.

**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.

**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.

$$\varepsilon_d = \frac{\Delta Q}{\Delta P} \times \frac{P_1}{Q_1}$$

$$= \frac{5000 - 3000}{20 - 25} \times \frac{25}{3000}$$

$$\varepsilon_d = -3.33 \ \#$$

NOTE
the sweetened tea is elastic product
bc $|\varepsilon_d| > 1$

(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.

Decrease, because the sweetened green tea is elastic product, meaning that there are many substitutable products or it is not necessary. When the price increases, the quantity of demand will decrease.

(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.

let t be the sweetened green tea
d be super drink

$$\varepsilon_c = \frac{\%\Delta Q_d^S}{\%\Delta P^t} = \frac{Q_2^S - Q_1^S}{Q_1^S} \times \frac{P_1^t}{P_2^t - P_1^t}$$

$$= \frac{3000 - 2500}{2500} \times \frac{20}{25 - 20}$$

$$\therefore \varepsilon_c = 0.8$$

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

From part (c), Sweetned green tea and Super Drink are substitutes, because the $\varepsilon_c$ of Super Drink with respect to sweetned green tea is 0.8 which is positive number. Meaning that as the price of sweetned green tea increase, the demand of Super Drink increases.

**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.

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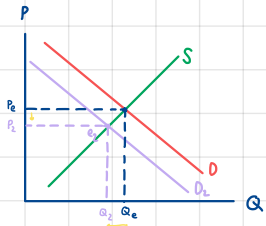
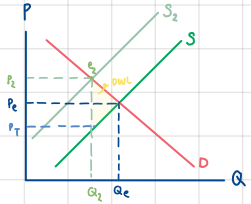
**4.** Consider a liquor market in a country, answer the following questions. If you have any specific assumption, please state them clearly within each item.

(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.

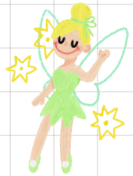



: The quantity demand of the liquor market will decrease. In my assumption, seeing how bad alcoholic beverages affect health conditions in long-term might effect "the want" of the consumers so the consumers will consume less liquor. The decreasing demand affects in the lower quantity price and lower quantity.

(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 unit tax on sellers shifts the supply curve upward. The shift of the supply curve affects the higher equilibrium price and lower quantity.



(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.

- For the alcoholic, the liquor is necessary to them so from their point of view the liquor is inelastic. Even the unit tax raise the price of the liquor but the quantity doesn't affect much
- In contrast, the occasional drinkers view the liquor as elastic product. When the price changes due to the unit tax, the quantity affects a lot.