

## EE211 Assignment #1 (2/2020)

### Instructions:

- Assigned date is Thursday the 18<sup>th</sup>, Feb 2021. Due date is Thursday the 25<sup>th</sup>, 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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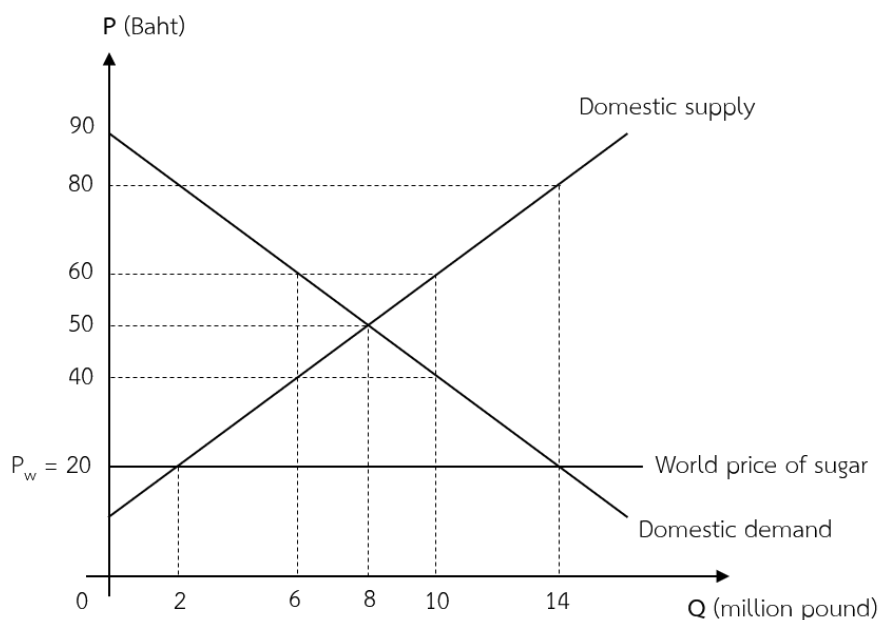
1. Suppose that a baker can produce muffins and cupcakes. If she uses all her resources on producing muffins, she can bake 120 muffins. If she produces only cupcakes, she can bake 100 cupcakes.

(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.

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.

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.

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.

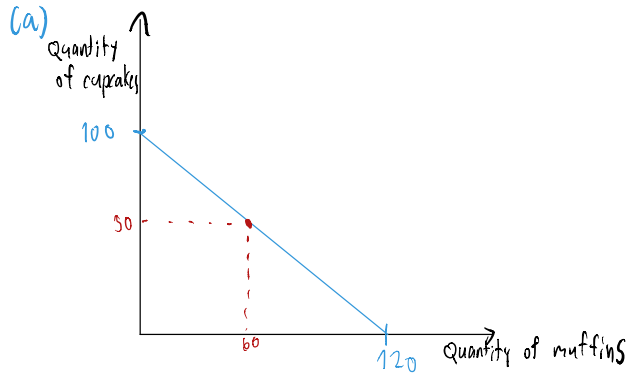
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# Micro Assignment 1

wasawat sombutsaengurai 6304641829

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?



opportunity cost of each cupcake  $\therefore$  opportunity cost of making each cupcake is

$$\begin{matrix} (0, 100) & (120, 0) & +100 & -120 \\ & & +5 & -6 \end{matrix} \quad \frac{6}{5} = 1.2$$

loss of 1.2 muffins.

so less 1 cupcake is more 1.2 muffin

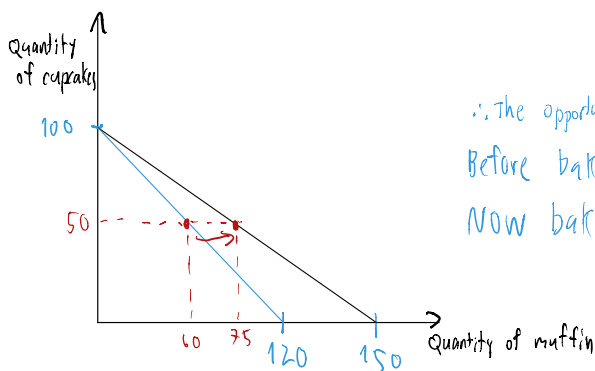
(b) With her available resources, can this baker make 60 cupcakes and 50 muffins? Justify your answer.

(b) opportunity cost of making one cupcake is 1.2 muffins  
 so if she decide to make 60 cupcake and 50 muffins  
 it can do only 60 cupcake and 48 muffins.  
 $\therefore$  it is impossible to do 60 cupcakes and 50 muffins

cupcakes	muffins
50	60
↓	↓
60	48

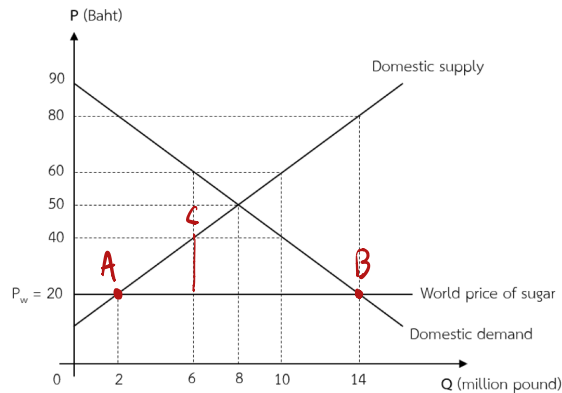
(X) If the baker learns a new technique and now the maximum quantity of muffins she can produce is 150 muffins, while the maximum quantity of cupcakes she can produce is still 100 cupcakes, *ceteris paribus*. Will the opportunity cost of each cupcake increase or decrease, and by what amount? Illustrate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

(C) If maximum quantity of muffins is rises to 150 muffins  
 but maximum quantity of cupcakes is still the same.



$\therefore$  The opportunity cost of each cupcake is increasing by 0.3 because  
 Before bake 1 cupcake the opportunity cost is 1.2 muffin  
 Now bake 1 cupcake the opportunity cost is 1.5 muffin

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?

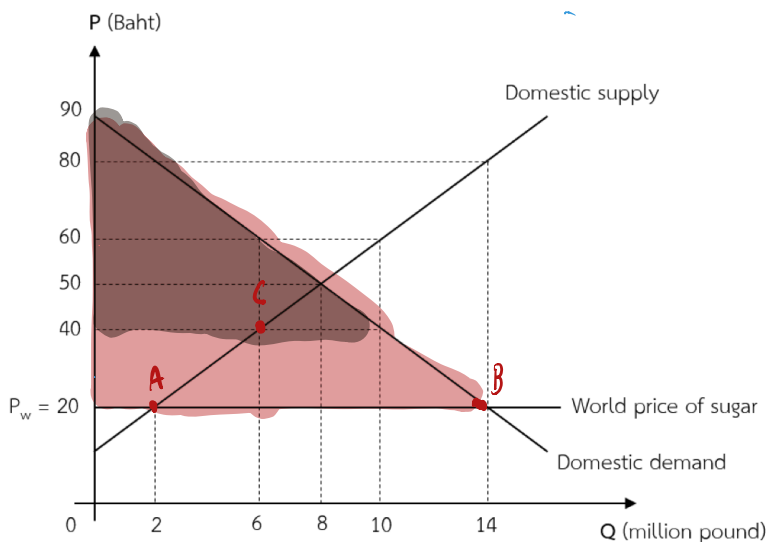
(a) If takes world price Thailand have to import 12 million pound of sugar because the quantity Domestic supply of sugar is only at 2 million pound at point A while Domestic Demand is at 14 million pound at point B.

(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?

After the unit tax policy is implemented. Price after tax is now at 40 bath per pounds. Higher price encourage supplier to supple more which domestically increase quantity supply from 2 million pound to 6 million pound.

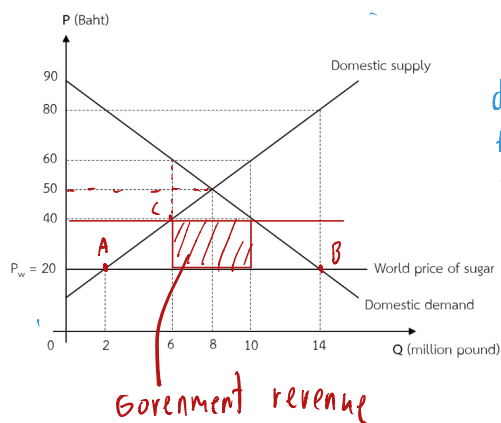
(d) After the import tax is imposed, compute the change in consumer surplus. Also highlight the change in consumer surplus in the provided graph. Are the domestic consumers better off or worse off? Clearly explain your answer.



Before the tax is imposed the consumer surplus are fill in red. Later on when the taxation policy is imposed, price is increase to 40 baht per pound this change are filled in black

so domestic consumers are worse off since they are forced to pay more when purchasing sugar from abroad. some may not be able to purchased if their willingness to pay is lower than 40 baht per pound.

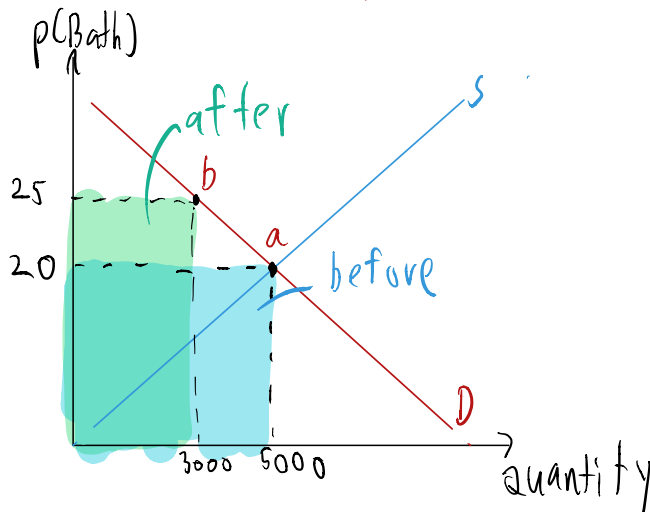
(e) Compute the government revenue from the import tax and identify its area in the provided graph. Clearly explain why the area identified above represents the government revenue from the import tax.



The price after tax of sugar is 40 baht per pound. The domestic supply of sugar is 6 million pound but the quantity demanded for 40 baht sugar is 10 million pound. This shown that the rest 4 million that excess have to import from abroad. If the import tax is 20 baht per pound. By importing 4 million pound of sugar the government revenue would be 4 million  $\times$  20 which is 80 million baht.

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.

3. sweetened green tea



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

$$\begin{aligned} (a) \quad \epsilon_d(b) &= \frac{Q_2 - Q_1}{P_2 - P_1} \cdot \frac{P}{Q} & \epsilon_d(a) &= 4000 \times \frac{20}{5000} \\ &= \frac{5000 - 3000}{20 - 25} \cdot \frac{25}{3000} & &= \frac{8}{5} = 1.6 \\ &= 4000 \cdot \frac{1}{120} = \frac{10}{3} = 3.33 \end{aligned}$$

(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.

(b) Total sale revenue will decrease because the price increase due to tax and this revenue is sent to university then with the elasticity of demand that rises from 1.6 at point *a* to 3.33 at point *b* or become more elastic. Therefore, the percentage of decrease in quantity demand would be greater than the percentage of increase in price, so the total revenue will decrease even the price is raised.

(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.

$$\epsilon_c = \frac{\% \Delta Q_d^a}{\% \Delta p^b}$$

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

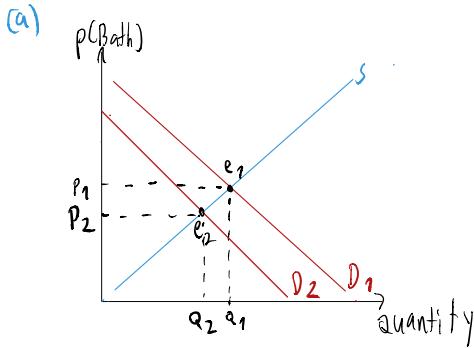
So cross-price elasticity of demand for "super Drink", with respect to the price of "sweetened Green Tea" is 0.8

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

(d) Sweetened green tea and super drink are substitutes goods because when price of sweetened green tea rise up the quantity demand of super drink is raise up instead.  
If both goods are complements for each other, when the price of another commodity increase, the quantity demanded of its complement would decrease together.

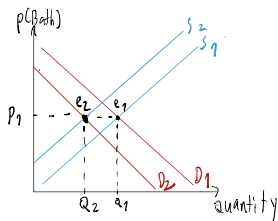
4. Consider a liquor market in a country, answer the following questions. If you have any specific assumption, please state them clearly within each item.

(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.



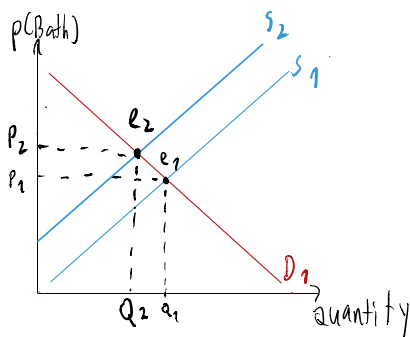
In my opinion, due to the campaign the demand of liquor will decrease and demand curve shift down. So both of equilibrium price and quantity will fall down from  $p_1$  to  $p_2$  and  $q_1$  to  $q_2$  respectively and have new equilibrium price and quantity at  $e_2$ .

(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.



ถ้ารวมข้อ a

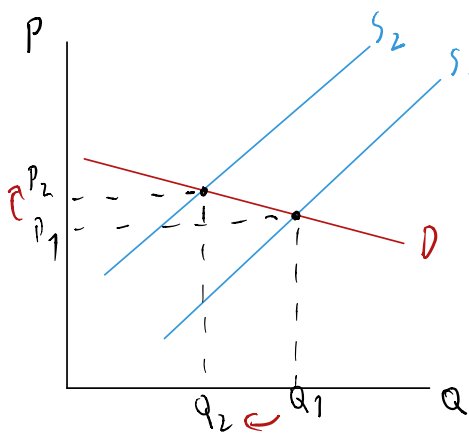
if, the equilibrium quantity will decrease while equilibrium price still the same because the supply curve shift to the left due to collect unit tax on seller and demand curve shift to the left too because campaign so new equilibrium is at  $e_2$ .



ถ้าไม่รวม a

when the government decides to collect unit tax on sellers. The cost of production would increase so supplier supply less which shift the supply curve up. The price is goes up from  $p_1$  to  $p_2$  and the quantity demanded fall down from  $q_1$  to  $q_2$ . The new market equilibrium price and quantity demanded is now at  $e_2$ .

(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.

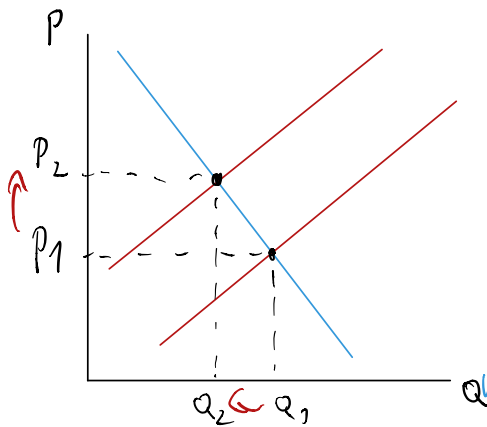


Elastic Demand

### Occasional drinkers

The demand of occasional drinkers is going to be elastic since the alcoholic beverages is not necessity goods for them. When the price increase due to unit tax it doesn't have so much effect to them because they can stop drinking and buy other substitute goods instead. So when the price rise up the quantity demand decrease dramatically.

Sellers hold larger tax burden compared to consumers.



Inelastic Demand

### Alcoholic drinkers

In alcoholic drinkers their demand is going to be inelastic since they addict alcohol. For them alcoholic beverages is necessity goods so when the price increase due to unit tax they still going to purchase.

So when the price increase a lot the quantity demand only fall down by a little.

Buyers hold larger tax burden compared to sellers