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.

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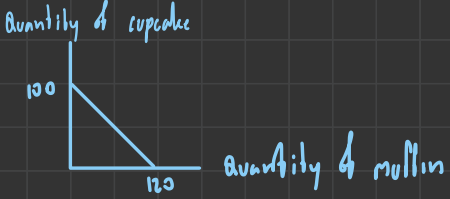
1. a)



∴ oppotunity cost of cupcakes = $\frac{120}{100}$ = 1.2

b) $y = mx + c$

Qcupcake : $-\frac{5}{6}$ Qmuffin + 100

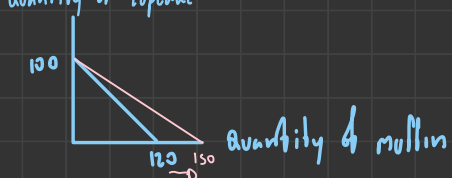
60 : $-\frac{5}{6}$ Qmuffin + 100

$-40\left(-\frac{6}{5}\right)$: Qmuffin

Qmuffin : 48 max

∴ It is not possible to make 60 cupcake and 50 muffin

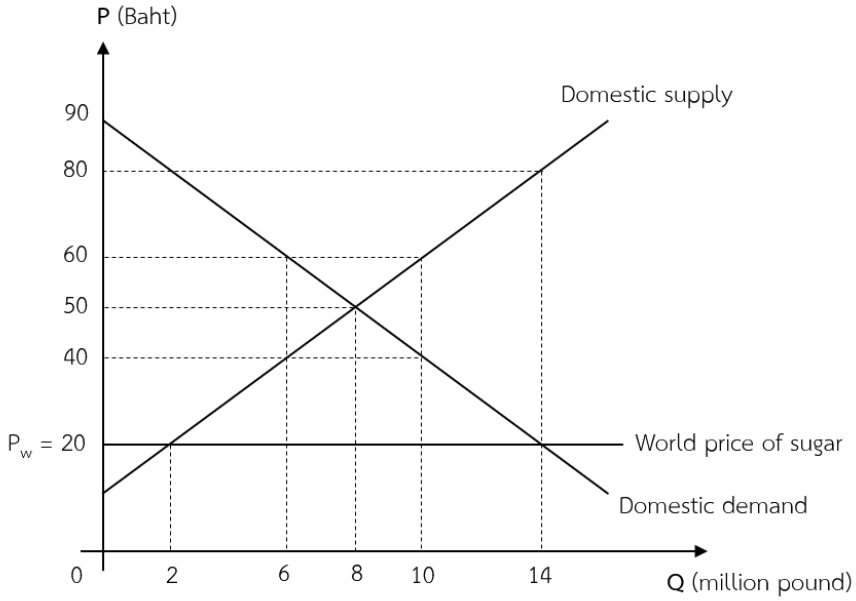
x) New technical → 150 muffin / 100 cupcake



oppotunity cost of cupcakes = $\frac{150}{100}$ = 1.5

oppotunity cost increase 1.5 - 1.2 = 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.



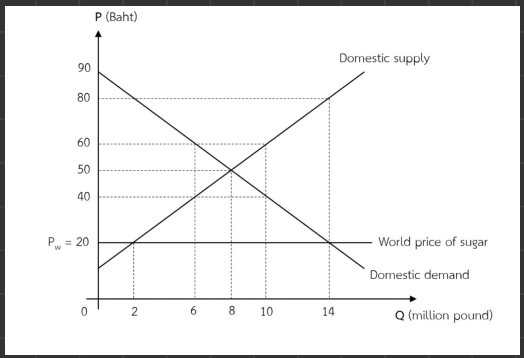
(a) Supposed that Thailand takes world price, how many pounds of sugar is imported at the world price level?

(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.

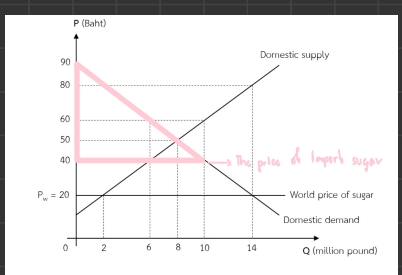
(e) Compute the government revenue from the import tax and identify its area in the provided graph. Clearly explain why the area identified above represents the government revenue from the import tax.



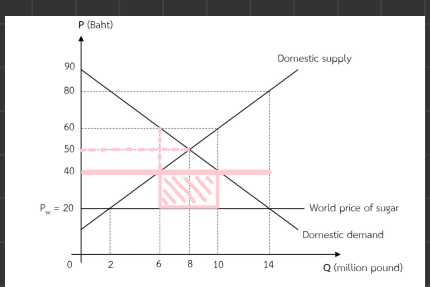
a) from graph when price of sugar is 20 ฿ the domestic supply can supply at 2 million pound. Also, when price of sugar is 20 ฿, the quantity demanded is 14 million pound therefore, there is an excess in demand. Finally, country need to import other that excess demand 12 million pound to meet the demand at 14 million pound (14 - 2 = 12 million pound)

b) When tax is imposed by 20฿, price level of world sugar increase to 40 ฿

c) When price is 40 ฿, the domestically produced can produce at 6 million pound.



d) After the import tax is imposed, the price of sugar is increased. It means consumer who have willingness to pay the price below 40 ฿ cannot afford the price



- At the 40฿ price of sugar, the domestic supplier can supply at 6 million pound and the demand for sugar is at 10 million pound
  It mean there need to import for 4 million pound
- Therefore, the government revenue is total taxation from import other 4 million pounds
- The government revenue is 40 million pounds
  x 20 = 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.

(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) $\varepsilon_d = \dfrac{\frac{Q_2 - Q_1}{Q_1}}{\frac{P_2 - P_1}{P_1}} = \dfrac{Q_2 - Q_1}{P_2 - P_1} \cdot \dfrac{P_1}{Q_1} = \dfrac{3000 - 5000}{25 - 20} \cdot \dfrac{20}{5000} = \dfrac{-40{,}000}{25000} = -1.6$

b) From the absolute elasticity demand from question A is more than 1.
When demand is elastic, it means that when increase by 1 unit the demand decrease more than 1 unit
Therefore, the revenue from selling sweetened green tea at TU will decrease.

c) P_1 "green tea" = 20 ฿
Q "super drink" = 2500
P_2 = 25 ฿
Q_2 = 3000

$\varepsilon_d = \dfrac{\frac{Q_2 - Q_1}{Q_1}}{\frac{P_2 - P_1}{P_1}} = \dfrac{Q_2 - Q_1}{P_2 - P_1} \cdot \dfrac{P_1}{Q_2} = \dfrac{3000 - 2500}{25 - 20} \cdot \dfrac{20}{2500} = \dfrac{500}{5} \cdot \dfrac{1}{125} = 0.8$

d) - It is a substitutable good because when price of sweetened green tea increase the quantity demand for superdrink is also increase
- If it is a complementary good when price of product A increase, quantity of demand for product B must decrease.

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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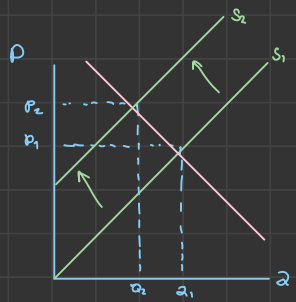
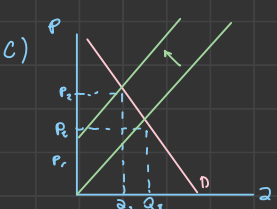
After Health foundation put up campaign, it is an external factor that cause demand shift left. At the same price level the demand decrease therefore, from e_1 (equilibrium point) will change to e_2 because the price is decrease from P_1 to P_2 and the quantity of demand decrease from Q_1 to Q_2

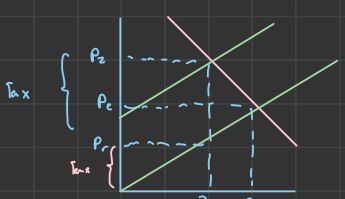


b) After government collect the unit tax, it causes the $Q_1 \to Q_2$ highest cost of production. Producer can produce at the smaller amount when quantity supply decrease. it raise price from ($P_{e1} \to P_{e2}$)

There for market is at new equilibrium ($e_1 \to e_2$)

c)





For alcoholic, they are addicted to the liquids. The demand line for those customer are inelastic. When the price is increase or decrease, alcholic are going to by nearly the same amount. After government start collecting tax. it increase cost of production. So supplier will increase the price ($P_e \to P_2$)

Also, quantity demand is decrease ($Q_e \to Q_2$). But it just a small amount because demand is inelastic.

In this case, tax burden will be mostly on consumer because the additional price from P_e is nearly equal to the tax that supplier pay to government

For the recreational drinker, they don't alcohol is essential or necessary. So, the demand line will be elastic, it mean when price is increase they will buy less alcohol. After government start collect the tax the higher cost of production increase the price ($P_e \to P_2$). However the price increasing cannot be a lot like alcoholic. This is because the demand is elastic, if the price increase like the alcoholic, the quantity demand will drop a lot finally the tax burden will be mostly on producer but consumer need to take some tax burden from increasing price.