

Extra Practice questions:

Ad-Valorem tax: Midterm 1/2015

Consider a market for SUV cars. Market survey has shown that there are two groups of consumers in the market, namely, A and B. Demand equation for each group can be given by:

- Type A: $P = 5 - \frac{1}{2}q$
- Type B: $q = 13 + \frac{Y}{10} - P$.

Let q be the quantity in *thousands* of SUV cars that each type purchases and P be the unit price of each car in *millions Baht*. Y is the level of average (monthly) income, measured in the unit of *thousands Baht*.

Use this information to answer the following questions.

2.1. (5 points) Is the car considered as normal or inferior goods to both groups of consumers? Briefly explain the reason.

2.2. (10 points) Suppose that average income is equal to 70,000 Baht. Derive the market demand equation.

2.3. (10 points) Continue with the assumption that average income is 70,000 Baht. Suppose further that the market supply of SUV cars is given by:

$$P = \frac{1}{9}Q + 2,$$

where Q is the quantity in *thousands* of SUV cars produced by firms.

Solve for the market equilibrium price and quantity in the market when $k = 9$. Under the equilibrium, is there any type of consumers being excluded from the market? Why, or why not?

2.4. (10 points) Continue to suppose that income is 70,000 Baht, and the supply equation is still given by the same functional form as above. Now, suppose that government imposes an ad-valorem tax of 800% on the sale of SUV cars. This tax is imposed on consumers.

What would be the after-tax equilibrium price and quantity? Under the new equilibrium, is there any group of consumers excluded from the market?

2.5. (5 points) From (2.4), calculate the total tax revenue that government can collect. Determine per-unit tax burden for consumers and producers, respectively.