

ECC1000: PRINCIPLES OF MICROECONOMICS

Answers to Tutorial Week 4

Chapter 5, Problem 1

- a. Mystery novels since there are more substitutes
- b. Beethoven recordings since the market definition is narrower and there are more substitutes available outside the defined market
- c. Bus trips during the next 5 years since a longer time horizon means more substitutes are likely to become available
- d. Lemonade since water is necessity with few substitutes

Chapter 5, Problem 2

- a. For business travellers, the price elasticity of demand when the price of tickets rises from \$200 to \$250 is $[(2000 - 1900) / 1950] / [(250 - 200) / 225] = 3/13 = 0.23$.
(ii) For holiday-makers, the price elasticity of demand when the price of tickets rises from \$200 to \$250 is $[(800 - 600) / 700] / [(250 - 200) / 225] = 9/7 = 1.29$.
- b. The price elasticity of demand for holiday-makers is higher than the elasticity for business travellers because holiday-makers can more easily choose a different mode of transportation like driving or taking the train. Business travellers are less likely to do so since time is more important to them and their schedules are less adaptable.

Chapter 5, Problem 6

- a. With a 4.3 percent decline in quantity following a 20 per cent increase in price, the price elasticity of demand is only $4.3 / 20 = 0.215$, which is fairly inelastic.
- b. With inelastic demand, the revenue rises when the fare rises.
- c. The elasticity estimate might be unreliable because it's only the first month after the fare increase. As time goes by, people may switch to other means of transportation in response to the price increase. So the elasticity may be larger in the long run than it is in the short run.

Chapter 5, Problem 9

- a. With price elasticity of demand of 0.4, reducing the quantity demanded of cigarettes by 20 per cent requires a 50 per cent increase in price, since $20 / 50 = 0.4$. With the price of a pack of cigarettes currently at \$8, a 50% increase would be \$4, hence an increase in price to \$12. In this question it is clear that \$8 is a base price, so there is no need to use the mid-point method. [But if we use the mid-point method, a 50% increase in price would require an increase in price to \$13.33 a pack since $(\$13.33 - \$8) / \$10.67 = 0.50$].
- b. The policy will have a larger effect five years from now than it does one year from now. The elasticity is larger in the long run, since it may take some time for people to reduce their cigarette usage. The habit of smoking is hard to break in the short run.
- c. Since teenagers don't have as much income as adults, they are likely to have a higher price elasticity of demand.

Chapter 5, Problem 12

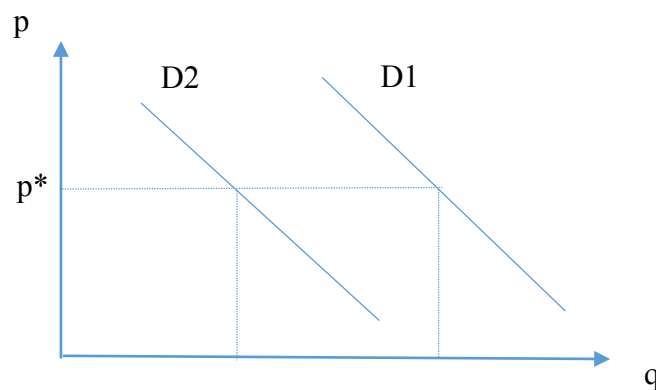
Not necessarily. If demand for luxury cars is price elastic, then raising the price of luxury cars by increasing the tax will decrease the total revenue from luxury cars. It is likely that demand for luxury cars is elastic as they are more of a luxury than a necessity.

Extra Question 1

- Supply will increase as a result of productivity increase, leading to lower price and larger quantity in equilibrium. (Demand does not change due to our assumption.)
- It would be reasonable to assume that demand for milk is inelastic as milk is necessity. Therefore a decrease in price due to the growth hormone will lead to a smaller percentage increase in quantity sold, leading to smaller farm revenue. This could be a reason for farmers' objection. I suggest you to draw a demand-supply diagram with inelastic (say, steep) demand curve. You can then shift the supply curve to the right and see that farmers' revenue decreases as a result.

Extra Question 2

It is conceivable that cigarette consumption is no longer at the point where demand is inelastic. Several factors may explain this. First, campaigns against smoking (such as plain packaging regulations, TV ads, etc.) may have changed preferences, leading to a decrease in demand. If demand shifts to the left, then elasticity tends to become larger if slope does not change. Look at the graph below. The two demand curves have the same slope dp/dq , hence dq/dp is also the same. Elasticity is $(dq/dp)(p/q)$. So D2 has larger elasticity than D1 at every price since quantity is smaller at the same price (for example see p^*).



Second, successive excise increase has led to an increase in price. Recall that, with a linear demand curve, demand becomes more elastic as price increases.

Both these factors will make demand more elastic. It is quite possible that the equilibrium is now at the elastic portion of the demand curve. As a result, further price increase due to excise hike will reduce sales revenue as well as tax revenue.