

Concordia University
Department of Economics
ECON 201
MIDTERM EXAMINATION AND ANSWERS

Part I. Multiple Choice Questions. Circle the best answers.

1. When a choice is made, we call the value of the best alternative choice the (from tutorials)
 - a. Implicit choice.
 - b. Accounting cost.
 - c. Opportunity cost.**
 - d. Apparent cost.
 - e. None of the above.

2. Which of the following statements is (are) normative? (from tutorials)
 - a. If income increases, sales of luxury goods will fall.
 - b. When minimum wages are raised, unemployment rises.
 - c. As the price of compact discs falls, people will buy more of them.
 - d. All of the above.
 - e. None of the above.**

3. Which of the following product classifications is likely to have a demand curve with the highest price elasticity? (from Aplia)
 - a. Chevrolet Impala.**
 - b. Automobiles.
 - c. Chevrolets.
 - d. Motorized vehicles.
 - e. Cannot be determined.

4. The supply of apples is determined by the size of orchards, the number of apple trees, and the quantity of apples per tree. The quantity of apples per tree depends on the weather and the amount of fertilizer and pesticides that farmers use. Given all these factors that affect supply, is the long-run supply for apples likely to become more elastic or more inelastic than the short-run supply? (from Aplia)
 - a. The long-run supply for apples will be more inelastic.
 - b. The long-run supply for apples will be more elastic.**
 - c. The elasticity of supply will be the same in the short and long run.
 - d. These factors do not affect elasticity.
 - e. The elasticity of the long-run supply is dependent on the shape of the demand curve.

5. Taxicab fares in Cleveland are subject to maximum price regulations set by the city government. Suppose that the local taxi companies petition the city council to raise the fares to generate higher revenues. A local citizen action group opposed to the fare increase claims that any increase in fares will actually lead to lower taxi revenues. Based on these views: (from Aplia)
 - a. The taxi companies believe the demand for taxi rides is price elastic, while the citizen action group believes the demand is price inelastic.
 - b. The taxi companies believe the demand for taxi rides is price inelastic, while the citizen action group believes the demand is price elastic.**
 - c. The taxi companies believe the demand is unit elastic, while the citizen action group believes the demand is perfectly inelastic.
 - d. The taxi companies believe the demand is perfectly elastic, while the citizen action group believes the demand is unit elastic.
 - e. None of the above.

6. The markets for inkjet printers and cartridges: The printers are sold at \$49 per unit, whereas the cartridges are sold at \$35 each. The suppliers of the printers/cartridges must think that
 - a. The demand for printers is inelastic and the demand for cartridges is inelastic.
 - b. The demand for printers is inelastic and the demand for cartridges is elastic.
 - c. The demand for printers is elastic and the demand for cartridges is elastic.
 - d. The demand for printers is elastic and the demand for cartridges is inelastic. (Once people have bought the printer, they have to buy the cartridges.)**
 - e. None of the above.

7. If household expenditure on electricity remains constant when the price of electricity increases, the price elasticity of demand for electricity is
- One (in absolute value). (Because the total expenditure is constant, so $\% \Delta P = - \% \Delta Q$)**
 - Zero.
 - Greater than one (in absolute value).
 - Less than one (in absolute value).
 - Cannot be determined.
8. Several students are discussing the concept of price elasticity while standing in line at the campus bookstore. Which of the following quotations describes an inelastic demand for a product? (from Aplia)
- "I think the higher prices are really going to cut my overall spending on school supplies."
 - "A price increase really scares me. It wouldn't reduce my purchases of school supplies very much, but I know for sure that I'll end up spending a lot more than I was before."**
 - "Movie tickets are so expensive these days, I would rather wait for the DVDs to come out."
 - "Since business at my job has slowed down, my income is a lot lower than it used to be. Consequently, I won't be able to buy as much even if prices don't rise."
 - "An increase in price will cause me to buy fewer school supplies, but I don't expect to see any change in my overall spending, one way or the other."
9. If the government imposes a price ceiling below the equilibrium price, then (from tutorials)
- The quantity consumed will rise.
 - Consumer surplus will fall.
 - Consumer surplus will rise.
 - Consumer surplus may rise or fall.**
 - The price will rise.
10. If the government introduces a subsidy into a market, then (from tutorials)
- Consumer surplus will rise.
 - The quantity consumed will rise.
 - Consumer surplus will fall.
 - Both a and b.**
 - Both a and c.

Part II: Answer all parts

Question #1

Suppose that both John and Jane like to grow tomatoes and green peppers in the backyard. In a 30-day month, John can grow in his backyard either 30 tomatoes and 0 peppers or 0 tomatoes and 15 peppers or any other combination lying on the line between these two points. In the same amount of time, Jane can grow in her backyard either 40 tomatoes and 0 peppers or 0 tomatoes and 10 peppers or any other combination lying on the line between these two points. Assume that John and Jane both spend half of their time to produce tomatoes and peppers before and after they trade. Let John exchange 5 peppers for 15 tomatoes with Jane.

- Calculate their consumption bundles under trade.
Ans: John produces (15T, 7.5P) and Jane produces (20T, 5P). Once they trade, John consumes (15+15=30T, 7.5-5=2.5P), while Jane consumes (20-15=5T, 5+5=10P).
- Show that neither John nor Jane would be able to consume the quantities you found in (i) if they had to consume only what they produce, i.e., do not trade.
Ans: This case is simpler than the one we covered in the assignment. Why? Because if we see that John consumes (30T, 2.5P), this means John gains a total of 2.5P because the question says John can produce only (30T, 0P). The same goes for Jane. The question says she can produce only (0T, 10P), but now she consumes (5T, 10P). She gains 5T.
- Suppose Jane can produce either 40 tomatoes and 0 peppers or 0 tomatoes and 20 peppers. Would Jane be interested in trading with John? Would John be interested in trading with Jane? Explain.

Ans: No, no one is interested in trading because the OC for John is $1P=2T$, and it is the same for Jane $1P=2T$. The OCs are the same, and hence there is no comparative advantage. There will be no gains from trade.

Question #2

Tax break to break the habit

CanWest News Service, Published: Monday, July 30, 2007

TORONTO — Ontario residents have another incentive to quit smoking — a tax incentive.

The provincial government announced Monday it will introduce a Retail Sales Tax (RST) exemption on tobacco cessation aids.

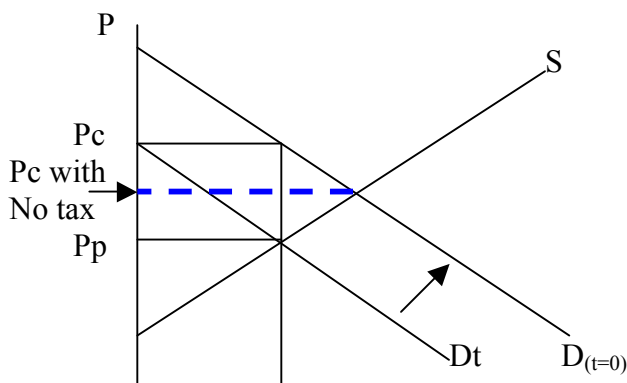
Beginning August 13, nicotine replacement therapy products including nicotine patches, gum, lozenges, inhalers, sprays and tablets will be exempt from RST at point-of-sale. The RST exemption on the qualifying tobacco cessation products is expected to provide some savings to Ontario consumers in a full year, said Health Promotion Minister Jim Watson.

“Helping Ontarians quit smoking is a major aspect of the Smoke-Free Ontario Strategy,” Watson said. “These savings will assist a mother, father or one of your loved ones when they make the decision to quit smoking.”

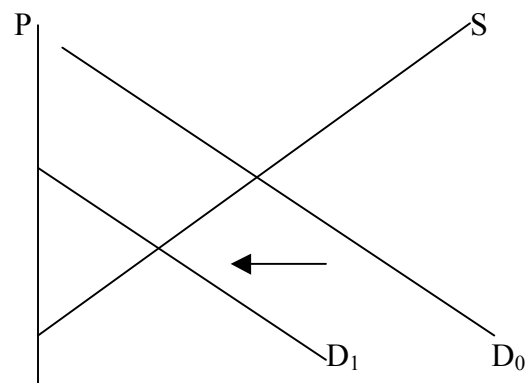
Smokers using the patch over 10 weeks at an estimated cost of \$300, would save \$24 in taxes.

- (i) With a graph for nicotine patches on the left and a graph for tobacco on the right, demonstrate how the elimination of the retail sales tax (consumer tax) on nicotine patches would affect both markets. Be sure to draw both the demand and supply curves in both diagrams.

Ans: Nicotine Patches



Tobacco



- (ii) Based on your graphs, no calculations necessary, is the cross-price elasticity of these two products positive or negative? Explain.

Ans: Notice that in the nicotine market, we are comparing P_c with (P_c with no tax). Therefore, the price for consumers has dropped. The cross-price ϵ is $\% \Delta Q_d$ for tobacco (which is negative) divided by $\% \Delta P$ of nicotine patches (which is negative). So the cross-price ϵ is >0 . The products are substitutes.

Question #3

Big Oil spends more, pumps fewer barrels

Alex Lawler, Reuters, July 30, 2007

LONDON (Reuters) - The world's three largest fully publicly traded oil firms are investing billions of dollars more this year and the extra spending has yet to result in higher production.

Exxon Mobil Corp. Royal Dutch Shell Plc, and BP Plc posted falling second-quarter output, even though they plan up to a total of \$61 billion in 2007 capital spending, up 5.5 percent from 2006.

The drop in supply reflects declining output from fields in mature oil regions like the North Sea, violence by militants in Nigeria that has cut output for some companies and slow access to big sources of new reserves.

OPEC's members, whose oil industries are run by national oil companies, sit on three-quarters of the world's proven reserves and 10 of the 12 members pump crude at agreed levels to bolster prices.

Resources are increasingly located where extraction is technically harder, such as beneath seas that ice over in winter off Russia's Sakhalin Island, or in politically volatile regions like the Middle East.

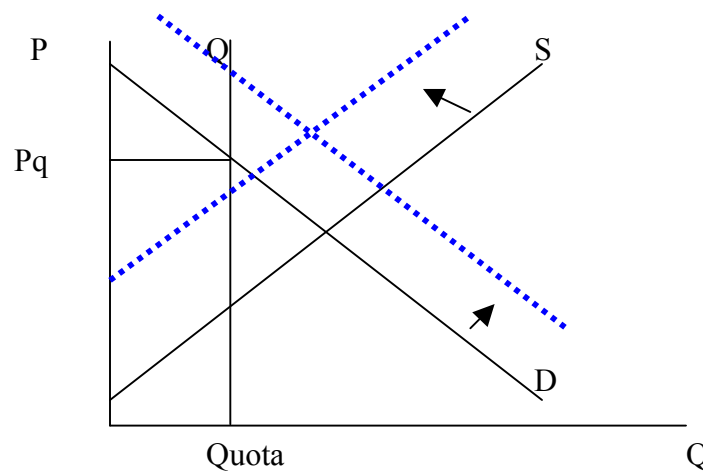
Access to easy oil and easy gas is reduced. "The new supplies will come out of more complex projects -- far away, very cold, different political regimes. They're usually large-scale projects, with risks."

- (i) The article says that the Organization of the Petroleum Exporting Countries (OPEC) countries agreed to cut production levels to raise prices and total revenue. Would this imply that the elasticity of demand for oil is likely to be elastic or inelastic? Explain intuitively.

Ans: Inelastic, since we have to use gasoline no matter what. It is very difficult to find substitutes, at least in the short run. This is why OPEC knows that if they $\% \Delta P > 0$, our $\% \Delta Q < 0$ only by a bit, to $TR \uparrow$.

- (ii) In practice, each member country has a production quota under OPEC. Illustrate graphically how the quota will affect market prices. You can simply label P_0 and Q_0 as the free-market equilibrium price and quantity and P_Q as the quota price, without any calculations.

Ans:



- (iii) The price of crude oil recently surpassed US\$100 per barrel. The reasons for this increase include the increase in demand from economies such as China and India as well as shifts in supply due to political uncertainties in Nigeria. Illustrate on your graph in (ii) why OPEC actually may not need to impose quotas on their member countries in order to keep price and total revenue high.

Ans: See blue lines. The countries *may* earn higher TR since both P and Q will rise.

Question #4

In the recent years, the growing health concerns amongst Canadians have led them to eat turkey as an alternative to red meats. You are an economist for the turkey industry, and have estimated the demand and supply of turkey as follows:

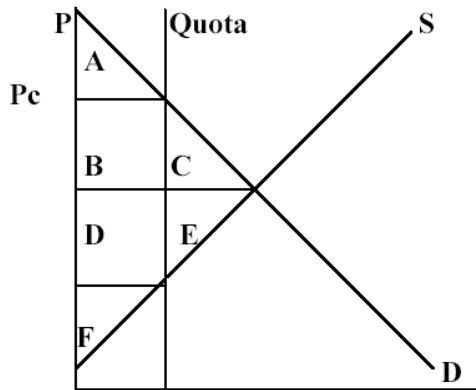
Demand: $P=60-4Q_d$

Supply: $P=10+Q_s$

- (i) Find the current total revenue for the industry before any quotas are in place.
Ans: $Q=10, P=20, TR=200$.
- (ii) In reality, the turkey industry imposes a “supply management strategy” onto themselves, which is simply to restrict its total output. To show that the industry benefits by imposing a maximum output quantity, or quota, at $Q=7$, find the new total revenue of the suppliers.
Ans: $P=32, Q=7, TR=224$.

- (iii) Graphically illustrate your answers. Also label the changes in consumer surplus, producer surplus and the dead-weight loss arising from this quota. Does the quota benefit Canada as a whole? Explain.

Ans:



$$\Delta CS = - (BC)$$

$$\Delta PS = B-E$$

$$\Delta TS = - (CE) < 0$$

Consumers lose due to higher P and lower Q. Firms may gain due to higher P (area B) but may lose due to lower Q (area E). Overall, the Country loses for sure since the gain to firms is the loss to consumers in the form of higher price. The DWL is CE.

Notice that these answers are cut-and-pasted from our assignment solutions, page 5.

- (iv) Suppose you now realize that the demand for turkey has increased from the current $P=60-4Q_d$ to $P=70-4Q_d$. The turkey producers are considering to abolish this quota system and let the free market determine the equilibrium price and quantity. In your capacity as the “turkey economist” who looks after the income of the turkey farmers, would you recommend keeping the quota or abolishing the quota? Explain and compare the total revenues.
Ans: Still have quota then $Q=7, P=42, TR=294$ (with the new demand curve). If no quota, then $P=22, Q=12, TR=264$.

- (v) Continue from (iv), i.e., the demand is $P=70-4Q_d$: In your capacity as the “Canadian economist” who looks after the welfare of Canadians, would you recommend the quota or no quota? Explain, and illustrate the new demand and the new dead-weight loss under the quota on your diagram in (iii). Is the dead-weight loss increasing or decreasing if the quota remains? Why?

Ans: No quota, because when the demand shifts up, the DWL triangle will be bigger. $DWL=CEG$. The quota restricts how much healthier turkey people can buy, and it also leads to higher prices for turkey. Both effects are detrimental to the consumers.

