

Principles of Economics I: Microeconomics Midterm [11/14/2008]

Part I. Multiple Choice (15 questions, 15%)

1. The opportunity cost of obtaining more of one good is shown on the production possibilities frontier as the
 - A. amount of the other good that must be given up.
 - B. market price of the additional amount produced.
 - C. amount of resources that must be devoted to its production.
 - D. number of dollars that must be spent to produce it.
2. Which of the following is *not* a positive statement?
 - A. Higher gasoline prices will reduce gasoline consumption.
 - B. Equity is more important than efficiency.
 - C. Trade restrictions lower our standard of living.
 - D. If a nation wants to avoid inflation, it will restrict the growth rate of the quantity of money.
3. In a market economy,
 - A. supply determines demand and, in turn, demand determines prices.
 - B. demand determines supply and, in turn, supply determines prices.
 - C. the allocation of scarce resources determines prices and, in turn, prices determine supply and demand.
 - D. supply and demand determine prices and, in turn, prices allocate scarce resources.
4. Other things equal, the demand for a good tends to be more inelastic, the
 - A. fewer the available substitutes.
 - B. longer the time period considered.
 - C. more the good is considered a luxury good.
 - D. more narrowly defined is the market for the good.
5. Eric produces jewelry boxes. If the demand for jewelry boxes is elastic and Eric wants to increase his total revenue, he should
 - A. increase the price of his jewelry boxes.
 - B. decrease the price of his jewelry boxes.
 - C. not change the price of his jewelry boxes.
 - D. None of the above answers is correct.
6. If the cost of producing sofas decreases, then consumer surplus in the sofa market will
 - A. increase.
 - B. decrease.
 - C. remain constant.
 - D. increase for some buyers and decrease for other buyers.
7. Which of the following statements is *not* correct about a market in equilibrium?
 - A. The price determines which buyers and which sellers participate in the market.

- B. Those buyers who value the good more than the price choose to buy the good.
 - C. Those sellers whose costs are less than the price choose to produce and sell the good.
 - D. Consumer surplus will be equal to producer surplus.
8. Suppose that policymakers are considering placing a tax on either of two markets. In Market A, the tax will have a significant effect on the price consumers pay, but it will not affect equilibrium quantity very much. In Market B, the same tax will have only a small effect on the price consumers pay, but it will have a large effect on the equilibrium quantity. Other factors are held constant. In which market will the tax have a larger deadweight loss?
- A. Market A
 - B. Market B
 - C. The deadweight loss will be the same in both markets.
 - D. There is not enough information to answer the question.
9. Assume, for Canada, that the domestic price of steel without international trade is higher than the world price of steel. This suggests that, in the production of steel,
- A. Canada has a comparative advantage over other countries and Canada will import steel.
 - B. Canada has a comparative advantage over other countries and Canada will export steel.
 - C. other countries have a comparative advantage over Canada and Canada will import steel.
 - D. other countries have a comparative advantage over Canada and Canada will export steel.
10. The world price of a simple electronic calculator is \$5.00. Before Singapore allowed trade in calculators, the price of a calculator there was \$4.00. Once Singapore began allowing trade in calculators with other countries, Singapore began
- A. importing calculators and the price of a calculator in Singapore increased to \$5.00.
 - B. importing calculators and the price of a calculator in Singapore remained at \$4.00.
 - C. exporting calculators and the price of a calculator in Singapore increased to \$5.00.
 - D. exporting calculators and the price of a calculator in Singapore remained at \$4.00.
11. Denmark is an importer of computer chips, taking the world price of \$12 per chip as given. Suppose Denmark imposes a \$5 tariff on chips. As a result,
- A. Danish consumers of chips and Danish producers of chips both gain.
 - B. Danish consumers of chips gain and Danish producers of chips lose.
 - C. Danish consumers of chips lose and Danish producers of chips gain.
 - D. Danish consumers of chips and Danish producers of chips both lose.
12. An optimal tax on pollution would result in which of the following?
- A. Producers will choose not to produce any pollution.
 - B. Producers will internalize the cost of the pollution.
 - C. Producers will maximize production.
 - D. The value to consumers at market equilibrium will exceed the social cost of production.
13. The Coase theorem states that
- A. taxes are an efficient way for governments to remedy negative externalities.
 - B. subsidies are an efficient way for governments to remedy positive externalities.
 - C. industrial policies encourage technology spillovers.

D. in the absence of transaction costs, private parties can solve the problem of externalities on their own.

14. Suppose that the cost of installing an overhead pedestrian walkway in a college town is \$100,000. The walkway is expected to reduce the risk of fatality by 0.5 percent, and the cost of a human life is estimated at \$10 million. The town should
- install the walkway because the estimated benefit is twice the cost.
 - install the walkway because the estimated benefit equals the cost.
 - not install the walkway, since the cost is twice the estimated benefit.
 - install the walkway, since the cost of even a single life is too great not to take action.

15. Refer to Figure 1 below. Which of the following statements is accurate?

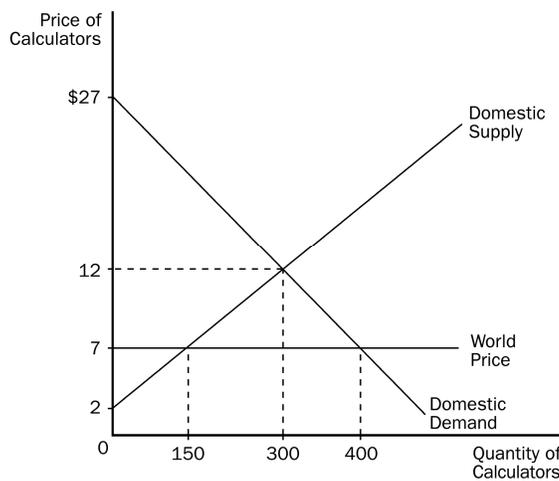


Figure 1

- Consumer surplus with trade is \$3,200.
- Producer surplus with trade is \$375.
- The gains from trade amount to \$800.
- The gains from trade are represented on the graph by the area bounded by the points (0, \$12), (300, \$12), (300, \$7) and (0, \$7).

Part II. Economics in the News

A. (26%) Answer the following questions:

- (4%) Do you expect vegetable prices to increase or decrease *after* a typhoon? Why?
- (2%) Is the price change due to a demand shift or supply shift, or both? To which direction(s)?

Read the following article and answer the other questions:

菜可能更貴 「先搶再說」

【聯合晚報／記者劉開元/台北報導】

「颱風不知會吹幾天，菜先買再說！」受辛樂克颱風來襲影響，許多農民搶收蔬菜，使果菜市場供應量大增，但許多消費者也趕著搶菜，台北菜價立即比昨天漲了約兩成，由每公斤批發價 23 元漲到 26 元。許多民眾都擔心，萬一颱風造成重大損害，菜價可能更貴，所以先搶再說。……(中略)

台北農產運銷公司表示，台北市蔬菜到貨量約 1750 噸，進貨量較昨日增加約兩百噸。應是農民大量搶收致供應量暴增，進貨量雖然多，但佳節又逢颱風，各菜種除根莖類持平外，其餘都見上漲，短期葉菜類漲幅較大，花胡瓜、絲瓜、敏豆漲幅也大，甜玉米、筊白筍、青椒等中秋節烤肉應景菜持平。其中敏豆、彩色種甜椒、朝天椒等菜種特級品每公斤批發價，都超過百元以上。但民眾仍然可買到比較平穩的菜，如傳統市場的高麗菜，每台斤只要 22 元，有的青菜 2 把只要 30 元的，還有一家量販店賣一支 9 元的茄子，想要省錢民眾仔細挑仍有便宜菜可買。【2008/09/13 聯合晚報】

3. (2%) Why would one want to jump the gun and buy more vegetables *before* a typhoon?
4. (4%) If more people are jumping the gun, how would vegetable prices change *before* a typhoon? Explain.
5. (2%) Why would farmers want to jump the gun and harvest more vegetables *before* a typhoon?
6. (4%) If more farmers jump the gun, how would vegetable prices change *before* a typhoon? Explain.
7. (4%) According to the article above, how did the equilibrium price and quantity of the vegetable market change before a typhoon?
8. (2%) Plot the demand and supply shifts for the vegetable market before a typhoon. Indicate which shift is larger (according to your answers to the previous question).
9. (2%) According to the last paragraph, some vegetables had smaller price hikes than others. Why do you think this would be possible?

B. (24%) 菸品健康捐調高為每包 20 元 【聯合晚報／記者唐孝民、李濠仲/台北報導】

行政院院會上午通過「菸害防制法」第 4 條與第 35 條修正草案，菸品健康福利捐將由現行每包 10 元調高為 20 元，修正草案中亦對吸菸空間有明確規定，該修正草案送立法院完成修法後，將於明(98)年 1 月 11 日正式實施。……(中略)

衛生署官員表示，相較韓國、香港、新加坡及澳洲等鄰近國家，我國菸價明顯偏低，鑑於菸害對國人健康造成嚴重威脅，吸菸相關疾病醫療支出增加全民健保財務負擔一年約 450 億元，同時考量世界銀行建議菸稅應占菸品零售價 66.7% 至 80%，提高每包香菸的健康福利捐至 20 元。【2008/10/30 聯合晚報】

Answer the Following Questions:

1. (6%) Draw a supply and demand graph and show the effect of a NT\$10 per-pack cigarette tax on the demand curve for cigarettes, the effective price per pack paid by smokers, the effective revenue per pack received by cigarette companies, and the quantity of cigarettes consumed.
2. (6%) How does the tax affect consumer surplus of smokers, producer surplus of cigarette companies, tax revenue, and total surplus? Show how taxes lead to a deadweight loss.
3. (6%) The news above reports a planned tax hike, doubling the cigarette tax from NT\$10 to NT\$20 per pack. Would total tax revenue exactly double, more than double or less than double? Why? Would the deadweight loss exactly double, more than double, or less than double? Why?
4. (6%) What is the government's argument for levying higher cigarette taxes? Draw a graph to show how such a tax could achieve the socially optimal outcome (where social benefit = social cost).

C. (35%) 學生有選修任何課程的權利

Many students want to enroll in Professor W's Principles of Economics class at NTU. 100 students in each of the following three groups are initially enrolled: Ace group, Medio group, and Flunk group. Students in the Ace group are so eager to enroll in the course that they are not willing to forgo it unless they each receive a scholarship of NT\$100,000. Students in the Medio group are less eager to enroll in the course that they are not willing to forgo it unless they each receive a scholarship of NT\$10,000. Students in the Flunk group are the least eager to enroll in the course and they are not willing to forgo it unless they each receive NT\$1,000 as compensation. Due to classroom availability, NTU wants to reduce the class size from 300 to 150.

1. (4%) If NTU knew the willingness-to-forgo for each student, how many students of each group would it ask to drop the course to reach its overall goal? What would be the total loss (in terms of willingness-to-forgo) for the students?
2. (4%) In a more typical situation, NTU would not know the willingness-to-forgo for each student. If NTU decided to reach its overall goal by randomly dropping half of the students, calculate the expected number of students dropped from each group and the expected total loss for the students.
3. (8%) Suppose NTU randomly handed out 150 tradable enrollment permits, and it happened that exactly 50 students in each group received them. If a trading market is established, who will sell the permits? Who will buy the permits? Briefly explain why the sellers and buyers are each willing to do so. (Where did the gains from trade come from?) What is the total loss (in terms of willingness-to-forgo) in this situation?
4. (4%) Compare the total loss (in terms of willingness-to-forgo) in parts 1, 2, and 3. If NTU does not know the willingness-to-forgo for each student, what is the best way to proceed?
5. (4%) Suppose students have the right to enroll and NTU has to immediately build a bigger classroom to host all who want to enroll, unless NTU can persuade enough students to drop the course and compensate their losses. Suppose further that NTU has to pay the same amount of compensation to each student it persuades to drop the course. What is the minimum compensation NTU has to pay each student so that enough students would drop the course? What is the highest classroom building cost NTU will pay to avoid handing out these compensations?
6. (4%) Suppose students have the right to enroll, and each student is granted 1 tradable enrollment permits. If NTU wants to buy back 150 permits, what is the minimum price per permit it has to pay? Who will sell the permit to NTU at this price? What is the total cost to NTU? Is this less costly than that of part 5?
7. (3%) What is the difference between property rights in part 3 and 6? What is the difference in terms of outcome efficiency? Explain why according to the Coase Theorem, this result is more or less expected.
8. (2%) Some people might argue that it is "unfair" for NTU to hand out tradable enrollment permits because "poor students may not be able to afford buying them." Would this be an issue in part 6? Why or why not?
9. (2%) By creating a tradable enrollment permit market, NTU defined property rights clearly and lowered transaction cost to realize some gains from trade previously unavailable. What are some other things that can benefit from such a property right and market creation process?

[Note: Below are for bonus points only (which may not apply if you already score high).]

D. (20%) 撐不住了！台電盼立即取消軍眷優惠 【聯合晚報／記者沈明川/台北報導】

國際能源燃料價格飆漲，台電不堪虧損，國內電價一但反映漲價，據了解除了電價的漲幅外，台電公司也鎖定軍眷用電，建議政府應優先考慮取消用電優惠。根據台電內部 96 年 12 月底的資料，軍眷用戶數高達 11 萬 8194 戶，軍眷戶每月平均用電量高出一般住宅用戶二成以上。

台電董事長陳貴明昨天在立法院表示，若年底台電要損益兩平，電價平均要漲 48%，即由現行平均每度 2.14 元漲為 3.17 元；但由於漲幅過大，建議先調漲三成，即每度漲 0.64 元。據台電的估算，如果電價持續不漲，今年台電預估將虧損金額高達 1100 億元（如果中油油氣反映漲價，虧損金額將增至 1300 億元），所以調漲國內電價勢在必行。……(中略)

根據「現役軍人家屬用電優待付費辦法」規定，現役軍人及領有撫卹令之家屬住宅用電，每月用電 500 度以下 5 折，501-1000 度 7 折，1001 度以上全價計收。台電估算，這部分減收電費約 6.4 億元。

台電表示，由於優待度數與幅度過高，致使軍眷用戶每月用電量超出一般住宅用戶用電甚多，已失去優惠基本生活所需用電的立法原意，造成能源價格扭曲。以去（96）年為例，軍眷用戶每月用電量約 442 度，較一般住宅用戶的 365 度，高出 21%。

據了解，多年來台電一直向政府爭取，能同意取消軍眷用電優惠。去年 7 月間，台電提報立即取消與分年漸次取消兩個方案。結果，經濟部已同意採行分年漸次取消，即第一年 300 度以下 5 折，301-500 度 7 折，501 度以上按全價收費；第二年 300 度以下 7 折，301 度以上按全價收費，第三年起取消軍眷用電優惠。台電估算，如照這個方案，第一年軍眷優惠電價減收電費可由原本 6.4 億元降為 5.0 億元，第二年再降至 2.5 億元，第三年則不會再有減收。但取消軍眷戶用電優惠案目前仍在經濟部。

【2008/04/08 聯合晚報】

Answer the following questions:

1. (3%) Assume Taipower's revenue and loss estimates mentioned above is for the whole year, and infer the total amount of electricity (多少度) used by all Taiwanese. (Assume Taipower thinks that the quantity demanded is the same before and after the price hike.)
2. (2%) What is the (average) price elasticity of electricity for military families? (You may use the midpoint method in your calculations.)
3. (3%) Suppose the price elasticity of electricity for normal households is the same as military families. If Taipower increases electricity price by the proposed NT\$0.64, how much electricity could be conserved? (Note that you are making a different assumption than Taipower in question 1!)
4. (6%) Assuming this elasticity is fixed for all quantities, if the ministry of economics agrees to eliminate the price discount for military family according to the proposed three year plan, how much electricity (per family and total) would be conserved in each year?
5. (3%) What are the possible reasons for these estimates to be inaccurate?
6. (3%) Suppose we are worried about the well-being of the poor who cannot afford high utility costs. What kind of discount scheme would you propose taking the above facts into account?