

## **Principles of Economics I: Microeconomics - Midterm A [11/12/10]**

### **Part I: True or False (10 questions, 20%)**

NOTE: You will have to briefly explain if you think the statement is false. You need not explain if you think it is true, but you lose 3 points each if you incorrectly say it is true without explanation.

1. As long as two people have different opportunity costs, each can gain from trade with the other, since trade allows each person to obtain a good at a price lower than his or her opportunity cost.
2. Some countries win in international trade, while other countries lose.
3. An increase in the price of a product and an increase in the number of sellers in the market affect the supply curve in the same general way.
4. If a firm is facing inelastic demand, then the firm should decrease price to increase revenue.
5. The university's tuition fee is low in Taiwan and high in US. Taiwanese students are lax with schoolwork while American students study very hard. So the reason that Taiwanese students don't pay enough attention to schoolwork is that they don't treasure cheap education.
6. Binding price ceilings benefit consumers because they allow consumers to buy all the goods they demand at a lower price.
7. A binding minimum wage may not help all workers, but it does not hurt any workers.
8. If a tax is imposed on the sellers of a product, then the tax burden will fall entirely on the sellers.
9. Domestic consumers gain and domestic producers lose when the government imposes a tariff on imports.
10. London charges drivers driving in "congestion zones" a tax in order to reduce traffic congestion.

### **Part II: Economics in the News (Read the articles below and answer the following questions)**

#### **A. (35%) Solving Global Warming with Cap-and-Trade?**

**A refreshing dose of honesty: Maria Cantwell and the politics of global warming, Feb 4th 2010, *The Economist***

NOT long after the flood, when Noah was safely back on dry land, God promised: "Never again will I curse the ground because of man...And never again will I destroy all living creatures." The implication is clear. "Man will not destroy this earth," says John Shimkus, a Bible-reading Republican congressman from Illinois. So there is no need to worry about global warming.

On January 28th, America formally pledged to the UN that it would reduce its greenhouse-gas emissions by 17% (from what they were in 2005) by 2020. But there was a planet-sized catch. Meeting the target will depend on getting a climate bill through Congress, and that will be horribly hard. A bill to erect a cap-and-trade system to curb carbon-dioxide emissions squeaked through the House of Representatives last summer. But similar bills have stalled in the Senate, where nearly anything big needs a supermajority to pass.

Various obstacles block the way. ...Second, cap-and-trade is a tough sell. An increasing number of Americans, like Mr. Shimkus, doubt the science. The proportion who believe there is "solid evidence" that the earth is warming fell from 71% in 2008 to 57% last year. Among Republicans, disbelief is the norm: only 35% think there is solid evidence of warming, according to a Pew poll. The news that some climate scientists tried to muzzle

dissenting voices has spread like the common cold on conservative blogs, fuelling widespread suspicion that global warming is an elaborate hoax. Many climate skeptics are furious. “My Carbon Footprint Will Fit Nicely in Your Liberal Ass,” reads a typical T-shirt. Even among Americans who believe in global warming, there is little appetite for tackling it. A hefty 85% told Gallup that the government should place a higher priority on fixing the economy, with only 12% saying the opposite.

**Enter Maria Cantwell, the junior senator from Washington state. She is pushing a simpler, more voter-friendly version of cap-and-trade, called “cap-and-dividend”. Under her bill, the government would impose a ceiling on carbon emissions each year. Producers and importers of fossil fuels will have to buy permits. The permits would be auctioned, raising vast sums of money. Most of that money would be divided evenly among all Americans. The bill would raise energy prices, of course, and therefore the price of everything that requires energy to make or distribute. But a family of four would receive perhaps \$1000 a year, which would more than make up for it, reckons Ms Cantwell. Cap-and-dividend would set a price on carbon, thus giving Americans a powerful incentive to burn less dirty fuel. It would also raise the rewards for investing in clean energy. And it would leave all but the richest 20% of Americans—who use the most energy—materially better off, she says. (...deleted...)**

Of all the bills that would put a price on carbon, cap-and-dividend seems the most promising. (A carbon tax would be best of all, but has no chance of passing.) Ms Cantwell has a Republican co-sponsor, Susan Collins of Maine, and says she is hearing positive noises from a few other Republicans, such as Lisa Murkowski of Alaska. The most attractive thing about the bill is that it is honest. To discourage the use of dirty energy, it says, it has to be more expensive. To make up for that, here’s a thousand bucks...

Answer the following questions:

1. (1%) Why is global warming a concern for the market of fossil fuel?
2. (4%) Suppose the government imposes a carbon tax, namely, a per unit tax on carbon emission. Draw a supply and demand diagram and explain how this affects the equilibrium price and quantity.
3. (4%) Does carbon tax make the outcome more efficient? Why or why not?
4. (8%) Explain why under the cap-and-dividend bill, energy use is more efficient than a uniform reduction in fuel usage, such as every household reducing fuel usage by 20%. You may use numerical examples to illustrate your point.
5. (3%) Explain why cap-and-dividend is **not** a Pareto improvement, in which “nobody is made worse-off, while somebody is made strictly better-off.” In particular, who are the people who will be worse-off? Who are the people who will be better-off?
6. (3%) Why does the article think cap-and-dividend is the most promising way to go if Americans want to curb global warming? (Hint: Can a carbon tax pass a majority vote?)
7. (1%) Why is the reduction of carbon emission “under-supplied”?
8. (3%) Consider the following slogan of Taipei City’s Car Free Day: “每週一日不開車，節能減碳更快樂”. Is moral persuasion an effective way to deal with global warming? Why or why not? (Hint: Think about your own experience in the classroom experiment.)
9. (2%) If the Taiwanese government were to impose a similar cap-and-dividend system in Taiwan, who would be better-off? Who would lobby against this policy?
10. (3%) Compared to moral persuasion, would it be a better idea (in terms of efficiency and political possibility) for Taiwan to impose cap-and-dividend? Why or why not?
11. (3%) Can you think of other situations where one could use a cap-and-dividend system to improve efficiency? Explain why such a policy would be suitable in those situations.

## B. (30%) Changes in Rice Wine Tax

Article-1: 紅標米酒可望降至 60 元 自由時報 2009 年 2 月 21 日

〔記者鄭琪芳、高嘉和／台北報導〕...紅標米酒原本每瓶只賣二十二元，我國加入WTO（世界貿易組織）之後，於二〇〇二年開始實施菸酒稅法，蒸餾酒每公升課稅一百八十五元，一瓶〇·六公升的紅標米酒，稅額高達一百一十一元，紅標米酒因此大漲價，目前已漲到每瓶一百八十元。(中略)

...財政部官員表示，國內米酒多用於料理，米酒價格大幅調漲後，民眾紛紛改選替代酒品，導致紅標米酒年產量由一千七百萬打，銳減至一百五十萬餘打<sup>1</sup>，民間私劣酒更是猖獗，嚴重危害國人健康，因此研議調降酒稅，但考量WTO國民待遇原則等，必須同步調降蒸餾酒稅額。(中略)

...外界更質疑，台灣菸酒公司在降稅後每瓶米酒還是要賣到五、六十元，對比過去每瓶賣二十二元，價格還是太貴。台灣菸酒公司主管則解釋，一百八十元的紅標米酒，光支付稅額就達一百一十一元，還要再給10%的零售佣金，以及每瓶五到六元的瓶費，只剩四十五元，再加上原料、設備、廠房、勞工及運輸等費用，利潤極薄。而且米酒年產量銳減到過去十分之一不到，產能利用率等比銳減，但設備、廠房等固定成本還是要攤提，自然就形成新舊米酒價格之間的價差。

官員指出，台灣菸酒公司估算，酒稅調降之後，初估一年稅收損失約二十四億元。但米酒銷售量可望增加六千五百萬瓶，米酒稅收反而會增加十九·五億元。

Article-2: 「太好了」米酒 50 元降為 25 元 歐美表遺憾關切 我恐被告上 WTO 2010/8/20 蘋果日報

【顏振凱、陳郁仁、黃馨儀／台北報導】國人烹飪常用的紅標米酒將大幅降價。立法院昨三讀通過《菸酒稅法》修正案，將原本以「蒸餾酒」課稅的米酒改以「料理用酒」課稅，六百 c.c.米酒稅金從二十九點二五元遽降到五點四元，紅標米酒售價將自五十元降至二十五元。民眾大表歡迎，但美方表達關切，歐盟更表遺憾，經濟部說，會持續與美歐溝通。

據了解，行政院在推動修法時曾向世界貿易組織（World Trade Organization, WTO）主要國家溝通，但立法院昨修法動作，仍可能讓我國面臨被告上WTO局面，國民黨政策會執行長林益世強調，行政單位認為修法降米酒價格不違反WTO精神。... (下略)

Article-3: 另收 2 元押瓶費 新版米酒 16 日開賣 2010/09/11 自由時報

〔記者王孟倫／台北報導〕紅標米酒降價定案！台灣菸酒公司昨天宣布，配合米酒稅調降，下週四起（九月十六日），新版「紅標料理米酒」每瓶售價由五十元降為二十五元，另收取押瓶費兩元，民眾只要將使用後空瓶繳回店家，就可退還兩元。

台灣菸酒公司總經理徐安旋表示，...新版紅標米酒將改名「紅標料理米酒」，標籤左上角也加註「烹調用酒」字樣；預估未來紅標料理米酒每年銷售量可增[加約]一千萬打。財政部則估計，銷售量將由每年八千多萬瓶增至兩億瓶，一年稅收損失約十四·七億元。... (下略)

Answer the following questions:

1. (2%) Is the market of rice wine a perfectly competitive market? Why or why not?

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<sup>1</sup> Assume “一百五十萬餘打” means exactly 1.5million dozen.

2. (4%) The price of rice wine was originally NT\$22 before 2002, but increased to NT\$180 after a rice wine tax was imposed when Taiwan joined WTO. How many bottles of wine were sold prior to 2002? How many after? Which law in economics explains this shift?
3. (2%) Based on this change, calculate the price elasticity of demand for rice wine in 2002.
4. (4%) After Article-1 was published, the rice wine tax dropped to NT\$29.25, resulting the rice wine price to drop to exactly NT\$50. Assuming the estimated sales in the above article is correct, how many bottles of wine are now sold? Calculate the price elasticity of demand in 2009.
5. (2%) Why did the governmental official in Article-1 expect rice wine tax revenue to increase even though the tax rate has dropped significantly?
6. (2%) Why did the price increase of 2002 exceed the tax increase? Explain.
7. (4%) In 2010, the rice wine tax dropped from NT\$29.25 to NT\$5.4, resulting the price of rice wine to drop from NT\$50 to NT\$25. How many bottles are wine are sold now? Calculate the price elasticity of demand in 2010.
8. (2%) Why did the general manager of Taiwan Tobacco and Liquor Corporation (TTL) in Article-3 expect rice wine revenue to decrease (even though it increased last time)?
9. (4%) Plot the prices and quantities observed in 2002, 2009, and 2010. What assumption do you need to regard this as the demand curve for rice wine? Do you think this assumption is realistic in this particular situation? Why or why not?
10. (2%) Is the typical price elasticity of demand for wine greater than one? Why or why not?
11. (2%) Other countries might sue Taiwan at WTO for taxing rice wine as “cooking wine” instead of “spirits” (which are usually consumed directly). How can you make a case that the rice wine is different from other spirits and help Taiwan avoid a WTO sanction?

**C. (15%) 中國液晶電視 銷量下修**

自由時報 2010 年 10 月 19 日

〔記者陳梅英／台北報導〕年初喊出今年中國液晶電視上看 4000 萬台，甚至 4600 萬台的中國家電廠，一連在重要節慶銷售下滑，不如國際品牌下，最近對於中國液晶電視市場看法轉趨保守，已經紛紛下修今年中國液晶電視市場規模到 3200 萬~3300 萬台，中國今年成為全球最大液晶電視市場的希望落空。(下略)

1. (3%) Consider the market of LCD TV. Draw a supply and demand diagram and explain how does the expectation of “selling 40-46 million LCD TVs in China” earlier this year affect the equilibrium price and quantity of Taiwan’s domestic market.
2. (3%) Under such expectations, are Taiwanese producers better off or worse off? What about Taiwanese consumers and total welfare?
3. (3%) What is the relationship between LCD monitors and LCD TVs? In particular, are the elasticities of supply positive or negative? What about the elasticity of demand?
4. (3%) Consider the market of LCD monitors. How does the recent drop in expectations regarding demand for LCD TVs in China affect the equilibrium price and quantity of Taiwan’s domestic market? Draw a diagram and explain.
5. (3%) How does the drop in expectations affect Taiwanese producers’ welfare? What about consumers and the society as a whole?