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

Note: You have 3 hours (9:10am-12:10pm), and there are 100 points. Allocate your time wisely.

Part A: (38%) Economics in the News – Proposed Cigarette Tax Hike

Excerpts of 菸漲 25 元 估少 74 萬癮君子 擬加稅捐 菸權團體：無法接受 (蘋果日報 2014/3/27)

…國健署長邱淑媞昨說，台灣每包菸平均價格約 70 元，比泰國 77 元、馬來西亞 99 元都低，菸價也僅是香港和美國的三分之一，致使國人吸菸率無法快速下降，估現仍有約 350 萬名癮君子，她開玩笑說：「若外國人來台買菸比買鳳梨酥多，將是國恥。」邱淑媞表示，將於立院本會期推動《菸害防制法》修正案，菸捐從現行每包 20 元漲到 40 元，財政部也提出《菸酒稅法》修正案，每包菸稅從現行 11.8 元漲至 16.8 元，每包菸合計將漲 25 元。《菸害防制法》規定菸捐每兩年可評估一次，受杯葛壓力已五年沒漲，邱淑媞指出，2009 年菸捐從 10 元調到 20 元，成人吸菸率從近二成二降至二成，國健署估算菸捐漲 20 元，可減少一成六吸菸率，若此次調漲菸品稅捐 25 元，可減少 74 萬人吸菸。

First consider the "health and welfare surcharge on tobacco products (菸品健康福利捐/菸捐)":

1. (5%) Draw a supply and demand graph and show the effect of a NT$20 per-pack surcharge 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. (5%) How does this surcharge affect consumer surplus of smokers, producer surplus of cigarette companies, tax revenue, and total surplus? Show how it leads to a deadweight loss.
3. (4%) The news above reports a planned tax hike, doubling the cigarette surcharge from NT$20 to NT$40 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. (4%) What is the government's argument for levying higher cigarette surcharges? Draw a graph to show how such a surcharge could achieve the socially optimal outcome (where social benefit = social cost).
5. (3%) How would your answers to the previous question change if the external cost is smaller than the surcharge? Explain.

Now consider total cigarette tax including both the surcharge and the "cigarette tax (菸稅)":

6. (4%) What is the average cigarette price per pack now? What is the price after the proposed tax hike? Use the midpoint method to calculate the percentage change in average cigarette price per pack.
7. (4%) How large is the current smoking population? How large will it be after the proposed tax hike? Use the midpoint method to calculate the percentage change in the smoking population. Is your answer consistent with HPA's estimate of "菸捐漲二十元，可減少一成六吸菸率"? Why or why not?
8. (3%) Use your answers to the above questions to calculate the price elasticity of demand for cigarettes. Is the demand elastic or inelastic?
9. (2%) What assumptions are required to calculate this? Are they reasonable? Explain.

10. (4%) How would your answers to the previous two questions change if you use past data (before/after 2009 tax hike) instead of the current estimates? Explain.

Part B: (30 + bonus 4%) Economics in the News – Tradable "Vacancy" Permit Market

Excerpts from "【柯 P 新政】#5 租金補貼、公共住宅"[1] translated by lettersfromtaiwan.tw[2]

Government rent unused private houses: The Government will be in charge of rental and management as a sub landlord. There are about 80,000 empty private houses in Taipei. We wish to put some of them in the rental market and lower the price of average rents. The City government will rent, repair, and manage private empty houses.

第三，為了快速增加公宅數量，政府也可以包租包管，當起二房東。由市政府來承租、修繕、管理跟招租，讓目前台北市約 8 萬戶的空屋有一部可以進入租屋市場，這樣可以更有效提供租屋數量，降低房租價格。

Read and answer the following questions: There are 80,000 empty private houses in DaiBak City where many young people who want to live in DaiBak but cannot afford a house. New mayor KP decides to help realize potential gains from trade by renting 40,000 empty private houses from landlords and subleasing it to young people. Suppose there are 10 groups of landlords (each group size = 8,000). Landlords in each group has the exact same outside option (and hence, rental opportunity cost) of 1, 2, 3, 4, 5, 6, 7, 8, 9 and 10 million NT dollars, so they are not willing to rent their empty houses to the government unless they receive at least the above amount as compensation.

1. (4%) If Mayor KP knew the willingness-to-rent for each landlord, which groups (and how many landlords in each group) would KP ask to rent their houses to reach the overall goal? What would be the total opportunity cost for the landlords who rented out their houses?
2. (4%) In a more realistic situation, KP would not know the willingness-to-rent for each landlord. If KP decided to reach its overall goal by randomly renting half of the empty houses, calculate the expected number of landlords chosen from each group and the expected total opportunity cost for the landlords (who rented out their houses to KP).
3. (8%) Suppose KP randomly handed out 40,000 tradable "vacancy" permits, and it happened that exactly 4,000 landlords 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 opportunity cost for the landlords (who rented to KP) now?
4. (3%) Compare the total opportunity cost for the landlords (who rented to KP) in questions 1, 2, and 3. If KP does not know the willingness-to-rent for each landlord, what is the best way to proceed?
5. (4%) Suppose landlords have the right to leave their house vacant, and KP has to either persuade enough landlords to rent their houses and compensate their losses (opportunity cost to rent to KP) or build public housing by himself. Suppose further that KP has to pay the same amount of compensation to each landlord it persuades to rent their house. What is the minimum compensation KP has to pay each landlord so that enough landlords

[1] http://kp.amber.com.tw/?p=182
[2] http://lettersfromtaiwan.tw/post/101733455757/2014-taiwan-local-elections-ko-wen-jes

would rent their houses to KP? What is the highest building cost KP will pay to avoid handing out these compensations?

6. (4%) Suppose landlords have the right to enroll, and each landlord is granted 1 tradable vacancy permits. If KP wants to buy back 40,000 permits, what is the minimum price per permit he has to pay? Who will sell the permit to KP at this price? What is the total cost to KP? Is this less costly than that of question 5?

7. (3%) What is the difference between property rights in question 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. (bonus 2%) Some people might argue that it is "unfair" for KP to hand out tradable vacancy permits because "evil landlords should not be allowed to hold onto their vacancies just for the sake of speculation." Can KP allocate property rights some way that is fair and still achieve the efficient outcome? Why or why not?

9. (bonus 2%) By creating a tradable empty-house permit market, KP 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 allocation and market creation process?

Part C-1: (20%) Economics in the News – Ambulance Charge

Excerpts of "Taipei to charge for ambulance abuse" by Mo Yan-chih, Taipei Times, 2012/12/8

Taipei will charge NT$1,800 for ambulance transportation for people who use the service for non-emergency use, the city government said yesterday, while promising that the measure would not affect people's right to emergency medical services (EMS). Starting today, people who dial 119 for the ambulance service under non-emergency conditions will be considered to be abusing the service. If confirmed by the emergency medical service review committee as a case of emergency service abuse, the city government will bill the individual who used the service, the Taipei City Department of Health and the Taipei City Fire Department said in a joint press conference.

Excepts of 2013/12/6 TFD Press Release "濫用救護車收費上路 1 年 嘉惠需要緊急救護的人"

臺北市實施濫用消防局救護車收費制度至今年 12 月 8 日屆滿 1 年，急診檢傷 1 至 3 級之危急病人反而成長 2~3%，確實達到「把緊急救護資源留給真正需要的人」的效果。這一年來，總共開出 23 張繳款單且繳款率百分百，其中有 1 位還是外籍人士，因為堅持送往「非急救責任醫院」被收費，消防局事後電訪，還納悶的問：救護車不是本來就該收費嗎？對於 119 救護車提供緊急傷病患免費服務，而濫用 119 救護車者進行收費表示支持，同時也對自己的行為感到抱歉。…(omitted)… 消防局表示，從 95 年開始，臺北市救護量以 7~10%年增率持續成長，直到 101 年陸續宣導珍惜救護資源及實施收費制度後，救護車出勤次數雖下降約 3% (減少約 6,000 件)，但急診檢傷 1 至 3 級之危急病人反而成長 2~3%(增加約 4,000 件)…

95(2006)年至 102(2013)年臺北市政府消防局救護出勤次數統計表[3]							
年度	95	96	97	98	99	100	101	102
次數	93 ,555	96 ,545	101 ,855	112 ,599	125 ,204	137,310	135,920	132 ,573

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[3] Data from Taipei Fire Department: http://www.tfd.gov.tw/detail.php?type=article&id=9753

1. (2%) What is the price for an ambulance ride in 2012? What is the price before?
2. (5%) Use the midpoint method to calculate the percentage change in the price of ambulance rides. Would your answer change if the new price were doubled? Why or why not? Would your answer change if the new price is selectively imposed instead of being universal on everybody? Why or why not?
3. (3%) What is the amount of ambulance rides in 2013? What is the amount in 2012? Use the midpoint method to calculate the percentage change in the quantity of ambulance rides.
4. (3%) Use your answers to the above questions to calculate the overall price elasticity of demand for ambulance rides. Is the demand elastic or inelastic?
5. (4%) What assumption is required to make such a calculation? Is your assumption consistent with the trend of the past few years? How would the actual trend bias your estimates?
6. (3%) What are possible externalities one may cause when taking an ambulance when they can take a taxi? Is it positive or negative?

Part C-2: (12 + bonus 1%) Economics in the News – Depreciating Currency as Import Tariff

Excerpts of "Devaluation not the right response to China-South Korea FTA" by CNA 2014/11/12

…Tsai Lien-sheng, secretary general of the Chinese National Federation of Industries, lent his support to the central bank chief's view expressed earlier in the day. Perng Fai-nan, governor of the Central Bank of the Republic of China, told lawmakers that he would not devalue the local currency in the wake of the announcement trade rival South Korea had finished substantial negotiations with China, calling the crisis an "opportunity" for the Taiwanese to come together and solve their economic woes. Tsai said Perng's approach is the right one because devaluating the Taiwan dollar will not necessarily be favorable to Taiwan. He said depreciation is a "double-edged sword" that will be favorable to exporters but will increase import costs and said a balanced perspective is needed to address the problem…

Read and answer the following questions: Without international trade, an unlocked jPhone 6 costs US$649 in the US and NT$140,000 in Daiwan. Assume now one can buy a jPhone 6 in the US and ship it to Daiwan by paying a shipping cost of 12.5%, and Daiwanese resellers of jPhone 6 have to adjust their prices accordingly.

1. (2%) Explain why it may not be worth it to buy a jPhone in the US and ship it back if Daiwanese resellers sell jPhones at the price of NT$22,500 when the exchange rate is US$1 = NT$30.75.
2. (2%) Suppose the exchange rate becomes US$1 = NT$40. What price would Daiwanese resellers set to make it not worth it to buy jPhone 6 in the US and ship it back?
3. (8%) Draw a supply-demand diagram and show how this depreciation in currency affects equilibrium prices, quantity, consumer surplus, producer surplus, tax revenue, and total surplus.
4. (bonus 1%) Who collected this depreciation "tax"? Is this "good" for Daiwan? Explain.

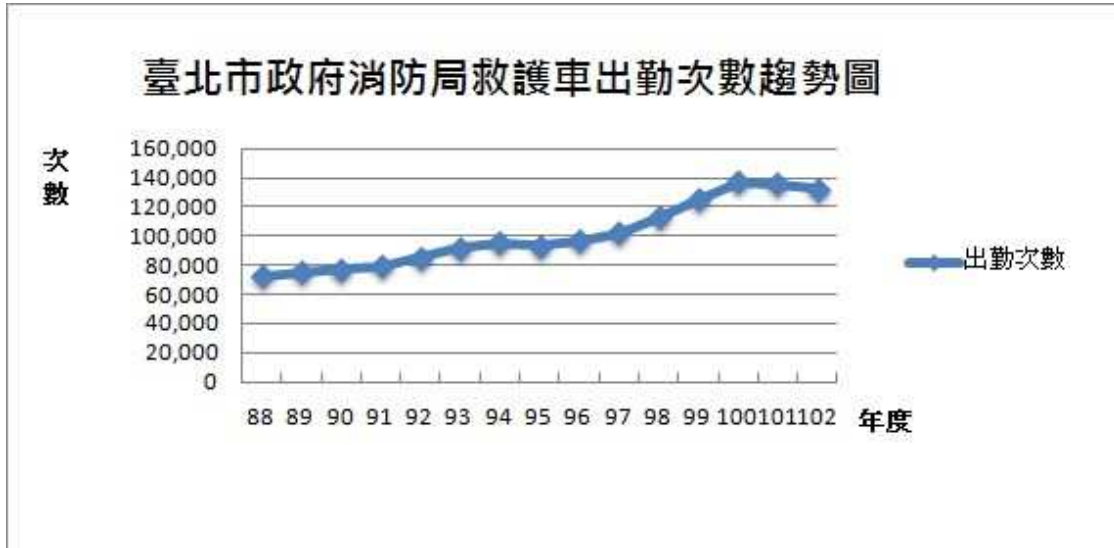**Translation: 2013/12/6 TFD Press Release "濫用救護車收費上路 1 年嘉惠需要緊急救護的人"**

On December 8, Taipei City Fire Department's new ambulance abuse charges reaches it one year anniversary. EMS triage level 1-3 patients serviced has increased by 2-3%, achieving the goal of "leaving emergency resources for those really in need." This past year, a total of 23 cases were charged for ambulance abuse; all paid the charge. In one case, a foreigner was charge for insisting to be sent to a non-designated hospital. During a phone interview by the TFD, the foreigner was surprised to learn the ambulance was free in most cases, and felt sorry for his/her abuse... (Omitted) ...The Fire Department said that since 2006, Taipei's ambulance use increased 7-10% annually. This trend continued to 2012 when they started to campaign for people to cherish EMS resources and implement abuse charges. In 2002, total ambulance use decreased by about 3% (~6,000 uses), while EMS triage level 1-3 patients serviced increased by 2-3% (~4,000 pieces) ...

Translation: 菸漲25元 估少74萬癮君子 擬加稅捐 菸權團體：無法接受 (蘋果日報 2014/3/27)

...Director General of the Health Promotion Administration (HPA) Chiu Shu-ti (邱淑媞) yesterday said that Taiwan average price per pack of cigarettes to about NT$70, lower than NT$77 in Thailand, NT$99 in Malaysia, and only a third of the cigarette price in Hong Kong and United States, preventing the smoking rate from decreasing rapidly. This is why there are still around 3.5 million smokers in Taiwan. She joked that, "It is shameful for Taiwan if foreigners come to Taiwan to buy more cigarettes than pineapple cakes." Chiu Shu-ti said she would propose to amend the Tobacco Hazards Prevention Act (THPA) this legislative session, and increase health and welfare surcharge on tobacco products from the current NT$20 per pack to NT$40 per pack. The Treasury will also propose a Tobacco and Alcohol Tax Act amendment to raise the tax per pack of cigarettes from the current NT$11.8 to NT$16.8, causing the final price per pack to increase by a total of NT$25. The Tobacco Hazards Prevention Act (THPA) requires a biennial review of the surcharge, but it remained unchanged for the past five years due to boycott pressures. Chiu Shu-ti pointed out that in 2009, the surcharge increased from NT$10 to NT$20, causing the adult smoking rate to decrease from nearly 22% to 20%. The HPA estimates that the smoking rate would decrease by 16% if the surcharge increases by NT$20. If a total tax hike of NT$25 for tobacco products would discourage 740,000 people from smoking.

Ching-Li Lin, director of John Tung Foundation's Tobacco Control Group, agreed with the proposed tax hike, believing that higher taxes would reduce demand and effectively reduce smoking rates. Shien-Lin Wu, a thoracic medicine physician at the Adventist Hospital, said that carcinogens found in tobacco products can cause lung cancer, oral cancer, and esophageal cancer. Also, statistics show an average life expectancy of about 65 years for smokers, 15 years lower than the average life expectancy of an average person. Hence, he also agreed to increase the tobacco tax... (Omitted) ... Yang Kuei Su, vice president of Taiwan Tobacco and Liquor Corporation, also said that he preferred a lower increase in the surcharge, citing concerns about an increase in tobacco smuggling and smoker financial burden. He said the government can curb smoking via other means, and would try to persuade the Ministry of Health and Welfare.

董氏基金會菸害防制組主任林清麗贊成調高菸品稅捐，認為以價制量能有效降低吸菸率。台安醫院胸腔內科主治醫師吳憲林說，菸品所含致癌物會導致肺癌、口腔癌、食道癌等，且各國統計吸菸者平均壽命約 65 歲，較一般人平均壽命 80 歲少 15 歲，他也贊成調高菸捐。… (omitted) …台灣菸酒公司副總蘇癸陽也說，希望菸捐別一次調這麼高，擔心菸品走私會更嚴重，也會對民眾造成經濟負擔，政府要抑制吸菸人口，可從很多方面著手，將持續跟衛福部溝通。

Excepts of Taipei Fire Department(TFD) ePaper "臺北市政府消防局 119 救護車採有條件收費"

臺北市政府消防局與衛生局在 101 年 12 月 7 日共同宣布，自 8 日起，臺北市政府將針對病患或家屬指定消防救護車將病患載送至「非」急救責任醫院以及「未」赴急診室檢傷掛號者進行收費；收費標準依照臺北市「救護車設置機關(構)救護車收費基準」計算，由衛生局和消防局組成「緊急救護審核小組」，針對個案逐案審查，若經小組確定為濫用 119 救護車之個案將寄送繳款單，收取的費用則是每趟次 1800 元。