

Principles of Economics I: Microeconomics - Final Exam A [1/7/10]

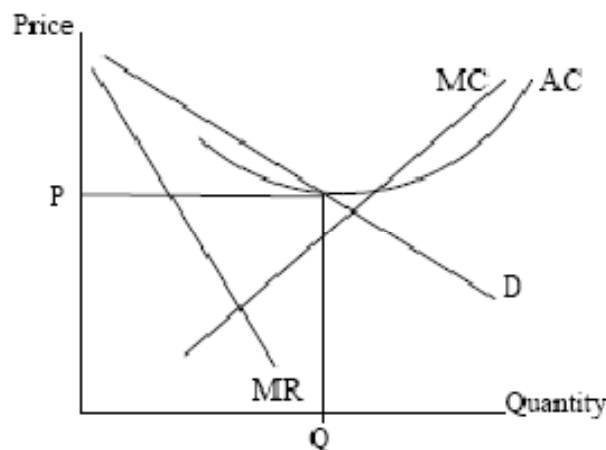
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Note: You have 3 hours (9:10am-12:10pm), and there are 100 points. Allocate your time wisely.

Part I: True or False (10 questions, 30%)

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 4 points each if you incorrectly say it is true without explanation.

1. If a firm in a competitive industry discovers a cheaper way to produce output, it might lower its price in order to steal its competitors' customers.
2. Suppose the demand for seafood increases one year and then unexpectedly returns to its former level the following year. As soon as the demand returns to its former level, price and quantity will return to their former levels too.
3. To make a natural monopolist behave more efficiently, subsidies will work better than price controls.



4. Suppose the hourly wages of apple pickers in Beekok are paid in terms of apples. A rise in the demand for apples has no effect on the productivity of apple-pickers and hence no effect on the demand for apple pickers.
5. If an individual suddenly found that he needed less sleep per night than previously, his consumption would go up.
6. Workers who like their jobs will be more productive at the margin than those who don't.
7. Excess capacity characterizes firms in monopolistically competitive markets, even in situations of long-run equilibrium.
8. When McDonald's opens a store in Taipei, it has no strong incentive to enforce product quality consistent with stores in the United States.
9. Susie wins \$1 million in her state's lottery. If Susie keeps working after she wins the money, we can infer that the income effect is larger than the substitution effect for her.
10. A dairy farmer must be able to calculate sunk costs in order to determine how much revenue the farm receives for the typical gallon of milk.

Part II: Economics in the News

A. (20%) 平均薪資破 4 萬 4 民眾：很誇張 (2010/12/17 TVBS 新聞)



(記者華舜嘉報導)

Year	Average Salary
2006	\$ 43,493 NTD
2007	\$ 44,414
2008	\$ 44,426
2009	\$ 42,176
2010	\$ 44,453 (↑5.3%)

不知道民眾感覺景氣回溫了嗎？根據經建會公佈的數據，今年平均薪資每個人是 4 萬 4453 元，創下史上新高！民眾實際領的薪水真的有這麼高嗎？記者隨機抽樣，有 4 分之 3 的民眾薪水都在這個數字之下。經建會解釋，這個數據加計年終獎金、分紅，才會與民眾每個月實領薪水出現落差！

記者：「你的薪水在 4 萬 4 以上還是以下？」民眾：「以下，就差不多這個範圍，別人賺比較多，我賺比較少一點。」民眾：「當然是以下啊，有這麼誇張，大家都這麼有錢嗎？」

真有這麼誇張嗎？記者抽樣問了 4 個人，有 4 分之 3 的民眾平均薪資在 4 萬 4 之下，不過根據經建會公佈的數據，今年平均薪資 4 萬 4453 元，不僅比去年金融海嘯大幅增加 5%，更創下史上新高，與實際狀況差很大，難免質疑數據怎麼來。(下略)

Answer the questions below:

- (6%) Suppose individual salary in Taiwan did rise by 5.3%, and the income elasticity stated below apply to Taiwan. What would happen to the demand for the following goods:

Item	Income Elasticity	Item	Income Elasticity
Automobiles	2.46	Tobacco	0.64
Books	1.44	Margarine	-0.20
Restaurant Meals	1.40	Public Transportation	-0.36

Source: Wikipedia (http://en.wikipedia.org/wiki/Income_elasticity)

- (4%) Are there some goods where the above income elasticity does not apply to Taiwan? How would your answer to Question 1 change? Explain.
- (4%) Assume the above average salary of NT\$44,453 is also the median. Is it "very unlikely" that a random draw of 4 people results in 3 earning lower than NT\$44,453? Why or why not?
- (4%) Is the median salary likely to be equal to the average salary in the movie industry? Why or why not? What about real estate brokers?
- (2%) What is wrong with the graph in the TV screenshot? Explain.

B. (20%) Cooking Oil's Surge Shows How Inflation Hits Chinese (從中國人的廚房看通貨膨脹)

Read the following excerpts of an article of Wall Street Journal on 2011/1/4 by James T. Areddy:

These days, Liu Chuansheng nervously scouts five locations before he buys cooking oil, illustrating how a sudden spike in the price of the Chinese kitchen's most vital ingredient has become close to a national crisis.

On a recent Friday, the 33-year-old, who runs a breakfast stand with his wife, wheeled a shopping cart into the aisle of a C.P. Lotus Corp. store in northern Shanghai, eyeing only prices. In seconds, his wife emptied the shelves of its 11 remaining bottles of Cofco Ltd. 'Five Lakes' soybean oil, the discount choice at 47.90 yuan, or about \$7.20, for five liters (1.32 gallons).

At the checkout, Mr. Liu separated their \$79 purchase into three batches to sidestep the store's four-bottle maximum and government bans on hoarding. To transport the provisions to their food stand, Mr. Liu placed two bottles into the basket of his blue electric scooter and balanced nine more on the running board. His wife plopped on back.

Mr. Liu's livelihood is now just as precariously balanced. He reckons his cooking-oil costs shot up 27% in 2010... (omitted)

In recent weeks, Beijing has moved to snuff out rumors that cooking oil is in short supply by auctioning millions of metric tons from strategic national reserves in Xinjiang and Shandong. The national planning agency has declared that supply 'is completely guaranteed.' In November, China's government ordered the largest producers to cap their retail prices through March. And it quintupled the fine for conspiring to raise prices to 5 million yuan, or \$750,000.

For now, the measures appear to have put a lid on edible-oil prices. Yet one midsize producer in Shanghai says they are also discouraging production. The company's general manager, who asked not to be identified, said he would normally be maximizing output ahead of the Lunar New Year in early February but has deactivated half his plant.

His warehouse is chockablock with 20,000 boxes of unsold oil he values at around \$600,000. The production date on some of it is Nov. 23, around the time price controls were imposed and a large grocery distributor halved its order. The manager says talk in the industry is that prices will resume their climb around March... (omitted)

Cooking oil is a rising concern of food vendor Mr. Liu and his wife, whose \$105 daily sales from their tiny Shanghai stall go to support their two children who live back in their home province of Shandong. Despite the higher price for soybean oil, Mr. Liu shudders at the risk he faces in lifting his 10.5-cent charge for a flaky sweet bun. 'Customers would disappear,' he says.

Answer the following questions:

1. (4%) How do the following costs of Mr. Liu's tiny breakfast stand change as the price of cooking oil surge: Fixed cost, variable cost, average cost, and marginal cost?

2. (4%) Draw a graph to illustrate the demand curve and marginal revenue curve Mr. Liu's breakfast stand is facing.
3. (4%) How does Mr. Liu's price and quantity change in response to this price surge of cooking oil? (Here, first assume that only Mr. Liu faces this price surge.)
4. (4%) Suppose the price surge of cooking oil is permanent and felt throughout the breakfast market. How does the market equilibrium price and quantity change?
5. (4%) What is the reaction of the government to this price surge? Do you think its regulatory measures are effective? Why or why not?

C. (15%) European Commission fines DRAM producers € 331 million for price cartel

Read the following excerpts of an article (IP/10/586) on EUROPIA dated 2010/5/19:

(Brussels, 19 May 2010) The European Commission... has adopted a decision settling a cartel investigation and imposing a fine totalling € 331 273 800 [about 331 million] on Samsung, Hynix, Infineon, NEC, Hitachi, Mitsubishi, Toshiba, Elpida and Nanya. The decision is also addressed to Micron, but because the company revealed the existence of the cartel to the Commission in 2002 it benefitted from full immunity from fines. All the companies are non-European except for one (Infineon, Germany), but they sell their products in the European Economic Area (EEA) and, therefore, must also abide by EU law, in this case Art 101(1) of the EU Treaty, which bans practices restrictive of competition. The case was also investigated in the United States.

The fines take into account the sales of the companies involved in the EEA, the very serious nature of the infringement and its geographical scope. The individual fines are as follows:

	Reduction under the Leniency Notice (%)	Reduction under the Settlement Notice	Fine (EUR)*
Micron	100%	N/A	0
Infineon	45%	10%	56 700 000
Hynix	27%	10%	51 471 000
Samsung	18%	10%	145 728 000
Jointly and severally Elpida, NEC Corporation, Hitachi Ltd.	18%	10%	8 496 000
Jointly and severally NEC Corp., Hitachi Ltd. (for the JV period)		10%	2 124 000
NEC (pre-joint venture)	18%	10%	10 296 000
Hitachi (pre-joint venture)	-	10%	20 412 000
Toshiba	-	10%	17 641 800
Mitsubishi	-	10%	16 605 000
Nanya	-	10%	1 800 000

Micron received full immunity because it was the first to inform the Commission. Between December 2003 and February 2006, Infineon, Hynix, Samsung, Elpida and NEC also applied for leniency under the EU's Leniency Notice. The Commission took account of their cooperation in

the investigation and granted a reduction of respectively 45% (Infineon), 27% (Hynix) and 18% (Samsung, Elpida, NEC). Due to mitigating circumstances, the fine of Hynix was further reduced by 5% for Hynix and by 10% for Toshiba and Mitsubishi. Finally, all companies benefitted of a reduction of 10% for settling the case with the Commission.

The overall cartel was in operation between 1 July 1998 and 15 June 2002. It involved a network of contacts and sharing of secret information, mostly on a bilateral basis, through which they coordinated the price levels and quotations for DRAMs (Dynamic Random Access Memory), sold to major PC or server original equipment manufacturers (OEMs) in the EEA... (omitted)

Answer the following questions:

1. (5%) Consider the game played between various partners in the DRAM cartel: Each partner can decide to either (a) be first to inform the commission, (b) cooperate in the investigation, or (c) deny any wrong doing. Assume the outcome for each action is as described in the above article, and any "ties", such as two firms both choosing (a), will be resolved by equally splitting the fine reduction. Is any of the three actions a dominant strategy? Why or why not?
2. (4%) What is the Nash equilibrium of this game? Explain.
3. (4%) Suppose the partners agree to all play (c) and jointly deny any wrong-doing. Is this collusive outcome sustainable? Why or why not?
4. (2%) Are your answers above consistent with Micron's defection in the real world? Why or why not?

D. (15%) Special Municipalities and Tax Distribution (升格搶錢大戰)

Cabinet approves redistribution of taxes to local governments [10/12/2007 by Liu King-pong]

...Of all the funds collected by the central government, about 94 percent is presently awarded directly to local governments. Twelve percent is given to townships and 39 percent is distributed among 23 other county and city governments. The special municipalities of Taipei City and Kaohsiung City together receive 43 percent. The remaining 6 percent not distributed to local governments is retained by the central government in an emergency reserve fund...

統籌款差很大 「格」鬥搶破頭 中國時報 2009/06/24 朱真楷／台北報導

全台十一縣市爭搶升格，到底成功與失敗之間差多大？光從「財政配置權」來看，單單北、高兩個直轄市，就能共享四十三%統籌分配款，其餘廿三個縣市卻只能共同爭奪三十九%的分配款，剩下的才給三百一十九鄉鎮市分食，差異之大，讓各縣市爭著擠進升格窄門。以九十八年度統籌稅款為例，約一千八百四十億，北市可分配到五百八十一億、高市二百一十八億元。但反觀積極爭取升格的台北縣，儘管人口數達三百八十餘萬，遠超過北、高的兩百六十萬及一百五十萬，卻只分到九十八億。因此，一旦北縣爭取升格成功，就等於取得資格，能加入北高一同分享四十三%的統籌分配款。(下略)

Answer the following questions:

1. (6%) A change in the law now allows “big” counties and cities to be promoted to a Special Municipality. Consider the following game played by New Taipei City, Taichung City and Tainan City. If they do not apply, they get to split the pie of 39% with the other 20 counties and cities. If they do apply, they get to split the pie of 43% with Taipei City and Kaohsiung City. Suppose the pies are split evenly and all counties/cities decide simultaneously. Draw the payoff matrix of this game. Note that since there are three players, the payoff matrix is 3D, not 2D. (Please round the payoffs to whole numbers.) (Hint: If you do not know how to draw a 3D matrix, you can opt to drop Tainan City from the player list. However, you will have to forfeit 2 points and earn at most 4 points.)
2. (4%) Is applying for promotion a dominant strategy? Why or why not? Is not applying for promotion a dominant strategy? Why or why not?
3. (3%) What is the Nash equilibrium of this game?
4. (2%) According to experimental results on the (2-person) prisoner’s dilemma, 50% of the subjects choose the cooperate action. Does this lab result coincide with the phenomenon reported in the above news article? Why or why not?