

Principles of Economics I: Microeconomics - Midterm [10/25/13]

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

Part I: (20%) True or False (and Briefly Explain Why)

1. In the circular-flow diagram, firms own the factors of production and use them to produce goods and services.
2. Jake can complete an oil change in 45 minutes and he can write a poem in 90 minutes. Eric can complete an oil change in 30 minutes and she can write a poem in 90 minutes. Jake's opportunity cost of writing a poem is lower than Eric's opportunity cost of writing a poem.
3. If China were to subsidize the production of clothes and sell them in Taiwan at artificially low prices, the Taiwan economy would be worse off.
4. If a firm is facing inelastic demand, then the firm should decrease price to increase revenue.
5. OPEC failed to maintain a high price of oil in the long run, partly because both the supply of oil and the demand for oil are more elastic in the long run than in the short run.
6. All buyers benefit from a binding price ceiling.
7. The housing shortages caused by rent control are larger in the long run than in the short run because both the supply of housing and the demand for housing are more elastic in the long run.
8. If the government imposes a binding price ceiling in a market, then the producer surplus in that market will increase.
9. The demand for bread is less elastic than the demand for donuts; hence, a tax on bread will create a larger deadweight loss than will the same tax on donuts, other things equal.
10. A tax on a good causes the size of the market to shrink.

Part II: Economics in the News – The Movie Industry

A. (15%) Movie Demand

Excerpts from “A Year of Disappointment at the Movie Box Office,” by Brooks Barnes, New York Times, December 25, 2011

LOS ANGELES — With five days left in 2011, ticket sales in North America are running about \$500 million behind last year — despite higher prices — prompting a round of soul searching by studios trying to determine what went wrong and how best to proceed... (omitted)

...Over all, North American ticket revenue for 2011 is projected to be about \$10.1 billion, according to Hollywood.com, which compiles box-office data. That is only a 4.5 percent falloff from 2010. But studio executives are alarmed by the downturn nonetheless, in part because the real picture is worse than the raw revenue numbers suggest... (omitted)

Theaters have also continued to increase prices for standard tickets; moviegoers now pay an average of \$7.89 each, up 1 percent over last year. Attendance for 2011 is expected to drop 5.3 percent, to 1.27 billion, continuing a slide. Attendance declined 6 percent in 2010... (omitted)

1. (2%) What is the percentage change in the price of standard movie tickets? What is the percentage change in attendance?
2. (5%) What assumptions would you have to make to calculate the price elasticity of demand for movies using information from the previous question? Are they reasonable? Explain.
3. (3%) If the above assumptions all hold, what is the price elasticity of demand for movies in North America? Is this demand elastic or inelastic?
4. (5%) How much did total North American ticket revenue for 2011 change compared to 2010? Based on this information, can you infer whether the demand for movies is elastic or not? Why or why not? Is it consistent with your calculation in the previous question?

B. (15%) Movie Supply

Excerpts from "Why do movies cost so much to make?" by Dave Roos (on howstuffworks.com):

...Even though specific numbers are hard to nail down, we have a good idea where studios spend their money. A film's production budget includes all costs incurred during pre-production, filming, post-production and promotion. That includes buying the rights to the script, actor's salaries, production staff salaries, set construction, special effects, wardrobe, craft services, marketing, dog training -- everything! How much does "everything" cost? The average production budget of a major studio film in 2007 was \$106 million.

Marketing makes up a huge chunk of modern movie budgets—\$35.9 million on average—largely because the fates of many Hollywood releases are sealed in the first week. Big money is spent on trailers, TV ads, billboards, and Web sites to pack people in on opening weekend. That strategy seems to work: "Spiderman 3" made 45 percent of its total gross ticket sales in its opening week, while "X-Men: The Last Stand" made 52 percent of its money in its first week of release.

When calculating a marketing budget, the rule of thumb is to spend 50 percent of the rest of the production costs (pre-production, filming and post-production). So if a movie costs \$100 million to make, you'll need an additional \$50 million to sell it... (omitted)

5. (5%) What is the opportunity cost of showing the movie to another viewer in the theater? If this solely determines the supply curve, what does this mean about the price elasticity of supply? Is the inferred supply curve elastic or inelastic?
6. (2%) Assuming the opportunity cost of getting another customer (marketing cost) into the theater is increasing, what should the opportunity cost of getting the last customer (marketing cost) equal to?
7. (4%) Assume that studios break even on average, what is the average total revenue of a major studio film in 2007? How much of it is used to market the film? How much is used to make the film?
8. (4%) Assume the supply curve for movies is a straight line reflecting the opportunity cost of production and marketing. Estimate this linear function of this supply curve. What is the corresponding price elasticity of supply?

C. (15%) Movie Taxation

Excerpts from "Culture ministry proposes 5% tax on movie tickets" by Christie Chen, 2013/10/09

Taipei, Oct. 9 (CNA) The Ministry of Culture on Wednesday proposed introducing a 5 percent tax on movie tickets in Taiwan to help develop the domestic film industry, but the idea was met with opposition by cinema operators. In a proposed amendment to the Motion Picture Act, the ministry said the government is allowed to establish a fund to subsidize the development of the local film industry. The funds would come from a variety of sources, including a 5 percent tax on movie tickets for domestic and foreign films, the draft article states. (omitted) ...Representatives of Taiwan's film trade associations, however, were resistant to the ministry's proposal, saying it will scare away moviegoers. "The theaters will be forced to raise ticket prices, passing on the 5 percent tax to consumers," said Michael C.T. Liao, chairman of a film and drama trade association in New Taipei City. Liao, who is also chairman of Showtime Cinemas, said that despite rising utility costs, his cinema has not raised movie ticket prices in the past 10 years for fear of losing customers... (omitted)

9. (5%) Suppose the price of a movie ticket in Taiwan is fixed at NT\$230 (=US\$7.89, average price in America), so a 5% tax would be equivalent to a per-ticket tax of NT\$46. Draw a supply-demand graph and analyze how equilibrium price and quantity of the movie market would change due to the proposed tax and identify the deadweight loss.
10. (4%) Assuming the price elasticities of supply and demand in Taiwan are the same as those in America, derive the tax incidents for the movie-goers and the studios.
11. (4%) Are the price elasticities in Taiwan likely to be the same as those in America? Why or why not? How would your answer to the previous question change due to this difference?
12. (2%) Based on the track record of similar policies conducted by the Ministry of Culture, what are the potential problems of this tax-and-subsidize policy to help domestic movie industry?

D. (20%) Comparison with Cigarette Tax

Excerpts from "Cabinet approves proposed hikes in tobacco tax, surcharge," by Hsieh Chia-chen, Chen Ching-fang and Kay Liu, 2013/5/9

Taipei, May 9 (CNA) The Cabinet on Thursday approved a draft bill to raise the tax and surcharge on tobacco products, which will increase cigarette prices by NT\$25 (US\$0.85) per packet once the bill is passed by lawmakers. The draft amendment proposes raising the health surcharge on cigarettes from NT\$20 to NT\$40 per pack, and the tobacco tax from NT\$11.8 to NT\$16.8 per pack, according to a Cabinet statement. The average cost of cigarettes in Taiwan is NT\$70 per packet, including taxes and surcharge, according to the 2012 edition of Tobacco Atlas, which is published by the World Lung Foundation and the American Cancer Society...(omitted) ...The Department of Health (DOH) said the NT\$25 increase is expected to reduce the smoking rate in the country by 20.8 percent, which means cutting the number of smokers by 740,000. The rate of smoking in Taiwan among people 18 years old and over stood at 18.7 percent last year, according to government statistics.

13. (3%) Use the midpoint method to calculate the proposed total percentage change in cigarettes prices of Taiwan.
14. (5%) What is the projected percentage change in smoking rates? What is the price elasticity of smoking rates in Taiwan? Is it elastic or inelastic?
15. (5%) Is the demand for smoking likely elastic or inelastic? Why? Is the supply for smoking more elastic than demand or not? Why or why not? Who will bear more of the tax burden?
16. (5%) Draw a supply-demand graph and analyze how equilibrium price and quantity of the cigarette market would change due to the proposed tax and identify the deadweight loss.
17. (2%) Is the deadweight loss for the movie market larger or smaller than cigarettes? Why?

Part III (15%): Economics in the News – Taiwan’s FTA with New Zealand

Excerpts from “ANZTEC opens broader vistas for Taiwan,” 7/21/2013, Economic Daily News

The Agreement between New Zealand and the Separate Customs Territory of Taiwan, Penghu, Kinmen and Matsu on Economic Cooperation (ANZTEC) was signed July 10 after more than a year of negotiations. Against a background of warming cross-strait relations and accompanying economic and trade liberalization, this agreement marks an important first step toward Taiwan joining regional free trade agreements and has garnered international attention. As debate continues over the merits of the Cross-Strait Trade in Services Agreement, recently signed between Taipei and Beijing, the public should take a global view and the government quicken progress toward trade liberalization... (omitted)

...New Zealand’s main exports to Taiwan are consumer agricultural products, including powdered milk, cheese, frozen beef, kiwi fruit, apples and red wine. Apart from the dairy industry, other domestic sectors will be minimally affected. Taiwan’s exports to New Zealand are mostly of precision machinery, hand machine tools and electronic components... (omitted)

Cheaper prices for New Zealand imports due to reciprocal treatment will also benefit Taiwan’s consumers, especially as competing producers such as Australia, Chile and the U.S. will be forced to reduce prices... (omitted) ...According to think tank evaluations, ANZTEC is expected to boost Taiwan’s manufacturing production by NT\$35.8 billion (US\$1.2 billion) and its services output by NT\$42.8 billion, while causing a loss to agriculture of NT\$5 billion. Overall, there are more gains than losses from the accord...(omitted)

1. (6%) Consider Taiwan and New Zealand trading the following products: Dairy (powdered milk and cheese), frozen beef, apples, precision machinery and electronic components. For each product, explain which country has comparative advantage for producing it. Would the same country also have absolute advantage as well? Why or why not?
2. (4%) How would answers to the previous question change if one considers Taiwan and US?
3. (3%) Who are the winners and losers under this FTA with New Zealand? Do the benefits outweigh the costs? Quantify your answer.
4. (2%) What are the possible reasons for winners not compensating the losers in reality?