

NOTE: Answer ALL questions in either English or Chinese.

1. [10 points] Lucy obtained daily sales of gasoline and its price in Taipei city for a period of 6 month (so she has around 180 observations of price-quantity pairs).
  - (a) Can she use these data to estimate the demand curve for gasoline at least for some local points? Why or why not?
  - (b) Can she use these data to estimate the price elasticity of demand for gasoline at least for some local points? Why or why not?
2. [30 points] There are a number of coffee shops in the city. Now the price of milk goes up by 10%, answer the following questions:
  - (a) Will the price of cappuccino (using milk) increases? Please use a price-quantity diagram to show the impact on the price of cappuccino.
  - (b) Will the price of espresso (using no milk) increases? Please use a price-quantity diagram to show the impact on the price of espresso.
  - (c) If you find that a 10% increase in milk price leads to a 15% increase in coffee price for all the shops, provide a reconciliation other than collusion. (Explain in 50 words)
  - (d) On Oct 24, 2011, the FTC ruled on a case against the three major milk suppliers in Taiwan. The main argument backing FTC's ruling is synchronized price adjustments, i.e., the three firms increased prices by similar magnitudes at around the same time. Do you agree with the ruling? Why or why not? (Explain in 50 words)
3. [10 points] In order to promote economic expansion, the town of Hyde Park has declared certain areas of the city to be "no-tax zones." Businesses located in these areas are exempt from all city taxes. As a result, many new firms have started up, each of which rents offices and machinery and hires many workers. In the long run, which of the following groups are likely to benefit from the existence of the no-tax zones: the owners of firms, the customers of the firms, landowners in the no-tax zones, the producers of machinery, the workers? Why? [Explain in 30 words]
4. [10 points] The small town of Springfield has a large city park that never gets crowded. Unfortunately, picnics in the park are pretty much the only recreational activity available in Springfield, and people have begun hankering to expand their options. Therefore, the town council wants to build an aquarium, financed by tax dollars and offering free admission. The aquarium will be small but excellent, and it is anticipated that it will always be crowded. How much should the citizens of Springfield be willing to pay for their aquarium? Why? [Explain in 30 words]

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5. [15 points] Please provide a real example of the following cases in Taiwan: (i) A monopoly firm; (ii) A monopsony firm; (iii) Two firms together forming a collusion. You are required to justify each of the examples.

Please read the following article before answering Questions 6 and 7.

#### **What Limits to Using Money Prices to Buy and Sell?**

Gary Becker [from the Becker-Posner Blog, 2012/10/21]

Perhaps partly due to the severity of the Great Recession, in recent years more books, articles, and blog postings than usual have argued against the use of markets to organize different parts of the economy. A subset of this type of literature is opposed not to markets in general, but to the purchase and sale of particular goods and services. One example is the 2012 book by the well-known philosopher Michael Sandel, "What Money Can't Buy: The Moral Limits of Markets". Another example is the opposition to a market in kidneys and other organs to be used in transplantation surgeries. Alvin Roth, the latest and highly merited winner of the Nobel Prize in economics, has argued that virtually no country allows such a market because most people feel "repugnant" toward allowing organs to be bought and sold in an open market.

A general criterion that should be used in determining when money prices should be allowed to help bring demand into balance with supply is whether the private and social gains of using prices exceed the private and social costs. One major advantage of allowing money prices is that the cost to buyers equals the revenue to sellers, so that no resources are lost in the process of equating supply and demand. By contrast, when markets are cleared by queues, the waiting time is a cost or price to consumers, but sellers do not receive revenue from this cost imposed on consumers.

Another advantage of prices is that the limited supply of goods will be allocated to consumers who are willing to pay the most for the goods. This is an attractive result when dealing with individuals of similar incomes, but rationing by money price may be a disadvantage if richer persons get most of the medical care or other goods considered necessary for a decent life. However, the way to meet this problem is not by eliminating money prices as a way of rationing supply, but instead by redistributing income to poorer individuals, and sometimes perhaps by directly subsidizing the consumption of goods by the poor, as with Medicaid.

To show how these and other principles work out in practice I will discuss a few examples where the use of markets and prices has been criticized ....

.... Traffic congestion is a big problem in most cities in the world, such as Beijing, Los Angeles, and Mexico City. Traffic congestion imposes major costs on drivers since it often greatly increases the time to go from one destination to another. Again, as with the transplant market, time spent in traffic is an inefficient "price" since it wastes the

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time of drivers without providing benefits to anyone else. Indeed, it harms others because the driving time of other drivers is increased when someone decides to drive during congested times.

One alternative to traffic jams is to place a charge on using roads and highways during congested time periods, as the city of London does by pricing admission to the central business district during prime week day times. This "congestion price" would reduce driving times by encouraging some people to shift their driving to less congested times, to use carpools, to take slower and more indirect routes to their destinations, or to reduce their driving.

Of course, people who place higher values on their time would be more likely to pay congestion fees and continue to use the main roads. Since richer individuals tend to have high values of time, poorer persons would be more likely to shift their driving patterns...

6. [10 points] True or false? An effective "congestion fee" releases congested roads and eliminates the inefficiency caused by traffic jam, resulting in a Pareto improvement. [Explain in 30 words]
7. [15 points] Some argue that poor individuals suffer from the congestion fee. Please propose a policy to repair this "unfairness" while maintaining the congestion price. [Explain in 50 words]

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