

Principles of Economics I: Microeconomics – Midterm [2019/11/8]

Note: You have 180 minutes (9:10am-12:10pm), and there are 100 points. Allocate your time wisely.

Part A (45%): Excerpts from “不只物價變貴 非洲豬瘟對中國衝擊全方位,” 中央社 (2019/10/24)¹

單身的上海鄒姓民眾因為一個人住，很少開伙。今年春節他買的豬肉是一公斤人民幣 11 元，到了 9 月，他再從冷凍庫拿出來時，豬價已經超過 30 元「增值了快 200%，覺得倒賺了一把」。根據豬價格網統計，10 月 24 日的全中國生豬均價已經來到每公斤 40 元(約新台幣 172 元)。...(omitted)...非洲豬瘟疫情導致豬隻大量減少，根據中國政府網，截至今年 8 月，中國的生豬存欄量年降幅已近 4 成，這是推高豬價的原因。中國去年消費約 5995 萬噸豬肉，占全球近一半。其中，中國生產豬肉約 5404 萬噸，進口占比很低，擴大進口能彌補自用的其實有限，同時也帶動了歐美豬價上漲。即使是不吃豬肉的穆斯林也感受得到這波導因於非洲豬瘟的威力，因為牛肉、羊肉都變貴了。...(omitted)...豬肉在中國人的肉類消費占比達 63%，禽肉占比達 22%，牛羊肉占比僅 13%。但高昂的豬價讓民眾不得不改變偏好吃豬肉的事實...官方數據顯示，中國上半年肉雞出欄量比去年同期增加 15.8%，前 3 季牛肉進口量增加了 53.4%，中國豬肉產量下降 17.2%。在非洲豬瘟危機中，中國人展現了口味改變的彈性。¹

Answer the following questions:

1. (6%) Does the swine fever affect the supply or demand of pork? Is it causing it to shift to the left or right? Draw a supply and demand diagram to analyze how swine fever affects market price and quantity.
2. (7%) Is beef a complement or substitute to pork? Draw a supply and demand diagram to explain the effect of swine fever on equilibrium price and quantity of the beef market. Would your answers differ if you consider the chicken market instead? Why or why not?
3. (7%) Would quantity of pork imports increase or decrease when China has swine fever? Draw a supply and demand diagram to analyze the effect of China importing more pork on equilibrium prices and quantity of the European pork market. Why are European muslim affected by China's action? Explain.
4. (6%) What is the unit price for pork in September when Mr. Zhou took his piece of pork out of the freezer? What was the original unit price for pork during Chinese New Year when he bought it? Use the midpoint method to calculate the percentage change in pork price. Does it matter that he did not reveal the exact weight of his piece of pork? Why or why not?

¹ **Translation:** Mr. Zou is living alone in Shanghai and rarely cooks. This Chinese New Year he bought pork at 11 yuan/kg. When he took it out of the freezer in September, pork price had already exceeded 30 yuan, “increasing nearly 200% in value, like hitting the jack pot.” Pork Price Net reports on October 24, national average price of live pigs hit 40 yuan/kg (about NT\$172)... The African swine fever has significant reduced pig population. Chinese government network reported that, as of August this year, the number of live pigs declined nearly 40% compared to last year, resulting in a surge in pork prices. China consumed 59.95 million tons of pork last year, nearly half of world consumption. China produced 45.04 million tons of pork, and imported little. Hence, increasing imports cannot fill the gap, but drives up pork prices in the West. Even Muslims that do not eat pork are affected, since beef and lamb are more expensive... Pork accounted for 63%, poultry 22%, and beef and mutton only 13% of Chinese meat consumption, but higher pork prices have forced people to change their tastes... Chicken sales increased by 15.8% in the first half of this year compared to last year. Beef imports increased by 53.4% in the first three quarters, while domestic pork production decreased by 17.2%. The swine fever crisis indeed reveals Chinese people's flexibility in taste.

5. (2%) Is your percentage change in pork price (calculated using the midpoint method) higher, lower or the same as the percentage change Mr. Zhou told the reporter in the news? Explain why this is so.
6. (3%) What is the percentage change of domestic pork production in China in the first half of this year (as stated in the news)? This is likely calculated using the initial quantity as the denominator (instead of the midpoint). Use the midpoint method to find the percentage change of quantity for the Chinese pork market (assuming all domestic production are consumed locally and imports are negligible).
7. (3%) Use your answer to calculate the price elasticity of pork demand. Is pork demand elastic or inelastic?
8. (4%) What assumptions are required to calculate the above price elasticity of demand? Are they realistic? How would your elasticity estimates be biased if these underlying assumptions do not hold? Specifically, do you think Mr. Zhou's story is an extreme case or representative of what is happening in the society?

豬價格網(2019/6/28)ⁱⁱ: 6月24日... 国家统计局发布数据称,截至当日14时,全国农产品批发市场猪肉平均价格为22.63元/公斤... **Pork Price Net (2019/6/28)**: The National Bureau of Statistics reported national average wholesale pork price was 22.63 yuan/kg at 2pm... on June 24.

“農產品批發市場豬肉均價 36.45 元/公斤比上週五升 0.9%” 北京新浪網 (2019/9/23)ⁱⁱⁱ

“The average agricultural wholesale port price is 36.45 yuan/kg, up 0.9% from last Friday.”

信傳媒 (2019/10/31)^{iv}: ...野村證券表示,中國第二季豬肉產量只有較去年同期下降 6%,第三季豬肉產量暴跌 42%,第四季產量跌幅可能進一步擴大至 60%。**CM Media (2019/10/31)**: ...Nomura Securities said China's second quarter pork production was down by only 6% compared to the same period last year. Third quarter pork production plummeted 42%, and may plummet to 60% in the fourth quarter.

9. (3%) Using information provided in the above three excerpts to calculate percentage change in average pork price for the third quarter by applying the midpoint method. What is the percentage change in quantity for the third quarter (as reported in the news)?
10. (4%) Use your answers to calculate the price elasticity of demand for the market of pork. Is your conclusion regarding elastic or inelastic demand sensitive to using different sources of information? Why or why not?

Part B (13%): “中國豬價狂漲 中小學午餐費調漲或換菜,” 中央社 (2019/11/1)^v

...在穩豬價、保供應成為各級政府「重大政治任務」的情況下,豬價持續上漲考驗地方政府的應對能力,由此也產生出一些亂象。澎湃新聞報導,貴州江口縣市場監督管理局等單位 10月29日印發「江口縣關於豬肉保供穩價告誡書」,直接要求市場商戶「白條肉每斤須在 20 元以內,五花肉每斤須在 25 元以內」。此舉引發批評... 江口縣政府在輿論抨擊下隔天表示收回告誡書,並立即整改。²

1. (5%) Is Jiangkou government's price control binding or non-binding? Is it causing shortage or surplus? Draw a supply and demand diagram to analyze how price control affects market price and quantity.
2. (5%) How does this price control affect consumer surplus, producer surplus and total surplus? Draw a supply and demand diagram to illustrate. Is this policy good for economic efficiency? Explain.
3. (3%) What would happen if Guizhou government instead imposes even more price (or even quantity) control in response to swine fever? Explain.

² **Translation:** ...Since stabilizing price and ensuring supply has become a “major political task,” local governments are challenged by the non-stop increase in pork prices, and this has caused some chaos. Pon-Pai News reported that on October 29, Guizhou's Jiangkou County Market Supervision Bureau issued, “Warning on Pork Supply Guarantee and Price Stabilization,” demanding merchants to sell “white meat no higher than 20 yuan/catty, and pork belly no higher than 25 yuan/chatty.” This sparked criticism... Under public pressure, Jiangkou County withdrew the warning the next day and rectified the policy.

Part C (27%): Excerpts of “Gold sales likely to decline 50% on Dhanteras,” IANS, India Times, (2019/10/9)^{vi}

Gold may lose its glitter in Dhanteras as a sharp rise in the prices of the yellow metal has weakened its demand in the domestic market, according to experts. “On Dhanteras, the gold sales touch around 40 tonnes every year. However, the weak demand may decrease the sales by 50 percent this year,” Surendra Mehta, National Secretary, India Bullion and Jewellers Association (IBJA) told IANS...(omitted)... In Mumbai, ...24-carat gold rose to Rs 39,340 per 10 gram on Friday. Gold prices have touched Rs 40,000 level many times in the past few months. On Monday, gold fell Rs 38 to Rs 39,295 per 10 grams on the Multi-Commodity Exchange (MCX), whereas on October 5 last year, gold prices on the MCX were at Rs 31,154.

Answer the following questions:

1. (3%) What is the recent price of Gold in India’s MCX? What is the price a year before? Use the midpoint method to calculate the percentage change in the price of Gold.
2. (3%) What is the usual amount of Gold sale every year on Dhanteras? What is the amount on this year’s Dhanteras? Use the midpoint method to calculate percentage change in the Gold sales on Dhanteras.
3. (3%) Use your answers to the above questions to calculate India’s price elasticity of festive season demand for Gold. Is the demand elastic or inelastic?
4. (3%) 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?

...Gold imports have also nosedived due to higher prices and an increase in the import duty, Mehta added. India imported only 26 tonnes of gold in September this year, down from 81.71 tonnes a year ago. The imports fell 68.18 percent, as compared to last year. Market experts believe that gold imports have plunged to a multi-year low after the Central government increased the import duty on precious metals from 10 percent to 12.5 percent in the Union Budget in July this year...

5. (6%) Compare consumer surplus, producer surplus and total surplus before and after the increase in tariffs.
6. (2%) Calculate the percentage change of imported quantity of sales in Gold using the midpoint method.
7. (2%) Use the midpoint method to calculate the percentage change of import prices change, assuming it is solely due to the increase in import duties.
8. (5%) Calculate the price elasticity of importing Gold. Is it elastic or inelastic? Do you think it was a good idea for the government in Dhanteras to raise import duties? Why or why not?

Part D (30%): “Inside Wisconsin’s Disastrous \$4.5 Billion Deal With Foxconn,” Bloomberg (2019/2/6)^{vii}

“This is the Eighth Wonder of the World.” So declared President Donald Trump onstage last June at a press event at Foxconn’s new factory in Mount Pleasant, Wis. He was there to herald the potential of the Taiwanese manufacturing giant’s expansion into cheesehead country. He’d joined Foxconn Chairman Terry Gou and then-Wisconsin Governor Scott Walker to celebrate a partnership he’d helped broker—“one of the great deals ever,” Trump said. In exchange for more than \$4.5 billion in government incentives, Foxconn had agreed to build a high-tech manufacturing hub on 3,000 acres of farmland south of Milwaukee and create as many as 13,000 good-paying jobs for “amazing Wisconsin workers” as early as 2022.

In front of national media and an audience of several hundred, Trump talked up the larger meaning. For too long, he said, bad trade deals sent factory jobs to places like China, and that era was over. Yes, this Foxconn deal represented the largest public subsidy package to a foreign company in U.S. history, but it also marked a turning point for “restoring America’s industrial might.” Blue-collar jobs were coming home, starting with the Mount Pleasant facility and its LCD TV production. And what better bellwether for the success of his trade war than Foxconn Technology Group, a leading iPhone maker in China long synonymous with overseas

manufacturing? “As Foxconn has discovered, there is no better place to build, hire, and grow than right here in the U.S.,” Trump said. “Made in the USA. It’s all happening.”

For some Foxconn workers watching who’d labored at the LCD TV factory for months, the president’s rhetoric didn’t match reality. The LCD components weren’t made in the USA, according to sources familiar with the operation. They were shipped from a Foxconn factory in Tijuana. The Wisconsin plant was only handling the last steps of assembly, and some TV displays were still labeled “Made in Mexico.” Pay at the factory started at about \$14 an hour with no benefits, much less than the \$23 average Foxconn promised. Many people weren’t hired full time—the company filled positions with temps and interns from a local technical college. And five workers present for Trump’s speech say some colleagues from Asia were conspicuously absent from the press event. (Foxconn says it encouraged all employees to attend, and the Mexican TV parts were for testing, not indicative of future production.)...(omitted)

Answer the following questions:

1. (9%) Suppose a high-tech manufacturing hub creates positive externalities to the economy. Draw a supply and demand diagram for the LCD TV market to analyze equilibrium price and quantity, and welfare evaluated by comparing social cost, social benefits, consumer surplus, producer surplus, and total surplus.
2. (8%) What is the effect of Wisconsin subsidizing Foxconn’s Mount Pleasant facility and its LCD TV production? Draw a supply and demand diagram to analyze the effect on equilibrium price and quantity, consumer surplus, producer surplus, government tax revenue, and total surplus.
3. (2%) Does a high-tech manufacturing hub actually create positive externality as the article claims? Explain.
4. (5%) How do your above answers change if a high-tech manufacturing hub does not create externalities?
5. (6%) What is the enforcement problem in the Foxconn deal using subsidies to address positive externalities? Are there “better” solutions for positive externalities? Name at least three other solutions and discuss.

ⁱ <https://www.cna.com.tw/news/firstnews/201910240090.aspx>

ⁱⁱ Excerpts of “猪价行情提前上涨！四季度活猪价将会突破 2016 年的历史高点” 猪价格网(2019-06-28): <http://www.zhujiage.com.cn/article/201906/1004191.html>

ⁱⁱⁱ http://finance.sina.com/bg/economy/economy_indu/sinacn/2019-09-23/doc-ifzpekac4626055.shtml

^{iv} Excerpts of “惡性通膨來了？中國 10 月豬肉價格狂飆近 2 倍 物價全面上漲” 信傳媒 (2019/10/31): <https://www.cmmedia.com.tw/home/articles/18254>

^v <https://www.cna.com.tw/news/acn/201911010082.aspx>

^{vi} <https://economictimes.indiatimes.com/markets/commodities/news/gold-sales-likely-to-decline-50-on-dhanteras/articleshow/71492344.cms>

^{vii} <https://www.bloomberg.com/news/features/2019-02-06/inside-wisconsin-s-disastrous-4-5-billion-deal-with-foxconn>