Food and Resource Economics 306
Sample Midterm Exam –2015 Tm1
Some suggested answers

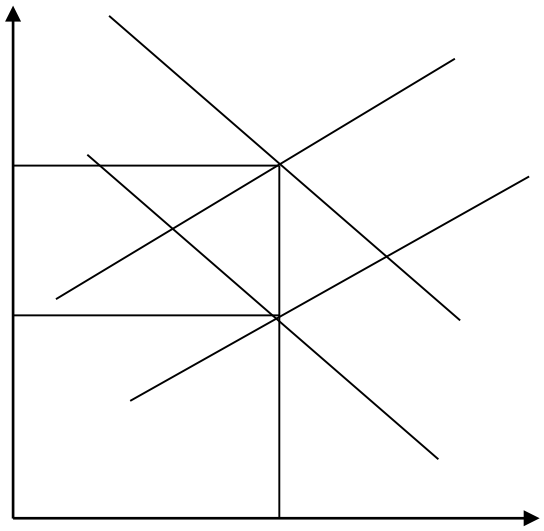
Rick Barichello

I. **Multiple Choice**: Choose which of the following statements are true and circle (write down) that letter. The number of true statements is between one and four. 1.5 marks are given for each letter correctly circled (written down) or correctly left uncircled (not written down). Do THREE (3) of the following four questions. Indicate which questions you are answering and which one not. Total marks = 3*5*1.5 = 22.5. Total suggested time: 22.5 minutes.

1. Declining real food prices
   a. The real farm prices of almost all food commodities have been found to decline on trend: **"Until ~2006, virtually all food commodities have shown long run (LR) trend declines in their real prices, at farm level for some 60+ years"**
   b. The source of sustained real price decline is increased monopoly in food processing. **This may be one reason why the declining food prices have <u>not</u> translated to lower retail prices**
   c. As a result of declining real prices, farming is becoming less profitable to all farmers. **Not applicable to all farmers, it depends on farm size and whether they adopted new technologies**
   d. Declining real prices is unique to the agriculture sector. **It's also a characteristic of technology products**
   e. Stopping all agricultural research and extension activities, in Canada and around the world, would stop the long term downward trend in agricultural prices: **"research and extension leads to improvements in technology that reduce costs or increase yields" So stopping that research would stop or significantly slow the downward trend.**

2. Price cycles/cobweb model
   a. Price cycles occur in agricultural products such as rice and oilseeds. **More common in crops involving perennials (tree crops) or livestock, which have longer (>1 year) cycles; example: 3-4 years for cattle.**
   b. The cobweb model predicts price cycles when there is a long lag in production between the decision to expand production and the actual result of more production.
   c. Price cycles are inconsistent with an underlying long term price trend. **Not mutually exclusive; can have long-term downward trend with high/low cycles**
   d. Price cycles are due to middlemen trying to profit by buying when prices are low and selling when prices are high. **Due mostly to the production process and the lag between decision making and actual production marketing**
   e. Cobweb cycles converge over time if the initial price shock is small enough. **Convergence depends on the elasticity of the demand and supply curves, not on the magnitude of the price shock.**

3. Applying the farm retail price model
   a. The supply curve at retail is calculated by summing vertically at each level of output the farm supply price schedule with supply price schedules for all other activities in the food chain, such as transportation, storage, processing, wholesaling and retailing.



b. The demand curve at the farm level is not directly related to the wholesale/retail demand curve.
The demand curve at the farm level has the same slope as the wholesale/retail demand curve. Furthermore, it crosses the Sf curve at the Q where the wholesale/retail demand curve crosses the supply curve at retail.

c. An increase in wage rates for union members at Safeway stores will raise consumer prices.
Yes, because it increases the distance between the farm supply curve and the retail supply curve, i.e. shifts the retail supply curve to the left.

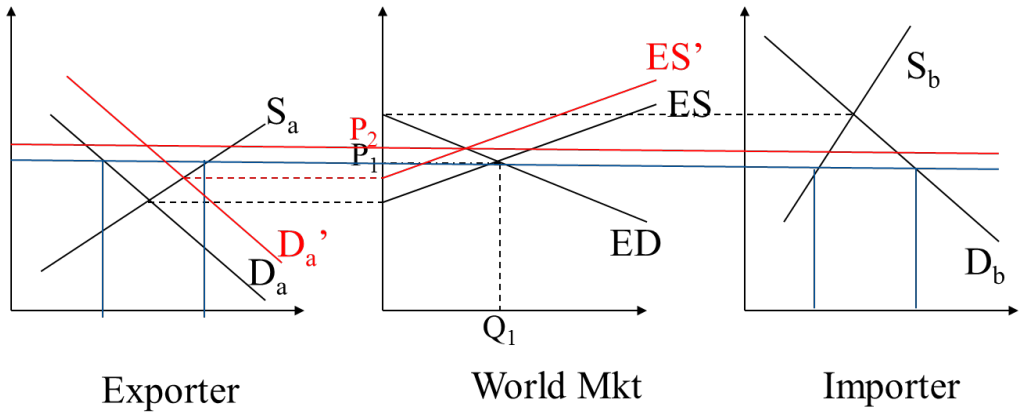
d. An increase in the productivity of processing plant workers will raise consumer prices.
Increased productivity means lower marginal costs per unit of production, thus shifting the supply curve to the right

e. An increase in food safety standards that increases food processing costs but changes nothing else will lower farm prices for the raw material food product.
This means that the wholesale/retail supply curve shifts to the left, crossing the wholesale/retail demand curve at a lower Q. Therefore, the equilibrium Q that will be produced in the farm market is also lower, corresponding to a lower point in the Sf curve and, therefore, a lower farm price.

4. Constructing and using the excess supply and demand model
   a. The intercept of the excess supply curve is the price point on the domestic supply curve that is equal to the domestic demand curve for the country that is higher cost.
   The country that provides an excess supply to the world is the country with the *lower* cost, not the higher cost.
   b. The excess supply curve is more price-inelastic than the domestic market supply curve in the exporting country.
   It is more price-elastic than the domestic market supply curve, because its slope is the sum of absolute values of slopes of that country's S and D.
   c. If the price elasticity of the excess demand curve facing the Canadian Wheat Board is large in absolute value, this means the excess demand curve is "flat."
   The elasticity of (excess) demand is –(dQ/dP)*(P/Q), and can also be calculated as –(1/slope of demand curve)*(P/Q). If the elasticity value is very high, it implies that the slope value is very low, as they have an inverse relationship, and a low slope value means the curve is 'flat'.

d. The optimal price for the CWB using the domestic market demand curve in the importing country will be lower than when the excess demand curve facing it is used.
The optimal price associated with the demand curve of an importing country is always higher than that associated with the excess demand (because such domestic demand is more inelastic than the excess demand).

e. An increase in consumption (a rightward shift in domestic demand) in the exporting country will shift the excess supply curve to the left.



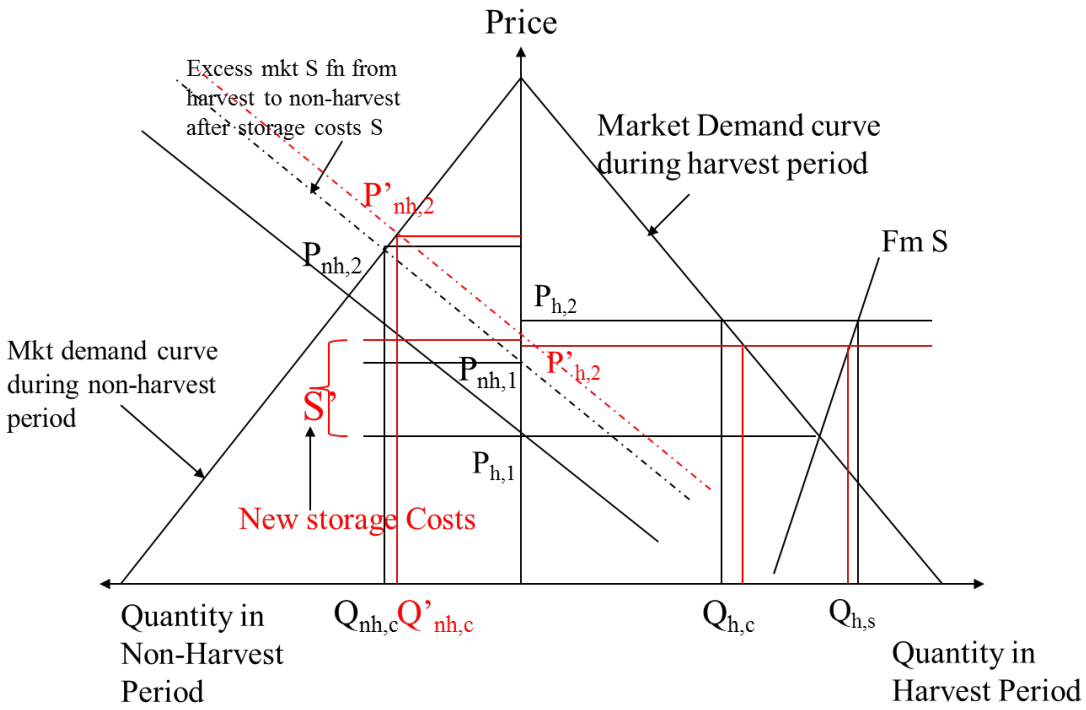
II. True, False, Uncertain: Indicate whether you judge the following statements to be True, False, or Uncertain. In each case explain and defend your answer in several sentences. This explanation will determine your grade for the question. Illustrate with diagrams where appropriate. Answer five (5) of the following six questions. The marks per question are 8. Total suggested time for this section @ 8 minutes per question is 40 minutes.

1. When transport costs increase in the rural-urban market linkage model, it will mean the period during the year when the urban market buys from the rural market will increase.

False: In increase in transport costs will increase the gap between rural and urban prices in the standard rural-urban market linkage diagram. This will mean the urban price in period t0 to t1 will reach the import price sooner (making period 1 shorter), at which point it will start buying from imports. Also, the beginning of period t4 will start later (to the right) in the diagram, because rural prices will have to fall further during the harvest to reach the point where that price difference will be large enough to cover the now-higher transport costs.

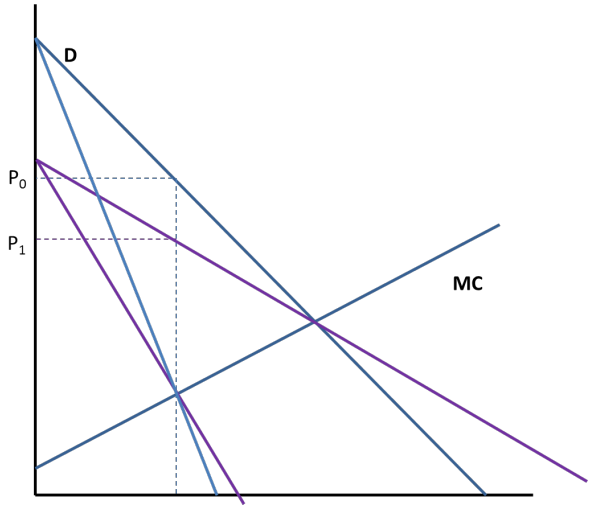
2. If a certain chemical was banned that was instrumental in allowing a long storage life to a specific fruit, forcing the fruit warehouse to use more costly storage alternatives, this will raise prices to consumers in the storage or non-harvest season and those higher consumer prices will result in higher farm prices in the harvest season.

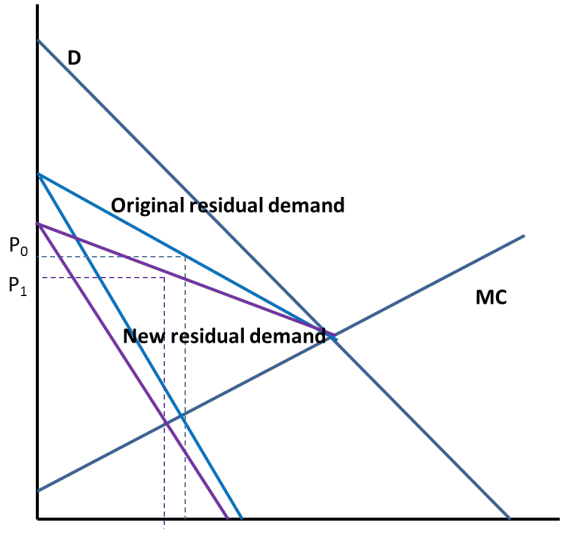
False: Lower farm prices in the harvest season.



3. If new research by your marketing department shows the excess demand curve for your product to be more price-elastic than previously measured, this finding should cause you to lower your price immediately.

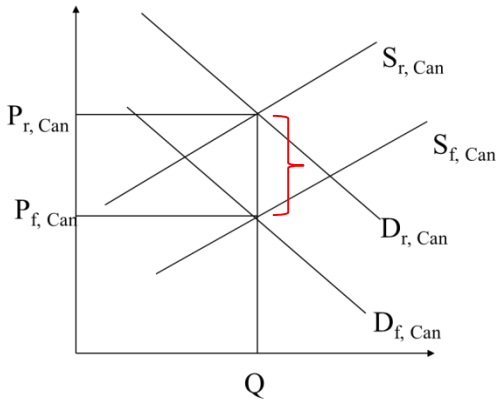
True: Draw MR curves for each of the two demand curves to see this result.

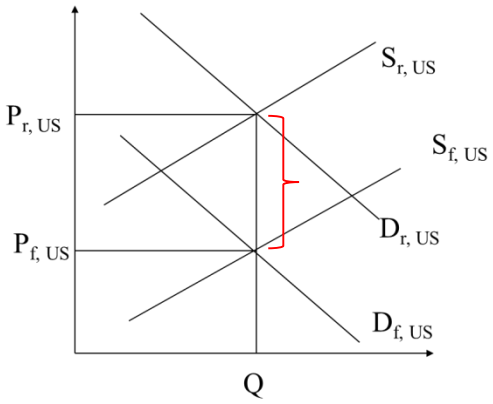




4. If Canada's raw milk is priced 30% higher than within the US (a competing region of milk products), this will mean that Canadian dairy product firms cannot be competitive with US dairy product firms in selling their products like cheese and ice cream.

Uncertain: The Canadian dairy product firms could compete only if they could offset the raw milk cost disadvantage with other cost savings or higher product revenues compared to the US firm.





VS.

5. If the price in the non-harvest period was higher than the price in the harvest period, and by more than the cost of storage, then there must be some barrier to undertaking storage activity such as a government regulation prohibiting speculation in that commodity and so preventing middlemen from storing the commodity.

True. If the price in the storage or non-harvest period is above the harvest period price by more than the cost of storage, the law of one price in a temporal situation is violated. There is obviously an arbitrage opportunity that traders or storage entrepreneurs are not seizing upon. So there must be something preventing them from undertaking the storage when profits can be made.