

Exercise 2 (Individual, 30 Points Total)
DATE: Tuesday, Feb 10, 5:30pm

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EE/Econ 458, Spring 2009

EXERCISE 2

NOTE: Please answer **ALL FIVE PARTS A-F** of this exercise. General instructions for this exercise are as follows:

- (a) Use this packet for all of your answers.
- (b) Be sure to show all your work so that partial credit can be given for answers even if some type of error occurs along the way.
- (c) Read each question part carefully before you begin your answer.
- (d) Define terms and concepts clearly and carefully.
- (e) Carefully label all graphs. This includes labels for axis variables as well as labels that carefully identify what is being graphed.
- (f) Be sure to make an extra copy of your answer packet for use in class discussion on the due date. Individuals will be called upon to report their findings.
- (i) **Recall that late assignments cannot be accepted – no exceptions! Make sure your exercise is turned in to the instructor or TA at the *beginning* of class on the due date. Do not send your exercise in via email or place it in a department mailbox as these sites might not be checked in time.**

Consider a market consisting of three profit-seeking sellers and two profit-seeking buyers. Each seller has an amount of apples he is trying to sell, measured in bushels, and each seller has a successively higher reservation price for each bushel of apples he sells. Each buyer would like to purchase apples, measured in bushels, and each buyer has a successively lower reservation price for each bushel of apples he buys.

Table 1, below, presents the specific bushel reservation prices for sellers and buyers for each successive bushel of apples they sell and buy, respectively.

Table 1: Bushel Reservation Prices for Sellers and Buyers

Bushel Unit	Seller S1	Seller S2	Seller S3	Buyer B1	Buyer B2
1	\$10.00	\$10.00	\$50.00	\$80.00	\$80.00
2	\$50.00	\$40.00	\$70.00	\$70.00	\$70.00
3	\$80.00	∞	\$90.00	\$30.00	\$60.00
4	∞	∞	∞	0	\$40.00
5	∞	∞	∞	0	\$30.00
6	∞	∞	∞	0	0

Some Empirical Facts About Apples: A bushel of apples weighs about 40 pounds. Actual prices for apples depend on the particular variety of apple and how they are marketed: e.g., pick-your-own, pre-picked on-farm sales, farmers' market sales, or wholesale in bulk to a packer. At some pick-your-own orchards in Minnesota, for example, many varieties of apples sell for about \$1.00 per pound whereas pre-picked apples cost about \$1.25 per pound. The same apples, wholesaled to a packer, might return as little as \$0.10 per pound. Information Source (2008): <http://www.apples.umn.edu/>

IMPORTANT NOTE:

The **Blank Graphs** provided below for Parts A through D should be used to provide the requested graphical answers **in clear carefully labeled form**.

Part A (5 Points) Using the information in Table 1, calculate and graphically depict below the **True Total Supply Schedule** for this apple market.

Part B (5 Points) Using the information in Table 1, calculate and graphically depict below the **True Total Demand Schedule** for this apple market.

Part C (5 Points) Using your Part A and Part B findings, calculate and graphically depict below all possible **Competitive Market Clearing (CMC) Points** for this apple market.

Part D: (5 Points) Using your Part A through Part C findings, calculate the dollar amount of **Net Seller Surplus** and **Net Buyer Surplus** at any CMC point for this apple market and graphically depict below these two net surplus amounts.

Part E (5 Points Total)

E.1 (1 Point) Define in words what is meant by **Total Net Surplus** for this apple market.

E.2 (4 Points) Explain carefully **WHY** the Total Net Surplus extracted at any CMC point for this apple market is as large as it can possibly be. That is, explain why the Total Net Surplus extracted at any point **OTHER** than a CMC point **CANNOT BE STRICTLY LARGER** than the Total Net Surplus extracted at any CMC point.

Part F (5 Points)

Part F asks you to consider whether Seller 2 in Table 2 has any way to profitably game the apple market by announcing an individual supply schedule that does NOT reflect his true reservation prices for bushels of apples. Here “profit” is taken to be net seller surplus.

Suppose the apple market is conducted through an auctioneer, as follows:

- The profit-seeking sellers and buyers express (i.e., report) individual supply and demand schedules to the auctioneer;
- The auctioneer then sets the market price at what he believes to be a CMC price level *based on these expressed individual supply and demand schedules*;
- If multiple possible CMC price levels are perceived by the auctioneer to exist, the auctioneer sets the market price at the *midpoint* of the range of perceived possible CMC price levels;
- The maximum possible number of quantity units are then sold at the market price set by the auctioneer.

Based on your findings for Part A through Part E, above, does the profit-seeking **Seller 2** in Table 1 have any profit incentive to report an individual supply schedule to the auctioneer that **deviates** from his true individual supply schedule, *given that all ****other**** sellers and buyers in Table 1 report their true individual supply and demand schedules to the auctioneer?*

If your answer is YES, then use the space below and the back of this page to: (1) Describe the MOST profitable individual supply schedule that Seller 2 can report to the auctioneer, given all other sellers and buyers report their *true* individual supply and demand schedules; and (2) provide a graphical depiction of the resulting market outcome that **SHOWS** why this is the most profitable individual supply schedule that Seller 2 can report.

If your answer is NO, explain **WHY** no profitable deviation exists for Seller 2.