Student's Manual: Exercises

The Fish Market

More is not always better

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Learning Objectives

In this experiment you will

- learn to analyze shifts in the supply schedule and their effects on equilibrium prices;
- begin to see how supply and demand curves can be used to predict the effects of changed market conditions on prices and quantities.
- observe that an increase in aggregate supply may decrease, rather than increase, total revenue of suppliers;
- learn that fixed costs do not change the short-run supply curve; and
- gain insight into the economics of industries like fishing and agriculture where supplies, and hence prices, fluctuate over time.

Pre-Requisites

To complete the exercises you need to know how to

- draw step supply and demand curves [Click for help];
- find competitive equilibrium prices and quantities [Click for help];
- compute consumer surplus and seller profits [Click for help].

Exercises

LabNotes

Use the data in the *LabNotes* to answer the questions in this section. The *LabNotes* will contain the following tables (identified by):

- Transactions, prices, and profits in the last round of each session (tables A and B).
- Distribution of buyer values (table C).
- Number of fishermen and fish caught (table D).

Questions

1. *Computing Market Statistics*. In Table 1, for each session of the classroom experiment, record the average price at which fish were sold, the number of fish sold, total profits of fishermen, and total profits of demanders.

Table 1: Market Statistics for the Fish Market

	Session 1	Session 2
Mean Price		
Number of Fish Sold		
Total Profits of fishermen*		
Total Profits of Demanders		
Total Profits All Participants		

Every fisherman, whether or not he sells any fish, has total costs of 10€. Therefore total costs of fishermen is 10€ times the number of fishermen participating in the experiment (including those who sold no fish). Total revenue of fishermen equals the total amount of money that they received for fish. Find this from tables A and B in the spreadsheet. Total profits of fishermen equals total revenue minus total costs.

2. Use the information in table C of the spreadsheet to complete the Demand Table 2. [Click here if you need help on how to construct a demand table.]

Table 2: Demand Table for Sessions 1 and 2

Price Range	Amount Demanded
$P >$ 25€	
20€ $< P <$ 25€	
5€$< P <$ 20€	
$P <$ 5€	

3. Suppose that the number of fish caught is the number recorded in table D of the spreadsheet for Session 1 of your classroom experiment, and that the only costs are a 10€ sunk cost for every fisherman. If fishermen supply fish whenever it is more profitable to supply them than

not to, then

- how many fish will be supplied at a price of 15€?
- how many fish will be supplied at a price of 5€?
  Hint: At a price of 5€ will a fisherman have smaller losses if he sells his fish or if he doesn't sell?
- how many fish will be supplied at a price of 1€?
- What can you conclude about the supply curve for fish at positive prices?

4. On Figure 1, draw the (red) supply curve and (green) demand curve for the market in Session 1. Mark the point where the supply and demand curves cross and label it $CE1$. On the same graph, use blue ink to draw the supply curve for the market in Session 2. Mark the point where the new supply curve crosses the demand curve and label it $CE2$.[Click here if you need help on how to draw supply and demand curves.]

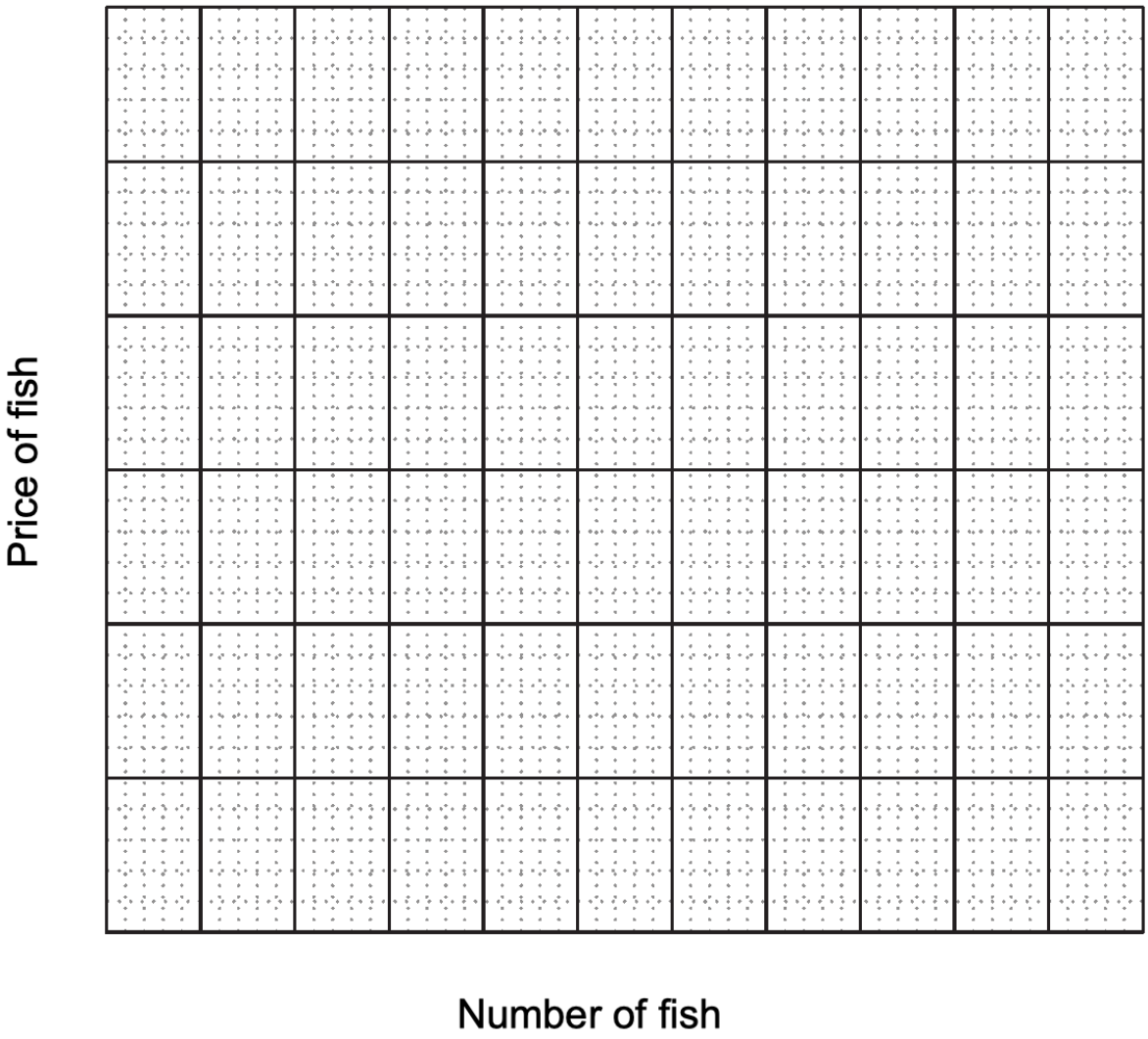

Figure 1: Supply and Demand in Sessions 1 and 2

5. Complete Table 3 to show the outcomes that were *observed* in the last round of Session 1 of your classroom experiment and the outcomes that are *predicted* by competitive equilibrium theory. Note that the predictions of competitive equilibrium theory are found using the supply and demand curves that you drew, while the actual outcomes are those that you calculated for your lab notes in Table 1. [Click here if you need help with finding the equilibrium; or here if you need help on computing consumer surplus and seller profits.]

Table 3: Predictions and Outcomes in Session 1

	Experimental	Competitive

Table 3: Predictions and Outcomes in Session 1

	Outcome	Prediction
Mean Price		
Number of Fish Sold		
Total fishermen's Profits		
Total Demanders' Profits		
Total Profits All Participants		

6. Complete Table 4 to show the outcomes that were *observed* in the last round of Session 2 of your classroom experiment and the outcomes that are *predicted* by competitive equilibrium theory.

Table 4: Predictions and Outcomes in Session 2

	Experimental	Competitive
	Outcome	Prediction
Mean Price		
Number of Fish Sold		
Total fishermen's Profits		
Total Profits All Participants		

7. Comparative statics is the study of the changes in market variables in response to changes in market fundamentals. Let us summarize the changes in actual outcomes between the last round of Session 1 and the last round of Session 2 in your classroom experiment, where a change in the weather resulted in fishermen catching more fish. Moving from Session 1 to Session 2:

   - the number of fish caught increased from to
   - the mean price of fish (rose? fell?) from to
   - total profits of fishermen (rose? fell?) from to
   - total consumers' surplus (rose? fell?) from to

8. Let us summarize the predictions that competitive equilibrium makes about changes as we move from Session 1 to Session 2. Competitive equilibrium theory predicts that:
   - the mean price of fish (rises? falls?) from to
   - total profits of fishermen (rises? falls?) from to
   - total consumers' surplus (rises? falls?) from to
9. In the morning, money spent on fuel for last night's fishing is a sunk cost. But in the evening before he decides to go fishing, a fisherman has a chance to decide whether to sink the cost by buying fuel. Suppose that a fisherman knows that on average he will catch two fish per day. He could avoid the 10€ fuel cost by not taking a boat out and not catching any fish. Would a profit-maximizing fisherman buy the fuel and go out to fish:
   - if he expects the price of fish to be 3€?
   - if he expects the price of fish to be 7€?