

Appendix 1. Sample Experiment Instructions [Note: These are instructions for a no power/power sequence]

Overview: This is an experiment in the economics of decision-making. Various research foundations have provided funds for this research. The instructions are simple, and if you follow them carefully and make good decisions, you may earn a considerable amount of money that will be paid to you in CASH at the end of the experiment. Your earnings will be determined partly by your decisions and partly by the decisions of others.

General Incentives. In today's experiments, sellers, endowed with unit costs, offer "units" for sale to a simulated buyer. The sellers earn money by selling units to the buyer at prices in excess of his or her unit costs. Importantly, sellers incur costs only for the units that the buyer purchases. Sellers bear no costs for unsold units.

The Trading Sequence. Today's market will consist of a number of *trading periods*. At the outset of each period sellers are induced with costs and an automated buyer is induced with a demand condition that will not be revealed to the sellers. Trading follows a simple two-step process. First, the sellers are given the chance to make a pricing decision. Second, after a pre-set time limit, the buyer makes all purchases possible from the seller at the posted prices. Then sellers earning are calculated and a new period begins.

The trading periods in today's session will last 7 **seconds**. If a seller does not change his or her price prior to the expiration of the period, the seller's price from the previous period will automatically be carried forward.

Specific Instructions. Participants in today's experiment are grouped into markets of 2, 3 or 4 sellers. The number of sellers in your market will be obvious from the number of standing prices that are posted each period, and the number of current and past price bars on the screen. The figure below illustrates the screen for a seller S2 who is in a market with two other sellers. Please take a moment now to look in the upper left corner of your computer screen to identify your seller number in today's market.

The illustration shows a market with 6 seconds remaining in period 4. Notice that seller S2 can offer up to 6 units for sale, and that each unit has a cost of \$1.00 per unit. Your unit costs in today's market will differ from those shown in the figure.



In the period 3 the seller posted a price of \$2.30 and sold 4 of the six units he could profitably offer at that price. The seller earned \$5.20 this period. Period earnings are the difference between the revenues from selling 4 units at a price of \$2.30 per unit and the costs of the 4 units sold or

Total Revenue	-	Total Costs	=	Earnings
\$2.30 × 4		(\$1.00 + \$1.00 + \$1.00 + \$1.00)		
\$9.20	-	\$4.00	=	\$5.20

Notice that the bar graphs on the screen allow you to track price and earnings changes relative to the preceding period. In the figure, for example, notice that seller S2 increased his price relative to period 2, and as a consequence his earnings increased.

Price Posting. At the start of a session, you post a price of zero and offer no units. To change your price, simply click on the price box, and type in a price. Then either click the submit box, or press the ENTER key. The computer will automatically enter all units you can profitably sell that price in the “offer quantity: box. The price will take effect at the end of the trading period.

If you do not wish to change your price, you need do nothing your standing price will be repeated in the following period.

Buyer Decision: You will not be told the buyer’s maximum values for units. However, as a general matter, the buyer will purchase more units as the price falls. Further, in this market, buyer reservation values will remain the same each period. The buyer will make all profitable purchases.

Summary: Your job is make as much money as possible.

Details

- 1) Your lab dollars will be converted to U.S. currency at a rate of 200 lab dollars equals \$1 U.S. currency.
- 2) This is the first of two different sequences in todays experiment. If you finish ahead of the others, please wait patiently for the start of the next sequence.

Any questions?

Sequence 2 Instructions. *[Read following the conclusion of the first 220 periods]*

Now we will begin a second sequence. Procedures in this second sequence are exactly like those in the first sequence. Again the market will last a large number of periods, each of which last 7 seconds. There will be four differences between the market in this second sequence from the market in the first sequence.

- 1) You will be in a different market, with a different set of sellers. There will be 1, 2 or 3 other sellers in your market. We did not reveal with whom you were grouped in the first sequence, and we will not reveal with whom you are grouped now. However, in general neither the size of the market, nor the market participants will be the same as in the first sequence.
- 2) Cost and buyer value conditions will be different in the second sequence than they were in the first sequence.
- 3) There will be no minimum price in this sequence.

Any Questions?

Appendix 2. The Calculation of Mean Expected Transaction Prices in the Power Treatments.

2p Treatment. In the $2p$ treatment sellers randomize according to the distribution $F_2(p)$ in equation (1) in the text. To calculate the expected mean transaction price sellers, identify the expected maximum and minimum price given two draws from $F_2(p)$, and then weight the minimum by $6/10$ and the maximum by $4/10$.

To calculate the expected minima and maximum, observe that price draws should make each outcome in $F_2(p)$ equally likely. Thus, solve the expression $F_2(p)$ for p and replace $F_2(p)$ with the first two order statistics a uniform distribution drawn over a unit interval given a sample of 2.

Solving (1) for p yields.

$$p = \frac{14 - 3F_2(p)}{3 - F_2(p)}. \quad (1A)$$

The first highest and lowest order statistics for the uniform distribution over the unit interval are $1/(n+1)$ and $n/(n+1)$, where n is the number of draws. Given $n=2$ the expected minimum and expected maximum become $1/3$ and $2/3$ respectively. Replacing of $1/3$ and $2/3$ in 1A yields 5.00 and 5.42, respectively. Thus the expected mean transaction price is

$$\bar{p}_{2T} = (4 \times 5.42 + 6 \times 5) / 10 = 5.17. \quad (2A)$$

3p Treatment. Reasoning similarly to the $2p$ treatment, solve equation (2) in the text for price, yields

$$p = \frac{8 - 3F_3(p)^2}{2 - F_3(p)^2}. \quad (3A)$$

Given a sample of three, the first, second and third order statistics for a unit uniform distribution are $3/4$, $1/2$ and $1/4$. Replacing $F_3(p)^2$ in (A2) with $9/16$, $1/4$ and $1/16$ yields expected maximum, median and minimum prices of 4.78, 4.29 and 4.06. Weighting these price by the sales quantities of being the highest, intermediate and lowest price seller yields

$$\bar{p}_{3T} = (2 \times 4.78 + 4 \times 4.29 + 4 \times 3.49) / 10 = 4.29. \quad (4A)$$

4p Treatment. Solving equation (3) in the text for price yields

$$p = \frac{10 - 4F_4(p)^3}{3 - 2F_4(p)^3} \quad (5A)$$

The four order statistics for a unit uniform distribution given a sample of 4 are $4/5$, $3/5$, $2/5$ and $1/5$. Replacing $F_4(p)^3$ in (A3) with $64/125$, $27/125$, $8/125$ and $1/125$ yields prices of 4.02, 3.56, 3.39 and 3.34. Weighting these price by the sales quantities of being the highest, 2nd highest, 3rd highest and lowest price seller yields

$$\bar{p}_{4T} = (1 \times 4.02 + 3 \times 3.56 + 3 \times 3.39 + 3 \times 3.34) / 10 = 3.49. \quad (6A)$$