

Lecture # 3 -- Supply and Demand Experiment

- Today's class consisted of a simulated market experiment. It included 4 rounds of a simulated market of buyers and sellers. Rounds 3 and 4 included a \$4 tax on either buyers or sellers. You can download the spreadsheet with the results of the experiment, along with the corresponding supply and demand diagrams, from the web site.

- Lessons from the simulated market:

1. Note the importance of perfect information. The predicted equilibrium price was between \$21 and \$22. In round 1, we had an average price of \$20.6. Most of the early sales were for \$20, so it wasn't until the end that sellers were able to hold out for \$21. In most years, prices fluctuate less in round 2 and move closer to equilibrium. That was not the case this year, as more sales went for under \$21 in round 2 than in round 1. Because of the lower price, the quantity sold was also a bit lower than expected.

I have also posted a spreadsheet with an example from 2019, which shows a more typical result where learning occurs. In this example, prices fluctuated between \$18 and \$26 at the start of round 1. But by the end of round 1 the price was already converging towards the predicted equilibrium price of \$22. Thus, in round 2 nearly all sales occurred for either \$21 or \$22.

2. Even though some people had low marginal costs or high valuations, they were able to wait and get a price close to the equilibrium. One or two students in each class had a marginal cost of \$0! Yet they still were able to sell our hypothetical good for over \$20. Even one buyer willing to spend over \$30 didn't force other buyers to do the same. In a competitive market, no one person is influential enough to influence the market price.
3. Note that the tax affects both buyers and sellers, even though only one side is legally responsible for it. For example, with a tax on buyers, consumers must consider how the quantity supplied changes (a movement along the supply curve) as they lower their bids. Similarly, with a tax on sellers, the sellers must account for how the quantity demanded changes (a movement along the demand curve) as they raise prices. For example, in round 3 the tax was on buyers. With a tax on buyers, the price offered was lower than the no-tax equilibrium. However, it did not fall by \$4. Rather, it was about \$2 less than the price in round 2. Since buyers had to pay a \$4 tax on top of that price, their total payments went up.

Also, note that the results do not change much whether the tax was charged to buyers and sellers. In round 4 the tax was on the sellers. As a

result, prices increased to cover the additional costs. The new price averaged around \$23 --- roughly \$2 higher than the prices observed in rounds 1 and 2. But, as with the tax on buyers, the price did not increase enough to cover the full cost of the tax. In both cases, buyers and sellers were each responsible for about \$2 of the \$4 tax. In fact, as we'll see soon, if we repeat this enough, the results between a tax on buyers and a tax on sellers shouldn't change at all.

4. Finally, at the end of class I discussed the concepts of consumer and producer surplus. We'll go over this more formally next week, but the basic intuition is that the difference between the demand curve and the price represents the extra value that consumers get (e.g. their net benefit), and the difference between the supply curve and price is the extra profit that producers get. These represent the extra value created by the marketplace.