

# Lecture 4: Markets, Prices and Demand

If you plan to stay in the course, and you haven't bought and registered your clicker and clicker subscription, do so this weekend. Follow the instructions on the course website.

## ***Clicker Question***

# Competition

- Competition is the driving force of any free-market economic system.
- The analysis of competition will occupy a major part of this course.
- Our analysis of competition will focus on selling and buying rather than on barter.
- And a very important feature of selling and buying is the determination of prices.

# Prices

- Prices are defined when *money* is used for selling and buying.
- The *price* of a good is the amount of money exchanged for one unit of the good.
- Prices are useful, because they allow people to compare the opportunity costs of different goods.

## Prices Under Barter?

- Prices are not clearly defined in a barter system.
- Barter **does** define an exchange ratio for each pair of goods.
- **Example:** “I’ll give you 12 tons of bananas...  
...in exchange for your Stradivarius violin.”

But those exchange ratios are not useful for measuring opportunity cost.

## Perfect Competition

- The phrase “perfect competition” describes a **special type** of market, one with many buyers and many sellers (and other properties).
- A perfectly-competitive market represents an extreme case that doesn’t exist in the real world.
- Perfect competition is a **model**—a part of the more general free-market model.
- The *perfect-competition model* is a good description of some real markets,...
- ...but many other real markets are different.

# Markets with Perfect Competition

## Characteristics of the Model

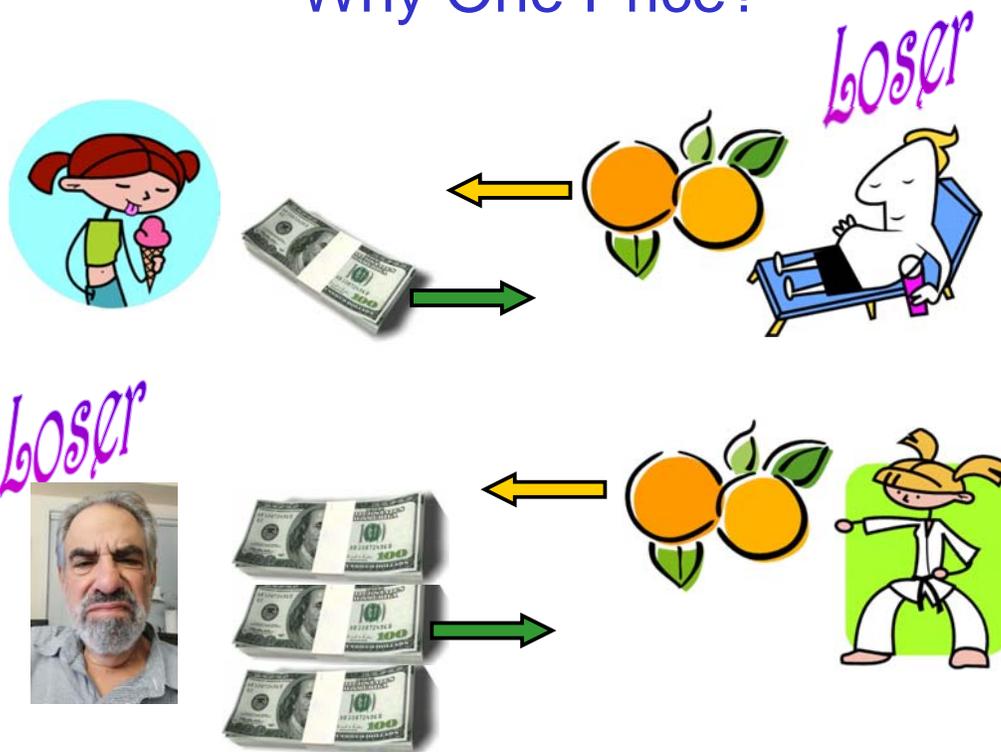
- One homogeneous good
- Many sellers and buyers
- Voluntary exchange
- Full information and perfect foresight
- Rational, self-interested agents
- Free entry to the market  
*[used later in the course]*

## “Law” of One Price

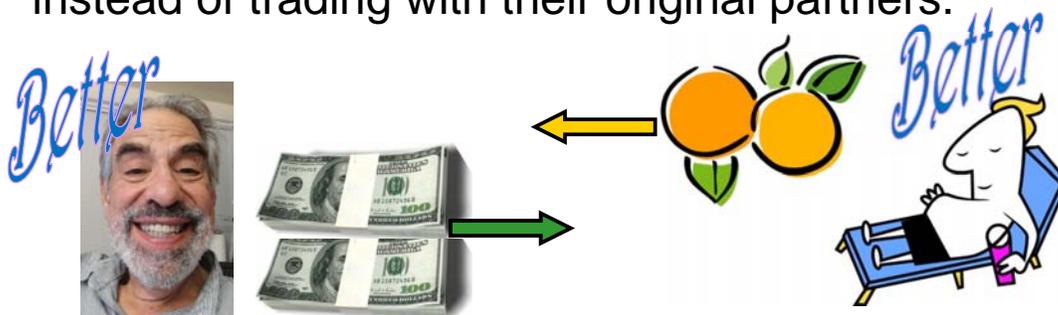
At any given time ***in a perfectly competitive market, identical goods*** must have the same price.

- The law makes sense because...  
*Under perfect competition, transactions at two or more prices would not be completed.*
- So suppose two transactions are in progress at two different prices.
- What would happen?

## Why One Price?



- The losers know who they are before they make the exchange (*full information*).
- They want to do better (*rational self-interest*).
- The losers think about trading with each other instead of trading with their original partners.



- So the losers decide to block the original transactions, and do something better.
- The original proposed exchanges at two different prices cannot go through!

# Arbitrage

- Suppose that
  - Kenny is ready to buy from Marc for \$1, and...
  - Kevin is ready to buy from Stefania for \$3.
  - And suppose that neither Marc nor Kevin knows that he is a **“loser.”**
  
- Then Alberto (a shrewd businessman) could
  - offer to buy from Marc for \$1.50,...
  - and sell to Kevin for \$2.50.
  - Marc and Kevin would be happy,...
  - and Alberto would earn a tidy profit of \$1.

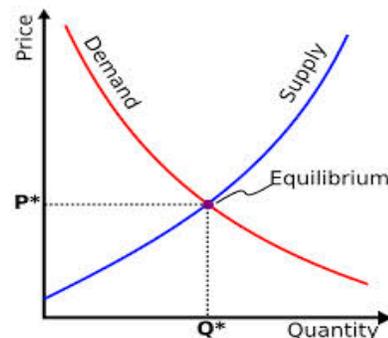
- Alberto is an **“arbitrageur.”**
  
- He takes advantage of price differences in the same product to “buy low and sell high.”
  
  
- In markets that are not perfectly competitive, arbitrageurs bring prices closer together,...
  
- ...and extend the reach of the “law of one price.”
  
- Arbitrage is very common in financial markets.
  - Arbitrageurs are “important players,” ...
  - spending millions of dollars to take advantage of tiny price differences.

# Supply and Demand

- We've discussed **voluntary exchange** in the free-market model.
- We've discussed when people would exchange goods (or sell and buy),...
- ...but we haven't analyzed *the quantity* they would sell or buy.

- The law of one price, tells us that a competitive market has only one price,...
- but it doesn't tell us what *the price will be!*
- To predict **prices and quantities**, we need to study **supply and demand**...

- for individuals,
- and then for the entire market.



## How can economists predict **prices** and **quantities** bought and sold?

- Suppose there are a hundred consumers who want to buy milk,...
- and a hundred farmers who want to sell milk.
- And suppose they are going into a large room to bargain over prices and quantities to be bought and sold.

(Imagine that the farmers will go home and produce the milk **after** they reach agreement with the consumers.)

- You, the economist, want to **predict** what **quantities** will be traded and what the **price** will be.
- You have an opportunity to interview each buyer and each seller, one at a time.
- What questions should you ask?

# Interviewing Buyers

- Suppose you are interviewing a buyer named Emily.
  
- You should pose the following questions:
  - “Emily, suppose you could buy milk for **\$1.20** a quart. How much milk would you want to buy?

- “Now, suppose you could buy milk for **\$1.00** a quart. *If nothing else had changed*, how much milk would you want to buy in that case?
  - ....
  - Suppose you could buy milk for **\$.20** a quart. How much would you want to buy?
- You should pose the same question for all reasonable prices.
  
  - Keep in mind that all of these questions are ***hypothetical***,...
    - because you are asking people what they ***would*** do at different possible prices,...
    - but they don't know what the price will be.

## Interviewing Sellers

- Suppose you are interviewing a seller named Farmer Jones.
  
- You should pose the following questions:
  - “Farmer Jones, suppose you could sell milk for **\$.20** per quart. How much milk would you want to sell?

- “Now, suppose you could sell milk for **\$.40** a quart. *If nothing else had changed*, how much milk would you want to sell in that case?
  - ....
  - Suppose you could sell milk for **\$1.20** a quart. How much would you want to sell?
- You should pose the same question for all reasonable prices.
  
  - Again, all of these questions are *hypothetical* (about what people **would** do at various possible prices).

## Using the Information

- The information you get from buyers is called ***demand***.
- The information you get from sellers is called ***supply***.
- If you have the demand information from all buyers and the supply information from all sellers, then you can predict:
  - the ***price that will be set*** when the bargaining ends, and
  - the ***quantities that each person will buy or sell*** after the price is agreed to.
- In this part of the course, we explain how and why.

## ***Clicker Question***

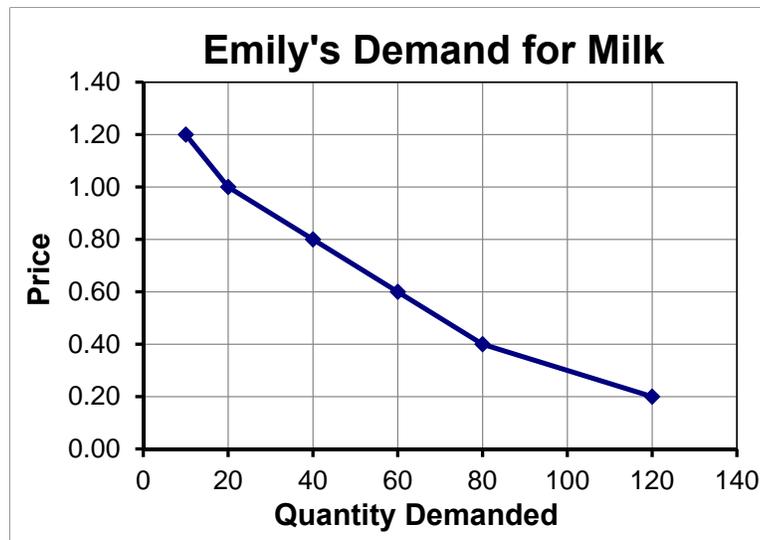
# The Demand Schedule

- The demand schedule specifies how much of a good a person is willing to buy at various prices (with other things staying the same).
- **Example:** Emily's Demand for Milk

Price (\$)	Quantity (Qts/mo)
1.20	10
1.00	20
0.80	40
0.60	60
0.40	80
0.20	120

## Emily's Demand Curve for Milk

P	Q
0.20	120
0.40	80
0.60	60
0.80	40
1.00	20
1.20	10



- Notice that unlike ordinary graphs, the demand curve has the **independent variable** on vertical axis and the **dependent variable** on the horizontal axis.

# Clicker Question

■ Emily's demand curve is *downward* sloping:



- At a high price, she will want to buy a small quantity of milk.
- But if she faces a lower price, she will want to buy more milk.
- Why???

## Why does Emily's demand curve slope downwards?

- Why does Emily demand more milk at lower prices?
- If she likes milk, why doesn't she buy the same amount at all reasonable prices?
- *Answer:* Because lower prices justify putting milk to less and less important uses:
  - At \$0.90 per quart, she would drink two glasses a day.
  - At \$0.50, she would feed milk to her kittens.
  - ....
  - At \$0.10, she would bathe in milk, because milk is great for the complexion (she says 😊)!

## Milk Production in the US

- In July, 2015, the US farm price of milk averaged about **35 cents/quart**, (about  $\frac{1}{3}$  of the supermarket price)
- and total milk production in July was about **8,300,000,000** quarts (liters).
- But quantities and prices vary over time.
  - Prices were 50% higher the year before!
- Economists use supply and demand analysis to predict future quantities and prices.

# *Clicker Question*

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