

ECO 182: Summer 2015 Market I

Bibaswan Chatterjee

July 27, 2015

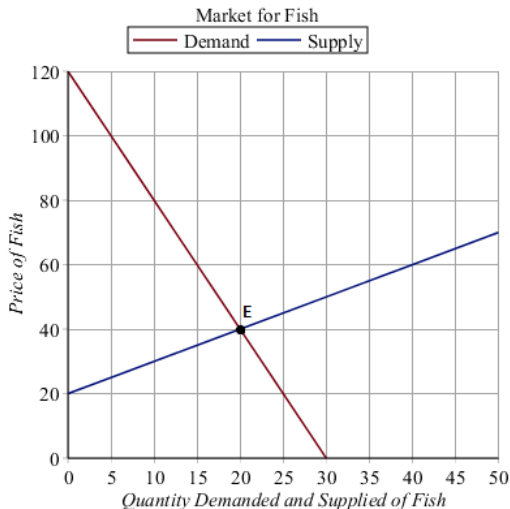
Arbitrage

- ▶ Buying and selling of goods and services is called trading.
- ▶ Arbitrage: Leads to consumers and producers gaining from trade.
- ▶ If people couldn't gain from trade they would buy nothing, sell nothing.
- ▶ The institution where people trade is a market.
- ▶ A market is not a structure. It is anyplace, anytime, whenever there is a trade.
- ▶ The sheer number of goods and services traded in this world is staggering. We will look at some very typical forms of trading.

Market Equilibrium

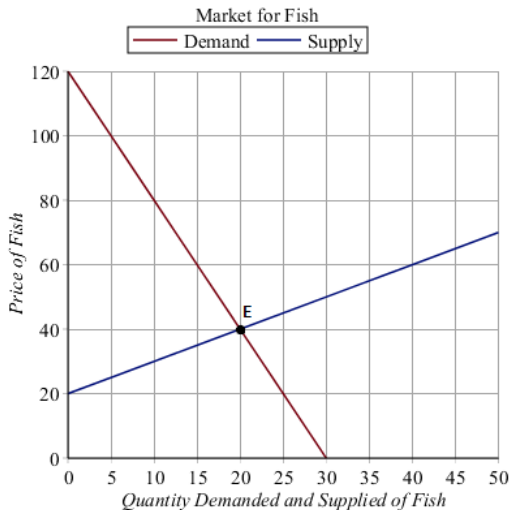
- ▶ It is important to look at Demand and Supply together to understand how the market behaves.
- ▶ Say the good that we are talking about is fish(say salmon). We consider linear demand and supply curves.
- ▶ The demand for this fish is described by the following inverse demand curve: $P_d = 120 - 4Q_d$
- ▶ The supply of this fish is described by the following supply curve: $P_s = 20 + Q_s$
- ▶ P_d is the demand price, also known as the Buyer's Price. It is the maximum price (MWP) you, as a buyer, are willing to pay for a particular amount of output.
- ▶ P_s is the supply price, also known as the Seller's Price. It is the minimum price, a seller is willing to accept for a particular amount of supply.

Market Equilibrium: Graph



- ▶ Point E denotes the market equilibrium. At this point demand and supply matches, equilibrium price and quantity for trade are set.
- ▶ \$40 is the *market clearing* or *equilibrium* or *trading price*. You can write it as $P_e = \$40$ per unit of fish .

Market Equilibrium: Graph continued...



- ▶ At 20 units of fish, the Quantity demanded is exactly equal to the quantity supplied. Why? Because 20 units of fish and \$40 per fish satisfies both the demand and the supply curves. (check for yourself!)
- ▶ We call 20 units of fish the quantity traded (Q_T). So at 20 units of fish, we have $Q_d = Q_s = Q_T$.
- ▶ Remember, E is the equilibrium. P_e and Q_T are the equilibrium price and quantity traded.

Excess

- ▶ For a price above P_e , the quantity supplied is more than quantity demanded. This is called Excess Supply. Typically producers are willing to sell at a lower price, and the price falls to P_e till $Q_d = Q_s$.
- ▶ For a price below P_e , the quantity supplied is less than quantity demanded. This is called Excess Demand. Typically consumers are willing to buy at a higher price, and the price rises to P_e till $Q_d = Q_s$.
- ▶ Excess Demand and Supply lead to price and quantity adjustments *along* the curves.
- ▶ It is typically difficult to sustain an equilibrium with Excess Demand or Supply. Unless there are restrictions on the market, the market comes back to P_e and Q_T .

Shifts in demand and supply

- ▶ The way demand and supply curves shift, follows the discussions in the relevant notes.
- ▶ Shift of the curve is called shift/change in demand(or supply). Movement along the curve is change in quantity demanded(or supplied).
- ▶ Shifts in demand and/or supply leads to changes in the equilibrium price and/or the quantity.
- ▶ We will consider positive(rise) and negative(fall) shifts or changes in demand and supply.
- ▶ One important cause behind a shift in demand and supply in a market is an event in some other market. This is a very typical and important phenomenon in economics. We will look at this later.

Equilibrium Price and Quantity after shift

(+) refers to a rise, (-) refers to a fall.

(?) refers to an ambiguous change. Just by shifting curves, we can't say if it is a rise or a fall; we need numerical data to be sure.

DEMAND	SUPPLY	P_e	Q_T
NO CHANGE	+	-	+
NO CHANGE	-	+	-
+	NO CHANGE	+	+
-	NO CHANGE	-	-
+	+	?	+
+	-	+	?
-	+	-	?
-	-	?	-

Types of Market

- ▶ Markets are classified according to what is sold, number of buyers and sellers, and their behavior. Understand this, a market is defined for a combination of goods/services. So while there might be some interaction between the markets for pasta and tomatoes, the market for pasta has buyers and sellers who might be very different in *behavior* from those in the market for tomatoes.
- ▶ Behavior in this context is related to how somebody demands a good, or how somebody supplies a good.
- ▶ We are, of course, going to assume that all participants in a market are rational economic agents.
- ▶ The behavior of the agents determine how much of power they have in the market to control the prices...and that leads to our classifications.

Types of Market: Continued ...

1. **Perfect Competition:** Many buyers, many sellers
2. **Monopoly :** Single seller
3. **Monopsony :** Single Buyer
4. **Monopolistic Competition :** Many monopolists, each selling an unique but almost similar product.
5. **Oligopoly :** Small number of sellers who dominate a market.

Many buyers, many sellers

- ▶ Many here means enough number of agents, such that no one can manipulate or set prices.
- ▶ You will see later, PC is called the most efficient market system.
- ▶ Sadly, PC is very, very hard to find in real life.
- ▶ Firms compete with other firms(many of them) to sell their goods.
- ▶ Goods that are sold by each firm, are absolutely the same. So fish sold by Mr. Poseidon is the same as the fish sold by Mr. Neptune.
- ▶ Because there are enough number of buyers for the product, no single buyer can bargain for a lower price than what the supplier wants to sell for...because there is always another person who will buy instead.

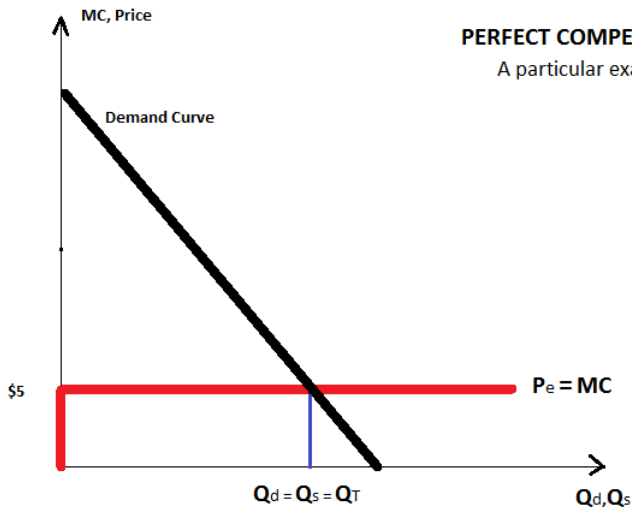
Perfect Competition: Example

Farmer's market: You have a bunch of farmers each selling potatoes. They will typically sell the same type of potatoes for the same price per lb. If one farmer sells at a higher price, no one buys from him, so he doesn't do that. If one farmer sells at a lower price, everybody buys from him till his supply is over, so all farmers try and match his price. If all farmers produce potatoes the same way, they can always match the lower price. As a buyer, if you want to bargain for a price that is lower than what you are offered, the farmer won't lower prices: there is always another person willing to buy instead of you.

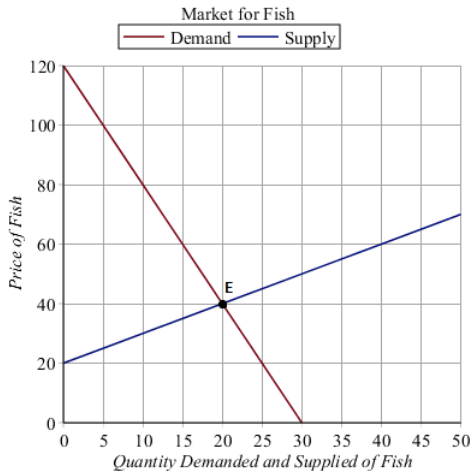
Pricing rule: Perfect Competition

- ▶ Every producer ends up competing with each other. Since everyone will try to capture the market, they try to undercut each other in prices leading to everyone charging no more than their MC.
- ▶ The collection of producers selling the same item would be the *industry*. For example, consider the industry for printing paper in the world. Typically the paper quality is almost similar and MC is the same for all firms.
- ▶ Since no one can affect the price, at equilibrium, the pricing rule is: $P = MC$.
- ▶ If the equilibrium price is below the MC, the supply of the producers is zero. If the equilibrium price is equal to MC, then each seller supplies the amount demanded at that price.

A particular example of PC: Constant MC



A particular example of PC: Rising MC



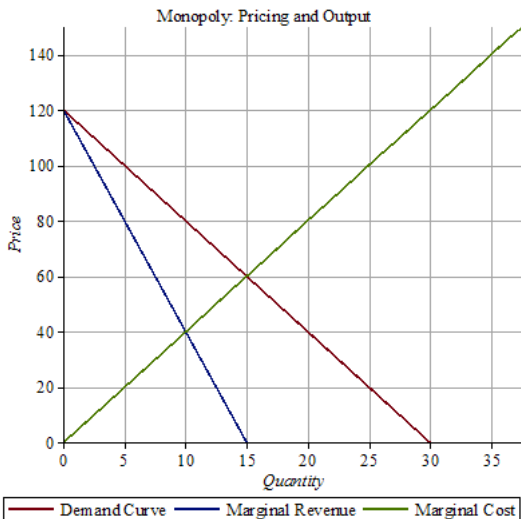
Market Power

- ▶ How does a firm/seller get market power?
- ▶ The easiest way, in a sense would be to have the sole right to sell something.
- ▶ In that case, you, and only you can choose how much to sell and consequently, what price to charge for your product.
- ▶ A monopolist has the sole right or a patent to sell the good in the market.
- ▶ Now it can charge the highest price it wants,
- ▶ The monopolist knows about the demand curve in the market...thus can always figure out the MWP in the market.
- ▶ The extra that a monopolist charges, over and above the marginal cost, is a markup. So if the $MC = \$2$, and $P_{Monopolist} = 4$, markup = 100%.

Pricing Strategy

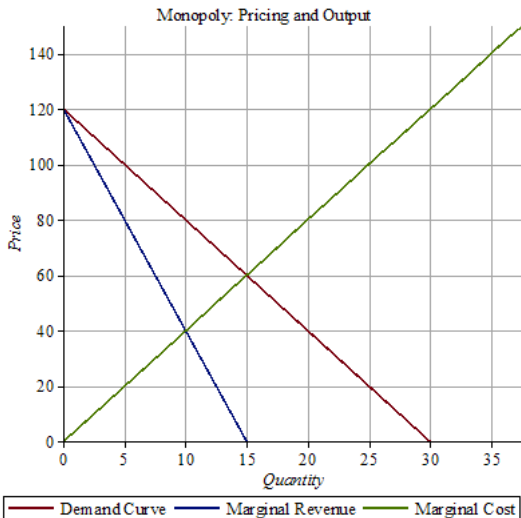
- ▶ The monopolist is a profit maximizer like any firm.
- ▶ Doesn't have to deal with a given price from the market.
- ▶ In fact, a monopolist sets the market price.
- ▶ Since it knows MWP for every output level, it can even try to sell each unit for the corresponding MWP!
 1. The Monopolist first identifies the level of output which maximizes its profit(Q_M).
 2. At *that* level of output, it calculates the MWP of the consumer from his/her demand curve.
 3. And that is the price the monopolist charges(P_M).
- ▶ Identify Q_M : That output where $MR = MC$. Equilibrium Quantity which gives the equilibrium monopolist price.

Monopolist Graph



- ▶ The Π maximizing quantity is 10 units = Q_M .
- ▶ 10 units of quantity is traded ($Q_T = Q_M$).
- ▶ The monopolist's price is $\$80 = P_M$. Remember, the price is read off the demand curve once you have the quantity.
- ▶ Intersection of the MR and MC lines give the market equilibrium.

More about the Monopolist Graph

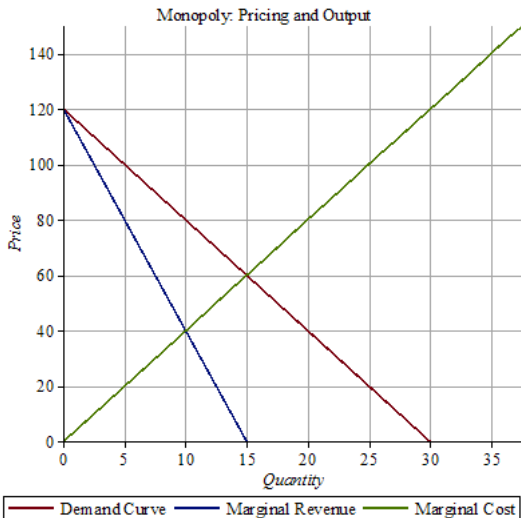


- ▶ The slope of MR is twice the slope of linear Demand curve.
- ▶ The point where MR cuts the horizontal axis is mid-point of the distance between the origin and where Demand curve meets the horizontal axis. (Only for linear cases)
- ▶ The monopolist operates **only** in the relatively elastic portion of the demand curve (Absolute value of PED > 1).

Some Monopoly results

- ▶ **Lerner Pricing Rule:** $\frac{P-MC}{P} = \frac{1}{\text{absolute Own PED}}$
- ▶ Lerner formula above is the same as $MR = MC$ pricing rule.
- ▶ The term on the left is the markup relative to price. Higher PED, means lower Markup and lower market power.
- ▶ If Demand curve is $P_d = 120 - 4Q_d$, the MR curve is $P_d = 120 - 4 * (2)Q_d$.
- ▶ Monopolist has no supply curve.
- ▶ Monopolist Price $>$ PC equilibrium price. Monopolist quantity supplied $<$ PC quantity traded.

Monopoly vs PC: Graph



▶ If this market had PC, then the MC curve would act as the supply curve.

▶ $Q_T^{PC} = 15, P_e^{PC} = 60$.

▶ Because of the monopolist this market trades in a lower quantity and at a higher price.

▶ So, is this good for the consumer? Probably not. So if you remove monopoly, everybody should be happier right? Producer too?

▶ How do you measure who will be better or worse off?