MIAMI HERBERT BUSINESS SCHOOL

ECO212 Principles of Macroeconomics

Chapter 4

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Overview

1. Market

2. How do buyers behave?

3. How do sellers behave?

Market

Markets

A market is a group of economic agents who are trading a good or service and the rules and arrangements for trading

Market can be invisible or visible:

Markets

What is important in the market? - equilibrium

- All markets are places where exchanges occur voluntarily at flexible prices.
- How markets use prices to allocate goods and services.

Markets - Competitive market

Perfectly competitive market:

- Sellers all sell an identical good or service.
- Any individual buyer or any individual seller isn't powerful enough on his or her own to affect the market price.

Markets - Competitive market

Price taker:

A price taker is a buyer or seller who accepts the market price - buyers can't bargain for a lower price and sellers can't bargain for a higher price.

Competitive market in real life:

- Many gas stations are located nearby.
- Sellers have nearly identical goods, and most market participants face lots of competition.

When two gas stations are located at the same intersection, their prices tend to be very close, and sometimes are exactly the same.

Markets - Other types of markets

Besides competitive market, there are:

- **Monopoly**
- **Monopsony**
- **Duopoly**
- **Oligopoly**
- **Oligopsony**

Markets - HHI index (not in exam)

Herfindahl-Hirschman Index (HHI) shows the degree of monopoly in a market.

$$HHI = (\text{Firm A Market Share})^2 + (\text{Firm B Market Share})^2 + ... + (\text{Firm X Market Share})^2$$

$$\text{Firm's Market Share} = \frac{\text{Firm's Revenue}}{\text{Industry Total Revenue}} \times 100$$

- The larger HHI, the less competitive the market is.
- The maximum (monopoly) condition of this index is 10000.

Markets - HHI index (not in exam)

Supplier	Quantity Supplied	Total Revenue
Top Notch Monkeys	400	$52,000
Mr. Monkey's Monkeys	65	$8,000
Discount Monkeys	850	$30,000
(Five other suppliers with equal supply/revenue)	20	$2,000

- $HHI < 1500$ not concentrated
- $1500 < HHI < 2500$ moderately concentrated
- $2500 < HHI$ highly concentrated

Markets - HHI index (not in exam)

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Steps to evaluate the degree of monopoly:

- **Total revenue:** $52000 + 8000 + 30000 + 5 \times 2000$
- **Market share:** $\frac{\text{Firm's Revenue}}{\text{Total Revenue}}$
  $0.52, 0.08, 0.3, 0.02$
- **HHI index:** $HHI = 52^2 + 8^2 + 30^2 + 5 \times 2^2 = 3688$

Markets - Market concentration

Examples of Market

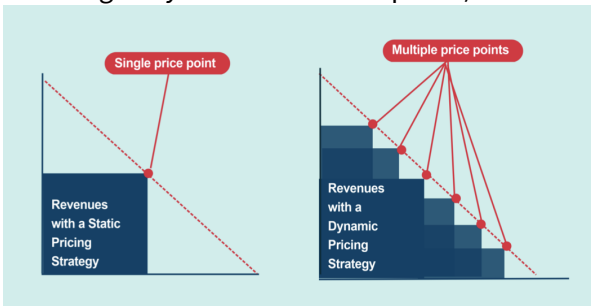
- Monopoly - Electricity (FPL in Miami)
  feature: restricted by some policy, have to achieve a return on the scale (very high cost to run the business).
- Oligopoly - Covid Vaccine (Pfizer, Moderna, JJ).
  feature: Some resource or technique barrier
- Perfect competition - food trucks, groceries.
  Nearly no barrier, identical goods, or substitutions.

Market - Price discrimination

When the power is in the hands of sellers, they will extract the consumer surplus from buyers.

A general idea of price discrimination:

Seller (in monopoly can charge buyers with different prices).



Market - Price discrimination

Three degrees of price discrimination - First-Degree Price Discrimination
it is the personalized pricing or perfect price discrimination.

- Fine art pricing.
- case-by-case pricing such as interior designer, lawyer...

Market - Price discrimination

Three degrees of price discrimination - Second-Degree Price Discrimination companies price products or services differently based on the preferences of various groups of consumers.

- Loyalty card at BJ's, Costco.
- Buy-two-get-one offers
- Coupons for bulk purchase.
- Discount applied when a certain amount of purchase is made.

Market - Price discrimination

Three degrees of price discrimination - Third-Degree Price Discrimination
companies price products and services differently based on the unique demographics of subsets of their consumer base, such as students, military personnel, or older adults.

- Student discount.

Market - Price discrimination

Where can we find price discrimination in macroeconomics?

- Heterogeneous households
- international trade - we can find tariffs as price discrimination.

How do buyers behave?

Demand

Quantity demanded: **At a given price, the amount of the good or service that buyers are willing to purchase is called the quantity demanded.**

Demand schedule: **A table that reports the quantity demanded at different prices, holding all else equal.**

Market Demand Schedule	
Price ($)	Quantity Demanded (units)
5.00	610
10.00	460
15.00	350
20.00	270
25.00	220
30.00	180
35.00	150

WallStreetMojo

Demand

Comment - holding all else equal: implies that everything else in the economy is held constant.

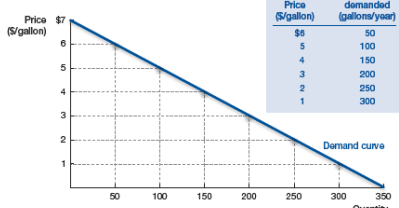
draw the demand curve: Plots the quantity demanded at different prices. Plots the demand schedule.

Exhibit 4.1 Chloe's Demand Schedule and Demand Curve for Gasoline

The lower the price of gasoline, the more gasoline that Chloe chooses to buy. In other words, her quantity demanded increases as the price of gasoline decreases. Demand curves are downward-sloping—the height of the curve falls as we move from left to right along the horizontal axis.

Demand Schedule

Price ($/gallon)	Quantity demanded (gallons/year)
$6	50
5	100
4	150
3	200
2	250
1	300



Demand

Law of demand:
The quantity demanded is negatively related with the price (holding all else equal).

Willingness to pay: is the highest price that a buyer is willing to pay for an extra unit of good.

Diminishing marginal benefit: As you consume more of a good, your willingness to pay for an additional unit declines

Violate the law - addicted goods

Demand

Example of diminishing marginal benefit:

Jenny likes chocolates. One day, a friend offers her a chocolate bar and she is extremely happy on receiving it. As the day progresses, many other people also buy her chocolate. As she gets more and more chocolates, her excitement on receiving each bar is seen to gradually lessen.

Demand

Market demand curve: The sum of the individual demand curves of all the potential buyers.

Exhibit 4.2 Aggregation of Demand Schedules and Demand Curves

Demand schedules are aggregated by summing the quantity demanded at each price on the individual demand schedules. Likewise, demand curves are aggregated by summing the quantity demanded at each price on the individual demand curves.

Sue's Demand Schedule

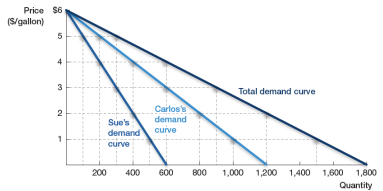
Price ($/gallon)	Quantity demanded (gallons/year)
$5	100
4	200
3	300
2	400
1	500

Carlos's Demand Schedule

Price ($/gallon)	Quantity demanded (gallons/year)
$5	200
4	400
3	600
2	800
1	1,000

Total Demand Schedule

Price ($/gallon)	Quantity demanded (gallons/year)
$5	300
4	600
3	900
2	1,200
1	1,500

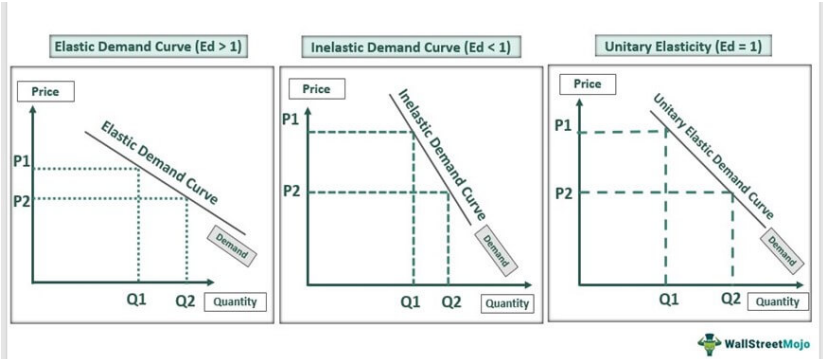


Demand Elasticity

For different market, the elasticity of demand might be different.

Formula for elasticity:

$$e_{(p)} = \frac{dQ/Q}{dP/P}$$



Demand

Shifting the demand curve:

Only when the quantity demanded changes at **all** given price.

Exogenous shock: the demand curve shifts when these five major factors change

- Tastes and preferences
- income and wealth
- Availability and prices of related goods
- Number and scale of buyers
- Buyers' beliefs about the future

Moving along the demand curve:

Only when the quantity demanded changes at **a** given price.

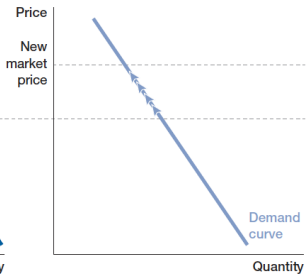
Endogenous (price) shock: The price of the good changed.
If a good's price changes and its demand curve hasn't shifted, the own price change moves along the demand curve.

Demand

Exhibit 4.4 Shifts of the Demand Curve vs. Movement Along the Demand Curve

Many factors other than a good's price affect the quantity demanded. If a change in these factors reduces the quantity demanded at a given price, then the demand curve shifts left (panel (a)). If a change in these factors increases the quantity demanded at a given price, then the demand curve shifts right (panel (a)). On the other hand, if only the good's own price changes, then the demand curve does not shift and we move along the demand curve (panel (b)).

(a) Left and right shifts of the demand curve



(b) Movement along the demand curve

Shifting the demand

Income effect:

- **What happens to normal goods?**
- **What happens to inferior goods?**

Substitution effect:

- **What happens to substitutes?**
- **What happens to complements?**

How do sellers behave?

Supply

Quantity supplied:

At a given price, the amount of the good or service that sellers are willing to supply is called quantity supplied.

⋆ Only those firms that earn a positive profit will enter the market.

Drilling from offshore platforms above the Arctic Circle is not profitable unless the price of oil exceeds $80 per barrel. At the other extreme, oil from the deserts of Saudi Arabia costs less than $20 per barrel to extract.

Supply

Supply schedule:

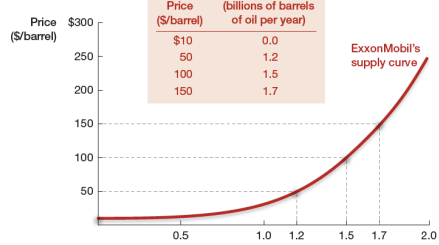
A supply schedule is a table that reports the quantity supplied at different prices, holding all else equal.

Exhibit 4.6 ExxonMobil's Supply Schedule for Oil and Supply Curve for Oil

The quantity supplied rises with the price of oil, so quantity supplied and price are positively related. Equivalently, we could say that the supply curve is upward-sloping—the height of the curve rises as we move from left to right along the horizontal axis.

ExxonMobil's Supply Schedule

Price ($/barrel)	Quantity supplied (billions of barrels of oil per year)
$10	0.0
50	1.2
100	1.5
150	1.7



Supply

Willingness to accept:

Willingness to accept is the lowest price that seller is willing to get paid to sell an extra unit of a good.

This is the same as the marginal cost of production.

$$MB = MC \tag{1}$$

Law of supply:

In almost all cases, the quantity supplied rises when the price rises (holding all else equal).

Related knowledge

Ask - the price sellers want to sell at.

On eBay, for example, a seller can specify a "reserve price" for an item, which is a secret minimum bid she will accept when selling the object. This “reservation price also shows the willingness to accept.

In general, a seller’s W2A will equal her opportunity cost of selling the object.

Supply

Aggregate supply curve:

Shifting the supply curve:

Only when the quantity supplied changes at **all** given price.

Exogenous shock: the supply curve shifts when these four major factors change

- Prices of inputs used to produce the good
- Technology used to produce the good
- Number and scale of sellers
- Sellers' beliefs about the future

Moving along the supply curve:

Only when the quantity supplied changes at **a** given price.

Endogenous (price) shock: Only the price of the good changed.

Supply

Aggregate supply curve:

Exhibit 4.7
Aggregation of Supply Schedules and Supply Curves

To calculate the total quantity supplied at a particular price, add up the quantity supplied by each supplier at that price. Repeat this for each price to derive the total supply curve.

Chevron's Supply Schedule

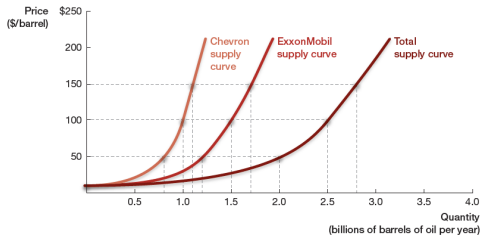
Price ($/barrel)	Quantity supplied (billions of barrels of oil per year)
$10	0.0
50	0.8
100	1.0
150	1.1

ExxonMobil's Supply Schedule

Price ($/barrel)	Quantity supplied (billions of barrels of oil per year)
$10	0.0
50	1.2
100	1.5
150	1.7

Total Supply Schedule

Price ($/barrel)	Quantity supplied (billions of barrels of oil per year)
$10	0.0
50	2.0
100	2.5
150	2.8

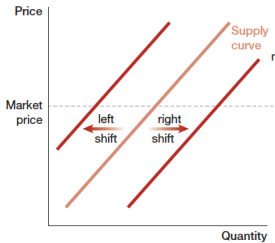


Supply

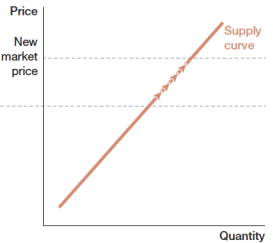
Shift supply curve:

Exhibit 4.9 Shifts of the Supply Curve vs. Movement Along the Supply Curve

Many factors other than a good's price affect the quantity supplied. If a change in these factors decreases the quantity supplied at a given price, then the supply curve shifts left (panel (a)). If a change in these factors increases the quantity supplied at a given price, then the supply curve shifts right (panel (a)). On the other hand, if only the good's own price changes, then the supply curve does not shift and we move along the supply curve (panel (b)).



(a) Left and right shifts of the supply curve



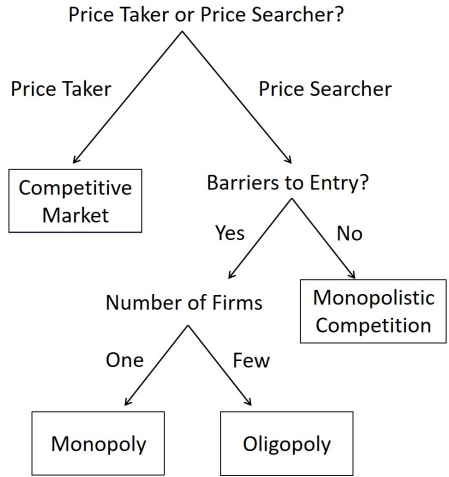
(b) Movement along the supply curve

Supply

How do firms enter the market?

Firms only have the incentive to participate if it is profitable. (Benefit-cost)

All types of markets in regards to entering:



Practice for supply

Under the perfect competition market, sellers only need to decide how much to produce.

The objective function:

$$\text{Profit} = \text{Total Revenue} - \text{Total Cost}$$

$$= P \times Q^* - MC \times Q^* = Q^*(P - MC)$$

Return to scale: