Factors Affecting Demand

Even though the focus in economics is on the relationship between the price of a product and how much consumers are willing and able to buy, it is important to examine all of the factors that affect the demand for a good or service.

These factors include:

Price of the Product

There is an inverse (negative) relationship between the price of a product and the amount of that product consumers are willing and able to buy. Consumers want to buy more of a product at a low price and less of a product at a high price. This inverse relationship between price and the amount consumers are willing and able to buy is often referred to as **The Law of Demand**.

The Consumer's Income

The effect that income has on the amount of a product that consumers are willing and able to buy depends on the type of good we're talking about. For most goods, there is a positive (direct) relationship between a consumer's income and the amount of the good that one is willing and able to buy. In other words, for these goods when income rises the demand for the product will increase; when income falls, the demand for the product will decrease. We call these types of goods **normal goods**.

However, for some goods the effect of a change in income is the reverse. For example, think about a low-quality (high fat-content) ground beef. You might buy this while you are a student, because it is inexpensive relative to other types of meat. But if your income increases enough, you might decide to stop buying this type of meat and instead buy leaner cuts of ground beef, or even give up ground beef entirely in favor of beef tenderloin. If this were the case (that as your income went up, you were willing to buy less high-fat ground beef), there would be an inverse relationship between your income and your demand for this type of meat. We call this type of good an **inferior good**. There are two important things to keep in mind about inferior goods. They are not necessarily low-quality goods. The term inferior (as we use it in

economics) just means that there is an inverse relationship between one's income and the demand for that good. Also, whether a good is normal or inferior may be different from person to person. A product may be a normal good for you, but an inferior good for another person.

The Price of Related Goods

As with income, the effect that this has on the amount that one is willing and able to buy depends on the type of good we're talking about. Think about two goods that are typically consumed together. For example, bagels and cream cheese. We call these types of goods **compliments**. If the price of a bagel goes up, the Law of Demand tells us that we will be willing/able to buy fewer bagels. But if we want fewer bagels, we will also want to use less cream cheese (since we typically use them together). Therefore, an increase in the price of bagels means we want to purchase less cream cheese. We can summarize this by saying that when two goods are complements, there is an inverse relationship between the price of one good and the demand for the other good.

On the other hand, some goods are considered to be substitutes for one another: you don't consume both of them together, but instead choose to consume one or the other. For example, for some people Coke and Pepsi are substitutes (as with inferior goods, what is a substitute good for one person may not be a substitute for another person). If the price of Coke increases, this may make Pepsi relatively more attractive. The Law of Demand tells us that fewer people will buy Coke; some of these people may decide to switch to Pepsi instead, therefore increasing the amount of Pepsi that people are willing and able to buy. We summarize this by saying that when two goods are substitutes, there is a positive relationship between the price of one good and the demand for the other good.

The Tastes and Preferences of Consumers

This is a less tangible item that still can have a big impact on demand. There are all kinds of things that can change one's tastes or preferences that cause people to want to buy more or less of a product. For example, if a celebrity endorses a new product, this may increase the demand for a product. On the other hand, if a new health study comes out saying something is bad for your

health, this may decrease the demand for the product. Another example is that a person may have a higher demand for an umbrella on a rainy day than on a sunny day.

The Consumer's Expectations

It doesn't just matter what is currently going on - one's expectations for the future can also affect how much of a product one is willing and able to buy. For example, if you hear that Apple will soon introduce a new iPod that has more memory and longer battery life, you (and other consumers) may decide to wait to buy an iPod until the new product comes out. When people decide to wait, they are decreasing the current demand for iPods because of what they expect to happen in the future. Similarly, if you expect the price of gasoline to go up tomorrow, you may fill up your car with gas now. So your demand for gas today increased because of what you expect to happen tomorrow. This is similar to what happened after Huricane Katrina hit in the fall of 2005. Rumors started that gas stations would run out of gas. As a result, many consumers decided to fill up their cars (and gas cans), leading to long lines and a big increase in the demand for gas. This was all based on the expectation of what would happen.

The Number of Consumers in the Market

As more or fewer consumers enter the market this has a direct effect on the amount of a product that consumers (in general) are willing and able to buy. For example, a pizza shop located near a University will have more demand and thus higher sales during the fall and spring semesters. In the summers, when less students are taking classes, the demand for their product will decrease because the number of consumers in the area has significantly decreased.

Factors Affecting Supply

The Price of Inputs

In addition to the price of the product being the main factor as stated in the Law of Supply, the price of production inputs also plays a part. The lowest price at which a firm can sell a good

without losing money is the amount of money that it costs to produce it. Producing a good or service involves taking inputs and applying a process to them to produce an output. The output is the finished good or service, and inputs are raw materials, labor, utilities, liscensing fees, or even other goods. These inputs are also known as factors of production. If the price of inputs goes up, the cost of producing the good increases. And therefore at each price producers need to sell their good for more money. So an increase in the price of inputs leads to a decrease in supply. Simarly, a decrease in the price of inputs leads to an increase in supply.

The Current State of Production Technology

Production of a good involves taking inputs, applying a process to them, and producing an output. Well, production technology is involved in the process part. Increases in the level of production technology can make that process more efficient. For example, imagine that you run a basic T-Shirt screen printing business out of your home. Now lets say you decide to invest in a workshop installed with the latest production technology. With this use of technology, the operation becomes more efficient and you are able increase the supply of T-shirts. If you decide to expand even further, some added technological improvements might be warranted. This further increases your ability to supply t-shirts since it reduces your labor costs. By automating the process, reliance upon labor is lessened and those resources are released for utilization elsewhere.

The Producer's Expectations

It doesn't just matter what is currently going on - one's expectations can also affect how much of a product one is willing and able to sell. For example, if your firm produces mp3 players and you hear that Apple will soon introduce a new iPod that has more memory and longer battery life, you (and other producers) may decide to hurry up and sell your players to stores before the new iPod comes out. When people decide to increase production/sales today, they are increasing the current supply for mp3 players because of what they EXPECT to happen in the future.

The Number of Producers in the Market

As more or fewer producers enter the market this has a direct effect on the amount of a product that producers (in general) are willing and able to sell. More competition usually means a reduction in supply, while less competition gives the producer a opportunity to have a bigger market share with a larger supply.

MARMARA UNIVERSITY ECON203.7 – WORKSHEET

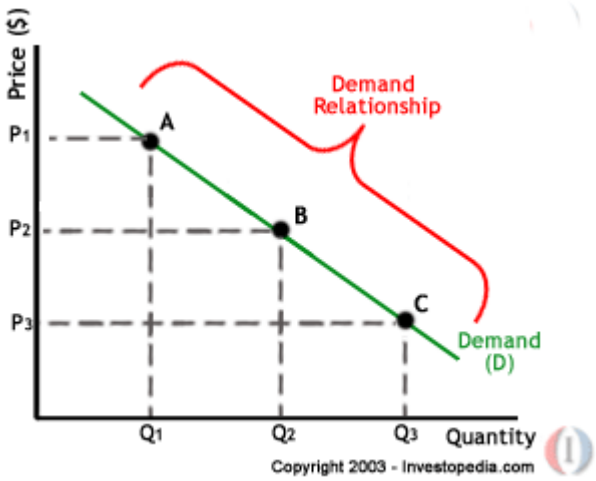
SUPPLY AND DEMAND

Supply and demand is perhaps one of the most fundamental concepts of economics and it is the backbone of a market economy. Demand refers to how much (quantity) of a product or service is desired by buyers. The quantity demanded is the amount of a product people are willing to buy at a certain price; the relationship between price and quantity demanded is known as the demand relationship. Supply represents how much the market can offer. The quantity supplied refers to the amount of a certain good producers are willing to supply when receiving a certain price. The correlation between price and how much of a good or service is supplied to the market is known as the supply relationship. Price, therefore, is a reflection of supply and demand.

The relationship between demand and supply underlie the forces behind the allocation of resources. In market economy theories, demand and supply theory will allocate resources in the most efficient way possible. How? Let us take a closer look at the law of demand and the law of supply.

A. The Law of Demand

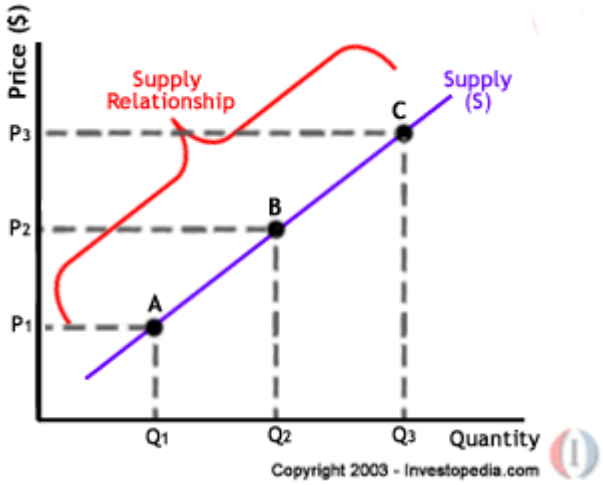
The law of demand states that, if all other factors remain equal, the higher the price of a good, the less people will demand that good. In other words, the higher the price, the lower the quantity demanded. The amount of a good that buyers purchase at a higher price is less because as the price of a good goes up, so does the opportunity cost of buying that good. As a result, people will naturally avoid buying a product that will force them to forgo the consumption of something else they value more. The chart below shows that the curve is a downward slope.



A, B and C are points on the demand curve. Each point on the curve reflects a direct correlation between quantity demanded (Q) and price (P). So, at point A, the quantity demanded will be Q1 and the price will be P1, and so on. The demand relationship curve illustrates the negative relationship between price and quantity demanded. The higher the price of a good the lower the quantity demanded (A), and the lower the price, the more the good will be in demand (C).

B. The Law of Supply

Like the law of demand, the law of supply demonstrates the quantities that will be sold at a certain price. But unlike the law of demand, the supply relationship shows an upward slope. This means that the higher the price, the higher the quantity supplied. Producers supply more at a higher price because selling a higher quantity at a higher price increases revenue.



A, B and C are points on the supply curve. Each point on the curve reflects a direct correlation between quantity supplied (Q) and price (P). At point B, the quantity supplied will be Q2 and the price will be P2, and so on.

Time and Supply

Unlike the demand relationship, however, the supply relationship is a factor of time. Time is important to supply because suppliers must, but cannot always, react quickly to a change in demand or price. So it is important to try and determine whether a price change that is caused by demand will be temporary or permanent.

Let's say there's a sudden increase in the demand and price for umbrellas in an unexpected rainy season; suppliers may simply

accommodate demand by using their production equipment more intensively. If, however, there is a climate change, and the population will need umbrellas year-round, the change in demand and price will be expected to be long term; suppliers will have to change their equipment and production facilities in order to meet the long-term levels of demand.

C. Supply and Demand Relationship

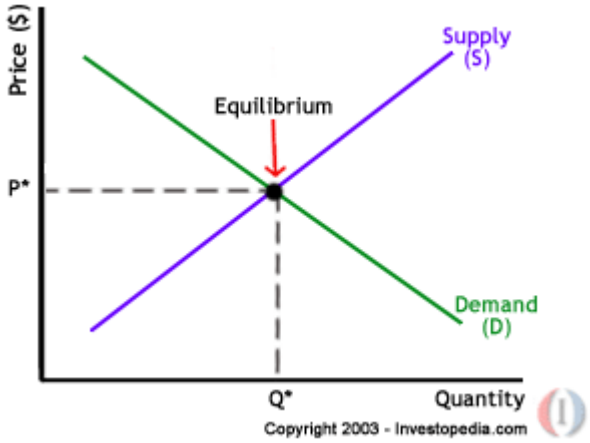
Now that we know the laws of supply and demand, let's turn to an example to show how supply and demand affect price.

Imagine that a special edition CD of your favorite band is released for $20. Because the record company's previous analysis showed that consumers will not demand CDs at a price higher than $20, only ten CDs were released because the opportunity cost is too high for suppliers to produce more. If, however, the ten CDs are demanded by 20 people, the price will subsequently rise because, according to the demand relationship, as demand increases, so does the price. Consequently, the rise in price should prompt more CDs to be supplied as the supply relationship shows that the higher the price, the higher the quantity supplied.

If, however, there are 30 CDs produced and demand is still at 20, the price will not be pushed up because the supply more than accommodates demand. In fact after the 20 consumers have been satisfied with their CD purchases, the price of the leftover CDs may drop as CD producers attempt to sell the remaining ten CDs. The lower price will then make the CD more available to people who had previously decided that the opportunity cost of buying the CD at $20 was too high.

D. Equilibrium

When supply and demand are equal (i.e. when the supply function and demand function intersect) the economy is said to be at equilibrium. At this point, the allocation of goods is at its most efficient because the amount of goods being supplied is exactly the same as the amount of goods being demanded. Thus, everyone (individuals, firms, or countries) is satisfied with the current economic condition. At the given price, suppliers are selling all the goods that they have produced and consumers are getting all the goods that they are demanding.



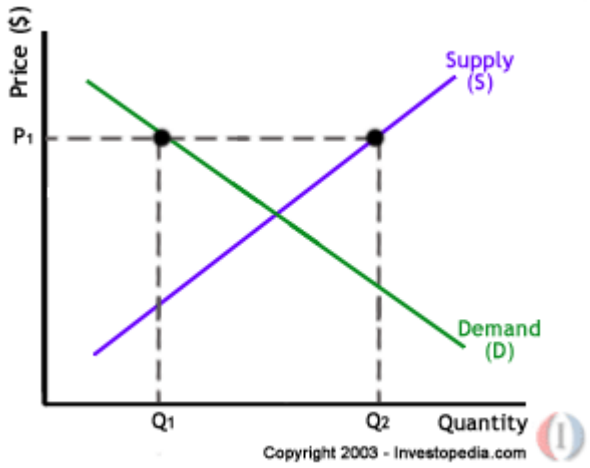
As you can see on the chart, equilibrium occurs at the intersection of the demand and supply curve, which indicates no allocative inefficiency. At this point, the price of the goods will be P* and the quantity will be Q*. These figures are referred to as equilibrium price and quantity.

In the real market place equilibrium can only ever be reached in theory, so the prices of goods and services are constantly changing in relation to fluctuations in demand and supply.

E. Disequilibrium

Disequilibrium occurs whenever the price or quantity is not equal to P* or Q*.

1. <u>Excess Supply</u>
If the price is set too high, excess supply will be created within the economy and there will be allocative inefficiency.

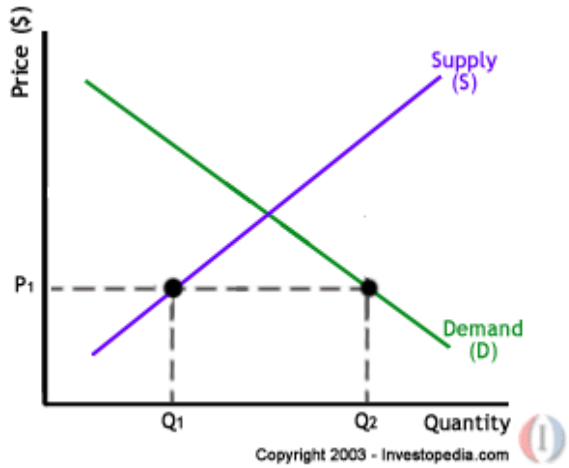


At price P1 the quantity of goods that the producers wish to supply

is indicated by Q2. At P1, however, the quantity that the consumers want to consume is at Q1, a quantity much less than Q2. Because Q2 is greater than Q1, too much is being produced and too little is being consumed. The suppliers are trying to produce more goods, which they hope to sell to increase profits, but those consuming the goods will find the product less attractive and purchase less because the price is too high.

2. Excess Demand

Excess demand is created when price is set below the equilibrium price. Because the price is so low, too many consumers want the good while producers are not making enough of it.



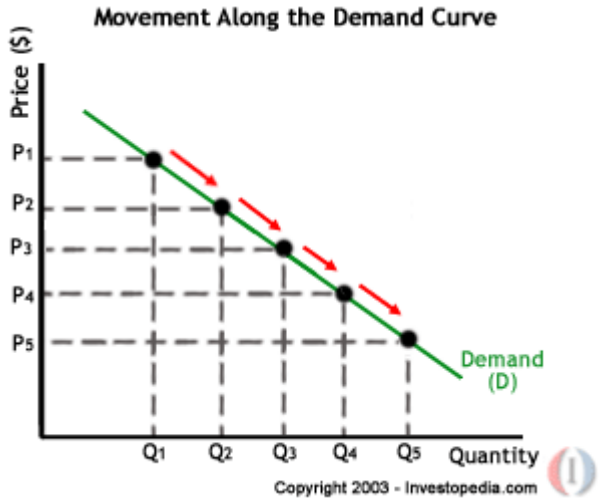
In this situation, at price P1, the quantity of goods demanded by consumers at this price is Q2. Conversely, the quantity of goods that producers are willing to produce at this price is Q1. Thus, there are too few goods being produced to satisfy the wants (demand) of the consumers. However, as consumers have to compete with one other to buy the good at this price, the demand will push the price up, making suppliers want to supply more and bringing the price closer to its equilibrium.

F. Shifts vs. Movement

For economics, the "movements" and "shifts" in relation to the supply and demand curves represent very different market phenomena:

1. Movements

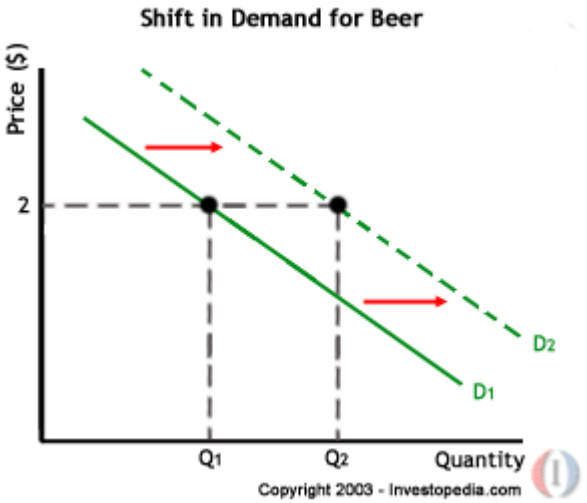
A movement refers to a change along a curve. On the demand curve, a movement denotes a change in both price and quantity demanded from one point to another on the curve. The movement implies that the demand relationship remains consistent. Therefore, a movement along the demand curve will occur when the price of the good changes and the quantity demanded changes in accordance to the original demand relationship. In other words, a movement occurs when a change in the quantity demanded is caused only by a change in price, and vice versa.



Like a movement along the demand curve, a movement along the supply curve means that the supply relationship remains consistent. Therefore, a movement along the supply curve will occur when the price of the good changes and the quantity supplied changes in accordance to the original supply relationship. In other words, a movement occurs when a change in quantity supplied is caused only by a change in price, and vice versa.

2. Shifts

A shift in a demand or supply curve occurs when a good's quantity demanded or supplied changes even though price remains the same. For instance, if the price for a bottle of beer was $2 and the quantity of beer demanded increased from Q1 to Q2, then there would be a shift in the demand for beer. Shifts in the demand curve imply that the original demand relationship has changed, meaning that quantity demand is affected by a factor other than price. A shift in the demand relationship would occur if, for instance, beer suddenly became the only type of alcohol available for consumption.



Conversely, if the price for a bottle of beer was $2 and the quantity supplied decreased from Q1 to Q2, then there would be a shift in the supply of beer. Like a shift in the demand curve, a shift in the supply curve implies that the original supply curve has changed, meaning that the quantity supplied is effected by a factor other than price. A shift in the supply curve would occur if, for instance, a natural

disaster caused a mass shortage of hops; beer manufacturers would be forced to supply less beer for the same price.

Elasticity in Economics

Elasticity is an important concept in economics. It is used to measure how responsive demand (or supply) is in response to changes in another variable (such as price).

Price Elasticity of Demand

The most common elasticity, is price elasticity of demand. This measures how demand changes in response to a change in price.

Questions on Elasticity

- If the price of salt increases, will you reduce demand for salt?
- If the price of Akmina mineral water increases, would you reduce demand for Akmina?
- If the price of electricity increases, would you reduce demand?
- If the price of a Vodafone mobile phone increased, would you still buy it?

All these questions relate to the issue of elasticity. Some goods like salt are price inelastic because if the price of salt increases, people will generally keep buying it. e.g. a 10% increase in price, may reduced demand for salt by only 1%.

We say the PED of salt is -1/10 = -0.1

However, if the price of Akmina mineral water increased by 10%, many consumers would buy other types of mineral water. This is because Akmina mineral water has many substitutes – Sırma, Uludağ, Özkaynak etc

Therefore, a 10% increase in the price of Akmina water may reduce demand by 18%. Therefore, the PED of Akmina is -18/10 = -1.8. We say that Akmina has an elastic demand – **it is sensitive to changes in price**.

Price Inelastic demand.

We say demand is inelastic if a change in prices causes a smaller % fall in demand. Examples, include

- Petrol (even it is 10 tl per liter cars will ride)
- Salt (you can not eat without salt)
- Tobacco (addiction no comment)
- Electricity (darkness is not possible, how we will charge our phones?)
- Gas (are we gonna freeze at home?

All these goods are seen as necessary by consumers. If the price of electricity goes up, you will still use it to turn on lights and your TV. You can't plug your TV into the gas socket. Electricity is inelastic because it doesn't have any close substitutes. It is the same for petrol and salt.

Firms with monopoly power will face an inelastic demand curve.

Elastic Goods

This means a change in price leads to a bigger % change in demand. Elastic goods will be anything with many substitutes or luxury items that are expensive to buy e.g.

- IHE Bread, Marmara Simit
- Iphone 11, Ipad
- Jeep, Porsche
- Designer label Clothes, Network Zara

Therefore, a firm could cut price and gain a bigger % increase in demand. These are goods with many substitutes.

E.g. if ERIKLI cut its price by 10%, it may gain an 18% increase in market share (unless other firms also cut prices)

Using Knowledge of Elasticity

If a firm knows that demand for its product is price inelastic, then it can increase price and lead to an increase in revenue. Generally, firms would seek to make their goods more price inelastic, through advertising and highlighting unique selling point.

TOTAL REVENUE = P X Q

The Midpoint Method: A Better Way to Calculate Percentage Changes and Elasticities

- The midpoint formula is preferable when calculating the price elasticity of demand because it gives the same answer regardless of the direction of the change.

$$\text{Price elasticity of demand} = \frac{(Q_2 - Q_1) / [(Q_2 + Q_1) / 2]}{(P_2 - P_1) / [(P_2 + P_1) / 2]}$$

Example: If the price of M&Ms increases from 2.00 TL to 2.20 TL and the amount you buy falls from 10 to 8 packages, then your elasticity of demand, using the midpoint formula, would be calculated as:

$$\frac{\dfrac{(10-8)}{(10+8)/2}}{\dfrac{(2.20-2.00)}{(2.00+2.20)/2}} = \frac{22\%}{9.5\%} = 2.32$$

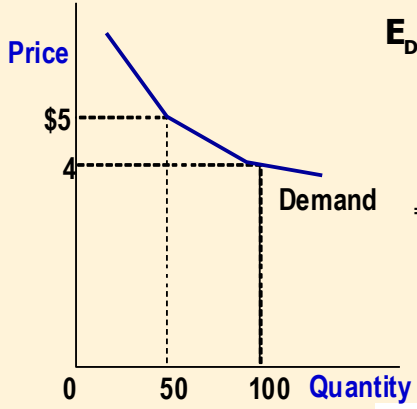
SO THE DEMAND IS ELASTIC because >1

ABSOLUTE VALUE IS USED

- Inelastic Demand
  - Quantity demanded does not respond strongly to price changes.
  - **Price elasticity of demand is less than one.**
- Elastic Demand
  - Quantity demanded responds strongly to changes in price.
  - **Price elasticity of demand is greater than one**

ANOTHER EXAMPLE :

Computing the Price Elasticity of Demand

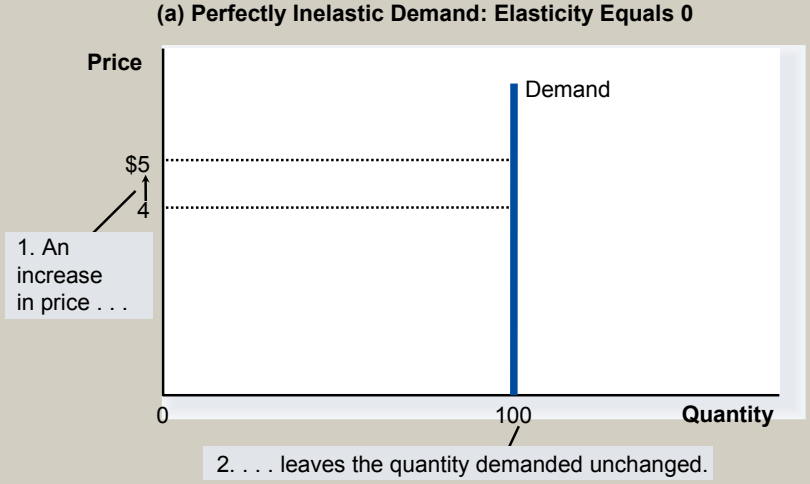


$$E_D = \frac{(100-50)/(100+50)/2}{(4.00-5.00)/(4.00+5.00)/2}$$

$$= \frac{67\text{percent}}{-22\text{percent}} = -3$$

Demand is price elastic

Figure 1 The Price Elasticity of Demand



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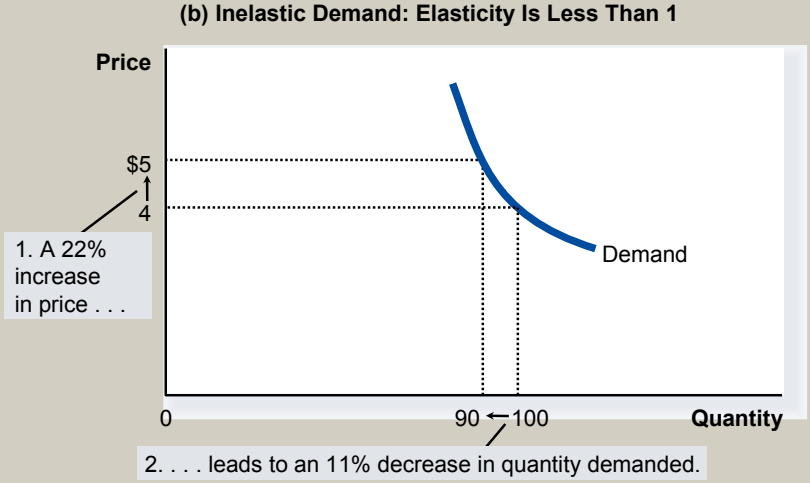

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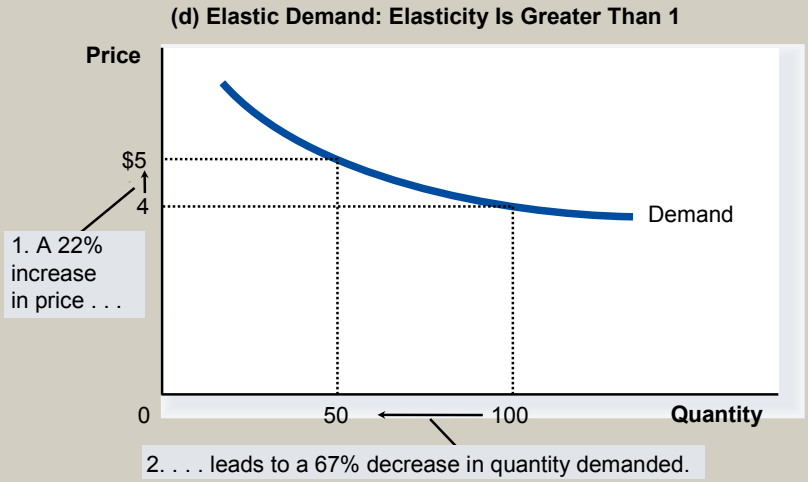

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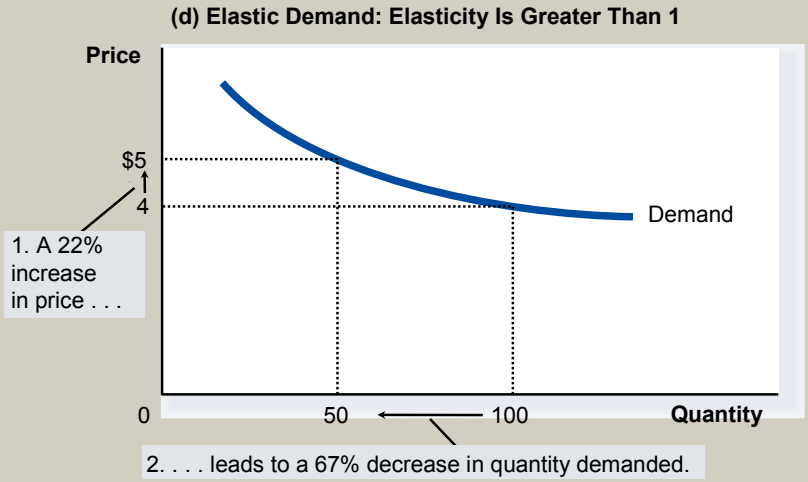
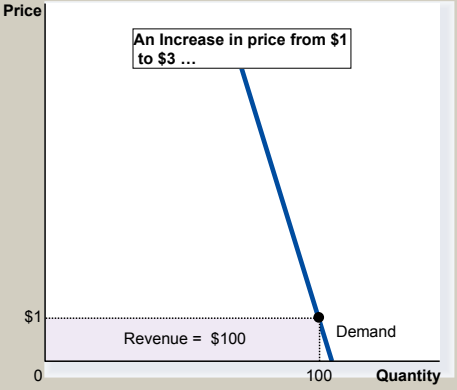


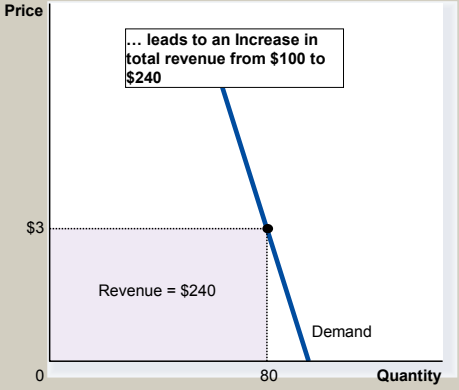
TOTAL REVENUE :
IN INELASTIC DEMAND

Elasticity and Total Revenue along a Linear Demand Curve

- With an inelastic demand curve, an increase in price leads to a decrease in quantity that is proportionately smaller. Thus, *total revenue increases*.

Figure 3 How Total Revenue Changes When Price Changes: Inelastic Demand



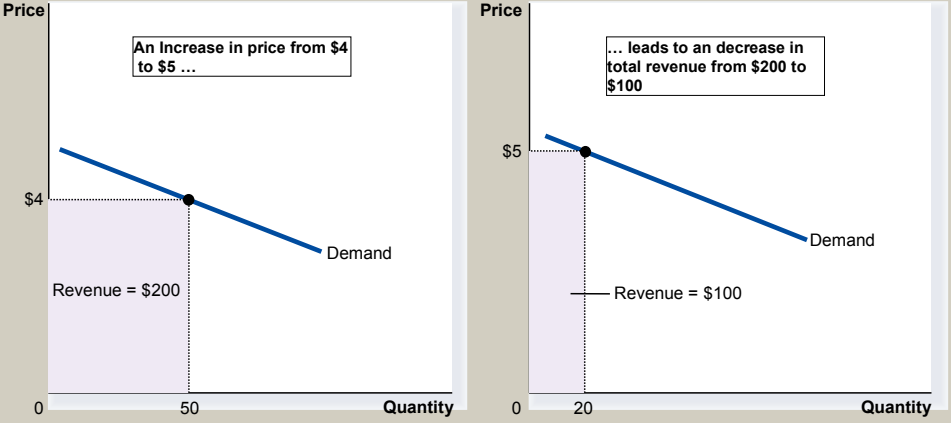


IN ELASTIC DEMAND

Elasticity and Total Revenue along a Linear Demand Curve

- With an elastic demand curve, an increase in the price leads to a decrease in quantity demanded that is proportionately larger. Thus, *total revenue decreases.*

Figure 4 How Total Revenue Changes When Price Changes: Elastic Demand



Marmara University, Engineering Faculty

Engineering Economy
Spring 2021

Prepared by

Serhat Temizkan

ECON PROFESSOR

LEARNING OUTCOMES

1. Engineering and Decision Making
2. Application of Economics in Eng.
3. Interest and Financial Costs
4. Public Tenders and Purchasing
5. Investment and R&D Costs
6. Production & Start up
7. Marketing and Sales
8. Taxation in Turkey

Why Engineering Economy is Important?

- Engineers design and create
- Designing involves economic decisions
- Engineers must be able to incorporate economic analysis into their creative efforts
- Often engineers must select and implement from multiple alternatives
- Understanding and applying time value of money, economic equivalence, and cost estimation are vital for engineers
- ENGINEERS MUST OBTAIN THE MAXIMUM OUTPUT WITH MINIMUM INPUT

Engineering Economy

- Engineering Economy involves
  - Formulating
  - Estimating
  - Evaluating

    expected economic outcomes of alternatives designed to accomplish a defined purpose
- Easy-to-use math techniques simplify the evaluation

General Steps for Decision Making Processes

1. Understand the problem – define objectives
2. Collect relevant information
3. Define the set of feasible alternatives
4. Identify the criteria for decision making
5. Evaluate the alternatives and apply sensitivity analysis
6. Select the "best" alternative
7. Implement the alternative and monitor results

Interest and Interest Rate

- **Interest** – the manifestation of the time value of money
  - Fee that one pays to use someone else's money
  - Difference between an ending amount of money and a beginning amount of money

  - Interest = amount owed now – principal(anapara)

- **Interest rate** – Interest paid over a time period expressed as a percentage of principal

  - $$\text{Interest rate}(\%) = \frac{\text{interest accrued per time unit}}{\text{principal}} \times 100\%$$

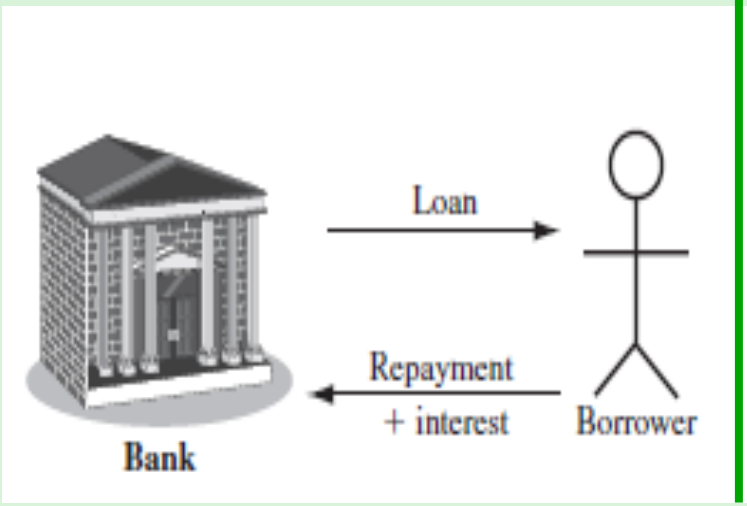
Rate of Return

- **Interest earned over a period of time is expressed as a percentage of the original amount (principal)**

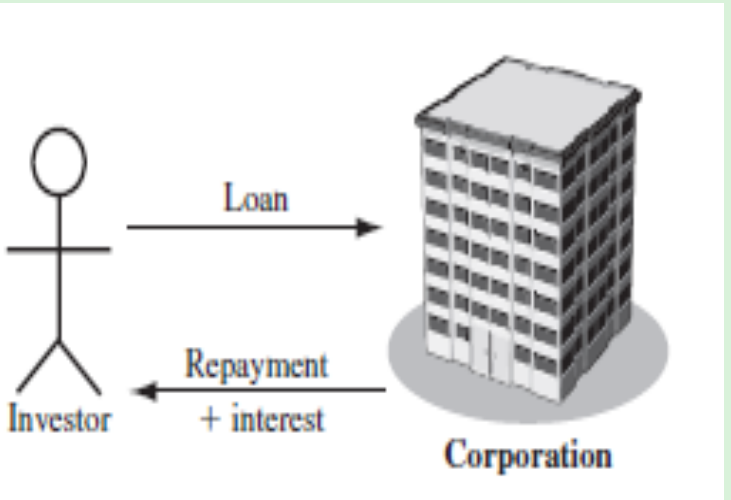
$$\text{Rate of return (\%)} = \frac{\text{interest accrued per time unit}}{\text{original amount}} \times 100\%$$

- Borrower's perspective – interest rate paid
- Lender's or investor's perspective – rate of return earned

Interest paid



Interest earned



Interest rate

Rate of return

Commonly used Symbols

t = time, usually in periods such as years or months

P = value or amount of money at a time *t* designated as present or time 0

F = value or amount of money at some future time, such as at *t* = *n* periods in the future

A = series of consecutive, equal, end-of-period amounts of money

n = number of interest periods; years, months

i = interest rate or rate of return per time period; percent per year or month

Cash Flows: Terms

- **Cash Inflows** – Revenues (R), receipts, incomes, savings generated by projects and activities that flow in. Plus sign used
- **Cash Outflows** – Disbursements (D), costs, expenses, taxes caused by projects and activities that flow out. Minus sign used
- Net Cash Flow (NCF) for each time period:

  NCF = cash inflows – cash outflows = R – D
- **End-of-period assumption:**

  Funds flow at the end of a given interest period

Cash Flows: Estimating

- ✓ **Point estimate – A single-value estimate of a cash flow element of an alternative**

  Cash inflow: Income = $150,000 per month

- ✓ **Range estimate – Min and max values that estimate the cash flow**

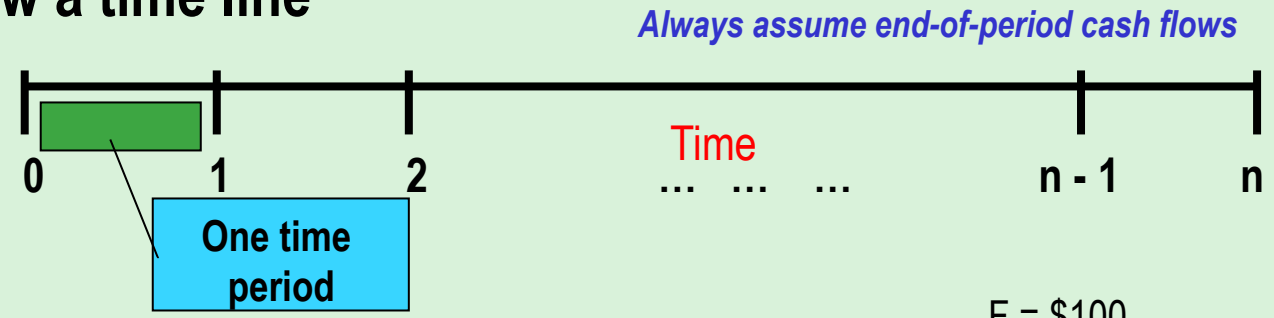
  Cash outflow: Cost is between $2.5 M and $3.2 M

Point estimates are commonly used; however, range estimates with probabilities attached provide a better understanding of variability of economic parameters used to make decisions

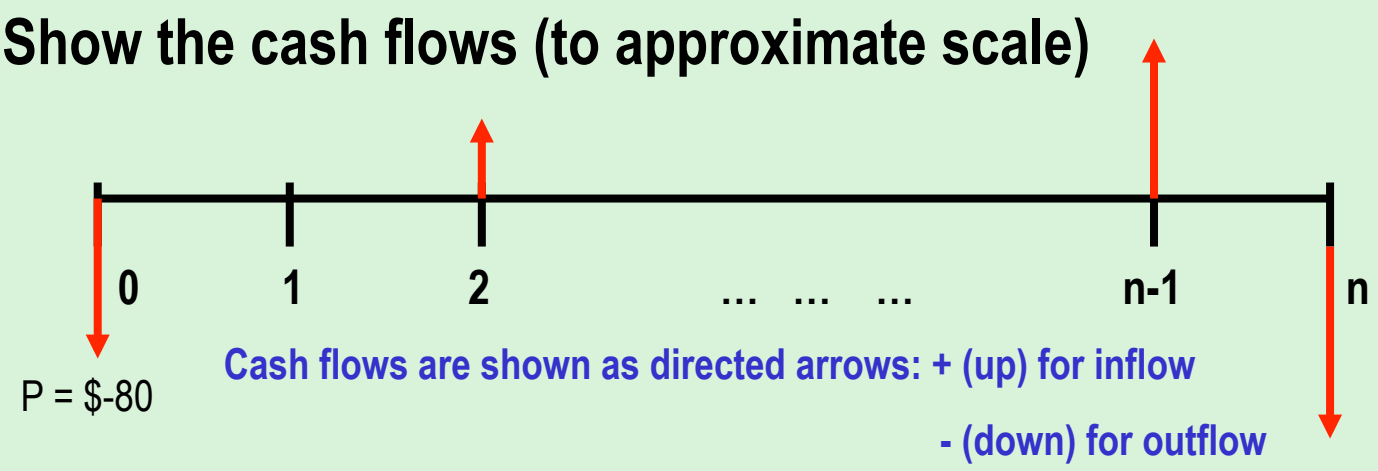
Cash Flow Diagrams

What a typical cash flow diagram might look like

Draw a time line



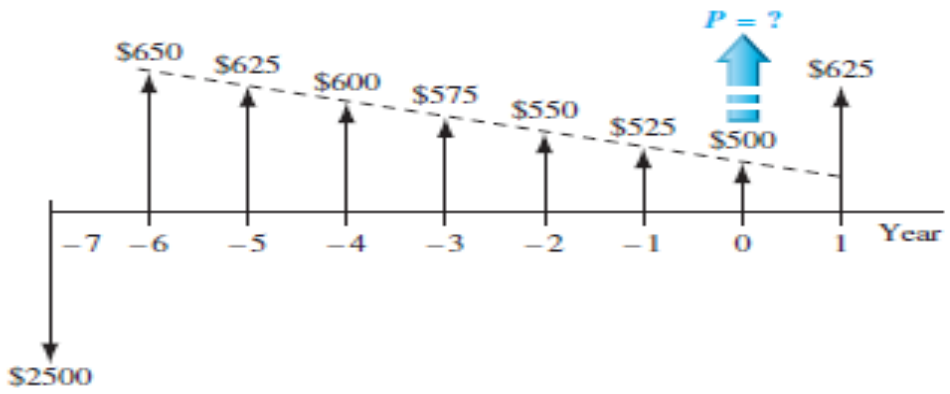
Show the cash flows (to approximate scale)



Cash Flow Diagram Example

Plot observed cash flows over last 8 years and estimated sale next year for $150. Show present worth (P) arrow at present time, t = 0

End of Year	Income	Cost	Net Cash Flow
−7	$ 0	$2500	$−2500
−6	750	100	650
−5	750	125	625
−4	750	150	600
−3	750	175	575
−2	750	200	550
−1	750	225	525
0	750	250	500
1	750 + 150	275	625



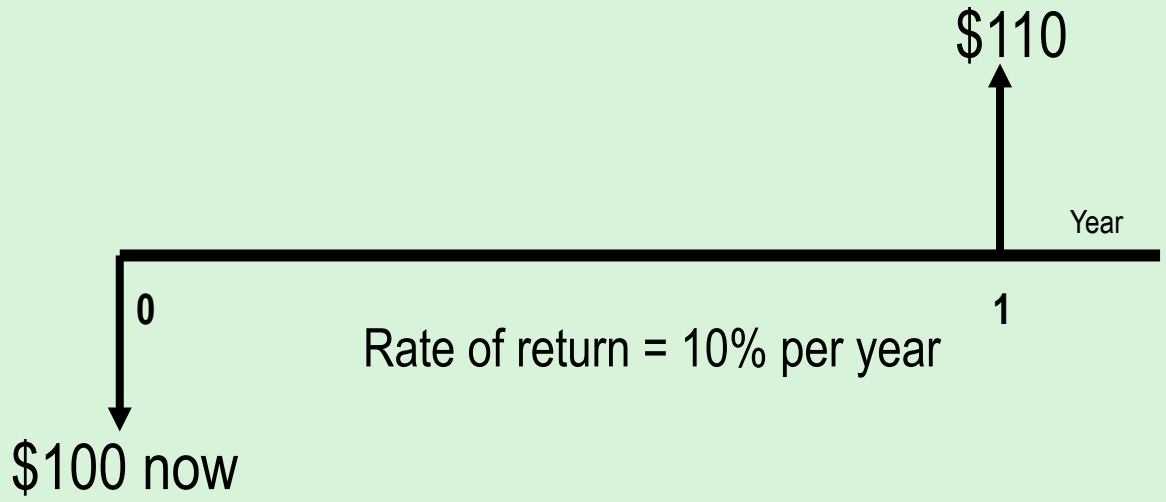
Economic Equivalence

Definition: Combination of interest rate (rate of return) and time value of money to determine different amounts of money at different points in time that are economically equivalent

How it works: Use rate *i* and time *t* in upcoming relations to move money (values of P, F and A) between time points $t = 0, 1, \ldots, n$ to make them equivalent (not equal) at the rate *i*

Example of Equivalence

Different sums of money at different times may be equal in economic value at a given rate



$100 now is economically equivalent to $110 one year from now, if the $100 is invested at a rate of 10% per year.

Simple and Compound Interest

- **Simple Interest**

  Interest is calculated using principal only

  Interest = (principal)(number of periods)(interest rate)

  $I = Pni$

Example: $100,000 lent for 3 years at simple i = 10% per year. What is repayment after 3 years?

Interest = 100,000(3)(0.10) = $30,000

Total due = 100,000 + 30,000 = $130,000

Simple and Compound Interest

- **Compound Interest**

  Interest is based on principal plus all accrued interest

  That is, interest compounds over time

Interest = (principal + all accrued interest) (interest rate)

Interest for time period *t* is

$$I_t = \left(P + \sum_{j=1}^{j=t-1} I_j\right)(i)$$

Compound Interest Example

Example: $100,000 lent for 3 years at *i* = 10% per year compounded. What is repayment after 3 years?

Interest, year 1: $I_1 = 100{,}000(0.10) = \$10{,}000$

Total due, year 1: $T_1 = 100{,}000 + 10{,}000 = \$110{,}000$

Interest, year 2: $I_2 = 110{,}000(0.10) = \$11{,}000$

Total due, year 2: $T_2 = 110{,}000 + 11{,}000 = \$121{,}000$

Interest, year 3: $I_3 = 121{,}000(0.10) = \$12{,}100$

Total due, year 3: $T_3 = 121{,}000 + 12{,}100 = \mathbf{\$133{,}100}$

Compounded: $133,100	Simple: $130,000

ÇİĞKÖFTECİ SERHAT USTA PROJECT - 1000kg/month

Investment Cost	
Furniture Equipment	30.000
Deposit Paid	10.000
Painting or design	10.000
Other Costs	10.000
Total Investment	60.000
Fixed Cost	
Rent	3.000
Elec Gas Water Cleaning	1.000
Accounting Tax Duties	500
Promotion Advertisement	500
Total	5.000
Variable Cost	
1 kg of Çiğköfte 20	20.000
5tl/kg (fork lettuce lemon)	5.000
Total	25.000
Monthly Total	30.000
Yearly	360.000

Total Project Cost = TC+IC	420.000
Total Amount sold kg	12.000
Per kg cost	35
Total Cost Monthly	35.000
P=TR-TC	
TR= P x Q	
Profit expected	15.000
TR= TC + Profit Expected	50.000
Yearly	600.000
Price of 1 kg ÇK	**50**
Yearly Profit	180.000

COMPOUND INTEREST FOR SAVINGS ACCOUNT

Years	Deposit	Added	Total	interest Rate	Interest	Total
1	10.000	0	10.000	16%	1.600	11.600
2	10.000	11.600	21.600	16%	3.456	25.056
3	10.000	25.056	35.056	16%	5.609	40.665
4	10.000	40.665	50.665	16%	8.106	58.771
5	10.000	58.771	68.771	16%	11.003	79.775
6	10.000	79.775	89.775	16%	14.364	104.139
7	10.000	104.139	114.139	16%	18.262	132.401
8	10.000	132.401	142.401	16%	22.784	165.185
9	10.000	165.185	175.185	16%	28.030	203.215
10	10.000	203.215	213.215	16%	34.114	247.329

3 Clio For Project

	Annual INT	Monthly Int	Int Month	36 months	TOTAL COST	Monthly paid	Sold 3 yrs	Net COST	Repair Tax In	Overall
300.000	24%	2,00%	6.000	216.000	516.000	14.333	240000	276.000	90.000,00	366.000,00

		RENT	**36 months**
300.000	(3000x3)	9.000	324.000

Renault Clio ve Fiat Egea Dizel, Otomatik Aylık Sadece 2700 TL

ENGINEERING ECONOMY

WHAT IS MARKETING?

INTRODUCTION TO MARKETING

4P's of Marketing

SERHAT HOCA - 2020

WHAT IS MARKETING?

The process of developing, promoting, pricing, selling, and distributing products to satisfy customer's wants and needs.

All activities necessary to get a product from the manufacturer to the consumer.

The creation and maintenance of satisfying exchange relationship.

Dynamic activities that focus on the customer to generate a profitable exchange.

MARKETING ACTIVITIES (THE 4 P'S)

<u>Product/Planning</u>

Considers the direction in which the firm is heading and how marketing lines up with that direction

This thinking process provides the basis for all marketing goals and actions.

- Analyzes who the customers are and what goods or services they need
- Determines which goods or services to produce, sell, or provide

Since coordinating all of the pieces of marketing is an essential role of the marketer, thorough planning is necessary.

MARKETING ACTIVITIES (THE 4 P's)

Pricing

Keeps two pricing issues in mind:

- Customer's perception of value
- Selling firm's objectives
  - Make a profit?

Goal is to strike the right balance.

MARKETING ACTIVITIES (THE 4 P'S)

Promoting

Conducts activities to capture attention about a good or service

Each activity involves contact with a customer, whether in person or not.

Examples:

- Advertising—television commercials
- Personal selling—door-to-door sales, professional sales
- Publicity—press releases
- Sales promotion—logo-imprinted giveaways

Objectives include informing, persuading, and reminding.

MARKETING ACTIVITIES (THE 4 P'S)

Place/Distribution

Figures out which steps to take to ensure a timely delivery

- Download it via Internet?
- Transport it? How?
- Store it?

MARKETING ACTIVITIES (SWOT)

SWOT analysis: The acronym for strengths, weaknesses, opportunities, and threats.

A SWOT analysis reviews the potential for success or failure of a business or product.

MARKETING ACTIVITIES (SWOT)

SWOT

Internal - Businesses must continually review internal strengths and weaknesses. For example, McDonalds introduced the fruit cup as an alternative to fries. After one month of its introduction, McDonalds evaluated the strengths and weaknesses of the product. Businesses are also looking at their staff, financials, 4 P's and production.

MARKETING ACTIVITIES (SWOT)

SWOT

External - Opportunities and threats are external factors that will also affect operating the business. For example, staying abreast of what current products are offered by competitors. For example, when Coke introduced its new product, Vault, Pepsi suffered a decrease in sales for its existing product Mountain Dew. Businesses are also looking at environmental issues, political climate, cultural issues, and technology.

ITEMS THAT ARE MARKETED

Broad categories

- Goods – tangible items
  - Durable – DVD player, clothing, car
  - Nondurable – gasoline, food, medication
- Services – intangible items
  - delivery, haircut, movie entrance
- Organizations
  - Profit –Nike, Microsoft
  - Non-profit – Red Cross, United Way
- Places – New Zealand, Outer Banks
- Ideas – "Stand" (no smoking), Go Green, Cancer Awareness
- People – "Shaq Attaq" (athletes), celebrities, politicians

Almost anything can be marketed.

WANTS VS. NEEDS

Wants: Not a necessity, a desire. For example, a sports car versus an economical car.

Needs: A necessity for living. For example, clothing, food, and shelter.

WHERE DOES MARKETING OCCUR?

Everyday and everywhere by people, in places, with communication

Marketing occurs wherever customers are

MARKETING CONCEPT

- A philosophy of conducting business that is based on the belief that all business activities should be aimed toward satisfying consumer wants and needs while achieving company goals and maintaining a profit.

Joe Dirt

CUSTOMER VS. CONSUMER

Consumer: The person who uses the product. For example, Carrie buys denture cream toothpaste for her grandmother to use. Her grandmother is the consumer for this product, while Carrie is the customer.

Customer: The person who purchases the product. For example, Alyssa buys steak at the grocery store this week to cook for her family's dinner. Alyssa will not eat the steak because she is a vegetarian. Alyssa's family is the consumer, while Alyssa is the customer.

In many cases, the customer is also the consumer. For example, Tracey purchases and uses Tide detergent.

ELEMENTS OF THE MARKETING CONCEPT

Customer orientation: Do it their way.

- Finding out what customers want and producing those products the way they want them

Company commitment: Do it better.

- Make/price the product better than the competition's model.

Company goals: Do it with success in mind.

- Maintain your firm's purpose while you apply the marketing concept.

MARKETING'S ROLE IN A PRIVATE ENTERPRISE SYSTEM

- Marketing fits into every facet of our lives, whether on a global scale or right in our own neighborhoods.
- Provides benefits that make our lives better, promoting using natural resources more wisely, and encourage international trade.
- Without marketing, we would all have to be self-sufficient.

HOW WOULD CONSUMERS AND BUSINESSES BE AFFECTED IF MARKETING DID NOT EXIST?

Our nation would have difficulty linking producers to consumers.

Our own routines would be different because marketing shapes everything we do.

- Ex: Out of milk? Go to the store.

BENEFITS OF MARKETING

New and improved products. (iPod Skit)

- Businesses create new products and improve existing products to maintain their current customers or attract new ones. For example, Verizon has introduced their new Xperia Play phone by Sony Ericson as the worlds first Playstation certified phone. Verizon Xperia

Lower prices.

- Lower prices benefit customers while businesses benefit by selling more product at the lower price. For example, prices for e-readers, tablets, laptops, etc. they were expensive and few sold. As prices dropped, more customers purchased them.

BENEFITS OF MARKETING

If Marketing did not exist

- Without Marketing society would remain a self-subsistence style of living. You have less competition which results in higher prices, less choices, less improvements on existing products, and less information is available.

Marketing's benefit to society

- Societies benefit from Marketing through increased competition, lower prices, larger variety of goods/services, and mass communication with information about products/services. Fueled with more information, better choices are made utilizing our scarce resources within businesses, governments, and households. There are foreign and domestic societies and both benefit from marketing activities.

HOW DOES MARKETING BENEFIT OUR SOCIETY?

Marketing visibly benefits our lives, our natural surroundings, and our global trade.

Makes our lives better

- Because problem solving is at the heart of marketing, each year we add some new products to our home, often at lower prices.

Promotes using the earth's resources more wisely

- If available resources are used sensibly, benefits can extend well into the future for the marketer, the nation, and the entire world.

Encourages trade between nations

- Because resources are valuable to marketers, it doesn't take them long to pinpoint where a particular resource can be found in abundance.
- If our nation lacks a resource, we can usually trade something to get it.

THE SEVEN FUNCTIONS OF MARKETING

Channel Management (a.ka. Distribution): identifying, selecting, monitoring, and evaluating sales channels as well as transporting, storing, and handling of goods on their way from the manufacturer to the consumer.

Marketing-Information Management: gathering, accessing, synthesizing, evaluating, and disseminating information to aid in business decisions

Pricing: determining and adjusting of prices to maximize return and meet customers' perceptions of value

Product/Service Management: obtaining, developing, maintaining, and improving a product or service mix in response to market opportunities

Promotion: communicate information about goods, services, images, and/or ideas to achieve a desired outcome

Selling: determining client needs and wants and responding through planned, personalized communication that influences purchase decisions and enhances future business opportunities

Financing: Acquiring the money for starting and running a business. Business loans for upstart money, cash flow issues, or new business ventures.

CHANNEL MANAGEMENT (A.K.A.) DISTRIBUTION

Responsible for moving, storing, locating, and/or transferring ownership of goods and services

Main goal is to move products from the producer to the consumer.

Determines who will offer products and where they will be offered

Develops relationships with channel members

Assesses quality of vendor performance

DISTRIBUTION IS IMPORTANT BECAUSE:

Gets products from producers to consumers so they are on hand when consumers want to buy.

Allows adequate supplies of products in the right place at the right time.

This function includes selecting methods of transporting products.

- Some methods are less expensive than others.
- Making the right decision helps to control expenses.

MARKETING-INFORMATION MANAGEMENT

Provides data that can be used for business decision-making

Provides data about effectiveness of marketing efforts

Provides data about customer satisfaction, customer loyalty, needs, and wants

MARKETING-INFORMATION MANAGEMENT IS IMPORTANT BECAUSE:

Allows businesses to make decisions based on information gathered rather than making guesses

Goal is to forecast, or predict, what will be happening that might affect the business in the future.

Might lose money because they are not keeping up with the times or selling the right products

PRICING

Establishes products’ prices

Determines whether prices need to be adjusted

Sets policies and objectives for prices

PRICING IS IMPORTANT BECAUSE:

Affects how well a product will sell and how much profit the business will make

Businesses need to set prices that customers are willing to pay.

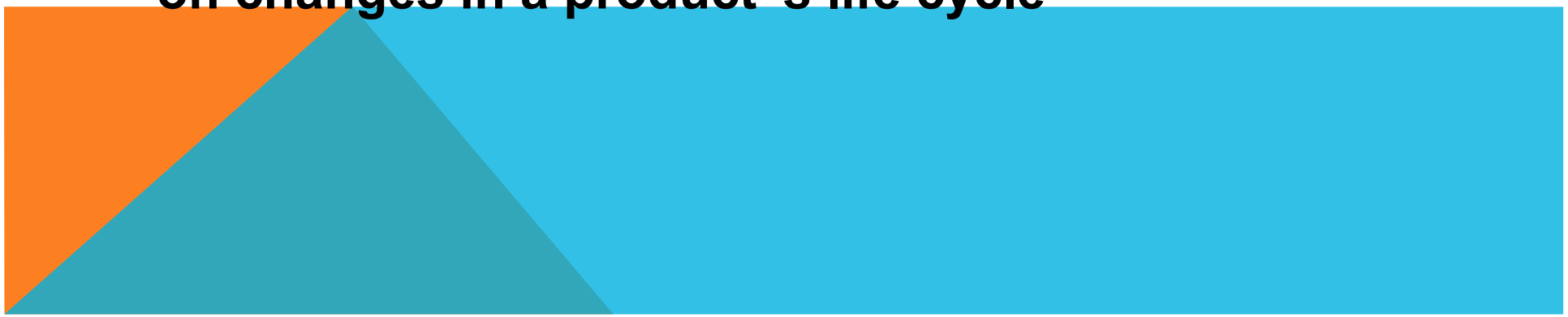
Prices need to cover costs and include sufficient profit.

PRODUCT/SERVICE MANAGEMENT

Helps to determine which products a business will offer and in what quantities

Aids in determining and developing a company's/ product's image

Provides direction for other marketing activities based on changes in a product's life cycle



PRODUCT/SERVICE MANAGEMENT IS IMPORTANT BECAUSE:

Involves deciding on the products that a business will produce or offer

Businesses must offer the products that customers want and need to be successful.

Helps businesses decide on the type of image they want customers to have of them and their products.

Rely on the marketing-information management function to provide the necessary data.

PROMOTION

Reminds customers about products/businesses

Informs customers about products/businesses

Persuades customers about products/businesses

PROMOTION IS IMPORTANT BECAUSE:

Can create and/or increase consumer demand for products.

Promotions inform customers about:

- New products
- Improved products
- New uses for existing products
- Special values on products

Helps to create an image or impression of a business.

- A business might want to change its image to attract a different or expanded target market.
- Coordinated advertising and public relations will get the message across.

SELLING

Creates a following of loyal customers

Completes the exchange transaction

Provides services for customers

SELLING IS IMPORTANT BECAUSE:

This function is important because it involves contact with customers.
- Other marketing functions pave the way for successful selling.

Businesses work to meet customers' needs and sell them the most appropriate product.

All businesses have something to sell.

Everyone benefits from selling.
- Selling benefits businesses.
  - Creates a desire for their products
  - Helps get their products into the hands of consumers
- Selling benefits consumers by providing:
  - Help with their buying decisions
  - Information about new products
- Selling can benefit society.
  - Creates employment
  - Encourages economic growth

FINANCING

Business owners often obtain bank loans to start a new business.

Some form corporations and sell shares (or stock) of the business.

Involves decisions such as whether to offer credit to customers.

- MasterCard, Visa, or store credit

FINANCING IS IMPORTANT BECAUSE:

Allows businesses to begin their venture with the essentials needed through loans, stock, etc.

Allows businesses to maintain operation and cash flow within the business.

Offers customers credit as a payment option.

All businesses need money in order to operate.

INTERRELATIONSHIPS AMONG MARKETING FUNCTIONS

- **Can't forget to advertise even if you have a great product**
- **Can't forget to have a sufficient supply of those great products in stock for an upcoming sale**
- **Can't forget to set prices that are competitive and attract customers**
- **Forgetting any of these functions means your marketing effort won't be as effective.**
- **Your competitors will have an advantage… YIKES!**

[Business Name] Restaurant Sta

FUNDING	Estimated	Actual
Investor Funding		
Owner 1	10.000	9.000
Owner 2	5.000	5.500
Other		
Total Investment	**15.000**	**14.500**
Loans		
Bank Loan 1		
Bank Loan 2		
Non Bank Loan 1		
Total Loans	**-**	**-**
Other Funding		
Grant 1		
Other		
Total Other Funding	**-**	**-**
Total FUNDING	**15.000**	**14.500**

COSTS	Estimated	Actual
Fixed Costs		
Advertising for Opening		
Basic Website		
Brand Development		
Building Down Payment		
Building Improvements/Remodeling		
Business Cards/Stationery		
Business Entity		
Business Licenses/Permits		
Commercial Cooking Equipment		
Compliance Permits (Health, Safety, etc)		
Computer Hardware/Software		
Cutlery		
Decorating		
Dishes/Glasses		
Dishwasher		
Employee Uniforms		
Fixture Installation		
Fixtures/Counters		
Franchise Start Up Fees		
Freezers/Refrigerators		
Internet Setup Deposit		
Kitchen Supplies & Equipment		
Lease Security Deposit		
Legal/Professional Fees		
Linens		
Machines & Equipment		
Menu Development		
Office Furniture		
Operating Cash (Working Capital)		
Point of Sale Hardware/Software		
Potential Market Surveys		
Prepaid Insurance		

Public Utilities Deposits		
Reserve for Contingencies		
Salaries for Employee Trainers/Trainees		
Security System Installation		
Setup, installation and consulting fees		
Signage		
Starting Inventory		
Tables/Chairs		
Telephone		
Tools & Supplies		
Travel		
Travel to secure suppliers/distributors		
Truck & Vehicle		
Ventilation Equipment		
Other 1 (specify)		
Other 2 (specify)		
Total Fixed Costs	**-**	**-**

Average Monthly Costs

Advertising (print, broadcast and Internet)		
Business Insurance		
Business Vehicle Insurance		
Cleaning Services		
Employee Salaries and Commissions		
Equipment Lease Payments		
Inventory, raw materials, parts		
Franchise Fee		
Health Insurance		
Internet Connection		
Loan and Credit Card Interest & Principal		
Legal/Accounting Fees		
Merchant Account Fees		
Miscellaneous Expenses		
Mortgage Payments		
Lease Payment		
Owner Salary		
Payroll taxes or Self-employment tax		
Postage/Shipping Costs		
Security System Monthly Payment		
Supplies		
Telephone	63	65
Travel		
Public Utilities		
Website Hosting/Maintenance	24	24
Other 1 (specify)		
Other 2 (specify)		
Total Average Monthly Costs	**87**	**89**
x Number of Months	6	
Total Monthly Costs	**522**	**534**

Total COSTS	**522**	**534**
SURPLUS/(DEFICIT)	**14.478**	**13.966**

artup Costs

Over/(Under)
(1.000)
500
(500)
-
-
(500)

Under/(Over)

-

(2)

-

(2)

(12)

(12)

(512)