

Chapter 3: Demand and Supply

John Petroff

INTRODUCTION

The purpose of this lesson is to reach an understanding of how markets operate, how prices are set and transactions occur. The two market forces of demand and supply are defined and explained. The equilibrium point is studied. Conclusions and applications are offered.

MARKET

Markets exist for the purpose of facilitating exchanges of products, services and resources. Buyers and sellers are brought together and convey their desire to buy or sell by stating their offered and asked prices for different quantities. Even if a transaction does not take place, information is translated in the pricing of the product.

;An example of a market is that of the New York Stock Exchange. Its purpose is to facilitate the purchase and sale of securities. The transactions are not performed by the buyers and sellers themselves, but by brokers and dealers on their behalf. Daily transaction prices are reported in many newspapers nationwide because markets also perform the important function of pricing of goods, or in this case securities.

DEMAND

Demand is the expression of willingness and ability of a potential buyer to acquire certain quantities of an item for various possible prices the buyer can reasonably offer. Demand can be thought of as a schedule of prices and quantities in the mind of the buyer.

;Dealers of the New York Stock Exchange keep books in which orders from various clients are entered: how many shares and at what price. Such a listing is an illustration of what investors are willing and able to buy.

LAW OF DEMAND

The law of demand postulates that the relationship between price and quantity in the mind of buyers is inverse. The law of demand is represented graphically by a downsloping demand curve. The law of demand is explained by the diminishing

Source URL: <http://www.peoi.org/Courses/Coursestu/mac/fram3.html>
Saylor URL: <http://www.saylor.org/courses/econ102/>

Attributed to: [John Petroff]



www.saylor.org
Page 1 of 13

marginal utility, the income effect and the substitution effect; it can also be derived with the help of indifference curves.

;A retail store would certainly be most interested to know what its customers are willing to pay for what they want to buy. Such knowledge would allow the store to price its products most efficiently. This is the reason why market research is conducted to determine what customers want to buy and at what price.

LAW OF DEMAND REASONS

The law of demand can be explained by - price being an obstacle to consumption, - diminishing marginal utility, - price change income effect and substitution effect. It can also be derived from the diminishing marginal rate of substitution of indifference curves.

;All department stores have periodic sale days during which prices are reduced substantially. The purpose of this price reduction is to get rid of old merchandise and stimulate the buying by customers (who may purchase many other items as well). Thus, stores take advantage of the law of demand: merchandise which would otherwise be hard to sell, is sold because customers are willing to pay a lower price.

INCOME EFFECT

The law of demand can be explained by observing that an unexpected price change affects the purchasing power of consumers. If the price is lower than expected, income is liberated which allows the consumer to buy more. An unexpected price increase would cause the consumer to buy less.

;When a housewife goes to the supermarket to buy groceries and finds that one of the products she intended to buy, was reduced in price because of a special sale, it makes her feel wealthier. Indeed, she can buy more with the money she started with. This is the income effect.

SUBSTITUTION EFFECT

The law of demand can be explained by the substitution effect. If the price of a good is lower than expected, then, that good appears to a consumer as a bargain opportunity in comparison to the goods which remain at full price. The consumer

Source URL: <http://www.peoi.org/Courses/Coursestu/mac/fram3.html>
Saylor URL: <http://www.saylor.org/courses/econ102/>

Attributed to: [John Petroff]



www.saylor.org
Page 2 of 13

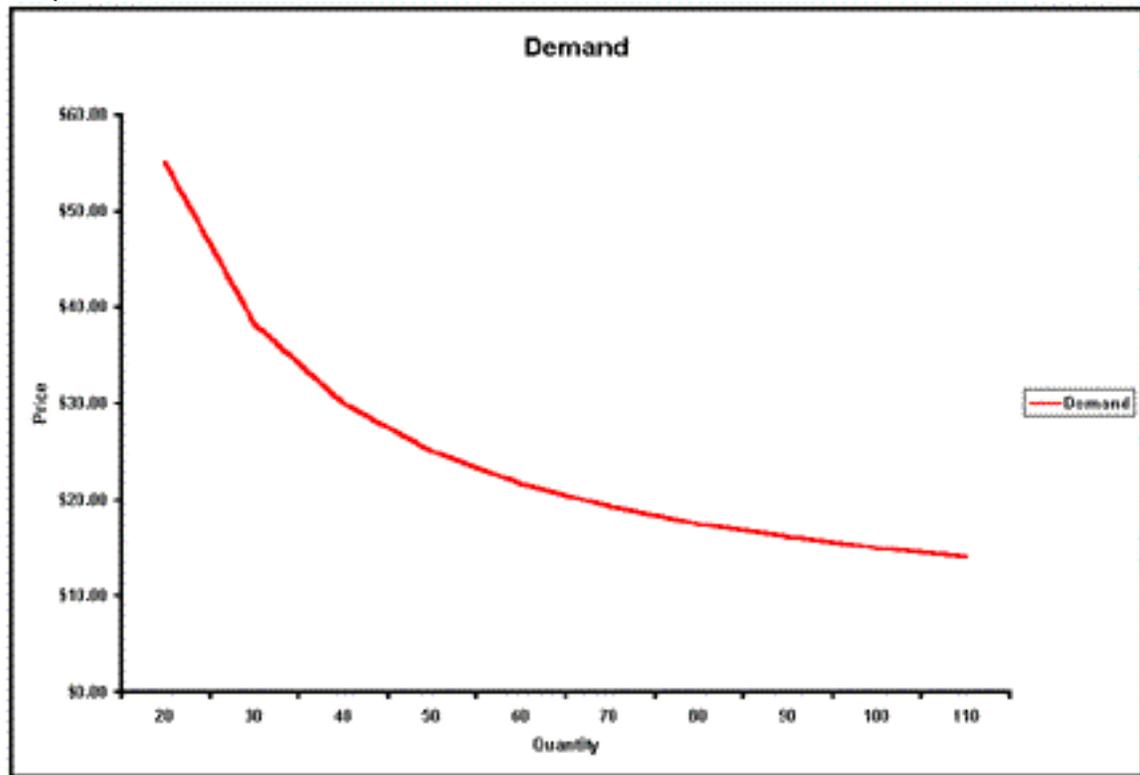
will temporarily switch his/her pattern of consumption by substituting bargain items for full price items.

Suppose a customer is undecided between pork chops and steak before entering a supermarket. If pork chops have a special promotion at a reduced price, while steak has not, that is likely to induce the customer to buy the pork chops with no remaining hesitation. This is an illustration of the substitution effect. ;

DEMAND GRAPH

The law of demand is represented graphically by a downsloping curve showing that when price decreases, quantity increases and vice versa.

Graph G-MIC1.1



MARKET DEMAND

The market demand is the sum total of individual demands.

DEMAND DETERMINANTS

Source URL: <http://www.peoi.org/Courses/Coursestu/mac/fram3.html>
Saylor URL: <http://www.saylor.org/courses/econ102/>

Attributed to: [John Petroff]



Price is the major determinant of the quantity demanded. The nonprice determinants of demand are:

- number of buyers,
- tastes,
- income,
- price of other goods (either complementary or substitute), and
- expectations about future prices.

;Advertising by companies shows that customers can be prompted to buy products for a great variety of reasons. The foremost inducement is still price.

INFERIOR GOOD

An increase in income will generally cause the consumption of most goods to increase: these goods are said to be normal (or superior) goods. There are a few goods for which the pattern is reversed: an increase in income causes a decrease in consumption. These goods are known as inferior or Giffen goods. Most often, these inferior goods are tied in the mind of individuals to hard times.

PRICE OF RELATED GOODS

The price of related goods affects the demand of an item in two opposite patterns depending if the goods are viewed by a buyer as complementary or substitute.

COMPLEMENTARY GOODS

Goods are complementary when their consumption is tied to each other. For instance, automobiles and tires: tires are sold because automobiles are sold and vice versa. The increase of the price of automobiles will cause fewer automobiles to be purchased, and thus, fewer tires as well. The relationship between the price of automobiles and the quantity of tires is inverse.

;Tires and cars, bullets and guns, lamps and lamp shades, cream and coffee, nails and hammers, nuts and bolts, are all items that go together. They are complementary goods.

SUBSTITUTE GOODS

Substitute goods are goods which can be replaced by each other in the mind of consumers. For instance, tea and coffee are for many (but not all) consumers interchangeable goods. If the price of tea goes up, the purchases of tea will

Source URL: <http://www.peoi.org/Courses/Coursestu/mac/fram3.html>
Saylor URL: <http://www.saylor.org/courses/econ102/>

Attributed to: [John Petroff]



www.saylor.org
Page 4 of 13

decrease and the purchases of coffee will increase. Thus, the relationship between the price of tea and the quantity of coffee is direct.

;Butter and margarine, tea and coffee, taxi and bus, pen and pencil, hotel and motel, radio and record player, are all items which, for most people, can be replaced by each other. They are substitute goods.

QUANTITY DEMANDED

A change in any of the nonprice determinants will cause the entire demand of consumers to change. Graphically this can be shown as a shift of the demand curve to the right or to the left. These shifts in demand must be distinguished from movements along the demand curve caused by changes in price: these changes in price only cause the quantity demanded to change, but the entire demand schedule remains the same.

;The availability of new products can change the tastes of consumers. Not long ago, complex calculation used to be done with slide rules. With the arrival of hand calculators, slide rules no longer satisfied customers.

SUPPLY

Supply is the willingness and ability of sellers or suppliers to make available different possible quantities of a good at all relevant prices.

;Supply is what we have to offer. All of us have our time and skills to offer to our employers. For some of us, the number of hours of work may change from day to day or from week to week. Then, most often, if additional hours are required to be worked, we can expect a higher price, i.e., overtime pay.

LAW OF SUPPLY

The law of supply postulates that the relationship between price and quantity in the mind of sellers or producers is a direct one. When price increases so does quantity.

;The payment of overtime shows that the more one is expected to supply, the more one can be expected to be paid. In some

Source URL: <http://www.peoi.org/Courses/Coursestu/mac/fram3.html>
Saylor URL: <http://www.saylor.org/courses/econ102/>

Attributed to: [John Petroff]



www.saylor.org
Page 5 of 13

professions, extra hours over regular overtime are paid at even higher wage rates.

LAW OF SUPPLY REASONS

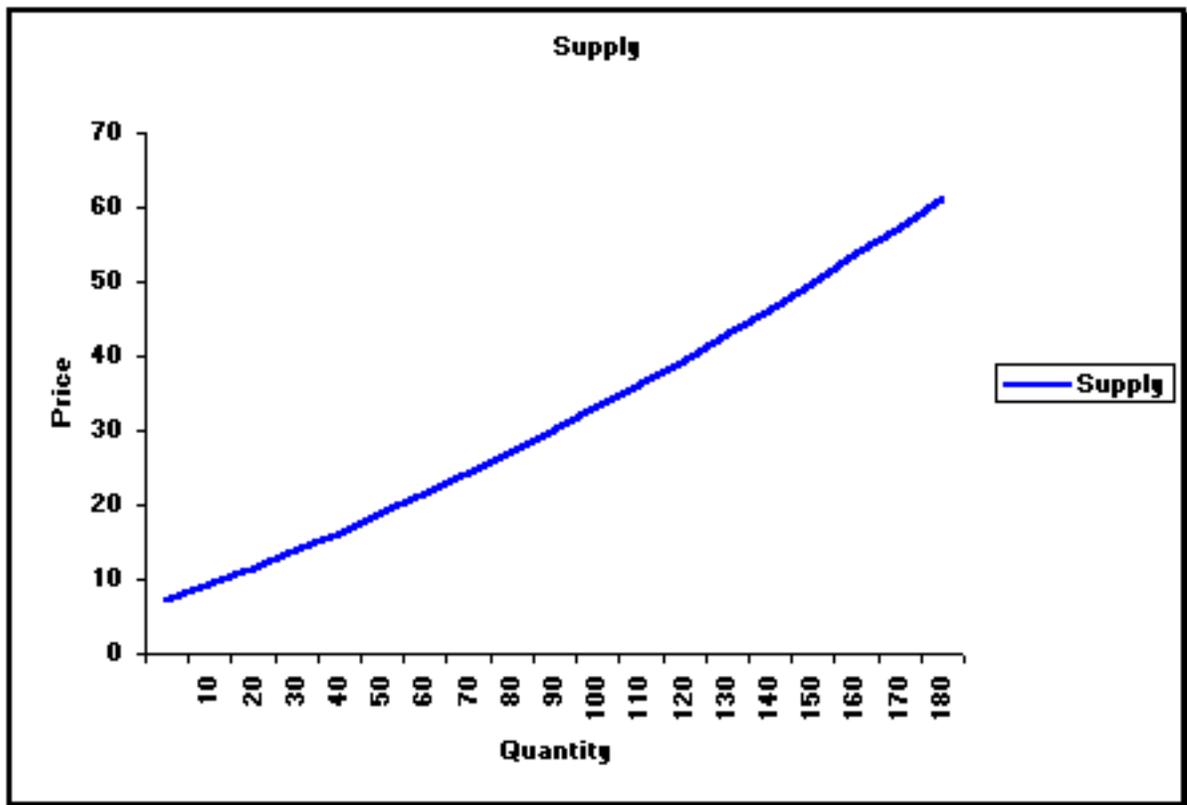
The law of supply is explained by

- price being an inducement for sellers or producers to sell more, and
- cost of production increasing (because of the law of diminishing returns).

SUPPLY GRAPH

The law of supply can be shown graphically by an upsloping supply curve. When price increases, quantity increases; thus, the direct relationship is verified.

Graph G-MIC1.2



SUPPLY DETERMINANTS

Price is the major determinant of supply. Nonprice determinants are:

- number of sellers or producers,
- costs of production (including taxes),
- technology (since it affects costs),

Source URL: <http://www.peoi.org/Courses/Coursestu/mac/fram3.html>
Saylor URL: <http://www.saylor.org/courses/econ102/>

Attributed to: [John Petroff]



- prices of other goods (as sources of possible profits),
- expectations (but the effect is ambiguous).

;Returning to the employee supplying his/her hours of work, the willingness of the employee to accept a changing work schedule is likely to depend on the time devoted to other needs (such as leisure, family, hobbies or studies). Nevertheless, the major determinant will be the price or wage expected.

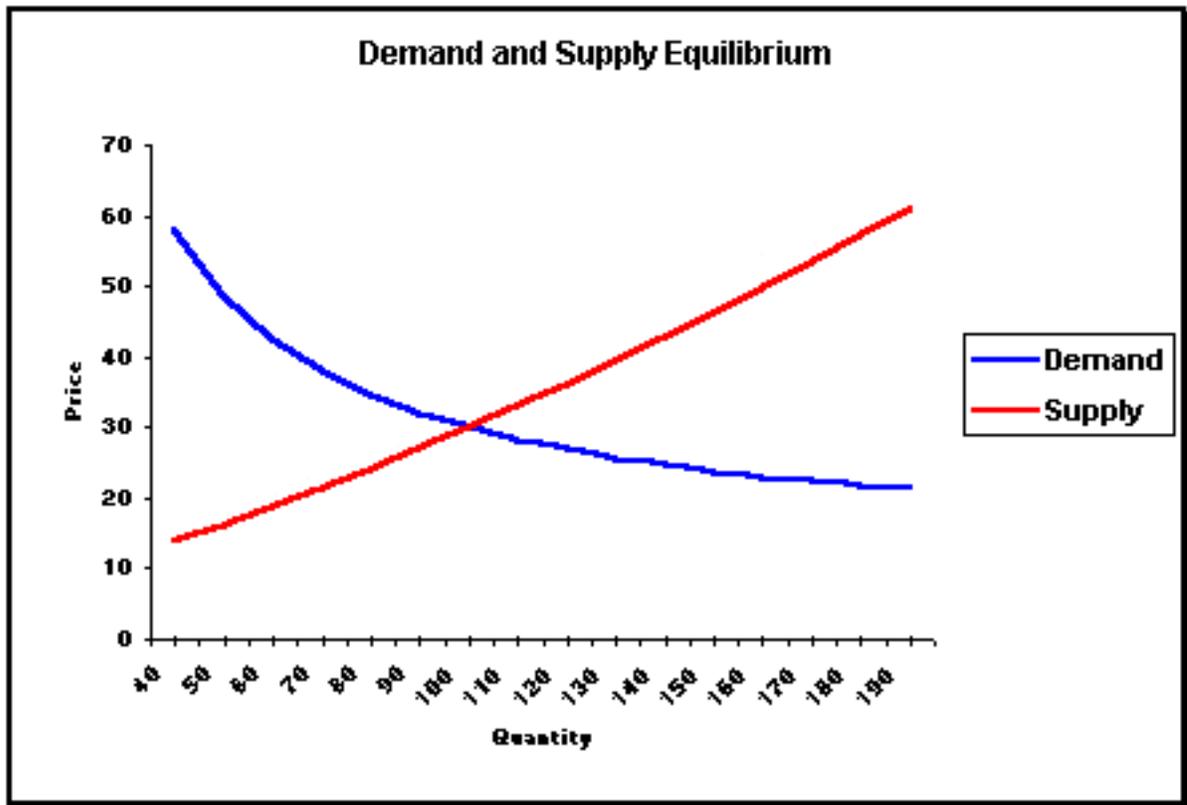
QUANTITY SUPPLIED

A change in any one of the supply nonprice determinants will change the entire supply schedule and shift the supply curve. This shift of the supply curve is to be distinguished from the movement along the supply curve itself when price is changed: this only changes the quantity supplied (not supply).

EQUILIBRIUM

The price and quantity equilibrium is where demand and supply intersect. At any price above that equilibrium, the quantity supplied exceeds the quantity demanded, which results in a surplus (and no transaction between buyer and seller). At any price below, the quantity demanded exceeds the quantity supplied, which results in a shortage. Only at the intersection of demand and supply are the quantities demanded and supplied equal. The price and quantity equilibrium is stable.

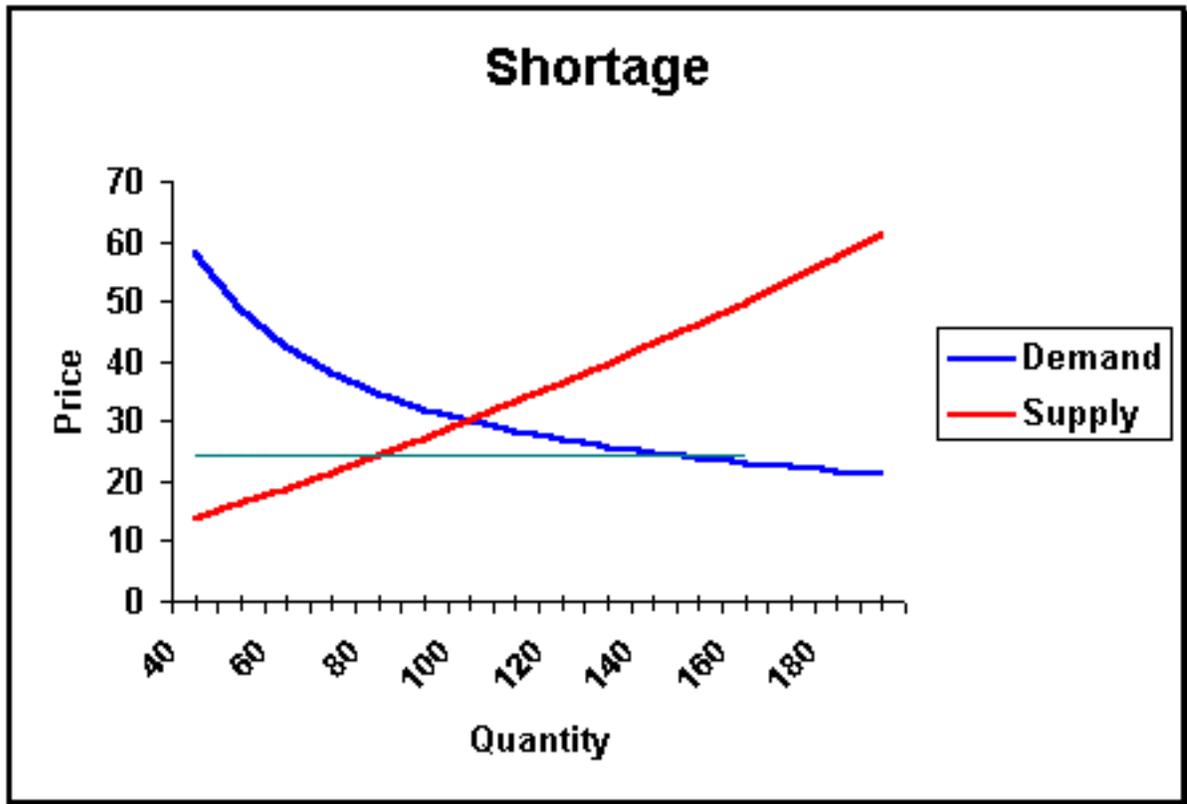
Graph G-MIC1.3



SHORTAGE

A shortage means that the quantity demanded exceeds the quantity supplied. A shortage exists if the price is below the equilibrium. If the market is free, the shortage will disappear as the price increases. The shortage will continue anytime the market is not free; for instance, if the government has instituted a price ceiling. If the price ceiling is above the equilibrium, it is not relevant and has no bearing on the market.

Graph G-MIC1.4



;Many cities have rent control laws to make sure that poor people can find apartments they can afford. But landlords do not find it profitable to rent at these prices and sometimes convert their buildings to condominium or cooperative ownership. This reduces the number of apartments available: it creates a shortage.

SURPLUS

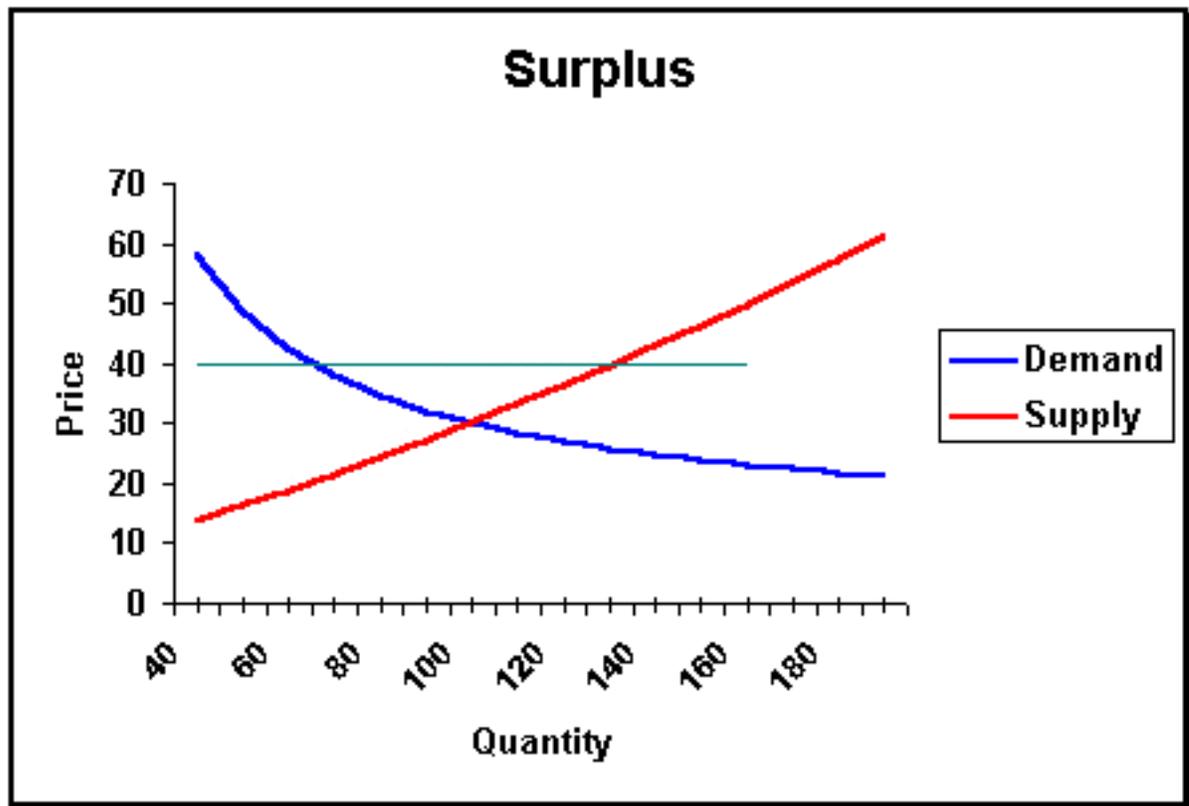
A surplus means that the quantity supplied exceeds the quantity demanded. The surplus exists only above the equilibrium. If the market is free, the surplus will tend to disappear as the price is lowered. The surplus will continue only if the market is not free; that is, a minimum price has been instituted by government. If the minimum price is below equilibrium, it is irrelevant and has no bearing on the market.

Source URL: <http://www.peoi.org/Courses/Coursestu/mac/fram3.html>
Saylor URL: <http://www.saylor.org/courses/econ102/>

Attributed to: [John Petroff]



Graph G-MIC1.5



;Prices of many agricultural commodities, such as milk for instance, are subject to government price support. This higher price encourages farmers to produce too much: this creates surpluses. For instance, in the 1980's, the government has been forced to make cheese from milk surplus and to distribute that cheese free to poor people.

INDIFFERENCE CURVES

Indifference curves show the combinations of two goods that an individual would be willing to buy, and which would make him/her equally satisfied (or indifferent). Indifference curves assume that more is preferred to less. They are convex as seen from the origin. The indifference curves form an entire map of various levels of satisfaction.

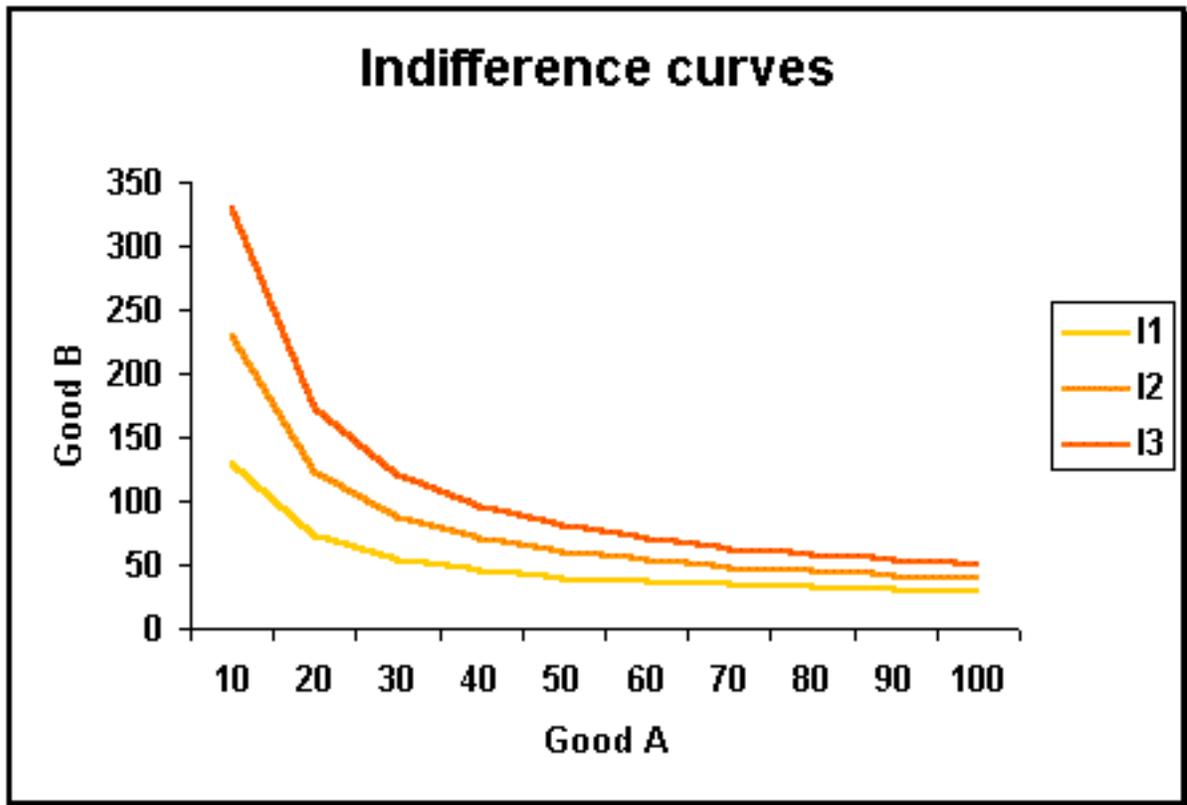
Source URL: <http://www.peoi.org/Courses/Coursestu/mac/fram3.html>
Saylor URL: <http://www.saylor.org/courses/econ102/>

Attributed to: [John Petroff]



www.saylor.org
Page 10 of 13

Graph G-MIC1.6



;The shopping list of any consumer would reveal that, beyond some minimum basic necessities, purchases are a matter of choosing between various items that can provide equivalent satisfaction. This pattern of equivalent satisfaction from the consumption of two selected goods is what an indifference curve portrays.

MARGINAL RATE OF SUBSTITUTION

The quantity of one good an individual must forego in order to increase the quantity of another good and leave the individual indifferent, is called the marginal rate of substitution. This marginal rate of substitution is shown graphically as the tangent to the indifference curve. The marginal rate of substitution is decreasing. This verifies that the indifference curves are convex as seen from the origin.

BUDGET LINE

A budget line is the locus of combinations of two goods an individual can afford

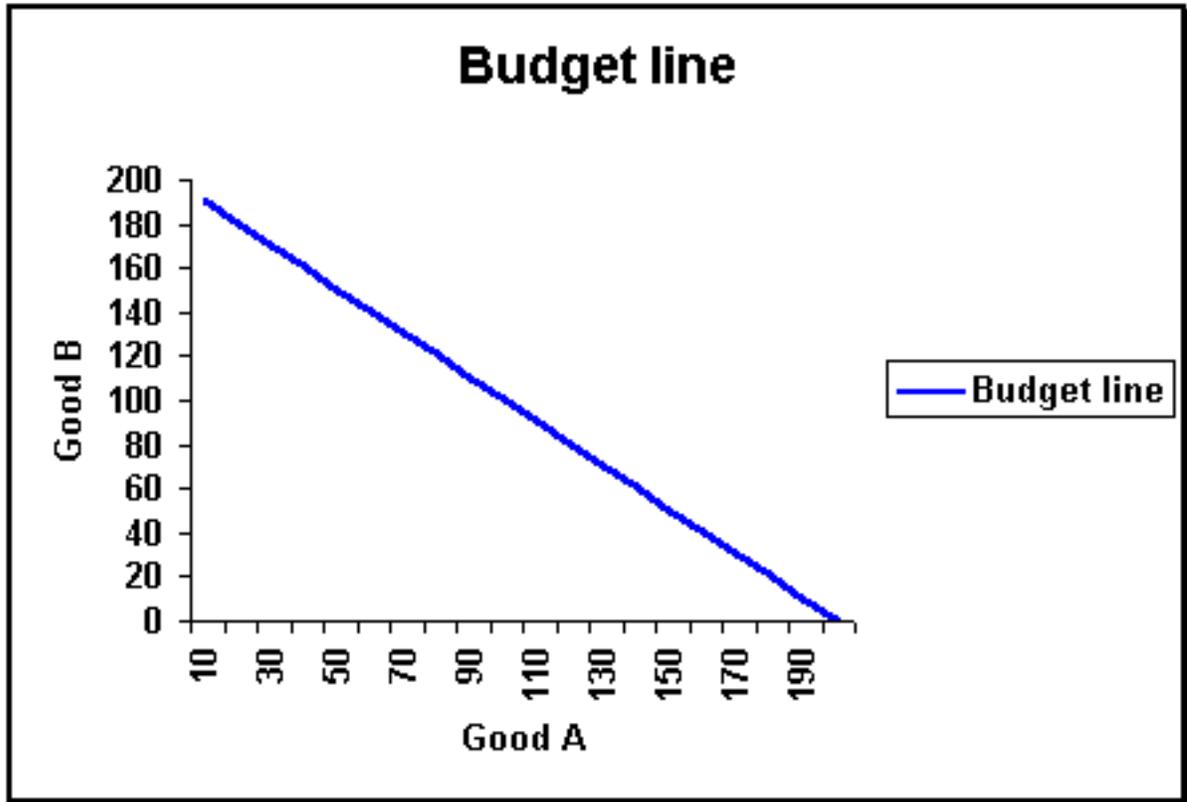
Source URL: <http://www.peoi.org/Courses/Coursestu/mac/fram3.html>
Saylor URL: <http://www.saylor.org/courses/econ102/>

Attributed to: [John Petroff]



to buy with his/her income. The slope of the line is the price ratio of the two goods: P_a/P_b or relative price of each good.

Graph G-MIC1.7



;A housewife going to the supermarket with a specific amount of money, knows exactly what is the maximum she can spend. The proportions of the different items can change.

POINT OF TANGENCY

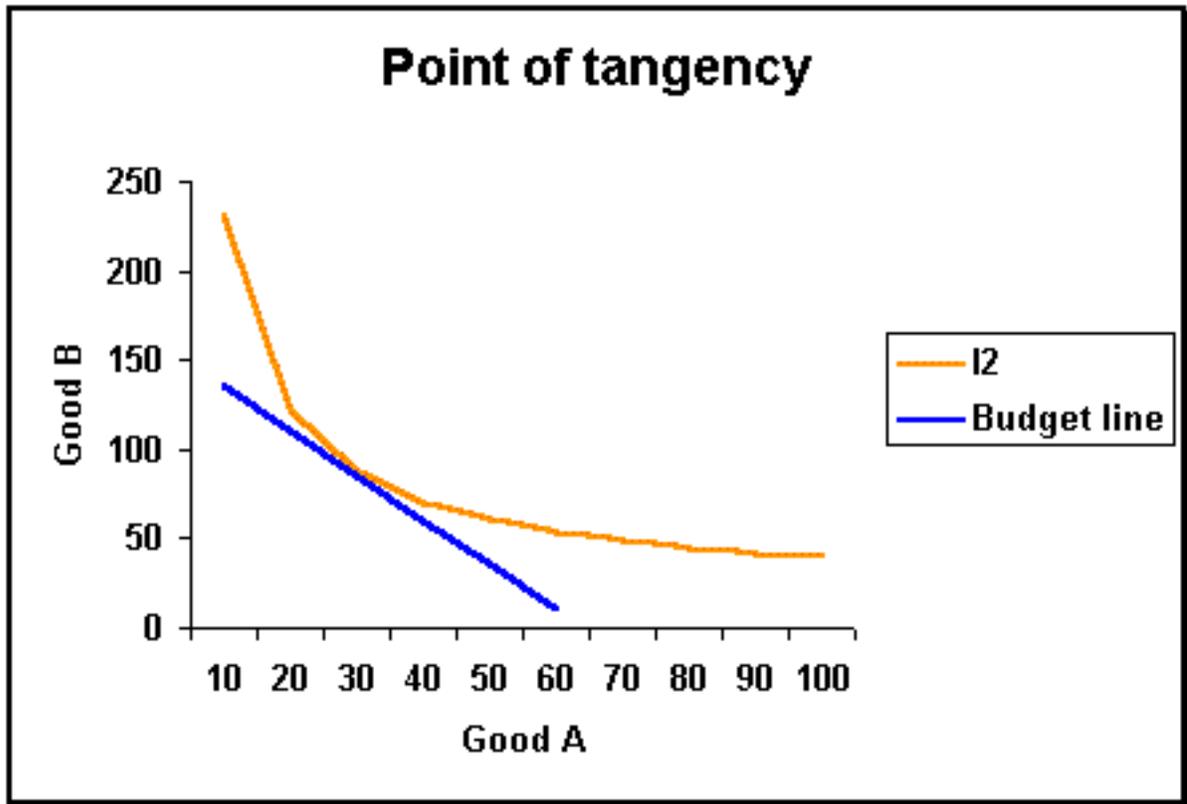
The equilibrium point which will give most satisfaction to the consumer, and which the consumer can afford, is where the budget line is tangent to the highest indifference curve.

Source URL: <http://www.peoi.org/Courses/Coursestu/mac/fram3.html>
Saylor URL: <http://www.saylor.org/courses/econ102/>

Attributed to: [John Petroff]



Graph G-MIC1.8



DERIVATION OF DEMAND

Demand can be derived from the indifference curves by lowering (increasing) the price of one good and observing that the budget line will shift as a result, causing the point of tangency to reflect a larger (smaller) quantity purchased of that good.

Source URL: <http://www.peoi.org/Courses/Coursestu/mac/fram3.html>
Saylor URL: <http://www.saylor.org/courses/econ102/>

Attributed to: [John Petroff]

