

# DHA-Drshikhavashishtha\_MBAHA\_Paper406(Health Eco)\_Unit3

Demand definition, Factors influence demand, Measuring demand elasticity, Market equilibrium, Determinants of Health Status, Medical care as an Investment, Health care financing in India-including FDI in Health care, FDI in Medical device industry in India, Supply side consideration- Market for Health care profession, market for physician, services, Models of Physicians Behaviour

## Consumers and Their Demand for Healthcare

Demand by definition is an economic concept that describes consumer's desire to pay a price for goods or services. If all other factors are constant, a rise in the price of a good or service will reduce demand and a decrease in the price of a good or service will increase demand [1]. Healthcare demand is gradually rising. According to Dixon-Fyle and Kowallik [2], many countries will spend more than 20% of Gross Domestic Product (GDP) on health care by 2050. Two main contributors to this growth are the increasing prevalence of preventable illness and the suboptimal use of healthcare resources. These factors are influenced by choices consumers make. For instance, obesity is on the rise in the United States. Obesity is preventable and can increase the risk of diabetes, stroke, and heart disease. Some patients do not take appropriate control of their health and seek treatment when conditions become chronic. The lack of initiative to live a healthy life and prevent chronic illness such as obesity has led to misuse of the healthcare system, hence, increased cost [2]. This article will review how demand for healthcare differs from demand for other services and the reasons why consumers make irrational decisions in their healthcare choices.

According to Mwachofi and Al-Assaf [3], one can argue that, in general, health care is only valued to the extent that it improves health, so health is primitive in the description of consumers' preference [3]. Some important concepts or factor that influence demand in healthcare have to be well defined in order to understand the concept of demand in health care. These are:

1. Prices: This is the amount of money expected in payment for something.
2. Consumer: For the sake of this paper, a consumer is defined as a buyer or a patient.
3. Income: This is money earned especially through investment or work. Income can influence demand for healthcare. If a consumer is a low-income earner, the consumer may not seek healthcare for common sickness. Likewise, a consumer who earns more may be more willing to spend on healthcare.
4. Governmental influence: Policies such as subsidy can increase demand for healthcare as patients are charged a lower price.
5. Supply: Is a fundamental concept in economics that describes the total number of a specific good or service available to consumers. Supply can be determined by price, competing goods, and demand [1].

Healthcare is different from other services because it is not clearly defined. In most industries, the product or service can be standardized to improve efficiency and quality. In healthcare, every consumer is structurally, chemically, and emotionally different. What works for one person may not necessarily work for another. Healthcare also differs in terms of choosing consumers. In other services, there is a choice in selecting which person or industry business can be conducted with. It is not so in healthcare as treatment has to be provided to patients in places like the emergency room regardless of patients' ability to pay or not [4]. Furthermore, healthcare professionals are rarely paid directly by their patients like in other industries. Payment usually comes from government or insurance companies. These factors make healthcare unique when compared with other services.

The demand for healthcare comes from the desire of the consumer to gain good health. Most people prefer being healthy to being sick. Another factor that makes health care different from most other goods and services is that it is simultaneously an investment. The money consumer spends on being healthy today will also benefit the consumer in the future. Another key characteristic of health care is that demand is relatively inelastic [5]. If a consumer is sick and requires medical care, the consumer will purchase healthcare services at almost any price. The consumers' ability to purchase healthcare is ultimately limited by the customers' income, but consumers are likely to trade off spending on many other products to purchase the medical care needed.

Unlike other goods or services, the quality of health makes it difficult to meet the ideal market solution. Health is not a marketable product. It is not possible to swap "good health" between customers. For instance, Customer A cannot change his or her hemoglobin A1C result of 5.6 with Customer B whose result is 11.9. In other services, if Mr. A purchases an air purifier online from Amazon, if he chooses to return the product because of any reason, he can. If he decides he wants to sell it on Craigslist, he can also do that. This type of exchange is not possible when it comes to health.

According to Mwachofi and Al-Assaf [3], with other services, demand can be predictable, and consumers have the ability to test the product or service before consumption. For instance, If Mr. G is thinking of purchasing a phone application to track weight loss goal for \$12.99, the company offering this service can give Mr. G a 30 days free and no commitment trial period. This type of service is not possible in healthcare. A patient cannot have a 30 days trial for gastric bypass. After the completion of a surgical procedure, there is no "give me my money back" and the patient has to live with the outcome whether it is an expected positive outcome or adverse outcome with surgical complications [3].

Also, healthcare providers are usually more knowledgeable about illness and treatments than their patients [3]. Patients depend on their provider to act in the best interest, but there is a conflict of interest because the providers are selling the services to the patient. In this case, demand and supply are interwoven and jointly determined by the individual at the same time, and this can lead to market failure. For example, if a provider's motivation is driven by profit or increased income, the provider may order more services and tests than required. Hence, the consumer pays more for unnecessary services without having knowledge of it. Furthermore, with other services or goods such as purchasing an automobile, the buyer does not have to have years of education before understanding the best vehicle for his or needs. This information can be found via several avenues such as automobile books, car television channels and from an internet search.

Consumers make choices every day. They decide when to seek medical care, whether to have surgery, whether to vaccinate themselves or their children, and how often to go for provider follow-up visit. The process of making such choices can be complicated because it may involve weighing potential risks and benefits, finances, advice from family members, and providers. There are times when consumers make rational decisions. However, there are also times when they do not make rational decisions with their healthcare choices. The later part of this paper will discuss literature review supported with examples illustrating how consumers do not make rational decisions in their demand for healthcare.

## 5 Determinants of Demand with Examples and Formula

[Demand](#) drives economic growth. Businesses want to increase demand so they can improve [profits](#).

Governments and [central banks](#) boost demand to end recessions. They slow it during the expansion phase of the [business cycle](#) to combat inflation. If you offer any paid services, then you are trying to raise demand for them.

So what drives demand? In the real world, a potentially infinite number of factors impact each consumer's decision whether or not to buy something. In economics, however, the equation is simplified to highlight the five primary determinants of individual demand and a sixth for [aggregate demand](#).<sup>1</sup>

## The Five Determinants of Demand

The five determinants of demand are:

1. The price of the good or service.
2. The [income](#) of buyers.
3. The prices of related goods or services. These are either complementary (those purchased along with a particular good or service), or substitutes (those purchased instead of a certain good or service).
4. The tastes or preferences of consumers.
5. Consumer expectations. Most often, this refers to whether a consumer believes prices for the product will rise or fall in the future.

For aggregate demand, the number of buyers in the market is the sixth determinant.

## Demand Equation or Function

This equation expresses the relationship between demand and its five determinants:<sup>1</sup>

$$qD = f(\text{price, income, prices of related goods, tastes, expectations})$$

As you can see, this isn't a straightforward equation like  $2 + 2 = 4$ . It isn't that simple to create an equation that accurately predicts the exact quantity that consumers will demand.

Instead, this equation highlights the relationship between demand and its key factors. The quantity demanded ( $qD$ ) is a *function* of five factors: price, [income of the buyer](#), the price of related goods, the tastes of the consumer, and any expectation the consumer has of future [supply](#), prices, etc. As these factors change, so too does the quantity demanded.

## How Each Determinant Affects Demand

Each factor's impact on demand is unique. When the income of the buyer increases, for example, that could also increase demand—the buyer has more money and is more likely to spend it. But when other factors increase—like the price of related goods, for example—demand could decrease.

Before breaking down the effect of each determinant, it's important to note that these factors don't change in a vacuum. All the factors are in flux, all the time. To understand how one determinant affects demand, you must first hypothetically assume that all the other determinants don't change.<sup>1</sup>

That principle is called *ceteris paribus* or “all other things being equal.”

So, "ceteris paribus," here's how each element affects demand.

### Price

The [law of demand](#) states that when prices rise, the quantity of demand falls. That also means that when prices drop, demand will grow. People base their purchasing decisions on price if all other things are equal. The exact quantity bought for each price level is described in the [demand schedule](#). It's then plotted on a graph to show the [demand curve](#).

The demand curve shows just the relationship between price and quantity. If one of the other determinants changes, the entire [demand curve shifts](#).

If the quantity demanded responds a lot to price, then it's known as [elastic demand](#). If demand doesn't change much, regardless of price, that's [inelastic demand](#).

### Income

When income rises, so will the quantity demanded. When income falls, so will demand. But if your income doubles, you won't always buy twice as much of a particular good or service. There's only so many pints of ice cream you'd want to eat, no matter how wealthy you are, and this is an example of "marginal utility."

Marginal utility is the concept that each unit of a good or service is a little less useful to you than the first. At some point, you won't want it anymore, and the marginal utility drops to zero.

The first pint of ice cream tastes delicious. You might have another. But after that, the marginal utility starts to decrease to the point where you don't want any more.

### Prices of Related Goods or Services

The price of complementary goods or services raises the cost of using the product you demand, so you'll want less. For example, when [gas prices rose to \\$4 a gallon in 2008](#), the demand for gas-guzzling trucks and SUVs fell.<sup>2</sup> Gas is a complementary good to these vehicles. The cost of driving a truck rose along with [gas prices](#).

The opposite reaction occurs when the price of a substitute rises. When that happens, people will want more of the good or service and less of its substitute. That's why Apple continually innovates with its iPhones and iPods. As soon as a substitute, such as a new Android phone, appears at a lower price, Apple comes out with a better product. Then the Android is no longer a substitute.

## Tastes

When the public's desires, emotions, or preferences change in favor of a product, so does the quantity demanded. Likewise, when tastes go against it, that depresses the amount demanded. Brand advertising tries to increase the desire for consumer goods.

## Expectations

When people expect that the value of something will rise, they demand more of it. That helps explain the housing [asset bubble](#) of 2005. Housing prices rose, but people kept buying houses because they expected the price to continue to go up. Prices continued increasing until the bubble burst in 2007. New home prices fell 22% from their peak of \$262,200 in March 2007 to \$204,200 in October 2010.<sup>3</sup> However, the quantity demanded didn't increase, even as the price decreased, and sales fell from a peak of 1.2 million in 2005 to a low of 306,000 in 2011.<sup>4</sup>

So why didn't the quantity demanded increase as the price fell? It's in part because the broader economy was experiencing a recession. People expected prices to continue falling, so they didn't feel an urgency to buy a home. Record levels of [foreclosures](#) entered the market due to the [subprime mortgage crisis](#). Demand for homes didn't increase until people expected future home prices would, too.

## Number of Buyers in the Market

The number of consumers affects overall, or "aggregate," demand. As more buyers enter the market, demand rises. That's true even if prices don't change, and the U.S. saw this during the housing bubble of 2005. Low-cost and [sub-prime mortgages](#) increased the number of people who could afford a house.<sup>5</sup> The total number of buyers in the market expanded. This increased demand for housing. When housing prices started to fall, many realized they couldn't afford their mortgages. At that point, they foreclosed. That reduced the number of buyers and drove down demand.

## How to Measure the Elasticity of Demand ? (Top 5 Methods) | Economics

The following points highlight the top five methods used for measuring the elasticity of demand. The methods are: 1. Price Elasticity of Demand 2. Income Elasticity of Demand 3. Cross Elasticity of Demand 4. Advertisement or Promotional Elasticity of Sales 5. Elasticity of Price Expectations.

### *Method # 1. Price Elasticity of Demand:*

Price elasticity of demand is a measure of the responsiveness of demand to changes in the commodity's own price. It is the ratio of the relative change in a dependent variable (quantity demanded) to the relative change in an independent variable (Price).

In other words, price elasticity is the ratio of a relative change in quantity demanded to a relative change in price. Let 'e' stand for elasticity.

**Then:**

$$e_p = \frac{\text{Relative change in quantity demanded}}{\text{Relative change in price}} \quad \dots(1.1)$$

Also, elasticity is the percentage change in quantity demanded divided by the percentage in price.

**Symbolically, we may rewrite the formula:**

$$e_p = \frac{\text{Percentage change in quantity demanded}}{\text{Percentage change in price}} \quad \dots(1.2)$$

If percentages are known, the numerical value of elasticity can be calculated. The coefficient of elasticity of demand is a pure number i.e. it stands by itself, being independent of units of measurement. The coefficient of price elasticity of demand can be calculated with the help of the following formula.

$$e_p = \frac{\Delta Q}{Q} \cdot \frac{P}{\Delta P} \quad \dots(1.3)$$

Where,

Q is quantity, P is price,  $\Delta Q/Q$  relative change in the quantity demanded and  $\Delta P/P$  Relative change in price.

It should be noted that a minus sign (-) is generally inserted in the formula before the fraction with a view to making the coefficient of elasticity a non-negative value.

The price elasticity can be measured between two finite points on a demand curve (called arc elasticity) or on a point (called point elasticity).

### **Arc Elasticity:**

Any two points on a demand curve make an arc. In the words of Baumol, "Arc elasticity is a measure of the average responsiveness to price changes exhibited by a demand curve over some finite stretch of the curve". The measure of elasticity of demand between any two finite points on a demand curve is known as arc elasticity.

**The elasticity coefficient can be calculated with the help of the following formula:**

$$e_p = \frac{\Delta Q}{Q} \cdot \frac{P}{\Delta P} \quad \dots(1.4)$$

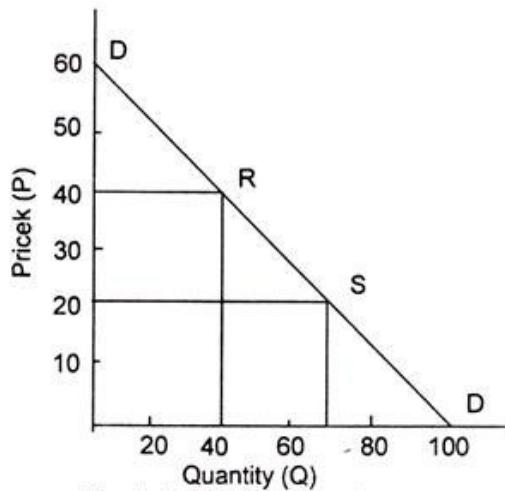


Fig. 1.1 Linear Demand Curve

For example, in Fig. 1.1 two finite points R and S are taken to measure the arc elasticity. First we move to measure elasticity for a fall in the price of the commodity from Rs. 40 to 20.  $\Delta P$  is  $40 - 20 = 20$ . This decrease in price causes an increase in demand from 40 units to 70 so that  $\Delta Q$  is  $40 - 70 = -30$ .

**These values can be put in the formula so that:**

$$e_p = \frac{-30}{20} \cdot \frac{20}{20} = -1.5 \quad \dots(1.5)$$

This implies that a one percent fall in price of commodity X causes a 1.5 per cent increase in demand for it.

In the measurement, interpretation and use of arc elasticity, the business executives need take adequate care as the elasticity coefficient may differ depending upon the direction of movement. In this case we have measured the elasticity coefficient while moving down from point R to S.

The coefficient will be different while moving upward from point S to R (increase in price from Rs. 20 to 40 and quantity demanded is reduced from 70 to 40 units giving an elasticity coefficient of  $-0.42$  implying that one per cent increase in price will reduce the quantity by 0.42 percent. Thus the elasticity depends on the direction of change in price. Therefore, measuring elasticity through arc method, the direction of price change should be kept in mind.

The way out of this difficulty is to take an average of prices and quantities and thus to measure elasticity at the midpoint of the arc.

**The formula then becomes:**

$$\frac{1}{2} \frac{\Delta Q}{(Q_1 + Q_2)^{1/2}} / \frac{\Delta P}{(P_1 + P_2)} \quad \dots(1.6)$$



Although the  $\frac{1}{2}$  cancels out in the formula, it is put there to stress the fact that by using the average values of the quantities and prices, the elasticity coefficient is the same whether price goes up or goes down.

### Point Elasticity on a Linear Demand Curve:

Point elasticity is the ratio of an infinitesimally small relative change in quantity to an infinitesimally small change in price. If a price range is made as small as possible, that is, shrunk to a point- then the relative changes must be made as small as possible- infinitesimally small.

Point elasticity is the ratio of an infinitesimally small relative change in quantity to an infinitesimally small change in price. Point elasticity of demand is defined as the - proportionate change in the quantity demanded resulting from a very small proportionate change in price. Fig. 1.2 shows how to find the elasticity at a point on a demand curve.

Let us take a point such as R on the demand curve DD. For measuring elasticity at a point the following formula may be used.

$$e_p = \frac{\Delta Q}{Q} \cdot \frac{P}{\Delta P} \quad \dots(1.7)$$

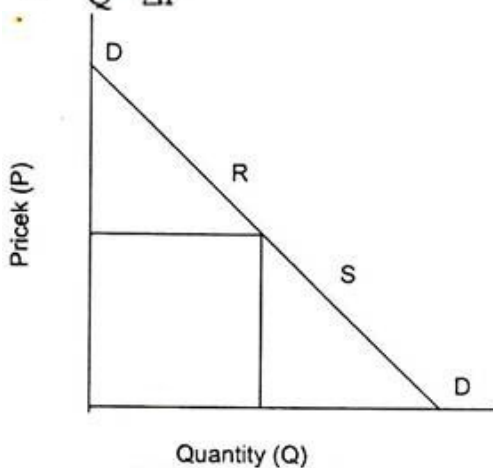


Fig. 1.2 Linear Demand Curve

Point elasticity is the product of price-quantity ratio ( $P/Q$ ) at a particular point (R) on the demand curve (DD) and the reciprocal of the slope of the demand line. The slope of the demand slope is defined by  $RQ/QD$ . The reciprocal of the slope of the demand line is  $QD/RQ$ .

$$e_p = \frac{\partial Q}{\partial P} = \frac{QD}{RQ} \quad \dots(1.8)$$

At point R, price  $P = RQ$  and  $Q = OQ$

If we substitute these values in equation 1.8, what we get is



$$e_p = \frac{RQ}{OQ} \cdot \frac{QD}{RQ} = \frac{QD}{OQ} \quad \dots(1.9)$$

If the numerical values for QD and OQ are available, elasticity at point R can be calculated.

### Price Elasticity at Different Points on a Non-Linear Demand Curve:

The method used to measure point elasticity on a linear demand curve cannot be applied straightway to measure point elasticity on a non-linear demand curve. In order to measure point elasticity on a non-linear demand curve, we first draw a tangent to the selected point and bring it on a linear demand curve. Fig. 1.3 illustrates how we can measure point elasticity on a non-linear demand curve at point R.

For this purpose, we draw a tangent AB through point R. Since demand curve DD and the line AB pass through the same point R, the slope of the demand curve and that of the tangent is the same. Therefore, the elasticity of demand curve at point R will be the same as the elasticity on point R on line AB. The formula applied to measure the elasticity on a linear demand curve can now be used as the non-linear demand curve has been changed into a linear demand curve.

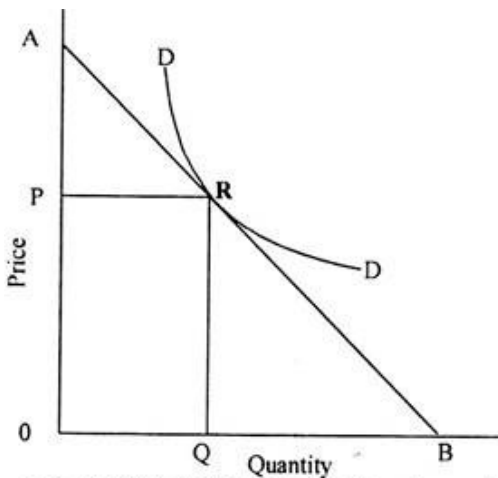


Fig. 1.3 Point elasticity on non - linear demand curve

### Price Elasticity and Total Revenue:

One important application of elasticity is to clarify whether a price increase will raise or lower total revenue. Many business executives are concerned with the issue whether it is worthwhile to raise prices and whether the higher prices make up for lower demand.

Total revenue is equal to price times quantity (TR = P.Q).

**If we know the price elasticity of demand, we may know what will happen to total revenue when price changes:**

(1) If price elasticity ( $e_p > 1$ ), reducing the price will increase the total revenue.

(2) When demand is perfectly inelastic  $e_p = 0$ , there is no decrease in quantity demanded when price is raised. Therefore, a rise in price increases the total revenue and vice versa.

(3) In case of an inelastic demand ( $e_p < 1$ ), the total revenue falls when the price is decreased. The total revenue increases when the price is increased.

(4) When the demand for a product is unitary elastic ( $e_p = 1$ ) quantity demanded increases or decreases in the proportion of increases or decrease in the price. Hence total revenue remains unaffected.

To make this point more clear, we require total and marginal revenue function and price-elasticity of demand.

$$TR = P \cdot Q \quad \dots(1.10)$$

The marginal revenue (MR) is the derivative of the TR function

$$MR = \Delta(TR) / \Delta Q = \Delta(PQ) / \Delta Q \quad \dots(1.11)$$

or  $MR = P + Q \cdot \Delta P / \Delta Q \quad \dots(1.12)$

If the demand curve is linear its equation is

$$Q = b_0 - b_1 P \quad \dots(1.13)$$

Solving for P

$$P = a_0 - a_1 Q$$

where

$$a_0 = b_0 / b_1 \quad \text{and} \quad a_1 = 1 / b_1$$

Substituting P in the total revenue function we find

$$TR = PQ = a_0 Q - a_1 Q^2 \quad \dots(1.14)$$

The MR is then

$$MR = \Delta(TR) / \Delta Q = a_0 - 2a_1 Q \quad \dots (1.15)$$

It can be seen from the figure 1.4 that if the demand curve is falling the TR curve initially increases, reaches a maximum, and then starts declining. The derived relationship between MR, P and  $e$  can be used to establish the shape of the total-revenue curve.

The total revenue curve reaches its maximum level at the point where  $e_p = 1$ , because at this point its slope, the marginal revenue, is equal to zero.

$$MR = P (1 - 1/1) = 0$$

If  $e_p > 1$  the total revenue curve has a positive slope. It is still increasing and has not reached its maximum point. If  $e_p < 1$  the total-revenue has a negative slope and is falling.

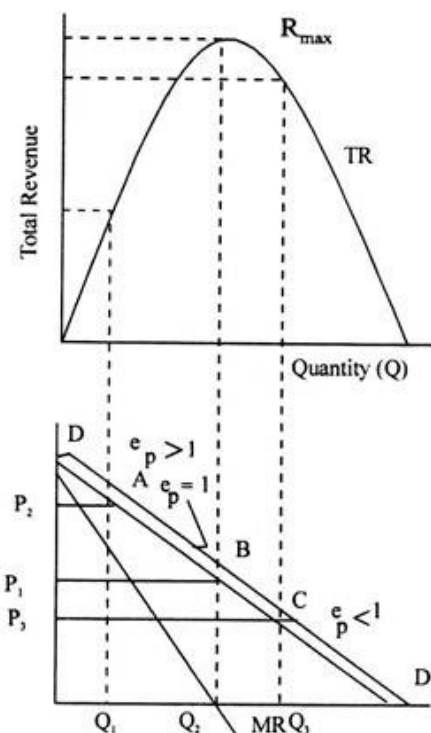


Fig. 1.4 Price elasticity and total revenue

**The following can be summarized:**

1. If the  $e_p < 1$ , the demand is inelastic, an increase in price leads to an increase in total revenue, and a decrease in price leads to a fall in total revenue.
2. If  $e_p > 1$ , the demand is elastic, and increase in price will cause a decrease in the total revenue and a decrease in price will lead to an increase in the total revenue.
3. If  $e_p = 1$ , the demand is unitary elastic, total revenue is not affected by changes in price because MR has reached zero.

**Price Elasticity and Marginal Revenue:**

Demand and marginal revenue curves show where demand is elastic, unitary elastic and inelastic. It is clear that demand becomes less elastic at lower prices. This is a characteristic of linear demand curves because the curve is linear  $dQ/dP$  is a constant. Thus price elasticity is determined by the value of  $P/Q$ . But as price decreases,  $P/Q$  also decreases.

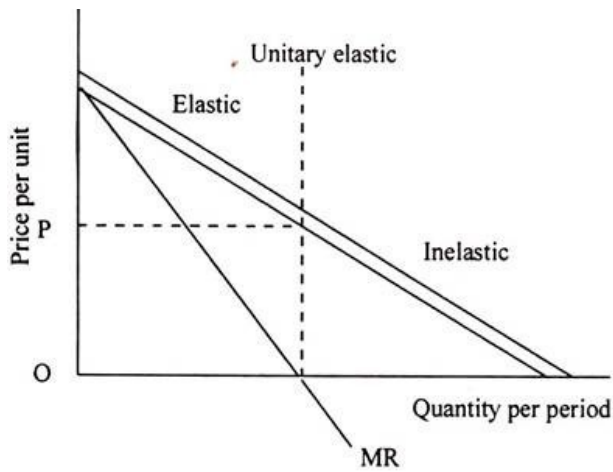


Fig. 1.5 Price Elasticity and Marginal Revenue

Consequently, the absolute value of  $e$  becomes smaller and demand becomes less elastic.

The figure 1.5 illustrates that the point of unitary elasticity corresponds to the point where the marginal revenue crosses the quantity axis. The marginal revenue is zero where demand is unitary elastic. Unitary elasticity means that a 1 percent increase in price causes quantity demanded to decrease by 1 percent and the increase in price is exactly offset by the decrease in quantity demanded. Consequently, there is no change in total revenue as the marginal revenue is zero.

The marginal revenue is positive where demand is elastic and negative when demand is inelastic. Note that these relationships are also true for nonlinear demand curves. The point where marginal revenue is zero always divides the elastic and inelastic regions of the demand curve.

In case of a vertical demand curve, quantity demanded is not affected by changes in price as  $dQ/dP$  is zero and price-elasticity is also zero. For a horizontal demand curve, quantity demanded is highly responsive to changes in price as even a very small change in price can lead to an infinitely large change in quantity demanded as  $dQ/dP$  and price elasticity being infinite. Horizontal demand curves are said to be infinitely elastic. The cases of infinitely elastic or completely inelastic demand curves are rare to find in real life, but an understanding of these is useful for economic analysis.

### Method # 2. Income Elasticity of Demand:

The responsiveness of quantity demanded to changes in income is called income elasticity of demand. With income elasticity, consumer incomes vary while tastes, the commodity's own price, and the other prices are held constant.

**The income elasticity of demand for a good or service may be calculated by the formula:**

or 
$$e_p = \frac{\text{Percentage change in quantity demanded}}{\text{Percentage change in income}}$$

$$e_p = \frac{\text{Relative change in quantity demanded}}{\text{Relative change in the incomes of the buyers}}$$

$$e_y = \frac{\Delta Q}{Q} / \frac{\Delta Y}{Y} = \frac{Y}{Q} \cdot \frac{\Delta Q}{\Delta Y} \quad \dots(1.16)$$

where-  $e_y$  stands for the coefficient of income elasticity,  $Y$  for income.

Whereas price-elasticity of demand is always negative, income-elasticity of demand is always positive (except for inferior goods) as the relationship between income and quantity demanded of a product is positive. For inferior goods the income elasticity of demand is negative because as income increases, consumers switch over to the consumption of superior substitutes.

**The degree of income elasticity varies in accordance with the nature of commodities:**

1. In case of all normal goods, the income elasticity is positive
2. For essential goods, the income elasticity is less than one. This means that quantity demanded increases less than proportionately as income increases. Soap, salt, match, newspapers have low income- elasticity of demand.
3. For goods of comfort, the income-elasticity coefficient is equal to unit which results in proportionate change in quantity demand.
4. Luxury goods have income elasticity greater than unity implying more than proportionate change in quantity demanded. Jewelry, automobiles are goods of this category.

**Income elasticity of demand can be useful in the following business decisions:**

1. Income-elasticity can be helpful in production planning and management in the long run, particularly during the period of business cycle.
2. It can be used for demand forecasting with given rate of increase in income.

**Income Sensitivity:**

The income elasticity of demand measures the degree of responsiveness of physical quantities of consumption of a good as income changes. If we measure consumption by consumer expenditures rather than by physical quantities of a good, the phenomena may be described as income sensitivity. An income- sensitivity may be defined as the percentage change in expenditures on a good divided by the percentage change in income of the consumers.

The income sensitivity may be measured with the help of following formula:

$$Y_s = \frac{\text{Percentage change in expenditure}}{\text{Percentage change in income}}$$

$$Y_s = \frac{\Delta R/R}{\Delta Y/R} \quad \dots(1.17)$$

where:  $Y_s$  measures the income sensitivity,  $\Delta R$  measures change in consumer expenditure and  $\Delta Y$  measures change in income.

Suppose a 10 percent increase in income causes consumer expenditure on a good to increase by 12 percent, the income sensitivity of that good is 1.2.

### Method # 3. Cross Elasticity of Demand:

Demand is also influenced by prices of other goods and services. The cross elasticity measures the responsiveness of quantity demanded to changes in price of other goods and services. Cross elasticity of demand is defined as the percentage change in quantity demanded of one good caused by a 1 percentage change in the price of some other good.

$$e_c = \frac{\% \Delta Q_x}{\% \Delta P_y} \dots (1.18)$$

Cross elasticity is used to classify the relationship between goods. If cross elasticity is greater than zero, an increase in the price of y causes an increase in the quantity demanded of x, and the two products are said to be substitutes. When the cross-elasticity is greater than zero, the goods or services involved are classified as complements. Increases in the price of y reduces the quantity demanded of that product. Diminished demand for y causes a reduced demand for x. Bread and butter, cars and tires, and computers and computer programs are examples of pairs of goods that are complements.

The coefficient is positive if A and B are substitutes because the price change and the quantity change are in the same direction. The coefficient is negative if A and B are complements, because changes in the price of one commodity cause opposite changes in the quantity demanded of the other. Other things such as consumer taste for both commodities, consumer incomes and the price of the other commodity are held constant.

Many companies produce several related products. Where a company's products are related, the pricing of one good can influence the demand for other products. Gillette makes both razors and razor blades. Ford sells several competing makes of automobiles. Gillette probably will sell more razor blades if it lowers the price of its razors.

The closer two commodities are as substitutes for each other, the greater is the size of the cross elasticity coefficient. Close substitutes have high cross elasticity of demand; poor substitutes have low cross elasticity.

In general, a rise in the price of a commodity increases the demand for its substitutes and diminishes the demand for its complements.

#### **Method # 4. Advertisement or Promotional Elasticity of Sales:**

The advertisement expenditure helps in promoting sales. The impact of advertisement on sales is not uniform at all level of total sales. The concept of advertising elasticity is significant in determining the optimum level of advertisement outlay particularly in view of competitive advertising by rival firms. An advertising elasticity could be defined as the percentage change in quantity demanded for a percentage change in advertising. Advertising might be measured by expenditure.

**Advertising elasticity may be measured by the following formula:**

$$e_A = \frac{\Delta S}{\Delta A} \cdot \frac{A}{S} \quad \dots(1.19)$$

where: S = sales;  $\Delta S$  = increase in sales; A = initial advertisement outlay; and  $\Delta A$  = increased advertising outlay.

The advertising elasticity of sales varies between zero and infinity. If advertising elasticity is zero, sales do not respond to the advertising expenditure. Promotional elasticity coefficient greater than zero but less than 1 ( $e_A > 0 < 1$ ) indicates that sales increase less than proportionate to the increase in advertisement expenditure. The coefficient of equal to 1 means proportionate increase in sales to the increase in expenditure on advertisement. If  $e_A > 1$  it interprets that sales increase at a higher rate than the rate of increase of advertisement expenditure.

#### **Determinants of Advertisement Elasticity:**

##### **1. The Level of Sales:**

The advertising elasticity of sales, particularly in case of products newly introduced into the market, is greater than unity. Sales increase more than proportionately with the increase in advertisement expenditure. As sales increase elasticity begins to decrease. Now the advertisement is done to create new customers to the product. Therefore, demand now increases less than proportionately to increase in advertisement.

##### **2. Competitive Advertising:**



The advertising elasticity of a firm will depend not only on the advertisement expenditure incurred by the firm for its product but also on the effectiveness of the competitive advertising by the rival firms

### 3. Cumulative Effect of Past Advertisement:

In the initial stages the advertisement outlay is not adequate enough to be effective. Therefore, the elasticity may be very low. But in later stages as the cumulative effect of advertisement gather, the advertising elasticity may increase over time.

Change in product's price, consumer's income, increase in the number of substitutes and their prices are other factors that influence the advertising elasticity of a product.

### Method # 5. Elasticity of Price Expectations:

People's price expectations also play a significant role as a determinant of demand. J.R. Hicks, the English economist, in 1939, devised the concept of elasticity of price expectations. The elasticity of price expectations may be defined as the ratio of the relative change in expected future prices to the relative change in current prices.

$$e_x = \frac{\text{relative change in expected future prices}}{\text{relative change in current prices}}$$
$$e_x = \frac{\Delta P_f / P_f}{\Delta P_c / P_c} = \frac{\Delta P_f}{\Delta P_c} \cdot \frac{P_c}{P_f} \quad \dots(1.20)$$

where,

$P_c$  Current prices

$P_f$  Future prices

If  $e_x > 1$  Buyers expect that future prices will rise by a larger percentage than current prices.

$e_x = 1$  Buyers expect that future prices will rise by the same percentage as current prices.

$e_x < 1$  Buyers expect that future prices will rise by a smaller percentage than current prices.

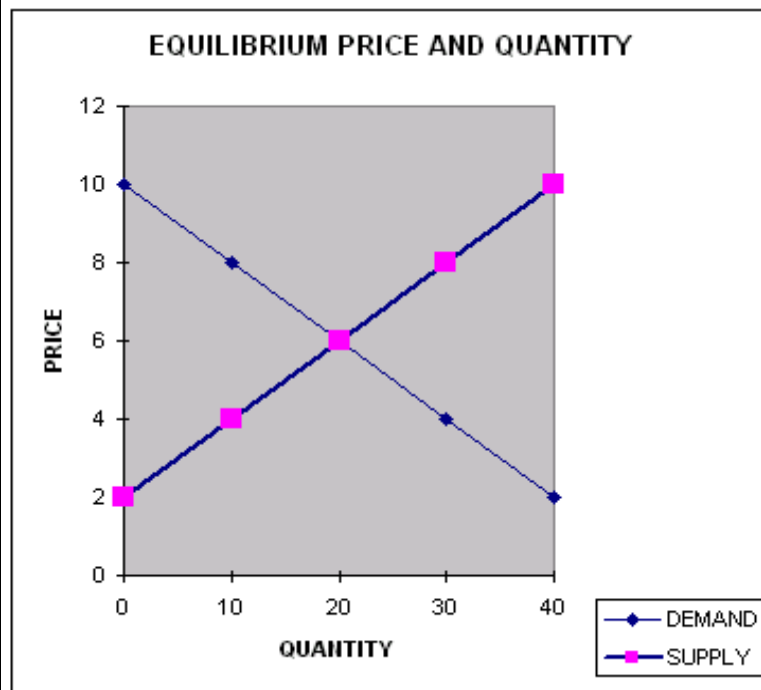
$e_x = 0$  Buyers expect current rise to have no effect on future prices

$e_x < 0$  Buyers expect that current rise will be followed by a fall in future prices.

The concept of elasticity of price-expectation is very useful in formulating pricing policy.

## MARKET EQUILIBRIUM

When the supply and demand curves intersect, the market is in equilibrium. This is where the quantity demanded and quantity supplied are equal. The corresponding price is the equilibrium price or market-clearing price, the quantity is the equilibrium quantity.



Putting the supply and demand curves from the previous sections together. These two curves will intersect at Price = \$6, and Quantity = 20.

In this market, the equilibrium price is \$6 per unit, and equilibrium quantity is 20 units.

At this price level, market is in equilibrium. Quantity supplied is equal to quantity demanded ( $Q_s = Q_d$ ).

Market is clear.

### Surplus and shortage:

If the market price is above the equilibrium price, quantity supplied is greater than quantity demanded, creating a surplus. Market price will fall.

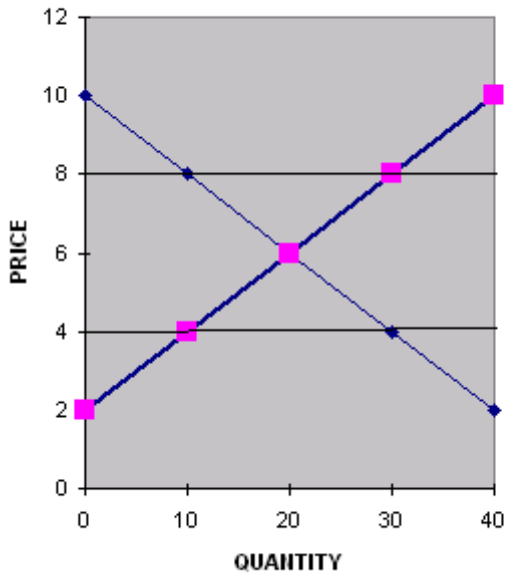
Example: if you are the producer, you have a lot of excess inventory that cannot sell. Will you put them on sale? It is most likely yes. Once you lower the price of your product, your product's quantity demanded will rise until equilibrium is reached. Therefore, surplus drives price down.

If the market price is below the equilibrium price, quantity supplied is less than quantity demanded, creating a shortage. The market is not clear. It is in shortage. Market price will rise because of this shortage.

Example: if you are the producer, your product is always out of stock. Will you raise the price to make more profit? Most for-profit firms will say yes. Once you raise the price of your product, your product's quantity demanded will drop until equilibrium is reached. Therefore, shortage drives price up.

If a surplus exist, price must fall in order to entice additional quantity demanded and reduce quantity supplied until the surplus is eliminated. If a shortage exists, price must rise in order to entice additional supply and reduce quantity demanded until the shortage is eliminated.

### EQUILIBRIUM PRICE AND QUANTITY



If the market price (P) is higher than \$6 (where  $Q_d = Q_s$ ), for example,  $P=8$ ,  $Q_s=30$ , and  $Q_d=10$ .

Since  $Q_s > Q_d$ , there are excess quantity supplied in the market, the market is not clear. Market is in surplus.

THE PRICE WILL DROP BECAUSE OF THIS SURPLUS.

If the market price is lower than equilibrium price, \$6, for example,  $P=4$ ,  $Q_s=10$ , and  $Q_d=30$ .

Since  $Q_s < Q_d$ , There are excess quantity demanded in the market. Market is not clear. Market is in shortage.

THE PRICE WILL RISE DUE TO THIS SHORTAGE.

Government regulations will create surpluses and shortages in the market. When a price ceiling is set, there will be a shortage. When there is a price floor, there will be a surplus.

**Price Floor:** is legally imposed minimum price on the market. Transactions below this price is prohibited.

- Policy makers set floor price above the market equilibrium price which they believed is too low.
- Price floors are most often placed on markets for goods that are an important source of income for the sellers, such as labor market.
- Price floor generate surpluses on the market.
- Example: minimum wage.

**Price Ceiling:** is legally imposed maximum price on the market. Transactions above this price is prohibited.

- Policy makers set ceiling price below the market equilibrium price which they believed is too high.
- Intention of price ceiling is keeping stuff affordable for poor people.
- Price ceiling generates shortages on the market.
- Example: Rent control.

### Changes in equilibrium price and quantity:

Equilibrium price and quantity are determined by the intersection of supply and demand. A change in supply, or demand, or both, will necessarily change the equilibrium price, quantity or both. It is highly unlikely that the change in supply and demand perfectly offset one another so that equilibrium remains the same.

Example: This example is based on the assumption of Ceteris Paribus.

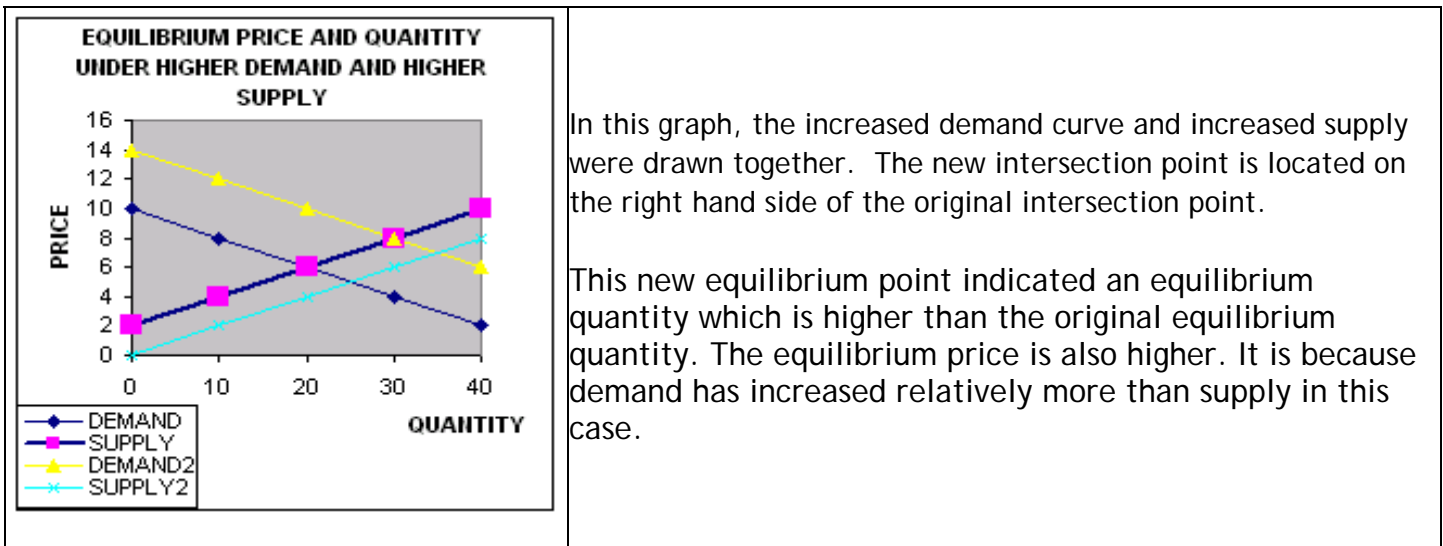
1) If there is an exporter who is willing to export oranges from Florida to Asia, he will increase the demand for Florida's oranges. An increase in demand will create a shortage, which increases the equilibrium price and equilibrium quantity.

2) If there is an importer who is willing to import oranges from Mexico to Florida, he will increase the supply for Florida's oranges. An increase in supply will create a surplus, which lowers the equilibrium price and increase the equilibrium quantity.

3) What will happen if the exporter and importer enter the Florida's orange market at the same time? From the above analysis, we can tell that equilibrium quantity will be higher. But the import and exporter's impact on price is opposite. Therefore, the change in equilibrium price cannot be determined unless more details are provided. Detail information should include the exact quantity the exporter and importer is engaged in. By comparing the quantity between importer and exporter, we can determine who has more impact on the market.

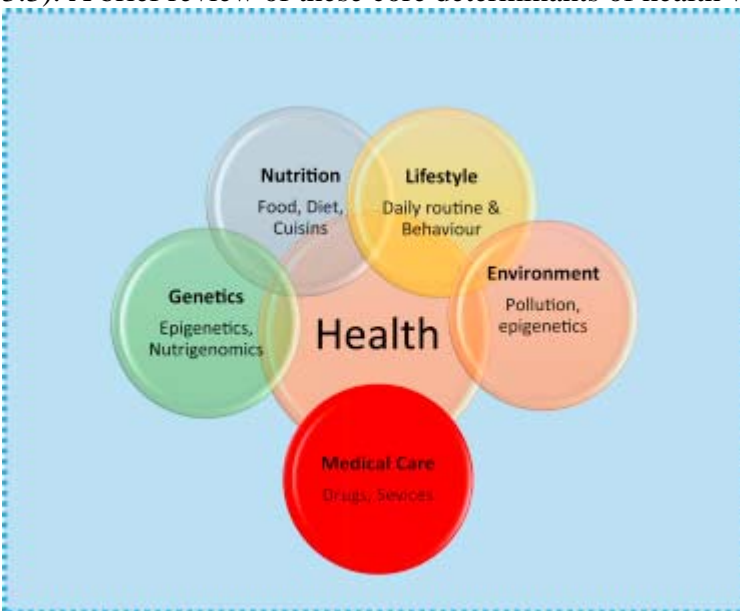
In the following table, an example of demand and supply increase is illustrated.

<p><b>EQUILIBRIUM PRICE AND QUANTITY UNDER HIGHER DEMAND</b></p> <p>PRICE</p> <p>QUANTITY</p> <p>DEMAND SUPPLY DEMAND2</p>	<p>In this graph, supply is constant, demand increases. As the new demand curve (Demand 2) has shown, the new curve is located on the right hand side of the original demand curve.</p> <p>The new curve intersects the original supply curve at a new point. At this point, the equilibrium price (market price) is higher, and equilibrium quantity is higher also.</p>
<p><b>EQUILIBRIUM PRICE AND QUANTITY UNDER HIGHER SUPPLY</b></p> <p>PRICE</p> <p>QUANTITY</p> <p>DEMAND SUPPLY SUPPLY2</p>	<p>In this graph, demand is constant, and supply increases. As the new supply curve (SUPPLY 2) has shown, the new curve is located on the right side of the original supply curve.</p> <p>The new curve intersects the original demand curve at a new point. At this point, the equilibrium price (market price) is lower, and the equilibrium quantity is higher.</p>



### Determinants of Health

Determinants of health may be biological, behavioral, sociocultural, economic, and ecological. Broadly, the determinants of health can be divided into four, core categories: **nutrition**, lifestyle, environment, and genetics, which are like four pillars of the foundation. When any one of the pillars of health determinants becomes weak, a support system is needed. This is considered the fifth determinant of health and involves medical care (Figure 3.3). A brief review of these core determinants of health will provide more insight.



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Figure 3.3. Determinants of health: Nutrition, lifestyle, environment, and genetics are considered as core determinants and four pillars of health. When any one or more of these is compromised, health is at risk and medical care is required as a support system.

Interestingly, two determinants, nutrition and lifestyle, are totally in our hands, and hence are called modifiable factors. Many diseases are caused by bad practices of nutrition and lifestyle. The degraded ecosystem, and environmental pollution are the causes of several disorders and diseases. With the help of powerful technology

and screening methods, many disorders of genetic origin can be prevented. If one or more core determinants become weak, then only the support of medical care is needed.

Over 75% or more of the resources allocated in health care budgets, especially from rich countries, are used for the treatment of lifestyle-related conditions. There is a growing consensus that lifestyle modifications should be the foundation of any health care system. According to the American College of Lifestyle Medicine, nearly 80% of all chronic diseases are preventable by readily available means—lifestyle modification as medicine.

People should be empowered to “take their health into their own hands” through lifestyle modifications. This will drastically reduce dependence on doctors. Traditional knowledge can be immensely useful to design appropriate lifestyle interventions. For instance, *Swasthavritta*, a branch of [Ayurveda](#) is dedicated totally to healthy lifestyle. *Swasthavritta* dictates do’s and don’ts for a healthy daily regimen, and outlines diet and lifestyle modifications appropriate to different seasons. *Swasthavritta*, and biobehavioral practices suggested by Yoga are very useful sources for lifestyle medicine.

[Nutrition](#) is another important determinant. It has individual, family, and community dimensions. The East/West, and rural/urban regions have remarkably different challenges related to nutrition. Generally, at one end of the spectrum, in Western and/or urban spheres, there is less physical activity, [calorie](#) overload, but [poor nutrition](#) mainly due to [junk food](#) consumption. At the other end of the spectrum, in the East and/or rural spheres, there is calorie deficiency, [protein malnutrition](#), and undernourishment. The lower socioeconomic communities may have a greater incidence of premature and low birth weight babies, higher risk of heart disease, stroke, and some cancers. Poor people living in urban areas may have a diet consisting of cheap energy mainly from sugar-rich foods, with little intake of vegetables, fruits, and whole grains. They have relatively less physical activity. On the other hand, poor communities from rural areas might have intense physical activities, but not sufficient energy and protein.

In general, urban communities face problems related to environmental degradation, and air and water pollution; rural communities face problems related to sanitation, hygiene, [insecticides](#), pesticides, and agrochemicals. Thus, the poor are most likely to suffer because of the interplay of the deranged determinants of health. In the interconnected, borderless world, determinants of health cannot be considered in isolation. They will always be interdependent. The substantial health inequity in different parts of the world is today’s reality. This inequality of health is due to inequalities in income, education, gender, and availability of resources.

*The determinants of health include:*

- the social and economic environment,
- the physical environment, and
- the person’s individual characteristics and behaviours.

The context of people’s lives determine their health, and so blaming individuals for having poor health or crediting them for good health is inappropriate. Individuals are unlikely to be able to directly control many of the determinants of health. These determinants—or things that make people healthy or not—include the above factors, and many others:

- Income and social status - higher income and social status are linked to better health. The greater the gap between the richest and poorest people, the greater the differences in health.
- Education – low education levels are linked with poor health, more stress and lower self-confidence.
- Physical environment – safe water and clean air, healthy workplaces, safe houses, communities and roads all contribute to good health.
- Employment and working conditions – people in employment are healthier, particularly those who have more control over their working conditions
- Social support networks – greater support from families, friends and communities is linked to better health. Culture - customs and traditions, and the beliefs of the family and community all affect health.

- Genetics - inheritance plays a part in determining lifespan, healthiness and the likelihood of developing certain illnesses. Personal behaviour and coping skills – balanced eating, keeping active, smoking, drinking, and how we deal with life's stresses and challenges all affect health.
- Health services - access and use of services that prevent and treat disease influences health
- Gender - Men and women suffer from different types of diseases at different ages.

## Health as an investment

The fact that improved health has an independent value for individuals implies that the health facilities available are an important item in the country's standard of living. At the same time, the availability of almost every other item of consumption including foodstuffs, housing, clothing, sanitation and educational facilities is relevant to health conditions. Improved health conditions should increase labour input and efficiency; they can in some circumstances also increase the acreage of cultivable land.

The integration of health sector planning into a system of accelerating development may often confirm the belief that differences between the sound economic point of view and the *bona fide* humanitarian point of view are more apparent than real. In all events it will not be possible to ignore consistently either humanitarian or economic considerations (FREDERIKSEN, 1969).

The best way of ensuring health as an effective investment is to replace the older project-by-project approach to planning with integrated public investment planning, whereby health services and investments become integral parts of a multi-sectorial system for accelerating the development of the economy and society. Such integrated public investment plans start with individual projects which are combined into sector programmes and then into an investment plan for the public sector (WATERSTON, 1969). In this way, health would be associated closely with all other sector development and resources from the economic sector of the development budget would become available for the health sector.

In the health sector much still has to be learned. Within the profession we have to be interested in health as well as disease. We have to be prepared to invest in health rather than continually to budget for disease. We have to develop communication with other disciplines and sciences, especially with the economist.

As KLARMAN (1967) has shown, the problem of measurement still has to be tackled by both sides. It is for the economist, employing all of his traditional tools, plus those of the operations researcher and sociologist, to try to measure the value of the productive and consumption aspects of health services. It is for the epidemiologist and the clinical trial and survey to determine the effects produced by the investment in health. It is finally for the administrator to continue to strive for good balanced judgment in making decisions, especially when major elements of the cost-benefit calculations are missing, or when conflict exists between economic and health planning.

Primary health care makes populations healthier. It includes a range of health services, such as screening and treatment for common diseases, preventative care like vaccination and health information, and treatment for common, non-serious ailments like colds. Good primary health care services should be affordable, and provided close to where people live and work.

Primary health care is better for people, and it saves money. This is especially true when we think about an issue like management of noncommunicable diseases such as diabetes, cancer and heart disease – all of



which are on the rise. Cost-effective prevention and treatment, provided at the local level, keeps people healthy, and it controls costs. When people come to their local clinic for screening and routine visits that identify and manage health problems early, they can avoid expensive hospital visits and diseases that can lead to years of costly care, or even premature death.

Many infectious diseases are also managed most efficiently through primary health care. We know that tuberculosis alone will cost the global economy an estimated US\$ 1 trillion by 2030 unless prevention and control efforts are stepped up. This can only happen effectively at the primary health care level.

In the past, investment in health has meant investment in hospitals. This has left primary health care systems relatively weak. When services are low quality, expensive or unavailable at the local level, people often have to make costly journeys to hospitals, where the care is more expensive to provide. In some countries, one in five families spends more than 10% of their income on health care. The expense of caring for one person with a major or long-term illness can push entire families into a cycle of poverty which can be difficult to escape.

At the World Health Organization, we believe health is a human right. No one should have to decide between their mother's medicine and their child's education.

On a national level, a strong primary health care system helps the country's development prospects. Healthier people miss work less and contribute more to national prosperity. They are also able to improve prospects for their families.

People and economies are also better protected from health security risks with a strong primary health care system. Diseases and disasters do not respect national boundaries. But they can often be controlled and the impact minimized when there are strong systems for primary health care. Primary health care is the first line of defence against outbreaks and health emergencies.

## **Time to invest in primary health care to achieve health for all**

Primary health care is the foundation for universal health coverage – a vision where all people have access to quality health services without financial hardship.

Rather than treating a single disease or condition, primary health care is about caring for people and helping them improve their health or maintain their well-being throughout life.

Through the Sustainable Development Agenda, all countries have committed to achieving universal health coverage by 2030. For this to happen, we need clear vision and targeted investment – now.

This World Health Day, the 7<sup>th</sup> of April, let's get smart about health spending. Investing in primary health care is one of the best investments governments can make. By committing to health and strengthening primary health care, leaders can protect their countries against the health challenges of the future, build strong economies and promote thriving communities. Let's create health for all.

Investing in the health system not only saves lives, it is also a crucial investment in the wider economy. This is because ill-health impairs productivity, hinders job prospects and adversely affects human capital development. There has been a strong political and historical commitment to treating

health as a social goal either through legislation or mandating and prioritizing expenditure on health. For instance, the governments of Brazil, Costa Rica and Thailand have established social security and health insurance systems for the entire population. The key question is while it is universally accepted that health is a noble and worthwhile investment, how can we demonstrate value for money, especially in areas that compete for government funding?

India spends very little on health: \$215 in terms of purchasing power parity per person, which is lower than comparable middle-income countries such as China, Brazil and South Africa. Further, the majority of this spending is made directly by Indian households. Much of this expenditure is at the point of health services being offered, which can also affect the health-seeking behaviour; such out-of-pocket payments for healthcare can cause severe financial hardship and impoverishment.

The push by the Indian government for universal health coverage in recent years is commendable. But while spending more on health is essential in India, value for money also needs to be demonstrated. OECD's experience is that additional expenditure places pressure on scarce resources. With only so many doctors, nurses, health workers and physical facilities at a moment in time, higher spending means higher prices as well as more services.

Some of the most successful examples of expanding coverage among middle-income countries in recent years have addressed this challenge by defining a limited set of essential, cost-effective services. For example, Mexico's Seguro Popular programme provided an explicit package of cost-effective interventions, including pharmaceuticals. Chile identifies about 70 essential services that are fully covered by public and private insurance.

Given India's federal structure, special attention needs to be given to ensure that health remains a priority for states and Union territories. In the backdrop of the 14th Finance Commission's recommendation wherein the state's share in the central divisible pool has been enhanced from 32% to 42%, a key challenge is to ensure that a sufficient level of funds transferred from the centre to states and Union territories is spent on health.

To this end, state governments should be incentivized to expand health coverage to the poor, focusing on cost-effective interventions. For example, financing to states in Mexico was linked to the number of additional persons that signed up to the Seguro Popular programme, with states providing a contribution. In Brazil, district governments received a fixed per capita amount for new families enrolled in the health programme and a variable per capita component that varied according to socio-economic characteristics of particular areas.

As well as incentivizing states to expand healthcare to the poor, such policies also offer higher prospective rewards for those states with low health coverage. This provides scope to achieve fiscal equalization between richer and poorer states in the form of appropriate transfer schemes from the centre aimed at reducing interstate disparities in health spending. Indeed, what is crucial is to move away from historical or incremental budgeting (which is linked to supply rather than need), to a more needs-based funding approach.

In addition to the Mexico and Brazil examples, a number of OECD countries use funding formulae to allocate resources across geographic localities based on need. For example, in the UK, a weighted capitation formula that accounts for a locality's socio-economic characteristics is used to equitably allocate funds to clinical commissioning groups (the units responsible for health services in specific localities). The underlying principle of the weighted capitation formula as demonstrated in the National Health Service is to distribute resources based on the relative needs of each area. This is to enable similar levels of healthcare for populations with similar needs, with the further objective of helping to reduce avoidable health inequalities.

Governments also need to work closely together so that minimum quality standards are maintained, and specialist resources are used efficiently. The central government defining the minimum standards of care is an important first step. The 2010 Clinical Establishments (Registration and Regulation) Act offers the core legislative framework for registering health facilities and developing standards in India. However, the implementation of minimum standards requires coordinated political will at both the central and state levels. For this, lessons from OECD countries suggest accountability mechanisms for healthcare outcomes matter more than the degree of decentralization or type of provision. In particular, balancing responsibilities across central and local authorities is important.

The central government plays a stewardship role, and has a key planning and oversight role, with a consolidated national information infrastructure necessary to adequately monitor health outcomes, while the states are responsible for the implementation of programmes. This is the case even in more decentralized countries such as Australia, Canada, Germany and the Scandinavian nations. For example, in Canada and Sweden, a performance measurement framework and open comparison system, respectively, allow easy comparison of quality of care across localities.

Effective policies can ensure that states and Union territories' incremental spending goes to health, but also enhances value for money. This is because funding can be linked to cost-effective interventions, such as preventive and primary care activities, rather than less cost-effective (but more visible, and therefore more politically attractive) interventions, such as construction of new hospitals.

## HEALTHCARE FINANCING

**Appropriate healthcare financing is a means to ensure adequate funds for health care, provide equitable access to all population groups and reduce financial barriers to utilize health services”**

Healthcare financing deals with generation, allocation and use of financial resources in the health system. Globally it has become increasingly recognized as an area of major policy relevance to achieve Universal Health Coverage (UHC). Understanding the country's healthcare financing system allows to recognize current finances available for health, ways to raise more funds for health, mechanisms to efficiently and equitably allocate, purchase and spend finances to improve access to health services and reduce out of pocket expenditures that lead to catastrophe and impoverishment.

In India several Union and State level policy interventions in the recent past were designed and implemented to address gaps/challenges in healthcare financing. The National Health Mission, Rashtriya Swasthya Bima Yojana, State financed health insurance schemes, Public Private Partnerships in operating ambulances etc. were all interventions in this direction. Further the National Health Policy 2017, gives impetus to increasing government finances to health, better utilization of existing resources to achieve better health outcomes, improving financial protection and strategically purchasing from the not for profit and private sector.

Under this realm, the Healthcare Financing Division supports evidence based policy making and implementation support to Union and State governments in the area of healthcare financing with a focus on:

**Health Accounts:** This division is the National Health Accounts Technical Secretariat (NHATS) with a mandate to institutionalize Health Accounts in India. NHATS conducts periodic National and State Health Accounts using a global standard framework System of Health Accounts 2011(SHA 2011) contextualized to Indian/ State Health Systems. This allows to track the total health sector expenditures in the country by source, schemes, providers and functions. NHATS builds capacity at the national and state level for generating NHA by training individuals and institutions. It developed a strong network of institutions and organizations at state level across the country.

**Report and monitor health financing indicators** to achieve targets of National Health Policy 2017, Sustainable Development Goals and Universal Health Coverage. Collect data from primary / secondary sources, data validation, analysis and presentation of indicators on health expenditures and indicators for financial risk protection.

**Policy inputs** on allocation of resources, design of performance based incentives, health insurance, strategic purchasing of healthcare services, public private partnerships etc.

1. DEFINITION OF HEALTH CARE FINANCING WHO: “Function of a health system concerned with the accumulation, mobilization and allocation of money to cover the health needs of the people, individually and collectively, in the health system.”
- 2.

3. 4. Key focus area : making healthcare affordable and accessible for all. India is at an exciting and challenging period in its history. Health is a human right. To ensure that all individuals have access to effective public health and personal health care. Set the right financial incentives for providers Make funding available PURPOSE
4. 5. THE CHALLENGES: • Nearly 73% of the country's population lives in rural areas and 26.1% is below poverty line. • India lacks strong healthcare infrastructure, • Several inherent weaknesses in its healthcare system • Dominant private sector in India, with 70% catered by it. • Epidemiological transition • Demographic transition
5. 6. External sources refer to the external aid which comes through bilateral aid Programme or international NGO's.—Voluntary payments by individuals or employers. —Health services financed broadly through private expenditure or public expenditure or external aid. —By government. —HEALTH SERVICE FINANCING SOURCE
6. 7. And it gets reflected in the performance of the public healthcare delivery system —decaying infrastructure, severe staff shortages or unavailability of medicines.—India continues to be among the lowest public health budgets in the world at just over 1% of gross domestic product (GDP). —BACKGROUND:
7. 8. The ineffectiveness of the Indian health system—BACKGROUND (CONTD...): & Increased spending through National rural health mission (NRHM) and the focused attention to rural healthcare are slowly yielding results.—characteristically high health-related out-of-pocket hospital payments have pushed around 60 million people below poverty line.
8. 9. Given that there are schemes across the country that offer incentives deliveries in private sector facilities, this is a remarkable result—Most deliveries across urban and rural areas are now taking place in government hospitals as pointed to by data from 2013 sample registration system (SRS). —BACKGROUND (CONTD...):
9. 10. IS INCREASED FUNDING NEEDED ? YES.....!! YES.....!! YES.....!! YES.....!! YES.....!! YES.....!!
10. 11. Regulation of the private sector must be a priority.—A clear roadmap to enhance budgetary spending on healthcare to 3%-5% of GDP should be drawn. —Government should be the primary provider of healthcare. — The current government to meet fiscal deficit targets are a major cause of worry. —THE CURRENT NEED.
11. 12. A comprehensive review of currently fragmented government funded healthcare schemes should be conducted with the aim of future consolidation for a—Establishment of standard treatment protocols and empowerment of communities to hold the healthcare system accountable will be critical to ensure quality of healthcare. —THE CURRENT NEED(CONTD...).
12. 13. India accounts for the highest number of m—THE HEART-RENDING SCENARIO As a recent review shows, public financing of health is among the lowest in the world at just over 1% of GDP, and out-of-pocket (OOP) spending is very high at around 3% of GDP.—aternal deaths in the world, and together with Nigeria (14%), accounted for one-third of all global maternal deaths.
13. 14. • Despite poor health indicators, Govt. spending on health care is well below what is needed • Reason being: • Low revenue collection • Competing demand for revenue • Relatively low spending priority • Consequently, limited access to public health care facilities forces people to go to Pvt. Provider, resulting in substantial out of pocket (OOP) spending, specially for the poor.
14. 15. REASONS OF RISING OOP EXP. • A major expenditure item is drugs: • Irrational use of drugs • Prices of new drugs and • Drugs for many NCDs - unaffordable to majority of the poor • Non availability of drugs to outpatient & inpatient in the public sector. • Doctor's fee was another critical component. • Non availability of investigation facility in public sector 8/5/2016 16
15. 16. This achievement however is often resulting in tragic human rights violations in mass sterilisation THE HEART-RENDING SCENARIO(CONTD...)—With IMR at 40 and MMR at 167 in 2013, only TFR seems anywhere near the goal set with 24 of the 29 states and 9 UTS achieving replacement levels of fertility. —The National Rural Health Mission aimed to reduce IMR to 28/1000 live births, the MMR to 100/ 100000 live births and the TFR to 2.1 by 2012. —
16. 17. India's achievements in health care have not been comparable to its economic gains and it has worse health indices than most developing countries in the world.—The Crude Death Rate declined from 27.4 in 1941-51 to 7.0 in 2013. —The crude birth rate, reflecting the huge mortality load, stood at 39.9 in 1941-51, declining to 21.4 in 2013. —Over the past few decades, India has made significant gains in health outcomes. —HEALTHCARE FINANCING IN INDIA
17. 18. Life expectancy, which was around 30 at the time of independence, is now in the mid-sixties.
18. 19. This resulted in continuing poor quality of preventative care and poor health status of the population and forced people to seek private care,—In spite of the stated objective of raising the outlays for public health from 0.9 % to 3 % of GDP by 2012 through NRHM and expanding public health infrastructure substantially, the public health spending remains just above 1 % of GDP —THE CONSTRAINT CONTINUES.
19. 20. Per capita public health spending is an extremely significant variable affecting life expectancy at birth—These serious deficiencies are not accidental. They have been primarily caused by the patterns of financing for healthcare in India. —Indian health system is plagued with serious problems such as sharp inequalities in health outcomes, deficient coverage, unequal access, poor quality and high costs. —THE PLAGUED INDIAN HEALTH SYSTEM
20. 21. These numbers fell to 0.8% and 2.4%, respectively, by 2005.—During the 1990s, government health spending failed to keep up with the expanding economy, and, by 2001, it constituted 0.9 % of GDP and 2.7 % of the government budget. —Deollikar et al (2008) observed that public spending on health in India peaked at about 1.6 % of GDP and 4 % of the government budget in the mid 1980s. —DEOLIKAR ET AL (2008)
21. 22. However, the revised health sector plan expenditure is—Given that there are schemes across the country that offer incentives deliveries in private sector facilities, this is a remarkable result. —SRS 2013.

22. 23. There is vast diversity in the composition of the private sector, consisting largely of sole practitioners or small nursing homes having 1-20 beds; serving the urban and semi-urban population and focused on curative care  
THE ROLE OF THE PRIVATE SECTOR IN HEALTH CARE DELIVERY
23. 24. Of concern is the documentation, though limited, on the poor quality of services being provided at the rural—In the absence of regulations governing location, standards, pricing, to name a few, private facilities run in marketplaces, residential colonies, pharmacy shops, with freedom to provide any kind of service, of whatever quality and at exorbitant cost, which varies from facility to facility. —
24. 25. While the private sector has expanded access and—Whether people are getting value for their money is difficult to evaluate in the absence of norms or yardsticks with which to measure good quality against bad. —QUALITY OF CARE —Pricing of services in the private sector is influenced by the source of capital and interest rates and prices of other inputs such as labour, rentals, technology, etc. —EQUITY: COST OF CARE —ISSUES FOR POLICY
25. 26. PUBLIC POLICY RESPONSE: PUBLIC-PRIVATE PARTNERSHIP Having realized the dominant position of the private sector, the government has, of late, attempted to engage the private sector in providing services under the national health programmes with the
26. 27. HUMAN RESOURCES FOR HEALTH • The first contact for care in the organized health system: THE MULTIPURPOSE HEALTH WORKERS • NURSING SERVICES: shortage of nurses • The nurse to population ratio in India is 1:1264 while in Europe it is 1:100-200 • AVAILABILITY OF DOCTORS
27. 28. AT STATE LEVEL STATE HEALTH INSURANCE 8/5/2016 32 • AT NATIONAL LEVEL NRHM RSBY • INITIATIVE BY GOI
28. 29. NRHM • Launched in 2005 – to provide universal access to equitable, affordable and accountable quality health care • Better staffing as per IPHS and HR developmental policy. • Rogi kalyan samiti • Bottom up approach has adopted • During 11th plan there was 4 fold increase in budget allocation to health sector. Out of this 65.7% was proposed for NRHM. • In 12th plan, there has been more than two fold increase over 11th plan budget. • But failed to achieve 2-3% of GDP. 8/5/2016 33
29. 30. RASHTRIYA SWASTHYA BIMA YOJANA • It is a Central Govt. Health insurance scheme to meet the health needs of the poor • Centre: state – 75 : 25. In north east 90:10. • The maximum premium by the central Govt. Is limited to 750 per insured family/yr. • Benefits: • Hospitalization expenses upto rs 30,000 • Maternity newborn care • Day care services • Transportation cost (rs.100/visit, limit of 1000/yr) • Cover all preexisting diseases 8/5/2016 34
30. 31. 12TH PLAN INITIATIVE • Universal health coverage • Private sector has to be partnered for health care delivery. • Essential medicine list needs to be brought under price control mechanism, • Incentivization of states • Flexibility in central funding for state 8/5/2016 35
31. 32. OTHER MODELS OF FINANCING • PUBLIC PRIVATE PARTNERSHIP (PPP) • MEDICAL TOURISM • FDI IN HEALTH SECTOR • RESOURCE GENERATION BY FACILITIES AND COLLEGES 8/5/2016 36
32. 33. CHALLENGES • PPP: cost escalation. Invariably expensive drugs and procedures are prescribed. • Insurance companies provide health cover to the young, the employed and the rich, and avoid those who are elderly, unemployed and poor. • There is a cozy relationship between the insured, the insurance company and the healthcare provider. 8/5/2016 37
33. 34. CHALLENGES • Insurance covers only the cost of hospitalization and not expenditure on outpatient care. Statistics show that close to 70% of the out-of-pocket expenditure of the household is for outpatient care, which will not be covered by insurance. • In the Indian situation where a majority of the people are self-employed, universal coverage will remain a mirage. • Many villages in India do not have a hospital worth 8/5/2016 38
34. 35. RECOMMENDATIONS • Rather than further expand the provision of free primary, secondary, and tertiary health care services in the public sector, the government must focus on providing financial resources to the poor for routine and non-routine care. • Once the poor have been provided the financial resources necessary to pay for their health care expenditures, there does not remain a case for
35. 36. Focused and adequate financial commitments for community based accountability measures and decentralised planning will be a step forward in the right direction.—The assumption seems to be that community empowerment and participation will happen with minimal effort or financial commitments. —

## FOREIGN DIRECT INVESTMENT IN HEALTH SECTOR

Foreign direct investment (FDI) is an investment made by a company or individual of one country, in the form of either establishing business operations or acquiring business assets in the other country, such as ownership or controlling interest in a foreign company. According to the data released by the Department of Industrial Policy and Promotion (DIPP), Government of India, the hospital and diagnostic centres attracted Foreign Direct Investment (FDI) worth US\$ 4.83 billion between April 2000 and September 2017. Therefore the present study aims to study the FDI inflow in Health Sector of India. The data for the present study are collected from the

website of Department of Industrial Policy and Promotion, Ministry of Commerce, Government of India. The collected data were analysed by using statistical tools such as percentages and averages

'FDI' means investment by non-resident entity or person resident outside India in the capital of an Indian company under Schedule I of Foreign Exchange Management (Transfer or Issue of Security by a Person Resident outside India) Regulations, 2000. India, one of the biggest emerging markets, is currently an important destination for Foreign Direct Investment (FDI). Despite India's potential to become one of the most dominant economies in the world, yet its economic progress since gaining its independence in 1947 has generally been masked by its perception of being a closed, developing country. However, this perception has changed in the recent past and India is accepted as one of the most stable and robust economies

The healthcare sector as an industry is expanding rapidly and has not been as severely impacted by recent economic slowdown as some of the other industries. It comprises of hospital services, diagnostic services, diagnostic products, medical technology, clinical trial services and clinical research organizations. This sector is predominantly privatized and accounts for more than 80 percent of total healthcare spending in India with almost 75 to 80 percent of hospitals being managed by private sector. The Indian hospital industry was estimated to be worth about USD 65 billion as of 2012 and is predicted to be worth around USD 280 billion by 2020. Further, the Indian hospital service industry is projected to grow at a compounded annual growth rate of more than 9 percent. It's undergoing metamorphosis by broadening focus of the services by using technology, deliverables and newer applications. The hospitals that were confined to a specified area with limited infrastructure and services are now expanding mainly due to the foreign investment being received by the sector

The Indian Healthcare sector is emerging as one of the fast-growing service sectors in India, contributing 6-7 percent to the country's Growth Domestic Product (GDP) According to various studies India would require 1.75 million beds by 2025 and over 6800 more hospitals are needed in India to provide basic health facilities to people in rural areas

FDI in Hospitals Healthcare is one the fastest growing service sector in India. The financing of health services can come from sources within a country tax or insurance for example. The latter can be further sub-divided into commercial finance, official aid or non-governmental finance. Commercial financial flows may further be divided into portfolio/equity investments, commercial loans or FDI. A significant aspect of this is direct trade in health services, a result of the rise of transnational corporations, challenges in health care financing, porous borders and improved technology creating the scope for increased foreign direct investment in health care sector. Healthcare sector has a great potential in the present globalized world. It is one of the world's largest industries with total revenues of approximately US\$ 2.8 Trillion. Healthcare sector has been emerging as one of the largest service sector in India. Indian healthcare sector has estimated revenue of around \$ 30 billion constituting 5% of GDP and offering employment to around 4 million people (CII Report 2011). According to Investment Commission of India, the sector has witnessed a phenomenal expansion in the last few years growing at over 12% per annum. As per a recent CII-McKinsey report, the growth of healthcare sector can contribute to 6-7% of GDP and increase employment by at least 2.5 million by 2012..

FDI in India's Healthcare Sector emerges from the following facts: The growing population of India which is 1.21 billion as per the Census of 2011 out of which 26.1% is below the poverty line. The healthcare spend in



India is less than half of the global average in percentage when compared on a 'percent of GDP' basis and is amongst the lowest globally in terms of 'per capita' basis and on 'Purchase Power Parity' basis .

**Opportunities of FDI in Indian Healthcare industry** The following sectors have significant opportunities for the foreign investors:

**Health Insurance:** The percentage of the Indian population that has been covered under health insurance is unfortunately very insignificant. Lack of awareness, casual approach is some of the reasons that have contributed to this. Though there is increase in number of health care insurance policies over past few years majority of the population remains without any coverage.

**Hospitals and Infrastructure:**

There is tremendous demand for tertiary care hospitals and specialty hospitals in India. There is a gap between the availability of the beds and required beds in the hospital in India. It is estimated that an investment of USD 25.7 will be required to meet the requirement of additional 450,000 beds by 2010. The government would not be playing significant role in bridging this gap giving private players immense opportunity.

**Technology driven services:** Significantly low presence of physicians in rural and semi-urban areas has led to the limited access to proper healthcare facilities for the people living in these areas. Telemedicine is considered to be one of the solutions to this lacuna in accessibility to health care services in rural and semi-urban areas

**Medical Tourism:** Another area of opportunity is the medical tourism. India is getting popular worldwide in providing quality healthcare service at lower cost and every year about 1,00,000 patients from various countries come to India for availing treatment for various diseases. The revenue through medical tourism is expected to contribute significantly in the years to come due to cost advantage India has in delivering service.

**Telemedicine:** It is a known fact the percentage of specialist physicians residing in rural India is very negligible. So, the innovative medical care providing facility called telemedicine may be used effectively to serve the 70% of population who reside in rural India. At present some of the private hospitals have adopted telemedicine services. The Indian Space Research Organization has plans to establish 100 telemedicine centers across the country.

**Foreign Direct Investment in Medical Device Sector in India**

**FDI in Medical Device Sector** FDI policy for pharmaceutical sector has been reviewed by Indian Government and it has been decided that there would be a special carve out for medical devices as per press note no 2 of 2015:- 1. FDI upto 100% under the automatic route is permitted for manufacturing of medical devices. The below mentioned conditions shall not be applicable to greenfield as well as brownfield projects: a. 'Non compete' clause would not be allowed except in special circumstances with the approval of the Foreign Investment Promotion Board. b. The prospective investor and the prospective investee are required to provide a certificate along with the FIPB application. c. Government may incorporate appropriate conditions for FDI in brownfield cases at the time of granting approval.

2. Medical device means:



- a. Any instrument, apparatus, appliance, implant, material or other article, whether used alone or in combination, including the software, intended by its manufacturer to be used specifically for human beings or animals for one or more of the specific purposes of
- i. diagnosis, prevention, monitoring, treatment, or alleviation of any disease or disorder;
  - ii. diagnosis, monitoring, treatment, or alleviation of, or assistance for, any injury or handicap; iii. investigation, replacement or modification or support of the anatomical structures which do not achieve its primary intended action in or on the human body or animals by any pharmacological or immunological or metabolic means, but which may be assisted in its intended function by such means;
  - iv. supporting or sustaining life;
  - v. disinfection of medical devices;
  - vi. control of conception; and which do not achieve its primary intended action in or on the human body or animals by any pharmacological or immunological or metabolic means, but which may be assisted in its intended function by such means;
- b. an accessory to such an instrument, apparatus, appliance, material or other article;
- c. a device which is reagent, reagent product, calibrator, control material, kit, instrument, apparatus, equipment or system whether used alone or in combination thereof intended to be used for examination and providing information for medical or diagnostic purposes by means of in vitro examination of specimens derived from the human body or animals. The above mentioned definition of medical device would be subject to the amendment in Drugs and Cosmetics Act

### **Factors that Influence the Supply of a Product**

In economics, supply refers to the quantity of a product available in the market for sale at a specified price at a given point of time.

Unlike demand, supply refers to the willingness of a seller to sell the specified amount of a product within a particular price and time.

Supply is always defined in relation to price and time. For example, if a seller agrees to sell 500 kgs of wheat, it cannot be considered as supply of wheat as the price and time factors are missing.

Similarly, if a seller is ready to sell 500 kgs at a price of Rs. 30 per kg then again it would not be considered as supply as the time element is missing. Therefore, the statement “a seller is willing to sell 500 kgs at the price of Rs. 30 per kg in a week” is ideal to understand the concept of supply as it relates supply with price and time.

Apart from this, the supply also depends on the stock and market price of the product. Stock of a product refers to quantity of a product available in the market for sale within a specified point of time.

Both stock and market price of a product affect its supply to a greater extent. If the market price is more than the cost price, the seller would increase the supply of a product in the market. However, the decrease in market price as compared to cost price would reduce the supply of product in the market.

For example Mr. X has 100 kgs of a product. He expects the minimum price to be Rs. 90 per kg and the market price is Rs. 95 per kg. Therefore he would release certain amount of the product, say around 50 kgs in the market, but would not release the whole amount. The reason being he would wait for better rates for his product. In such a case, the supply of his product would be 50kgs at Rs. 95 per kg.

### **Determinants of Supply:**

Supply can be influenced by a number of factors that are termed as determinants of supply. Generally, the supply of a product depends on its price and cost of production. In simple terms, supply is the function of price and cost of production.

**Some of the factors that influence the supply of a product are described as follows:**

#### **i. Price:**

Refers to the main factor that influences the supply of a product to a greater extent. Unlike demand, there is a direct relationship between the price of a product and its supply. If the price of a product increases, then the supply of the product also increases and vice versa. Change in supply with respect to the change in price is termed as the variation in supply of a product.

Speculation about future price can also affect the supply of a product. If the price of a product is about to rise in future, the supply of the product would decrease in the present market because of the profit expected by a seller in future. However, the fall in the price of a product in future would increase the supply of product in the present market.

#### **ii. Cost of Production:**

Implies that the supply of a product would decrease with increase in the cost of production and vice versa. The supply of a product and cost of production are inversely related to each other. For example, a seller would supply less quantity of a product in the market, when the cost of production exceeds the market price of the product.

In such a case the seller would wait for the rise in price in future. The cost of production rises due to several factors, such as loss of fertility of land, high wage rates of labor, and increase in the prices of raw material, transport cost, and tax rate.

#### **iii. Natural Conditions:**

Implies that climatic conditions directly affect the supply of certain products. For example, the supply of agricultural products increases when monsoon comes on time. However, the supply of these products decreases at the time of drought. Some of the crops are climate specific and their growth purely depends on climatic conditions. For

example Kharif crops are well grown at the time of summer, while Rabi crops are produce well in winter season.

#### **iv. Technology:**

Refers to one of the important determinant of supply. A better and advanced technology increases the production of a product, which results in the increase in the supply of the product. For example, the production of fertilizers and good quality seeds increases the production of crops. This further increase the supply of food grains in the market.

#### **v. Transport Conditions:**

Refer to the fact that better transport facilities increase the supply of products.

Transport is always a constraint to the supply of products, as the products are not available on time due to poor transport facilities. Therefore even if the price of a product increases, the supply would not increase.

In India sellers usually use road transport and the poorly maintained road makes it difficult to reach the destination on time the products that are manufactured in one part of the city need to be spread in the whole country through road transport This may result in the damage of most of the products during the journey, which can cause heavy loss for a seller. In addition the seller can also lose his/her customers because of the delay in. the delivery of products.

#### **vi. Factor Prices and their Availability:**

Act as one of the major determinant of supply. The inputs, such as raw material man, equipment, and machines, required at the time of production are termed as factors. If the factors are available in sufficient quantity and at lower price, then there would be increase in production.

This would increase the supply of a product in the market. For example, availability of cheap labor and raw material nearby the manufacturing plant of an organization would help in reducing the labor and transportation costs. Consequently, the production and supply of the product would increase.

#### **vii. Government's Policies:**

Implies that the different policies of government, such as fiscal policy and industrial policy, has a greater impact on the supply of a product. For example, increase in tax on excise duties would decrease the supply of a product. On the other hand, if the tax rate is low, then the supply of a product would increase.

#### **viii. Prices of Related Goods:**

Refer to fact that the prices of substitutes and complementary goods also affect the supply of a product. For example, if the price of wheat increases, then farmers would tend to grow more wheat than nee. This would decrease the supply of rice in the market.

## **6 Factors Affecting the Supply of a Commodity (Individual Supply) | Economics**

**Some of the important factors affecting the supply of a commodity are as follows:**

There are several important factors that determine supply of a commodity. A change in any one of these factors will result in a change in supply of the commodity.

### **1. Price of the given Commodity:**

The most important factor determining the supply of a commodity is its price. As a general rule, price of a commodity and its supply are directly related. It means, as price increases, the quantity supplied of the given commodity also rises and vice-versa. It happens because at higher prices, there are greater chances of making profit. It induces the firm to offer more for sale in the market.

Supply (S) is a function of price (P) and can be expressed as:  $S = f(P)$ . The direct relationship between price and supply, known as 'Law of Supply'. The following determinants are termed as 'other factors' or factors other than price'.

### **2. Prices of Other Goods:**

As resources have alternative uses, the quantity supplied of a commodity depends not only on its price, but also on the prices of other commodities. Increase in the prices of other goods makes them more profitable in comparison to the given commodity. As a result, the firm shifts its limited resources from production of the given commodity to production of other goods. For example, increase in the price of other good (say, wheat) will induce the farmer to use land for cultivation of wheat in place of the given commodity (say, rice).

### **3. Prices of Factors of Production (inputs):**

When the amount payable to factors of production and cost of inputs increases, the cost of production also increases. This decreases the profitability. As a result, seller reduces the supply of the commodity. On the other hand, decrease in prices of factors of production or inputs, increases the supply due to fall in cost of production and subsequent rise in profit margin.

To make ice-cream, firms need various inputs like cream, sugar, machine, labour, etc. When price of one or more of these inputs rises, producing ice-creams will become less profitable and firms supply fewer ice-creams.

### **4. State of Technology:**

Technological changes influence the supply of a commodity. Advanced and improved technology reduces the cost of production, which raises the profit margin. It induces the seller to increase the supply. However, technological degradation or complex and out-dated technology will increase the cost of production and it will lead to decrease in supply.

### **5. Government Policy (Taxation Policy):**

Increase in taxes raises the cost of production and, thus, reduces the supply, due to lower profit margin. On the other hand, tax concessions and subsidies increase the supply as they make it more profitable for the firms to supply goods.

### **6. Goals / Objectives of the firm:**

Generally, supply of a commodity increases only at higher prices as it fulfills the objective of profit maximization. However, with change in trend, some firms are willing to supply more even at those prices, which do not maximise their profits. The objective of such firms is to capture extensive markets and to enhance their status and prestige.

### **What factors change supply?**

#### **Key points**

- **Supply curve shift:** Changes in production cost and related factors can cause an *entire supply curve to shift* right or left. This causes a higher or lower quantity to be supplied at a given price.
- **The ceteris paribus assumption:** Supply curves relate prices and quantities supplied assuming no other factors change. This is called the *ceteris paribus* assumption. This article talks about what happens when other factors aren't held constant.

#### **The ceteris paribus assumption**

A demand curve or a supply curve is a relationship between two, and only two, variables: quantity on the horizontal axis and price on the vertical axis. The assumption behind a demand curve or a supply curve is that *no relevant economic factors, other than the product's price, are changing*. Economists call this assumption ceteris paribus, a Latin phrase meaning “other things being equal”. If all else is not held equal, then the laws of supply and demand will not necessarily hold. The rest of article talks about what happens when other factors aren't held constant.

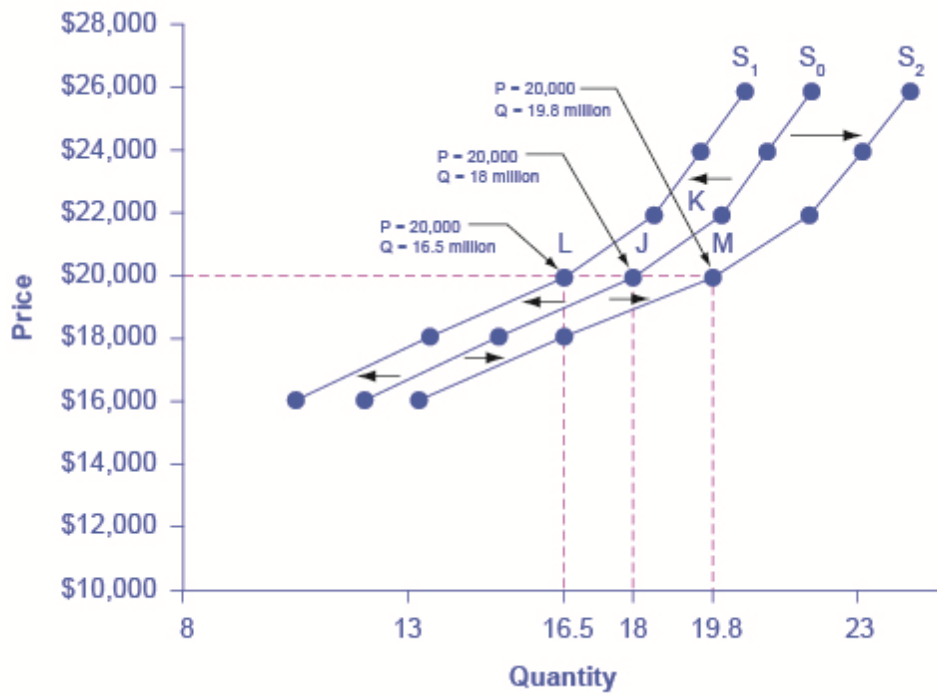
#### **How production costs affect supply**

A supply curve shows how quantity supplied will change as the price rises and falls, assuming ceteris paribus—no other economically relevant factors are changing. If other factors relevant to supply *do* change, then the entire supply curve will shift. A shift in supply means a change in the quantity supplied at every price.

Say we have an initial supply curve for a certain kind of car. Now imagine that the price of steel—an important ingredient in manufacturing cars—rises so that producing a car becomes more expensive.

#### **Which direction would this rise in cost cause the supply curve to shift?**

#### **Shifts in supply: a car example**



The graph shows supply curve  $S_0$  as the original supply curve. Supply curve  $S_1$  represents a shift based on decreased supply. Supply curve  $S_2$  represents a shift based on increased supply.

As a result of the higher manufacturing costs, the supply curve shifts to the left, toward  $S_1$ . Firms will *profit less* per car, so they are motivated to *make fewer cars* at a given price, *decreasing the quantity supplied*. A decrease in costs would have the opposite effect, causing the supply curve to shift to the right, toward  $S_2$ . Firms would *profit more* per car, so they would be motivated to *make more cars* at a given price, *increasing the quantity supplied*.

### Other factors that affect supply

In the example above, we saw that changes in the prices of inputs in the production process will affect the cost of production and thus the supply. Several other factors affect the cost of production, too.

### Natural conditions

In 2014, the Manchurian Plain in Northeastern China—which produces most of the country's wheat, corn, and soybeans—experienced its most severe drought in 50 years. A drought decreases the supply of agricultural products, which means that at any given price, a lower quantity will be supplied. Conversely, especially good weather would shift the supply curve to the right.

### New technology

When a firm discovers a new technology that allows it to produce at a lower cost, the supply curve will shift to the right as well. For instance, in the 1960s, a major scientific effort nicknamed the Green Revolution focused on breeding improved seeds for basic crops like

wheat and rice. By the early 1990s, more than two-thirds of the wheat and rice in low-income countries around the world was grown with these Green Revolution seeds—and the harvest was twice as high per acre. A technological improvement that reduces costs of production will shift supply to the right, causing a greater quantity to be produced at any given price.

### Government policies

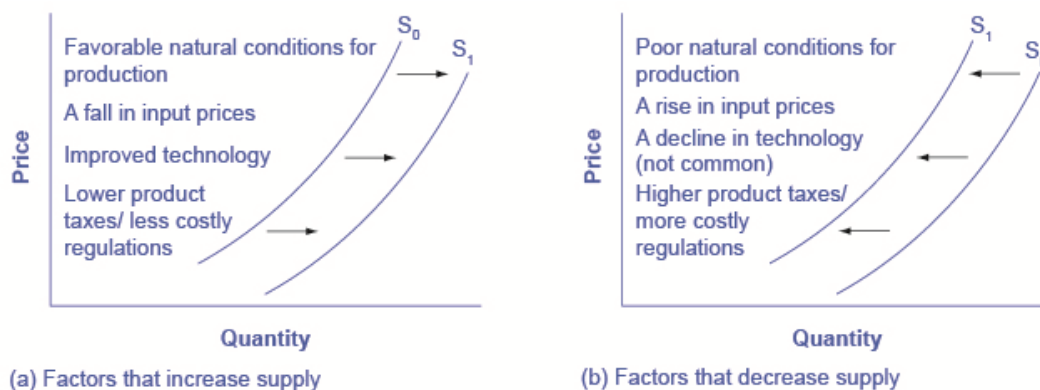
Government policies can affect the cost of production and the supply curve through taxes, regulations, and subsidies. For example, the U.S. government imposes a tax on alcoholic beverages that collects about \$8 billion per year from producers. Taxes are treated as costs by businesses. Higher costs decrease supply for the reasons discussed above. Another example of policy that can affect cost is the wide array of government regulations that require firms to spend money to provide a cleaner environment or a safer workplace; complying with regulations increases costs.

A government subsidy, on the other hand, is the opposite of a tax. A subsidy occurs when the government pays a firm directly or reduces the firm's taxes if the firm carries out certain actions. From the firm's perspective, taxes or regulations are an additional cost of production that shifts supply to the left, leading the firm to produce a lower quantity at every given price. Government subsidies, however, reduce the cost of production and increase supply at every given price, shifting supply to the right.

### Summing up factors that change supply

The graph below summarizes factors that change the supply of goods and services. Notice that a change in the price of the product itself is not among the factors that shift the supply curve. Although a change in price of a good or service typically causes a change in quantity supplied or a movement along the supply curve for that specific good or service, it does not cause the supply curve itself to shift.

#### Factors that shift supply curves



Two graphs—the graph on the left lists events that could lead to increased supply; the graph on the right lists events that could lead to decreased supply.



(a) A list of factors that can cause an increase in supply from  $S_0$  to  $S_1$ . (b) The same factors, if their direction is reversed, can cause a decrease in supply from  $S_0$  to  $S_1$ .

# 5 Best Practices for Marketing to Physicians

Email is the preferred means of initial communication.

According to a [2018 HealthLink Dimensions](#) survey of more than 700 physicians, email is the preferred channel for receiving industry news, product updates, announcements or research, and educational opportunities. This is followed by interactions via in-person visits and direct mail. Only 3 percent of surveyed physicians have used social media for business communications.

**Pro Tip:** When engaging physicians (or any audience) via email, it's important to measure the performance of each deployment and identify elements that can be optimized. We recommend A/B testing subject lines for the impact on open rate and article topics and calls to action for the impact on click rate. To illustrate the advantages of testing, True North Custom was able to help a children's hospital achieve an email open rate that [blew industry averages out of the water](#) by leveraging this data-driven approach.

Content should be educational.

According to the HealthLink Dimensions survey, “medical professionals prefer marketers to act as information partners.” This can include content about innovative techniques and technology, continuing medical education opportunities, and other topics that offer value and help them manage and grow their practices and careers.

**Pro Tip:** Physicians trust credible news sources (think *JAMA*, *New York Times*), so find ways to align your content with timely, relevant topics featured within those information sources where they're already consuming content ([aka newsjacking](#)).

## Content must be mobile-friendly.

It's simple: Physicians are constantly on their smartphones — with [more than 75 percent reporting the use of mobile health](#) in their practices on a weekly basis.

**Pro Tip:** Consider using video as one of the most engaging and mobile-friendly formats, and feature peers rather than patients as physicians prefer a more clinical perspective when reading about new treatments and technology.

## Speak their language.

When marketing to physicians, it is critically important to understand their clinical or academic focus and target them using the terminology that matches their specific discipline. "[Context is king](#)," according to MediaPost.

**Pro Tip:** When working to engage physicians, segment the audience by specific practice areas like electrophysiology or interventional cardiology and plan content accordingly.

## Always think, “What’s in it for them?”

Make sure your outreach includes a compelling offer or call to action, which could include downloading a free white paper, signing up for a relevant e-newsletter or another incentive that align with their professional interests.

**Pro Tip:** Subscribing to your physician-focused newsletter is an excellent call to action, as it allows doctors to stay current on relevant medical topics while keeping your organization top of mind to drive referral and reputation development. For example, a nationally ranked children's hospital leveraged [targeted physician emails](#) to increase reputation scores that helped boost U.S. News & World Report rankings.

# Health Care Systems - Four Basic Models

An excerpt from correspondent T.R. Reid’s upcoming book on international health care, titled “We’re Number 37!,” referring to the U.S.’s ranking in the World Health Organization 2000 World Health Report. The book is scheduled to be published by Penguin Press in early 2009.

There are about 200 countries on our planet, and each country devises its own set of arrangements for meeting the three basic goals of a health care system: keeping people healthy, treating the sick, and protecting families against financial ruin from medical bills.

But we don't have to study 200 different systems to get a picture of how other countries manage health care. For all the local variations, health care systems tend to follow general patterns. There are four basic systems:

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## **The Beveridge Model**

Named after William Beveridge, the daring social reformer who designed Britain's National Health Service. In this system, health care is provided and financed by the government through tax payments, just like the police force or the public library.

Many, but not all, hospitals and clinics are owned by the government; some doctors are government employees, but there are also private doctors who collect their fees from the government. In Britain, you never get a doctor bill. These systems tend to have low costs per capita, because the government, as the sole payer, controls what doctors can do and what they can charge.

Countries using the Beveridge plan or variations on it include its birthplace Great Britain, Spain, most of Scandinavia and New Zealand. Hong Kong still has its own Beveridge-style health care, because the populace simply refused to give it up when the Chinese took over that former British colony in 1997. Cuba represents the extreme application of the Beveridge approach; it is probably the world's purest example of total government control.

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## **The Bismarck Model**

Named for the Prussian Chancellor Otto von Bismarck, who invented the welfare state as part of the unification of Germany in the 19th century. Despite its European heritage, this system of providing health care would look fairly familiar to Americans. It uses an insurance system — the insurers are called “sickness funds” — usually financed jointly by employers and employees through payroll deduction.

Unlike the U.S. insurance industry, though, Bismarck-type health insurance plans have to cover everybody, and they don't make a profit. Doctors and hospitals tend to be private in Bismarck countries; Japan has more private hospitals than the U.S. Although this is a multi-payer model — Germany has about 240 different funds — tight regulation gives government much of the cost-control clout that the single-payer Beveridge Model provides.

The Bismarck model is found in Germany, of course, and France, Belgium, the Netherlands, Japan, Switzerland, and, to a degree, in Latin America.

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## **The National Health Insurance Model**

This system has elements of both Beveridge and Bismarck. It uses private-sector providers, but payment comes from a government-run insurance program that every citizen pays into. Since there's no need for marketing, no financial motive to deny claims and no profit, these universal insurance programs tend to be cheaper and much simpler administratively than American-style for-profit insurance.

The single payer tends to have considerable market power to negotiate for lower prices; Canada's system, for example, has negotiated such low prices from pharmaceutical companies that Americans have

spurned their own drug stores to buy pills north of the border. National Health Insurance plans also control costs by limiting the medical services they will pay for, or by making patients wait to be treated.

The classic NHI system is found in Canada, but some newly industrialized countries — Taiwan and South Korea, for example — have also adopted the NHI model.

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## **The Out-of-Pocket Model**

Only the developed, industrialized countries — perhaps 40 of the world's 200 countries — have established health care systems. Most of the nations on the planet are too poor and too disorganized to provide any kind of mass medical care. The basic rule in such countries is that the rich get medical care; the poor stay sick or die.

In rural regions of Africa, India, China and South America, hundreds of millions of people go their whole lives without ever seeing a doctor. They may have access, though, to a village healer using home-brewed remedies that may or not be effective against disease.

In the poor world, patients can sometimes scratch together enough money to pay a doctor bill; otherwise, they pay in potatoes or goat's milk or child care or whatever else they may have to give. If they have nothing, they don't get medical care.

These four models should be fairly easy for Americans to understand because we have elements of all of them in our fragmented national health care apparatus. When it comes to treating veterans, we're Britain or Cuba. For Americans over the age of 65 on Medicare, we're Canada. For working Americans who get insurance on the job, we're Germany.

For the 15 percent of the population who have no health insurance, the United States is Cambodia or Burkina Faso or rural India, with access to a doctor available if you can pay the bill out-of-pocket at the time of treatment or if you're sick enough to be admitted to the emergency ward at the public hospital.

The United States is unlike every other country because it maintains so many separate systems for separate classes of people. All the other countries have settled on one model for everybody. This is much simpler than the U.S. system; it's fairer and cheaper, too.

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Note - Reid's "Beveridge" model corresponds to what PNHP would call a single payer national health service (UK); "Bismark" model refers to countries that PNHP would say use non-profit "sickness funds" or a "social insurance model" (Germany); and "National health insurance" corresponds to single payer national health insurance (Canada, Taiwan). Reid's "out-of-pocket" model is what PNHP would call "market driven" health care. Some countries have mixed models (e.g. Sweden has some features of a national health service such as hospitals run by county government; but other features of national health insurance such as physicians being paid on a FFS basis). This explains why Reid might classify the Scandinavian systems as "Beveridge" while PNHP classifies them as "single payer national health insurance."

## Health Behaviors

### 6 Changing Health Behaviors

The above models detail the key cognitive [determinants of health](#) behavior. To the extent that these models outline the key social cognitive determinants of health behavior, interventions which target these variables should lead to associated changes in behavior. For example, the HBM would suggest that encouraging

health behaviors is best achieved by increasing individuals' perceived susceptibility to negative health outcomes and making individuals aware of the severity of such outcomes. Such approaches have been commonly employed in health promotion messages. In addition, the HBM might suggest the need to focus on the benefits of health behaviors and the fact that barriers to action are easily overcome. However, there has been little systematic evaluation of their effectiveness, perhaps due to the common sense appeal of these approaches.

Relatively few studies have used the TPB as a framework for developing interventions, despite the fact that the theory would suggest a number of interventions focusing on different components of the model. Brubaker and Fowler (1990) did examine the effect of persuasive messages tackling behavioral beliefs upon men's intentions to perform testicular self-examination in response to the threat of cancer. A persuasive message was found to increase intentions to perform testicular self-examination compared to a no message control. The TPB would also suggest the need to tackle normative beliefs and control beliefs in any attempt to change behavior. A number of studies have attempted to use persuasive messages aimed at tackling normative pressures. For example, in relation to preventing adolescent smoking, prevention programs commonly attempt to tackle the perceived pressure from teenage peers who smoke. Tackling control beliefs has been seen to bear many similarities to changing perceptions of self-efficacy (see below). Another interesting approach has focused directly on the immediate determinant of behavior in the TPB: intentions. Where individuals do have an intention to engage in a health behavior (goal intentions), but are having trouble implementing their intention, forming a specific plan about where and when to act has been found to help (Gollwitzer 1993). For example, Orbell et al. (1997) gave out a questionnaire about breast self-examination



in response to the threat of cancer. Half the women were asked to indicate when and where in the next month they intended to perform breast self-examination (a specific plan or implementation intention). A one month follow-up found that 64 percent of these women had performed breast self-examination that month compared with only 16 percent of women who hadn't made an implementation intention, despite having similar goal intentions.

Several studies have focused on enhancing feelings of self-efficacy as a means for encouraging health behavior change. As Bandura (1997) outlines, there are four main sources of self-efficacy, each of which could be addressed in interventions. First, individuals can develop feelings of self-efficacy from personal mastery experience (e.g., it may be possible to split a behavior into various subgoals, such that the easiest subgoals are achieved before more difficult tasks are attempted). Second, individuals may develop feelings of self-efficacy through observing other people succeed on a task (i.e., vicarious experience). Third, it is possible to use standard persuasive techniques to try to instill feelings of self-efficacy. Finally, one's [physiological state](#) may be used as a source of information, such that high levels of arousal or anxiety may indicate to the individual that he or she is not capable of performing a given action (e.g., relaxation techniques may be employed to help maintain feelings of self-efficacy).

Stage models have also been used as the basis for designing interventions. The main distinction from the approaches already presented is that this approach suggests that interventions need to be matched to the needs of each individual. So, for example, an individual at the pre-contemplation stage in relation to exercise needs to be made aware of the health problems associated with a lack of exercise. A different individual in the contemplation stage needs information about the pros of changing their exercise

behavior and the cons of not changing. While an individual in the preparation or action stage needs helps with acting on their plans to engage in exercise. Whilst these ideas appear entirely plausible, to date relatively few studies have managed to demonstrate that such stage-matched interventions are more effective than presenting the same intervention to all individuals.