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Why Are Downward-Sloping Demand Curves Unrealistic? A Critical Review of Factors Influencing Demand in More Realistic Scenario-I

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ABSTRACT

The study focuses on the demand-price relationship in the commodity market and the scope of the demand curve when the assumptions of ceteris paribus and rationality are relaxed. The study gives some useful insights to the policy-makers to consider while framing any policy related to aggregate demand, output, or inflation. The study is divided into five sections. The first section presents views of different schools of economists. The second section presents a review of the literature on the existing works by distinguished authors. It is covered under three themes: arguments in favor of the downward-sloping demand curve; factors other than price that influence quantity demanded; and circumstances where the demand curve is not downward-sloping. Section three covers the research methodology undertaken to analyze the emergence of the concept of demand and the factors directing it. Coupled with it, are the tentative explanations highlighting the main objectives; access to data and resources helpful for the research; the applied methods for concrete results that includes analysis of WPI showing a change in weights of commodities due to subsequent change in price level, an analysis of a relatively more flexible market i.e. the stock market of the country (NSE) discussing causes for the change in quantity demanded of equity shares, and analysis of a survey conducted at a local area to find out how demand is aspiration-driven. The last section puts forth the analysis based on both primary and secondary data. The study concludes that while the role of price, income, and aspirations have important roles in shaping our demand schedule, the understanding that the price–demand relationship is inverse, is a simplistic one.

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I. INTRODUCTION

In real life, we see instances where the consumption basket of any consumer is mostly affected by income change and socially constructed norms about the necessity of the product. For instance, when a famous product *Maggi noodles* got expensive, its higher price did not affect its demand because people developed its taste and it became a kind of necessary good in their basket, implying that long as people can afford a good, they would not lower its consumption. So, the change in price doesn't seem to affect the demand.

One of the major policy failures due to the demand-price concept is the Laffer curve. It was the result of a lunch conversation among mainstream economists Arthur Laffer, Dick Cheney and Donald Rumsfeld. Arthur Laffer put it as, "I think today everyone agrees with the premise that when you tax something you get less of it, and when you tax something less, you get more of it" (Moore, 2014). When this policy was implemented at Kansas City, U.S. assuming that the tax revenue would rise by cutting tax rates and that the cuts would pay for themselves, it failed drastically. The state collected so less money that most of the government expenses were underfunded (Atkins, 2015). There are more instances. So a different perspective about the factors that affect demand would surely increase the predictability of the market and help the policymakers to implement policies that don't fail.

The present study seeks to (1) explore the demand-price relationship relaxing assumptions; (2) consider variables such as income and consumption habits that affect demand; and (3) suggest policymakers to take into account other scenarios affecting demand apart from price.

The core premise of the study is based on the following tentative explanations:

- Demand for a commodity is more significantly influenced by factors other than price. An extensive review of the literature is undertaken to explore the explanation.

- Demand by consumers remains unaffected by frequent but temporary changes in price. This explanation is examined through the analysis of WPI data and commodity market data.

- Demand is socially defined. This explanation is examined by the analysis of WPI data and the review of the literature.

- Factors like income and wealth play little role in defining the consumption basket and preferences of consumers. The examination of this explanation is based on the analysis of primary data.

A Comparison of Different Viewpoints

Conventional Viewpoint

The use of the concept of 'Demand' and its relationship with price has evolved over time. Be it the era of Classicals, Neo-classicals or Modernists, the theories of demand have been put differently. Among classical economists, Adam Smith was the first and only major economist to use demand as price-determining, not price-determined. Jean-Baptiste Say recognized the price change as an opportunity to withdraw demand of a particular good and considered the choice between two goods. David Ricardo destroyed the belief that price depended only on demand and

supply. T.R Malthus analyzed demand as an approximation of modern demand schedule (Smith V. E., 1951)

Demand is defined as the willingness and ability to purchase a commodity. More concretely, it is the schedule of quantities of the good that would be bought by buyers in a given period at various unit prices in a given market, other things being constant. Thus, the demand curve explains the functional relationship between quantities and unit prices that could be sold at these various prices. Quantity, therefore, is a function of the only variable, price (Ferger, 1932). The foundation for an inverse relationship between price and demand lies in the following standpoints (Mohanty, 2014):

- When the price of a commodity falls, the real purchasing power of the same previous budget rises and more goods can be added to the consumption basket.

- Due to the concept of diminishing marginal utility of a commodity, the consumer would buy more of it only at a lower price as the higher the amount consumed of the commodity, the lower the utility derived.

Neo-classical Viewpoint

Among neo-classical economists, Alfred Marshall gave the most famous concept of demand curve—demand as a function of price. The curve was assumed to be negatively inclined and static (constant unit of time). Moreover, collective demand curves were derived by horizontal summation of individual curves, so if individual curves were negatively sloped, market demand curves were also so. Marshall's theory was argued by Walras. He proposed that not only the price of the commodity in question should be considered but also of other commodities to compare the utility. Marshall's theory was called as the theory of *particular* equilibria while Walras's theory was that of *general* equilibrium (Ricci, 1932).

Marshall's Principles (Weintraub, 1942) draw the demand curve on the following assumptions: 1) given income in the individual's hands; 2) given taste of the individual; 3) prices of other commodities as given; 4) marginal utility of money to the individual as constant. The first three fix the position of the curve and the last one settles its shape. Now if the marginal utility of money or the relative importance of other goods increased as the price of the good in question fell, the income saved would leave a substantial amount for expenditure. Rearranging the budget, thus, might lead to buying of more of other goods at constant prices and less of the good in question, despite the fall in price, to keep the utility-price ratio constant.

The neoclassical theory puts forth two types of economic circumstances that may produce an upward-sloping demand curve. One is related to the income effect called Giffen goods, and the other is related to externalities produced by the desire to mimic others. The latter is called fad-effect. There are only a small number of well-informed, genuine buyers and many myopic buyers (Smith C. R., 1999).

The most common examples of Giffen goods are bread and meat. There is a necessity for an inferior good as well as for a Giffen good (which is a special case of inferior good. Taking the example of bread and meat, if a rise in income leads to the substitution of meat for bread, it implies that there exists a want-satisfying quality shared by the two goods due to which the substitution takes place. It is because of the cheaper supply of bread compared to meat that it is substituted when income rises (Rosenbluth, 1971).

In the words of Marshall, the sole time he makes this point, "*We must however*

remember that the character of the demand schedule for any commodity depends in a great measure on whether the prices of its rivals are taken to be fixed or to alter with it" (Weintraub, 1942). The only time the importance of the relative prices of other goods was realized by Marshall.

Professor Hicks described the central proposition of demand theory based on the prediction that demand curves slope downwards and devoted much of his time to prove the Giffen case to be '*unlikely*'. Samuelson's *'revealed preference'* theory was based on weak axioms of consumer behavior too. Moreover, Edgeworth also said that the *Giffen effect* is contrary to 'general experience and common sense'. Marshall countered this thought with an example of a person who travels to work by a combination of two conveyances, one of which is faster and more expensive. When his income rises or when a fall in price raises his real income, he uses less of the mode of transport which he considers to be 'inferior' (Rosenbluth, 1971).

Modernist Viewpoint

Modern economists have propounded theories that recognize different shapes of the demand curve. It can be negatively sloped, positively sloped, or flat due to the role of other factors in determining demand apart from price alone (Machlup, 1957). Marshall's demand curve is a static concept, showing the relative change in the quantity demanded of a commodity that would be associated with a given relative change in the unit price of the good at a given instant. So it is insisted that since the orthodox economic theory is based on the static time concept, it is impossible to measure it statistically. But the essence of dynamism is 'change', and not just the passage of time wherein the change is not possible at an instant of time but only over a period of time. It must be remembered that *"time may pass without being accompanied by a change"* in this phenomenon (Ferger, 1932).

The point of equilibrium most famously put forth is that point where demand equals supply (Marshallian cross). The cross has a demand curve that is downward-sloping following the law of demand (inverse relationship between price and quantity) and a supply curve that is upward-sloping following the law of supply (direct relationship between price and quantity) on a two-plane graph representing quantity on x-axis and price on y-axis. But there is more to the story. The two cases are called *Exceptions in Economics*: 1) *Giffen Good,* which can only happen if the good is an inferior good with substantial negative income-elasticity, small substitution effect & large income effect (Machlup, 1957), and 2) *Conspicuous Good*, also called fad-like incentive (Smith C. R., 1999) having an upward- sloping demand.

A Post-Keynesian new classical viewpoint suggests that the demand curve in price-quantity space can be vertical due to rational expectations assumption. It puts forward the arguments as to why it should be downward-sloping and then closer inspection would prove that such arguments do not hold true. One general reason is based on Keynes' theory of marginal efficiency of capital that refers to a downward-sloping demand curve i.e. investment as a function of expected real interest rate. It is argued that when the price level rises, the real money supply falls and to maintain the unchanged demand for money, the interest rate rises, thereby reducing the investment and the aggregate demand. But here the interest rate is the nominal one because the constant level of interest rate has to be maintained. Thus till the market understands it, there would be no change in investment and aggregate demand, and the after-effect of the random price shock would be a short-run downward-sloping aggregate demand curve (J. Barkley Rosser, 1991).

The assumption of given tastes seems unacceptable because any alteration in tastes would affect the demand curve. Again, with respect to an individual's income, the traditional theory rests unexplained. Moreover, consumers' view of future prices must form a part of the components of present demand decisions. If future prices are expected to be higher, present demand will be enlarged (Weintraub, 1942).

Arguments against Conventional Approach

Steve keen (keen s., 2001) puts forth some important arguments against conventional approach on the shape of demand curve:

- The vagueness of the assumption of rationality that considers consumers to be in a position to compare utilities of various bundles of goods. Infact, when faced with such great and overwhelming choices, consumers rather rely on habit.

- Considering individuals as 'self-oriented utility maximisers' is a wrong notion, putting them in a box of selfish humans.

- People assumed to have same tastes and that each consumer's taste remains unchanged when income changes.

- Ignorance of time path from one equilibrium state to another i.e. contemplating the adjustment to be static and thus studying 'comparative statics'.

A Bigger Picture When Assumptions are Relaxed

The basic dilemma lies in the violation of the law of demand in the studies lately. The law of demand states that 'other things remaining the same, the quantity demanded of a commodity increases when its price falls and vice versa' (Ricci, 1932). This assumption of *ceteris paribus* (other things remaining constant) if relaxed, might demonstrate different results. The study is conducted to highlight some confusion regarding theories that mainstream economists have put about the demand-price relationship. In practical life, price does not seem to affect demand in any way. A consumer classifies commodities of his basket into necessary or unnecessary goods. Price does not matter really if the good is in his consumption basket. He buys it anyway if he needs and can afford it, and in case he cannot afford it, he will switch to another commodity altogether (substitution). Moreover, the static time frame in which the demand-price relationship is studied is impractical (Mohanty, 2014). The narrowed flexibility of the demand curve under the assumption of *ceteris paribus* and rationality would be relaxed in this study. Moreover, the concept of social behavior derived from individual behaviors seems impractical when no two individuals act the same. If in reality, individual behaviors are summed up, demand curves may not be negatively inclined (Ricci, 1932).

The assumption of rational expectations undermines the argument of the downward-sloping demand curve. The rational expectations model assumes that economic agents make rational decisions based on all the available information and previous experiences i.e. current expectations in the economy reflect the future state of the economy. A fall in the current price level persuades an expectation of further fall in prices so consumers hold back their present consumption in the lure of further low prices. And when high prices are expected to be higher in the future, consumption is high at present because future consumption will be expensive which negates the traditional demand-price relationship where higher price leads to low demand. Therefore, rational expectations models have a strong tendency of multiple equilibria which has been criticized by the New Classical economists (J.

Barkley Rosser, 1991).

Instances in daily life that question the conventional relationship

1) Retail therapy- The economic behavior of the consumer when he shops to improve his mood. The concept is absent from neoclassical economics because it assumes people to be rational, motivated by need, and limited by scarcity. One of the notable economists Herbert Simon in the 1950s postulated that an individual could not always act sensibly because he possessed a "bounded rationality". Human minds are finite and lack unlimited information; they face problems specifically when viewing through a "frame" of social and cultural bias.

2) Most famous noodles *Maggi* recently saw a sudden fall in quantity demanded due to non-price reasons like the presence of MSG (Mono Sodium Glutamate), an amino acid that can have long-term effects on the nervous system. Here consumer behavior shows inferences where though price did not change, demand fell suddenly. Now, the consumers that have Maggi in their consumption bundle would either buy it irrespective of the price charged or would substitute it with other nearest noodles depending on their tastes. So, the price is not playing a part in influencing the quantity demanded.

3) A thirsty person would not wait for prices to fall to buy a water bottle, instead he would buy at any price and he would not drink 5 bottles of water if prices fall when his *carrying capacity* is just one bottle of water.

4) A multiplex having 4 different screens showing four different movies at the same price would not affect the audience's choice of movie. They would go by their choice irrespective of the ticket price.

5) A train or flight ticket, no matter how expensive it is, would not make us cancel our journey if it is important for us to go. However, we can get a ticket booked in advance if we know beforehand that we have to go.

Possible flaws in the theory of demand -price relationship

A study (Mohanty, 2014) presents some possible flaws in the theory of the price-demand relationship. According to the author, these flaws are unaddressed confusions he has come across in the learning processes of day-to-day life:

What is the definition of a normal good-The mainstream economists consider a normal good as such whose demand increases with an increase in income (Economist, 2013). It generates the concept of circular non-explanation when we say that the law of demand is applicable to only normal goods and normal goods are such for which law of demand applies. In real life, we faintly contemplate anything as normal goods in accord with the relationship with income. The demand for all marketable commodities varies directly with income even in the case of so-called Giffen goods till the consumer is totally abandoning any commodity, given the *ceteris paribus* assumption. It is not possible to tag any commodity as normal or inferior or Giffen for that matter. It all depends on the 'use value' to the consumer. He chooses his consumption bundle on the basis of the perceived utility he would derive and his ability to acquire it. Such a notion of normal goods depends on the affordability of the consumer i.e. the same good can be normal for one and luxury for another. So at best, he can categorize goods to be necessary and unnecessary, not normal and inferior. A necessary good may be one without which the perceived

welfare of the consumer declines. An unnecessary may be one for which he is indifferent between consuming and not consuming.

- *Limitlessness of human wants*- It is a basic assumption that human wants are limitless which justifies the downward-sloping demand curve. However, a consumer must not assume utility as a function of quantity consumed. If a good becomes free, still one would consume only what carrying capacity allows (a point where the demand curve touches the quantity axis, price becomes zero). Therefore the wants have a limited spread only. Therefore it is argued that consumers demand a commodity as much as it is necessary. E.g. a student would not repeat a class if the cost of education falls.

- *Static-time assumption*- In the traditional demand curve analysis, the time of consumption is assumed to be static. The scenario of consumption is taken at a single point in time when price changes but income does not. To make it realistic, it is necessary to take income as static which means that demand constitutes the sum of all commodities consumed in that time frame only irrespective of price fluctuations. So when due to a fall in prices a consumer buys more, he buys it for future stock as in the present time frame he can only consume what he usually does and that future stock would mean no change in purchases in the future when prices change. So prices matter faintly.

- *Trade-off between present and future time period*- Let consumptions be C_1 and C_2 & prices be P_1 and P_2 in periods 1 and 2 respectively. A rational consumer will try to stabilize consumption over the entire lifetime. If P_2 is expected to rise, then according to the law of demand, his C_1 would rise. But there is more to the story. When expected P_2 rises, it means that future consumption (C_2) is relatively expensive. So being rational, should he be not saving in present to finance his future consumption as his real income will fall in future?

- *Role of information*- Awareness plays a big role to affect the demand of any commodity. If a consumer is not aware of a product, it won't be in his consumption basket and so its price won't affect him anyway. Possibly there are two reasons why a consumer puts any commodity in his consumption basket; a) information about it or a socially constructed desire, and b) affordability to buy it which depends on the income and not price. In fact, the consumer generates brand loyalty for the product and demands it constantly as long as income allows. However, when a price rise affects his affordability, in the initial stages he dis-saves and when he is convinced that he could derive at least the same utility from another commodity, he substitutes it. So instead of reducing or increasing consumption due to a price change, he shifts altogether to a new commodity.

II REVIEW OF LITERATURE

Arguments in Favor of Downward-Sloping Demand Curve

The demand curve is the graphical representation of the demand schedule of a good. It is the graphical statement of a consumer's reaction to the quantity demanded at a given price at a given point in time. It has a negative slope; downwards from left to right. In the words of Richard Lipsey, "The curve which shows the relation between the price of a commodity and the amount of that commodity the consumer wishes to purchase is called Demand Curve".

The theory of demand is the fundamental building block of economics. Whenever

one thinks of buying something, be it a pen or a house, this law works. The better one understands the law, the better one gets why he pays different prices for different commodities. The downward-sloping curve has its reasons (Box-1) for being of the shape.

Box-1: Proposed reasons for a Downward Sloping Demand Curve

a) *Law of diminishing marginal utility*: A consumer equates marginal utility with price (MU=P). The law states that a buyer derives lesser satisfaction with a unit addition in the consumption of the commodity. A fall in price distorts the price utility equilibrium i.e. price becomes smaller than utility and in order to restore the equilibrium between price and utility, he buys more of it till the fall in marginal utility due to the rise in quantity demanded equals the new price.

b) *Income effect*: As the price of a commodity falls, the consumer gets to buy the same amount of it at lower prices and he is left with some amount of money. This is a rise in real income or purchasing power which is called the income effect. This explains why consumer buys more at falling prices.

c) *Substitution effect*: When the price of a commodity falls, it becomes cheaper relative to other commodities, thus, the consumer substitutes this commodity for other commodities that are relatively expensive. So he buys more of it at lower prices.

d) *New consumers*: When the price falls, many other consumers who were previously deprived of this commodity are now able to buy it as it is now within their reach. This explains why at lower prices, quantity demanded rises.

e) *Multiple use of commodity*: Commodities that have multiple uses show an interesting pattern. Due to the fall in prices, the uses that are otherwise put on hold come into use. Previously they are used only for selected purposes but now they can be used for lesser urgent purposes too. For example, electricity when expensive is used for unavoidable purposes only but when cheap, it is used for cooking too.

Summing up, there are three accepted explanations as to why the demand curve slopes downwards, notably, the law of diminishing marginal utility, the income effect, and the substitution effect. These effects result in an inverse relationship between price and demand. Other than these, the arrival of new consumers and multiple uses of the commodity come into the picture when prices fall.

In addition to the above reasons, relative prices matter— an essential lesson from microeconomics (Salemi, 1996). The rise in the price of apples associated with a fall in the quantity demanded is due to the relative fall in the price of oranges (or any composite commodity). The demand for any commodity falls not because it is expensive but relatively expensive. The purchasing power of the consumer goes down and thus he substitutes for a relatively cheaper commodity. Similarly, he does not just buy the commodity due to a fall in its price but because relatively it becomes cheaper thereby raising his purchasing power.

The other argument for the downward-sloping demand curve is 'international substitution effect'. The idea is that if the price level in a country rises relative to

another, a substitution effect would lead to consumption purchases out of the first country's goods and services. But this effect would not work if there are flexible exchange rates and purchasing power parity holds, as in the flexible-price monetary model (Frenkel, 1976) of foreign exchange rates. In such cases, any change in price level relative to trading partners' would lead to a nullifying change in its foreign exchange rate, leading to no change in consumption patterns, no change in relative purchasing powers and thus no international substitution effect. If the price shock is global, the fixed exchange rate regime also leads to no international substitution effect that happened in the case of oil price shock (J. Barkley Rosser, 1991).

Factors Other than Price that Influence Quantity Demanded

In the Traditional theory, consumers are assumed to prefer alternative bundles of consumption goods and be aware of these preferences with conviction. However, this assumption seems unrealistic. The study develops the concept of status qou effects in consumer preferences i.e. a consumer happens to be biased towards sticking to a current preference and any deviation from it is perceived to be a loss. Therefore it explains how status quo effects may vary when an individual gains market experience and becomes more taste-certain. Thus taste has a say in changing consumers' preferences. The uncertainty in taste arises from two different sources. One is *extrinsic* uncertainty that arises from not knowing, at the moment of choosing between bundles, the exact conditions under which the consumption will actually happen. For example, while selecting a vacation package, a consumer does not know the exact conditions like the weather conditions or ease of transportation. Other is *intrinsic* uncertainty that arises due to the indefinite preferences of consumers leading to a stochastic component in the consumer's choice. Thus the assumption of well-behaved preferences stands invalid when these uncertainties are reduced because then taste certainty comes into the picture and preferences change (Graham Loomes, 2009).

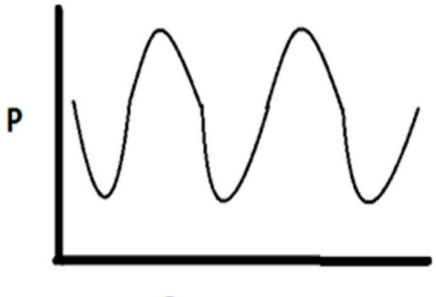
The study establishes a link between income and demand patterns. Engel's law implies that a consumer's income level must affect the demand pattern; a poor in a developing country would spend most of his income on buying essentials like food. But, as Kindleberger (1989) pinpoints "Engel's law applies to more than food...it is a general law of consumption." As a consumer's income rises, so would his preference for commodities of higher quality and sophistication. The goods in an economy are classified into three broad sections- essentials (like food), simple manufactures (like clothing), and sophisticated manufactures (like cars). The interaction between demand and income distribution depends on these three types of goods and also on the level of income in the economy. For instance, in very poor countries where most of the population is below subsistence level, income rise may not increase demand for simple manufactures but for essentials. The important gist is that income and demand are related with each other irrespective of price (Mani, 2001).

Henry Schultz segregated "time" in the context of the consumption of any commodity into two categories; 1) changes in the price of the good from year to year (or season to season) and 2) changes in other factors that are not dependent on these price movements. The latter is composed of such factors that can or cannot be measured but they are clubbed together to represent the variable time (Ferger, 1932).

A study by Neilson, 2012 says that the law of demand does apply but only on an individual level. When it is applied to the whole economy, it runs into trouble. It is

always assumed that when the price of a good falls, the consumer buys more of it. However, this increase in income due to the fall in the price makes him richer and it is perfectly possible for him to use this extra money in a different way from the previous pattern. He can get the same previous quantity by spending less and thus use the extra money some other way. Many commodities carry the stigma of being cheap and are assumed to be of poor quality. Similarly, some goods are bought only because they are expensive, so they do not have a relation with price, but rather an image attached to them. More than anything, the demand depends on personal taste. Taste is different for everyone else and thus cannot be assumed to be constant at the macro level. The only way to draw a national indifference curve is to assume that everyone has the same taste, and that is not feasible. Figure-1 shows that demand can rise, fall or stay the same in relation to price.

Figure-1: Demand Movement in Relation to Price as Suggested by Neilson 2012



Source: (Neilson, 2012)

A study suggests that an individual's demand for commodities, being a member of society, depends on several factors other than the direct utility of any commodity to him. It depends on prevailing customs, religious views, desire for esteem, and more. They all have a price though not explicitly but underneath (Telser, 1995).

Another study (Mark Coppejans, 2007) develops a demand model for commodities that are functioned by habit formation. It studies the consumption pattern of forward-looking consumers and shows that it depends on preferences, their beliefs on future prices evolution and current period prices, and that an increase in price uncertainty reduces consumption. Here the market for cigarettes is analyzed which is a volatile market. Smoking being an addiction, the law of demand does not apply to it according to the traditional theory, however, the study predicts that higher averse prices or greater price variation make smoking less attractive for risk- and forward-looking consumers. So it is concluded that forward-looking consumers form beliefs about future prices. In fact, they plan their consumption based on beliefs they form about future prices. The study finds that teenagers in metropolitan cities with large price volatility have a lower level of cigarette consumption than teenagers in low-volatility areas. Therefore, uncertainty and risk aversion play important roles in determining consumption decisions of addictive goods.

Economic Circumstances where Demand Curve is not Downward-Sloping

As per Pettinger (2014), from a micro perspective, lower price encourages a consumer to buy more of that commodity but the macro scenario is different. A fall in the general price levelmeans all prices are falling (on average all prices fall). So it is different from one good becoming relatively cheaper. A span of deflation (falling prices) accompanied by falling wages leads to a fall in aggregate demand. Moreover, consumers might delay purchases in expectation of further moderated prices in the future. If the fall in prices is due to technological advancements, aggregate demand

increases but if it is due to recession, wage growth is low and consumers hesitate to spend.

When the price of a good falls, more of it is purchased and thus, the marginal utility of the particular good rises. Therefore, Giffen behavior for a good requires a comparatively higher marginal utility for the other (Weber, 1997).

Giffen good, as mentioned earlier, is a special case of an inferior good. The study (L. S. Fan, 1969) draws the fine line between these two goods using utility function analysis. It deals with a single consumer whose utility function is:

$$U = f(x_1, x_2) \; such \; that \; x_1 + ax_2 \geq Ax_1 + bx_2 \leq B$$

Where, U is the utility; (x_1, x_2) are the quantities of two consumption goods; a, b, A, B are constants greater than zero such that:

$$B>A \text{ and } B/b > A/a$$

Assumption holds that the consumer maximizes his utility U, subject to the linear budget constraint:

$$M \geq x_1 p_1 + x_2 p_2$$

Where, M is the total income of the consumer, and P1 and P2 are the prices of X1 and X2, respectively. At any point, X_i is an inferior good if $(d X_i/d M) < 0$ and it is Giffen if $(d X_i/d P_i) > 0$.

A study (Neilson, 2012) states that the law of demand works at the individual level where comparing two goods is easy i.e. when the price of good A falls, the consumer tends to buy more of it given the price of the other. But the actual consumption bundle consists of N number of goods. Instead of buying more of the commodity a consumer might just save the extra money or use the extra purchasing power on any good according to his taste and preference. The indifference curve does not account for changes in income. It assumes proportionality of goods irrespective of income. These assumptions don't hold true in the real world. In fact, in reality, the demand curve can have any shape than a typical downward-sloping curve. With a number of consumers and different incomes and multiple goods to choose from, demand may fall, rise or stay the same with a change in price (called as "Anything Goes" theorem). Many goods carry a stigma of being cheap and are assumed to be of poor quality. Similarly, consumers tend to buy some goods only because they are expensive (luxury goods). This is called Wealth Effect (Dean, 2011).

Two reasons are identified for an upward-sloping demand curve i.e. conspicuous consumption and Giffen goods. The economist and sociologist Thorstein Veblen coined the term conspicuous consumption to describe the ostentatious squandering of resources by the wealthy classes. Economists use the term Giffen goods for the inferior goods that show higher demand as prices rise. These two special categories show the prominence ofincome as a factor affecting demand (Ruchala, 2011).

Many economists have been skeptical about the theoretical demand curves and have put their attention towards statistical demand curves. Professor H.L. Moore finds that in the case of pig iron, the "law of demand" does not match Marshall's rule. He finds that the higher the quantity of pig iron sold, the greater the prices. This shows that traditional economic theory is different from statistical one. He holds that the statistical law of demand is a dynamic law whereas the theoretical is a static one. In fact he maintains that the method of ceteris paribus has stood in the way to tackle dynamic problems (Gilboy, 1930).

An observation cites that there is a *qualitative difference* between individual and market demand functions. The summation of individual demands over a group indicates different properties of market demand than an individual demand function and so the concept of '*representative consumer*' might be misleading (Hildenbrand, 1983).

Steve Keen's critique of neoclassical economics states that theories of utility analysis and indifference curve analysis are vague due to two reasons. Firstly, economists have demonstrated that aggregation of individual indifference curves to achieve social indifference curve is not possible. Secondly, market demand curves may be upward-sloping even if all individual demands are downward-sloping. Keen considers the process of adjustment to be dynamic and does not take into account the short-term jostling of the disequilibrium. Moreover, society's way of behaving cannot be predicted by adding up individual behaviors.

Behavioral economics has put forward the aspect of individual behavior, stressing the "irrational" side of decision-making called as "behavioral failures". On the other hand, traditional economists assume individuals always behave rationally. According to neo-classicals, agents maximize expected utility but the question arises of how the demand curve is downward-sloping (diminishing marginal utility) when the total utility is an increasing function of demand and if the consumer is assumed to be rational. Research in behavioral economics has also demonstrated that non-pecuniary intercession changes consumer behavior whereas traditionally, the change in prices was the only focus. Another important aspect is the status-quo bias stating that individuals stick to the default options already chosen for them. For instance, in countries where organ donation is taken for granted, participation rates are higher than in countries where consent is needed. This explains the point as to why people do not switch to commodities whose prices fall, if it is not a part of their consumption basket. Rationality has an obstacle in its way called 'Choice overload'. When consumers are overloaded with so many choices, they end up being irrational by relying on habit. The traditional theory, however, assumes more choices are preferable to fewer ones which is a contradiction (Michael G. Pollitt, 2011).

A study by Myron H. Ross and Donald Stiles states that though the demand-price relationship is negative, the price involved is the perceived price, not the actual price and when the actual price is taken into account, we find a "positive" relationship between quantity demanded and actual price, other things being equal (Stiles, 1973). The model emphasizes the following perceptions:

- Producers attempt to maximize perceived profits i.e. equating perceived marginal cost and marginal revenue.

- Consumers attempt to maximize perceived total utility by allocating their income in such a way that perceived marginal utility and perceived prices for various goods in the budget are equal.

- Perception of the price by consumers is less accurate than the producers'. With economic development, the diversity of goods increases so much that the probability of ignorance per good increases. The marginal benefit of complete information is less than the marginal cost so ignorance is justified. When one contrasts the budget of our forefathers with the budget of our family today, one finds that the goods that are not in our consumption basket or we are ignorant of,

won't affect our consumption pattern.

- As long as the perceptions of consumers are relatively imperfect, producers will have the motivation to use a deceptive multiple-price policy of raising the price and expecting the quantity demanded to increase.

It has been empirically proved with the help of an experiment that real prices and demand vary directly with each other. The experiment takes three commodities with four brands of each to avoid the problem of close substitution. It is observed that when a multiple-price policy is applied, the price rise leads to a rise in the quantity demanded. But one might argue that consumers have a strong propensity to react to suggestions so when price policy changes from single to multiple pricing, people buy more due to the power of suggestion.

Another explanation is imperfect consumer perfection. The argument here goes that it is not the imperfect perception but consistent behavior with the current demand theory, meaning that it is always luring to buy two than one when a unit price falls due to a combination of two. For example- buying 2 units for 26 rupees is a better deal than buying 1 for 14 rupees. Now a t-test performed to test such behavior in the multiple-price policy proved insignificant.

The study by Jain (2005) examines how demand decisions are influenced by the desire for conformity and exclusivity because some consumers might find a commodity less valuable if it is easily and widely available. An experiment conducted to show this pattern captures consumers' demand for exclusivity where utility derived from a product depends on its intrinsic value and the consumption externality. The experiment labels 'snobs' as consumers whose utility from the commodity falls when more people demand it, and 'followers' as those whose utility from the commodity rises when more people demand it.

III DATA AND METHODS

Data used in this study are both primary and secondary in nature. Secondary data included wholesale price index (WPI) - annual average from RBI, weighting pattern of WPI for existing and past series, and sector-wise equity price data from the National Stock Exchange. Primary data was collected from over a hundred households in the town of Dehradun.

The method used for the study involved an e*xplicative review of secondary literature and an analysis of the Demand-Price Relationship via the Wholesale Price Index (WPI).* Wholesale Price Index is an inflation indicator and assists in studying the change in the weighing pattern of commodities due to the change in prices. WPI (base 1993-94) is usually considered as the headline inflation indicator in India. The study covers three categories of commodities with the change in their weights and prices in the years 1993-94 and 2004-05, namely Primary articles, Fuel & Power, and Manufactured products. The effect on weights due to the change in WPI would present a clear picture of the demand-price relationship. The trend thus attained would tell the response of demand in relation to the price.

For better understanding, we also analyzed the relationship between price and demand in a free market structure like the stock market where the price is completely flexible based on the demand movements. The analysis covered four indices namely- Consumption, Commodities, FMCG products, and Energy. A consumption pattern survey was conducted in selected localities in the city of Dehradun to show the role of consumers' tastes and preferences in the demand

pattern. The survey conducted on the basis of income and income changes showed how demand sets are formed.

To be continued in the next issue .....

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