

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

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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.

Keywords: Downward-Sloping Demand Curve, Law of Demand, Microeconomics

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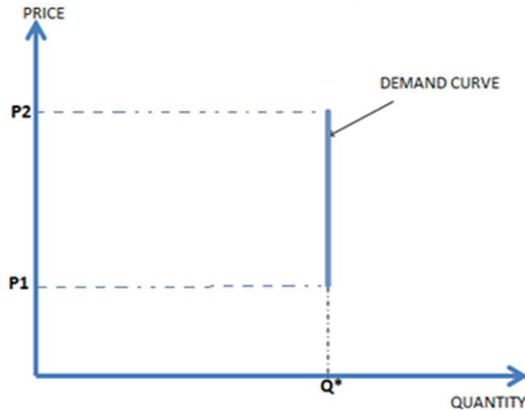
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IV RESULTS AND ANALYSIS

This section deals with our understanding that emerged from the analysis of the relevant secondary and primary data. Figure-2 presents a more realistic demand curve. A consumer classifies his bundle into two types of goods-necessary and unnecessary. Either a good is fully part of his consumption

Figure-2: Graphical Analysis of Proposed Demand-Price Relationship



Source: (Mohanty, 2014)

and their quantity transacted in terms of NSE FMCG, ENERGY, COMMODITY and CONSUMPTION sectors. FMCG (Fast Moving Consumer Goods) are such goods that are non-durable and always available off the shelf for mass consumption. The CNX FMCG index is comprised of 15 companies that produce such products listed on the NSE.

Figure-3 shows the trading of FMCG products from June 2014 to June 2015. The average price of shares is on the vertical axis and the number of shares purchased at the ongoing prices (quantity) is on the horizontal axis. Red color pattern reflects the fluctuations in quantity demanded and blue color reflects fluctuations in the prices of the shares. Now the trend shows that the change in prices are fluctuating less whereas the variation in quantities demanded is high and deviations are consistently large. The top highs were on 12 March, 2015 and 4 March, 2015. On the other hand, lows were on 1 January, 2015 and 23 October, 2014. The reason for lows was New Year celebrations on December end and sluggishness of the market on 23 October was due to Dussehra festival on the previous day.

Examining the case of Nestle, a big FMCG company, its leading noodle brand Maggi was cleaned off the market due to the tests that revealed hazardous levels of MSG (Monosodium glutamate) and lead in the samples. Consequently, the shares fell by 15% and the goodwill of the brand as well as the firm suffered tremendously in the past quarter. So, due to ongoing controversy leading to a fall in expected profits, the demand for the stocks of the firm have seen a blow which clearly states that price of the shares played negligent role in affecting the demand, instead the fall in profits was the main player (Anand, 2015).

bundle or it is not present at all. In the figure, at prices below P1, the commodity may be unnecessary and is both unnecessary and unaffordable above prices P2. The consumer might consume in these ranges as an experiment or temporary substitution but otherwise, he consumes only within the range P1P2. The consumption is generally zero outside these ranges. So the consumer demands what he chooses to buy decisively and which he needs and can afford to buy. Thus, his demand does not depend on price as such.

Figure 3 to Figure 6 present the movement of prices of indices shares

Figure-3: Price and Quantity Movements in the FMCG sector in NSE

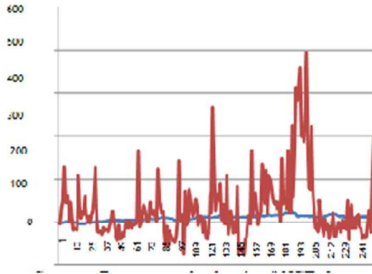


Figure-4: Price and Quantity movement in the Energy sector in NSE

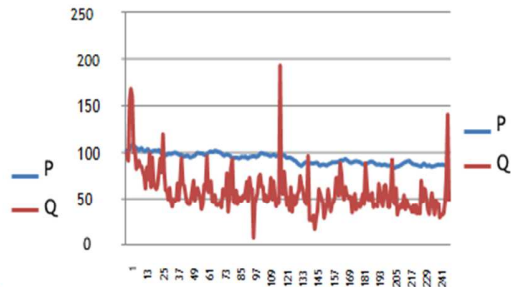


Figure-5: Price and Quantity Movements in the Commodity market as per CNX Commodities Index

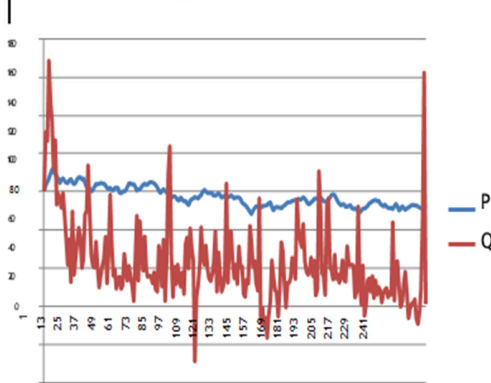
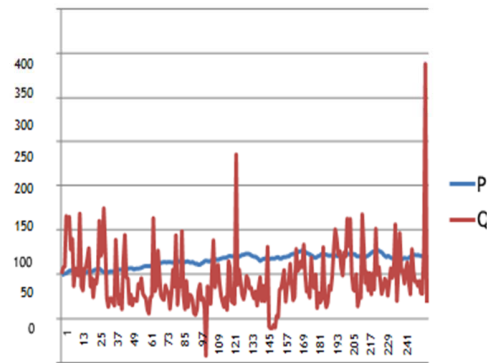


Figure-6: Price and Quantity Movements in the Consumption goods sector NSE



Source: Figure-3 through Figure-6 are drawn on the basis of data from NSE

The energy sector is one of the most important inputs for the economic growth of a nation. The growth happens when all sectors and all segments of society meet the energy requirements adequately. Now as it is a crucial input for the country’s development process, it is significant to include it to study the pattern of demand. The index includes companies belonging to Petroleum, Gas and Power sub- sectors. Figure-4 shows the trading of the Energy sector from June 2014 to June 2015. Now the trend shows that changes in prices are fluctuating less whereas the variation in quantities demanded is high and deviations are consistently large. The top highs were on 25 November, 2014 and 6 June, 2014. On the other hand, lows were on 1 January, 2015 and 23 October, 2014. The reason why demand fell on January 1 is obvious. People trade low due to the New Year celebrations and also that investors sell off their stocks to realize the tax-losses at the end of the year.

Examining the case of NTPC, the country’s largest electricity generator, the demand for shares in the last year declined due to the fall in profits of the company because of low power generation. Reported net profit fell by 5% and so did the demand for stocks. Thereby hinting that the price of the stock played no role in affecting the demand which was totally based on the profit prospects of the company (Krishnan, 2015).

When the stock market crashed in 2008, fear drove hedge fund investors to



withdraw their shares. Though they could buy a large number of shares at record-low prices, they did not go by the fall in prices because the profits prospects were low. Therefore, the demand did not get influenced by prices at all.

The CNX Commodities Index evinces the behavior and capability of companies representing the segment of commodities including sectors like Sugar, Metals, Mining, Oil, Petroleum Products, Cement, Power etc. Such 30 companies are listed on NSE.

Figure-7: Change in Weight and the Movement of WPI

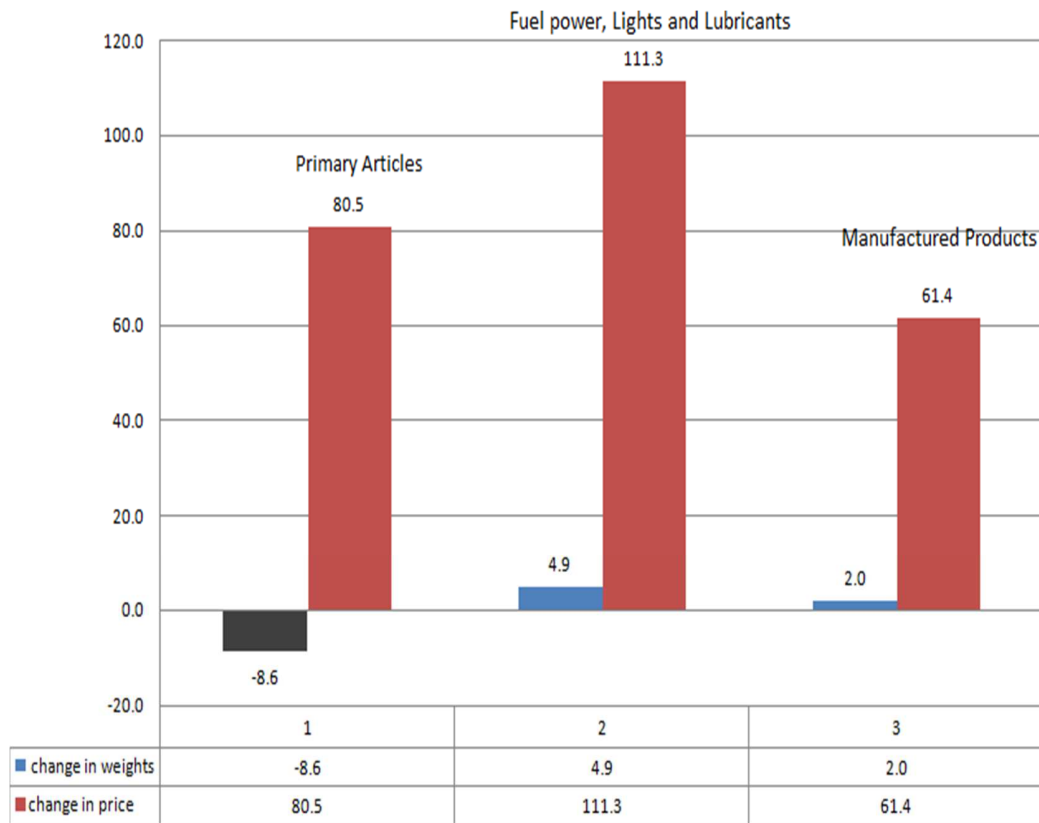


Figure-5 shows the trading of Commodity indices from June 2014 to June 2015. Here also the trend shows that changes in prices are fluctuating less whereas the variation in quantities demanded are high and deviations are consistently large. The top highs were on 5 June, 2014 and 29 May, 2015. On the other hand, lows were on 1 January, 2015 and 23 October, 2014. The Consumption Index reflects the performance and behavior of all firms representing the domestic consumption sector that includes sectors like Consumer Non-durables, Hotels, Media & Entertainment, Healthcare, Auto, Telecom Services, Pharmaceuticals, etc. Around 30 companies in this sector are listed on NSE. It is one of the most important zones to study the pattern of demand for shares. The profit prospects of this sector tend to be quite high as domestic consumption is an inescapable part of the demand bundle and so the turnover tends to be high too.

Figure-6 shows the turnover of the Consumption sector from June 2014 to June 2015. Now, the trend shows that changes in prices are fluctuating less whereas the variation in quantities demanded is high and deviations are consistently large. The top highs were on 29 May, 2015 and 25 November, 2014. On the other hand, low was on 23 October, 2014. The trend in all these four indices shows that price is relatively constant with respect to the quantity of shares demanded. Prices are fluctuating less as compared to the quantities, proposing that here the quantities do not depend on prices but other different factors.

Figure-7 shows the relationship between the quantity demanded and the price. Here, the compositions of three commodity bundles namely: 1) Primary Articles 2) Fuel power, Lights and Lubricants 3) Manufactured Products are studied. These commodity bundles constitute the total share of *all commodities* in a consumer's consumption basket. Weights and prices for two years 1993- 94 and 2004-05 have been observed and their change calculated. The weights are comparatively more stable than the fluctuation in prices. The red bars show the change in prices and the blue ones show the change in weights (the importance/share of a commodity in a consumer's consumption bundle).

The traditional inverse demand-price relationship is observed only in the case of Primary Articles whereas both the other commodities show a positive change in weights due to the change in prices. Now the inverse relationship means that when prices rise, consumer demands less of the commodity, *ceteris paribus*, but the pattern with primary articles is not feasible when they are a necessity. How can a consumer substitute the whole basket of food articles with something else? It, anyways, is shown constituting just 22% of the consumption basket and that too cannot be substituted. Moreover, traditional theory in the context of necessities says that demand is inelastic due to the change in price but that is not observed here. The other two compositions of commodities show a direct relationship between the quantity demanded and the change in price.

The results of the primary survey showed an interesting pattern of the consumer

Table-1: How do People Spend their Windfall Gain?

Income Class	How a Windfall Gain is Utilised?
Below 20000	All extra money saved
20000-50000	Substantial extra money saved
50000-80000	Considerable amount saved
Above 80000	Hardly any extra money saved

Source: Primary data

The table shows that people whose per month salaries are less than 20000, happen to save whatever extra money they get. They want to save for the unpredictable future so as to keep their consumption consistent. The other batches whose salaries are not too high (20000-50000) save a substantial amount of their extra income. Other than that, they put some money into the education of the children and some into buying a gadget or a product of need. People with salaries between 50000-80000 save slightly and spend most of the amount on travelling and other means of recreation. Lastly, people with salaries of more than 80000 spend extra money

demand. They were to assume a windfall gain equal to their current personal income and decide what they would demand from the extra money. Income class-wise change in demand pattern due to equal increase in the income as windfall gain is presented in Table-1.



least on savings and instead on things like diamonds, charity, and luxurious trips.

The trend is that people with high salaries care less about savings. Their income is high enough to let them have consistent consumption even without saving. The other three batches save according to their incomes. More or less it is observed that they buy what they choose to buy decisively. Price or income for that matter hardly tends to affect their buying decisions. They tend to buy what they have in the budget plan either by dis-savings or borrowings.

Here comes the point of dynamism. People save to keep their consumption permanently consistent. They use the saved amount sometime in the future and if this tends to happen, how does the price of the future period affect the future demand? The traditional theory works in a static time frame backing the same period demand-price relationship which is contrary to the situation here.

One more aspect works here and that is aspirations. Aspirations are the social grounding of individual desires. An individual's behavior is conditioned by the experience of people in his cognitive neighborhood. He draws aspirations from the achievements and lives of those who form his cognitive world. Before anything, he aspires to have a better material standard of living and then depending on his place in the socio-economic hierarchy. More precisely, it is not the aspirations or the standard of living but the 'aspiration gap' that affects his behavior. The aspiration gap is the difference between the living standard one aspires to achieve and the living standard one already has.

Suppose an individual's current standard of living is c and a is the standard of living he aspires to achieve, then the gap will be

$$f(a, c) = \max(a - c/a, 0)$$

Now someone with relatively high aspirations than his current standard of living will be 'fully gapped' or aspiration gap of 1. Someone not aspiring anything beyond his current means will have aspiration gap of 0 (Ray, 2002).

Thus aspirations play a rather influencing role in the formation of an individual's demand set. People who have such a mindset hardly care about the price of achieving it. They follow their neighbor's lifestyle and standard of living and aspire to achieve them. In today's world where one does not have to worry about the cost so much due to the availability of credit and loans, filling the aspiration gaps becomes easier and affordable.

V DISCUSSION AND CONCLUSION

The study proposes a viewpoint beyond the conventional demand theory of downward-sloping demand curve. The viewpoint has evolved over time and through various schools of economists. Classicals like Adam Smith, Jean-Baptiste, Ricardo, and Malthus set the foundation of the relationship, though not very profound. In their view, the demand curve is a functional relationship between quantity demanded and unit prices. Arguments in favor of conventional theory are: the law of diminishing marginal utility, income effect (rise in real income due to fall in price), substitution effect (its substitute becoming expensive, so more of the good in question is purchased when its price falls), new consumers purchase the good when its price falls for whom the good was

otherwise unaffordable, and multiple uses of the commodity come into play when the price falls. They define demand as the willingness and ability to buy a commodity. The foundation lies in the concept of real purchasing power and diminishing marginal utility. The fall in price leads to a rise in real purchasing power and more can be bought from the same amount of budget. Diminishing marginal utility i.e. fall in the utility when an extra unit is consumed works behind the downward-sloping demand curve—a consumer would buy more only at a lower price as higher amounts give lesser utility. The curve given by Neo-classicals like Marshall, forms the advocacy of the core teaching and learning of economics. Certain complications related to the Marshallian demand curve like the absurdity of assumptions gave rise to its critics. The assumptions were: given tastes and income of the consumer, constant prices of other commodities, and the constant marginal utility of money. Moreover, the neo-classical concept does not work in dynamic scenario. It identifies a static demand curve that is applicable only in a given time frame. Quantity is affected by only one variable i.e. the price of the commodity in question and that too in the same time. Neo-classicals also recognize upward-sloping demand curve but they called it an exception. The shape is due to two reasons: Giffen goods and the externalities produced by the desire to mimic others called as fad-effect.

We need to differentiate between the neo-classical concept of demand (relationship between price and quantity demanded in a given time on a given market, other things being equal) and the modern concept that describes the relationship between other factors (like income, price of other goods, expected prices etc.) and the quantity demanded. The modernist viewpoint suggests that the demand curve can be vertical because of rational expectations theory which assumes that economic agents are rational decision-makers and decide their consumption basket based on all the available information and previous experiences. A fall in the current price level persuades them to expect a further fall in price in the future and they do not demand higher at the ongoing lower price. The arguments against conventional theory are 1) absurdity of the assumption of rationality considering humans to be in a position to compare utilities of various bundles when choices are great and endless, 2) tagging consumers to be self-oriented utility maximisers, 3) constant tastes and income, 4) static-ness of the adjustment path of one equilibrium to another, 5) categorization of a good to be normal, however, no good can be assorted as a normal good or inferior or Giffen and it depends on the 'use value' of a good, 6) assumption of limitlessness of human wants, nonetheless humans can consume only what their carrying capacity allows, and 7) ignorance of role of information, however, a consumer can only demand something when he is aware of the commodity.

The circumstances where the demand curve is not downward sloping are considered to be exceptions by the neo-classical school of thought. One, Giffen goods, a special case of inferior goods i.e. inferior goods that show higher demand as price rises because the high price substantially reduces the purchasing power of the individual making him switch to the inferior goods. Second, conspicuous goods or Veblen goods for which demand increases when the price rises, also described as ostentatious and flamboyant consumption.

The factors other than price that practically should affect quantity demanded are many. Firstly, the income of the consumer as stated by Engel's law. It implies that his income level affects his demand pattern, higher income increases his



preference for goods of higher quality and sophistication. It is evident when people from developed countries demand more of the sophisticated goods like cars, and villas and people from underdeveloped countries demand more of the essential commodities like food. Secondly, the concept of status quo effect wherein the consumer becomes taste-certain after gaining market experience and sticks to his taste and preferences. Moreover, some goods carry the stigma of being cheap and some others are bought only because they are expensive. So, more than anything, demand depends on taste. Thirdly, the prices of related goods or services, tastes or preferences, income and expectations have a role in influencing the quantity demanded. Fourthly, prevailing customs, religious views, and desire for esteem have a big role to play. Fifthly, the size and influence of the income and substitution effect matter. For instance, goods that are considered to be necessities would not be affected by the price change and would be purchased at any price.

Therefore a bigger picture needs to be considered relaxing assumptions and understanding if demand really depends on price or if there are other factors taking hold of the real-life scenario. Real-life instances propose that a consumer classifies his consumption basket into necessary and unnecessary goods and he buys it if he needs and can afford it. If he cannot afford it, he would rather switch to another commodity altogether than distort his recipe. Considering this scenario, the study proposes a demand curve parallel to the price axis having a fixed range from say P1 to P2. Assorting the goods into necessary and unnecessary goods, the consumer does not buy the commodity below p1 as it may be unnecessary and above p2 it may be both unnecessary and unaffordable. In these two ranges, he may only consume temporarily or experimentally.

In order to study the price independence of demand, trends of the commodity market have been analyzed. The change in weights and prices of three exhaustive categories of commodities show that quantity and price for two types of goods i.e. energy products and manufactured products move in the same direction and only in the case of primary goods, the relationship is inverse. The question here arises as to how a consumer can demand less of a primary commodity when its price rises as it is a necessity and cannot be substituted. So in this case, the relationship is absurd and unjustified.

Now, one can question that as weights do not change much in the decade, the market is more or less fixed and price change might not give a clear picture. Thus, analysis of the National Stock Exchange (NSE), a comparatively flexible market, clears all doubts about how demand remains unaffected by the price change. The study of trade indices of four sectors like energy, FMCG, commodity and consumption for year 2014-15 shows the number of equities purchased each day at the respective prices. The interesting pattern shows that peaks and bumps in the demand are not due to fall and rise of price respectively but due to non-price reasons like New Year celebrations or some occasion.

One more analysis shows that the demand set is formed by the *aspiration gap*. The aspiration gap, the gap between what one has & can afford and what one aspires for, decides the demand. People are driven by their aspirations rather than the prices of commodities. A lot of factors contribute to their aspirations, for instance, neuro-economics—the companies create aspirations within their

targeted consumers. In the world of the 'American Dream', where people have rights, insurance & credit cards, people are driven by their aspirations. The market itself wants people to buy commodities at any given price, as we have seen in the case of Walmart. Consumers are made to think that they need to constantly upgrade the product (in the case of android phones). When people can buy anything by taking loans, we can never (should not) take it under the orthodox scenario of demand being inversely related to price.

Some real policy failures can clear the picture as to where the demand-price relationship could not work. Firstly, after the financial crisis of 2007-08 (Global Financial Crises), RBI started cutting the repo rate thinking that it would stimulate the economy. From 29th July, 2008 to 21-Apr-2009, the repo rate went down from 9% to 4.75%. But then, there was a shift to control inflation and the repo rate started increasing and it was brought back to 8.5% thinking inflation to be a demand-side issue. RBI probably miscalculated here. With the hike in repo rate, growth started to retard as the cost of capital went up and thus investments went down as well as the GDP. This high rate of interest pinches people also in form of higher loan payments. RBI thought that the high rate of interest would control inflation but it ignored global factors affecting inflation like international crude oil prices. So here monetary policy was a total failure. The efforts to control inflation failed and it inhibited growth too. Secondly, the US government's fiscal program of 2009-12 to bring spending stimulus was a failure. The business tax cuts as well as inheritance tax reductions resulted in cash hoarding by multinational corporations and big businesses and did not lead to investment and jobs in the US. The level of spending was also insufficient. Even the distribution of subsidies could not create jobs or save job loss. As a consequence of massive unemployment and decreasing real wages, the real income of median wage-earner families has fallen consistently since 2008. Thirdly, the Laffer curve—the policy, that when you tax something you get less of it and when you tax less, you get more of it, was implemented in Kansas City, US 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). 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 face a setback.

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