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Analysis of the kink demand curve in the long run under the oligopoly market in the case of telecom sector

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Abstract
The kinked demand curve theory applies only in the short run. This principle does not apply in the long run. In the short run, all factors of production cannot be replaced, and the price cannot be kept stable in the long run due to increases in production costs and demand. For this reason, kink curves are found in short run. In the long run, a sloping demand curve is not found. For this analysis, the researcher found from the study of the Indian telecom market that when a telecom company increases the price of its tariff plan, other companies follow it, due to which there is no price rigidity in the market; hence, there is no price rigidity in the long term, and at the same time, we cannot figure out which form will lead the price in the market.

Keywords: Kinked demand, price rigidity, telecom company, long run, and short run

Introduction
Under an oligopolistic market, there are a very small number of firms. Due to which changes in price, production, commodity, etc. of one firm have a direct effect on other firms As a result, other firms also change their prices, production and goods. When a firm reduces its price, improves its product, or does advertising and other activities to increase its sales, other firms follow suit and do the same. Therefore, an oligopolistic firm has to deal with all kinds of variables and reactions of other competitors before taking any decision. Therefore, an oligopolistic firm does not only take price and production decisions keeping in mind only the market demand; it also takes any action keeping in mind the reactions of its competitors.

As already explained, in oligopoly, all the sellers have to face fierce competition, and there is always a situation of price uncertainty in front of them. Therefore, almost all sellers want to accept a satisfactory level of price that is beneficial to all. By accepting this price level, almost all firms try to maintain it due to which price stability is found in the market. Paul Sweezy, (1939) [1] in his kinked demand curve theory, suggested that when an oligopolistic firm lowers the price of its good, other firms follow suit. But when a firm increases the price of its product, other firms do not follow suit. In such a situation, no firm takes the initiative to change the price, and stability is seen in the price. As a result, a kink is formed in the demand curve of the commodity under the oligopolistic firm. The kink is related to the current price; at that point, the price remains constant, that is, there is no tendency to increase or decrease in the price.

[1] Paul M; sweezy, "Demand under conditions of oligopoly'', journal of political Economy, vol. XLIII, August 1939.

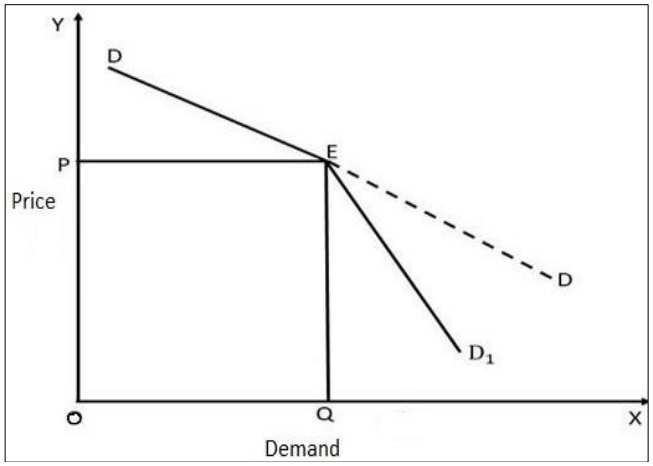


Fig 1: DD is the market demand curve, and OP is the market price

As seen in Figure 1, DD is the market demand curve, and OP is the market price. When an oligopolistic firm lowers the price below OP, other firms reduce the price of the good to keep consumers near them. In this way, even if the price is reduced by the oligopolistic firm, there is no significant effect on its sales. Rather, the sales of all firms increase proportionately due to the increase in aggregate demand due to the decrease in price. When the price is below OP, there is a nominal increase in the sales of the firm. Due to this, the demand curve below the current price OP shifts from ED to ED1, which is less elastic, but the demand curve DE above OP is more elastic. If the current price OP is higher than the average cost, then the profit earned by the producers will be more than the normal profit.

Paul Sweezy was unable to explain in principle how price is determined in an oligopolistic market in the long run. And along with this, he did not succeed in describing the price rigidity in its entirety. Kink demand curve analysis explains the possibility that in an oligopoly, prices remain stable According to MM Bobber "when prices are expected to fall and are variable when prices are expected to rise. Firms do not reduce prices when demand or costs fall. But the price may increase as a result of an increase in demand or rising costs." [2] This theory of the kink demand curve does not apply to the Indian telecom market in the long run. The presented research paper is based on these problems.

Analysis of Price and Output Under Differentiated Oligopoly Markets

Under a differentiated oligopoly, the number of firms is less and their goods are different. Different policies can be adopted by the firms to determine the real price under oligopoly. Some methods are discussed below.

1. Independent Pricing
2. Price fixing under cartelization
3. Pricing underprice leadership

Independent Pricing

Independent pricing means that in an oligopolistic industry, each firm determi nes its price and production quantity policy independently from the others. If there is no difference in the goods produced by the oligopolistic firms and the market division among all the firms is equal, then, as a result of independent price determination, there will be a tendency to keep the same price among different firms. On the contrary, if there is any difference in the goods produced by the firms, then under independent pricing, the price of each oligopolistic firm will be the monopoly price.

Price fixing under cartelization

The uncertainty and insecurity, among other factors, that arise as a result of independent pricing policy, directly result in cartelization among oligopolistic firms. Under cartelization, there is some kind of direct or indirect agreement between sellers regarding price and production quantity, etc. This type of agreement can be either in the form of tradition or firm practice, or it can also be in the form of a formal written agreement. The most rigid form of cartelization is that in which a firm becomes a union producer, which is owned by a member- Fixes the price of the produce, arranges the sale of the produce on their behalf, and shares the profits. But the individual monopoly firm has the freedom to sell or advertise. The factionalism can be either complete or incomplete. Under perfect cartelization, a central organization determines the price and quantity of production for all the oligopolies so that all the firms can get the maximum profit.

For example, in India, the Jute Mills Association of India fixes the price and quantity of production for all the members of its association. Under incomplete cartelization, there is no such central institution which can impose any strict control on the price and quantity of production on the oligopolistic firms. Rather, there is a tacit agreement between the firms, and each firm has the right to change the price and quantity of production to some extent. In a perfect cartel, the determination of price and output is done in the same way as in a monopoly. because the entire oligopolistic industry is run by only one central organization. Thus, in a perfect cartel, the price of any oligopolistic firm will be the same as the monopoly price for the entire industry.

Pricing Underprice Leadership

Under price leadership, firms in an oligopolistic industry tend to sell their goods at a price that is determined by any one member of the industry. According to Arthur Burns, "if price changes are always carried out by a single firm, and if other sellers always follow the same price changes, then price competition is under price leadership." It is clear that underprice leadership," [3] a firm, which is usually a large firm, determines the price, and all other firms in the oligopolistic industry follow the same.

Types of Price Leadership

Price leadership can be of three types

1. Leadership of the dominant firm, which produces a significant portion of the total production volume of the simple industry
2. Old, experienced firms: which are better connoisseurs of the state of the industry?
3. Aggressive Price Leadership: In which the dominant firm in the industry may adopt all kinds of good and bad measures to drive some or all of its rivals out of the market. This is often done by selling the item at a lower price than the others.

[2] Ahuja, H.L (2016). Advance economic theory microeconomics analysis. New Delhi: S. chand & Company Pvt. Ltd. (Vol. 6, pp. 734)

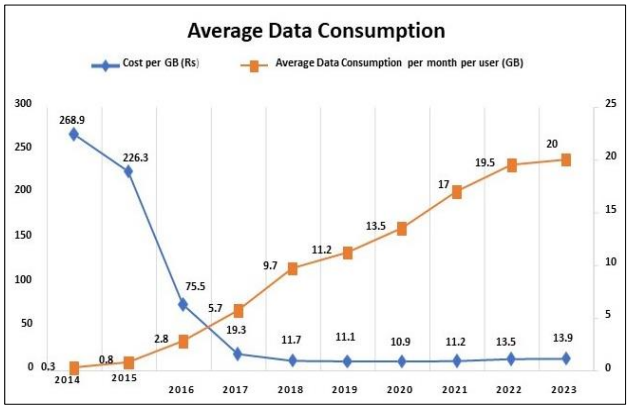
[3] Sinha, V.C.,& Sinha, Pushpa (2021) Economics. Agra; S.B.P.D. Publication. (vol 1, unit 4, pp. 55)

Analyses of kink demand curve in the long run

According to Paul Sweezy's kinked demand curve theory, when a firm lowers its price, other firms follow it, and when a firm raises its price, other firms do not follow it. George J. Stigler tested the kinked demand curve theory. He did an empirical study of the behavior of oligarchs. He found out from the study that there is no kink in the demand curve faced by oligopolies. Because during inflation, oligopolists follow each other in raising prices, which is contrary to the kinked demand curve theory. Professor Stigler did not accept the hypothesis of a kick-demand curve in an oligopoly [4]. But his study does not challenge price stability in an oligopoly. In fact, according to Paul Sweezy's Kinked Demand Curve Theory, price stability is a short-term phenomenon. Which is not applicable in the long run. Because in the long run, all firms have lots of production possibilities that can improve their product by reducing their production costs or making some kind of change in their product technology. Or, using new technology, a new product can be launched on the market. Along with reducing costs, other new methods of increasing sales can also be used. In the long run, when one firm raises its price, other firms follow suit. Which proves Paul Sweezy's theory of price rigidity wrong. In the long run, it is also very difficult to find out who will be the price leader, i.e., which firm will act as the price leader. Which makes it impossible to tell which firm will maintain price leadership in the long run. In the long run, the size and experience of the firm do not matter for price leadership

A prime example of this is the pricing of telecom companies in India. The year 2016 was a great year for Indian mobile customers. In 2016, telecom facilities in India had become very cheap, which no one had even imagined. All this happened after the entry of Jio into the Indian telecom market. Jio entered the Indian market on September 5, 2016 and Provided free voice and roaming calls, SMS, and 1GB of 4G net per day across the country till December 31, 2016. Along with this, the extra charges for voice calls and SMS during festivals were completely abolished. Jio defeated all other telecom companies by providing free facilities to all mobile customers.

Due to this, the customers of other companies got attracted to Jio and adopted Jio. Seeing this, all the other companies drastically reduced the prices of their mobile tariff plans to keep their customers connected, due to which all the telecom companies were forced to bear losses. Before September 2016, the average price of 1GB, 3G, and net was Rs 226. There was a decrease of about 67%, and it remained at Rs 75 per GB. In 2017, all the companies adopted almost the same tariff plan pattern, like 1 GB of internet per day, unlimited voice and roaming calls, and 100 SMS for 30 days. By the end of 2017, only 4 out of 13 companies in India could survive in the market. All other companies left the market. In 2017, the price of 1GB of 4G data was reduced by 75% to Rs 19.3 per GB. In the year 2018, a decrease of 60% was also recorded. In the year 2018, the price of 1GB of 4G data was Rs 11.7 per GB; this trend continued till the year 2020. In the year 2020, the price of 1GB of 4G data came down to Rs 10.9 per GB, which was the lowest price till date. An increase in prices was seen in 2021; in 2023, the price of 1GB of 4G data increased to Rs 13.9 per GB. Compared to 2020 prices, a 23% increase was recorded by 2023 Along with this, the data consumption of the people of India was 0.3 GB per month per user in the year 2014, which increased to 20 GB per month per user in the year 2023. India has increased data consumption by 6566% as compared to 2014.



***Sources*:** Http://inc42.com/resources/spotify-grooves-to-indias-tune/

Fig 2: Shows average data consumption

The average price of 1GB of 3G data in India was ₹226 since September 2016, which came down to ₹75 in December 2016. The year 2017 saw almost equality in the tariff plans of all the companies. In 2017, all the companies started working with Jio as their leader. By the end of the year 2022, Jio had captured 36% of the total market share. In the year 2018, Jio was the first to reduce the tariff plan and give unlimited voice and roaming calls, 100 SMS, and 1.5 GB of data for 28 days for Rs 149. Started. Due to this, all the companies followed Jio in cutting their plans. Till the year 2018, Pol Sweezy's theory of the kinked demand curve worked, but in the year 2019, Jio was the first to increase the price of the tariff plan. After that, all the companies increased the price of the tariff plan and followed Jio. The pole is the opposite of Sweezy's kink demand curve theory. There is no price rigidity here. Here it was also seen that a new company comes into the market with new technology and plays the role of leader in the market, which shows that no one can say who will be the leader in the market. learned from the study that in the year 2020, Airtel was the first to announce an increase in the price of its tariff plan. In view of this, Jio, along with all other companies, also increased the price of its tariff plan. Whatever the reason for the price increase, if a firm's price increases in the long run, all other firms follow suit. Here we cannot even say that the lowest price and oldest firm will be the leader, because here we saw that BSNL lowest tariff plan and is the oldest telecom company in India, yet its market share is the lowest. Hence, the market leader will be the one that keeps its customers happy by changing technology with time.

[4] Sitgler,G.J.(1947) The Linky Oligopoly Demand Curve and Rigid Price, Journal of Political Economics (vol. 55, pp. 432)

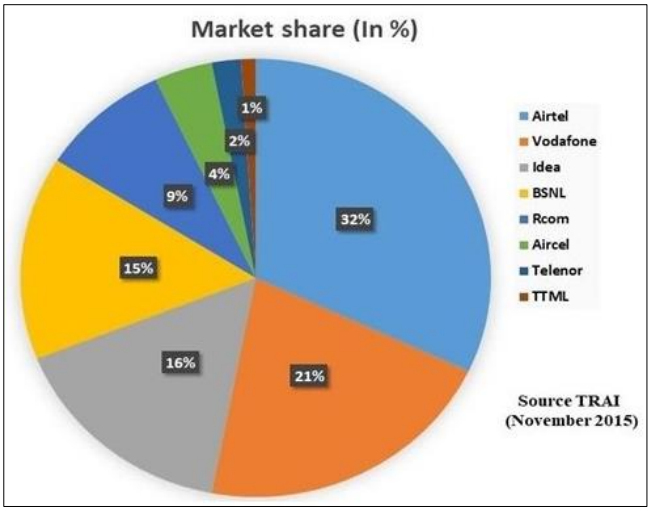


Fig 3: Shows market share in percentage (%)

As seen from the pie chart, according to the report of TRAI (TRAI- November 2015) in India's telecom industry in January 2015, Airtel 32%, Vodafone 21%, Idea 16%, BSNL 15%, R.Com 9%, Aircel 4%, Telenor 2%, TTML 1%, produce market demand.

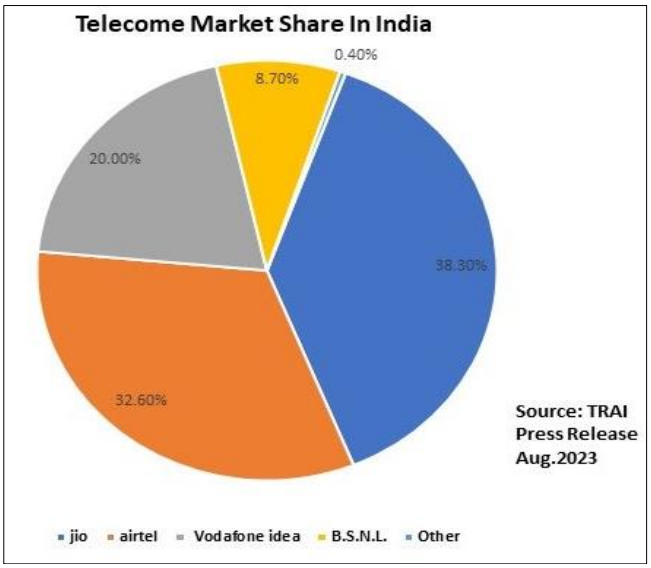


Fig 4: Shows Telecom market share in India

As seen from the pie chart, according to the report of TRAI (TRAI- 30 June 2023), only the main four companies remained in India. Jio ranked first with 38.35% share, Airtel second with 32.68%, Vodafone Idea (Vi) third with 20.08%, and BSNL fourth with 8.71%.

Table 1: Price of data pack

Year/ company	2016[5]	2017	2018	2019	2020	2021	2022	2023
	1 Gb	1.5 Gb	1.5 Gb	1.5 Gb	1.5 Gb	1.5 Gb	1.5 Gb	1.5 Gb
Airtel	249	348	169	199	249	249	299	299
Vodafone [5]	252	346	158	219	249	248	299	299
Idea [6]	249	348	198					
BSNL	248	----	118	149	153	187(2gb)	187(2gb)	187
jio	----	303	149	179	199	199	239	239

***Source*:** Different-Different telecom and newspaper websites.

[5] 3G data for one month

[6] Vodafone and idea marge in 2019

The study revealed that the cost of services offered by Jio and Airtel is comparatively higher than that of BSNL companies. Despite this, Jio has 38.35% and Airtel has 32.68% of the total market share. On the other hand, despite the price of BSNL's services being comparatively lowest, BSNL's share in the total market share is only 8.71%. From this, it is known that price does not have any special effect on the preferences of consumers; they determine their consumption keeping in mind the quality of goods and service. Therefore, it is very difficult to say which company will lead the price in these modern times where consumers make their consumption decisions based on the quality of goods and services rather than price.

Conclusion

From the study of the research paper, it is concluded that the kinked demand curve is applicable only in the short run. This principle does not apply in the long run. The short run is that period of time in which all means of production cannot be changed, and due to an increase in production costs and demand, the price cannot be kept stable or low for a long time. Because of this, kink curve are found in a short period of time. In the long run, a kinked demand curve is not found. because when it comes to the long run, at that time the firm reduces its cost, then all the firms do not follow it. Since firms retain their customers by improving their product or providing good service, when one firm increases the price of its product, all the firms follow it and increase their prices proportionately. Due to this, their profits also increase. Apart from this, the research also concludes that, in the long run, it is not certain that only experienced, large, and old firms will lead the price. Whether a firm can lead price in the long run or not. It depends on the demand for his product and his preference.

References

1. Ahuja HL. Advanced economic theory microeconomic analysis. New Delhi: S. Chand & Company Pvt. Ltd. 2016;6:734.
2. Akerlof G, Yellen J. Can Small Deviations from Rationality Make Significant Differences to Economic Equilibria? Am Econ Rev. 1985;75(4):708-720.
3. Braverman A. Consumer Search and Alternative Market Equilibria. Rev Econ Stud. 1980;47(3):487-502.
4. Carlton D. The Rigidity of Prices. Am Econ Rev. 1986;76(4):637-658.
5. Drakopoulos S. Psychological Threshold, Demand and Price Rigidity. Manch Sch. 1992;LX(2):152-168.
6. Earl P. Economics and Psychology: A Survey. Econ J. 1990;100:718-755.
7. Hall R, Hitch C. Price Theory and Business Behaviour. Oxford Econ Papers. 1939;2:12-45.
8. Sweezy PM. Demand under Conditions of Oligopoly. J Polit Econ; c1939 Aug, 43.
9. Scitovsky A. Asymmetries in Economics. Scott J Polit Econ. 1978;25(1):32-46.
10. Sinha VC, Sinha P. Economics. Agra: S.B.P.D. Publication. 2021;1(4):55.
11. Sitgler GJ. The Kinky Oligopoly Demand Curve and Rigid Price. J Polit Econ. 1947;55:432.
12. Smith S, Neale W. The Geometry of Kinky Oligopoly. South Econ J. 1971;37:276-282.
13. Drakopoulos S. A Behavioural Approach to Kinked Demand Curves; c1992. p. 1-14.

14. https://trak.in/tags/business/2014/02/26/3g-data-plans-comparison/
15. https://www.google.com/amp/s/trak.in/tags/business/2017/07/28/top-best-voice-data-prepaid-plans-jio-airtel-vodafone-idea-bsnl-comparison/amp/
16. https://www.google.com/amp/s/trak.in/tags/business/2018/09/21/best-under-rs-100-prepaid-plans-from-jio-airtel-bsnl-vodafone-idea-october/amp/
17. https://trak.in/tags/business/2020/04/08/value-for-money-prepaid-plans-by-jio-airtel-vodafone-bsnl-top-15-work-from-home-plans/
18. https://trak.in/tags/business/2021/12/12/unlimited-data-voice-plans-under-rs-250-from-airtel-jio-vodafone-december-2021-list/
19. https://www.business-standard.com/article/pti-stories/mobile-data-price-down-by-95-but-revenue-up-2-5-times-in-5-yrs-trai-119082101291_1.html
20. https://www.google.com/amp/s/www.thequint.com/amp/story/tech-and-auto/tech-news/mobile-data-rates-the-lowest-in-india-in-the-world
21. https://www.reddit.com/r/IndiaSpeaks/comments/e8oux8/cost_of_mobile_data_20072019_in_india_source/?rdt=56294
22. https://www.zeebiz.com/markets/stocks/news-telecom-sector-iti-tata-communication-vindhya-telelinks-d-link-sterlite-technologies-share-price-on-nse-bse-ericsson-report-241260
23. https://m.economictimes.com/news/company/corporate-trends/just-pay-rs-148-and-get-unlimited-data-herere-the-best-mobile-offers-of-2017/articleshow/56500282.cms
24. https://www.zeebiz.com/companies/news-reliance-jio-vs-airtel-best-prepaid-plans-offered-in-2018-with-15gb-data-per-day-77760
25. https://timesofindia.indiatimes.com/gadgets-news/bsnl-revises-rs-118-rs-153-rs-187-rs-399-prepaid-plans-what-has-changed/articleshow/72760210.cms
26. https://www.zeebiz.com/companies/news-vodafone-idea-new-prepaid-plans-december-2019-chart-full-list-of-recharges-tariffs-talktime-internet-data-validity-benefits-115220
27. https://indianexpress.com/article/technology/techook/jio-all-in-one-plans-available-starting-today-what-has-changed-in-new-plans-6153479/
28. https://indianexpress.com/article/technology/techook/reliance-jio-recharge-plans-july-2020-6488199/
29. https://trak.in/tags/business/2020/04/03/top-prepaid-plans-under-500-by-jio-airtel-vodafone-bsnl-top-data-plans-work-from-home-plans/
30. https://timesofindia.indiatimes.com/gadgets-news/airtel-prepaid-recharge-plans-here-the-are-offers-prices-data-and-validity-you-can-look-at/articleshow/77145574.cms
31. https://www.91mobiles.com/recharge-plans/bsnl-prepaid-28-day-validity-plans