

Economic analysis: mobile telecom industry



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The mobile telecom industry in India has seen an astonishing growth in the last decade and a half. It is one of the fastest growing telecom sectors in the world with an annual growth of 12% to 13 % [1]. The sector has been given due importance by the government, as it caters to develop a nation socially and economically.

In recent years the industry has undergone some severe changes and has been supported by significant policy reforms. The country's total mobile subscriber base is over 908 million [Telecom regulatory authority of India].

<http://www.equitymaster.com/research-it/sector-info/telecom/11062012-Indias-wireless-market-equitymaster.gif> FIGURE: B2

Its phenomenal growth is propelled by drivers such as newer technology like 3G and 4G, better devices and most importantly change in consumer behaviour. The market share is dominated by a few larger firms although few smaller firms are also present. According to the research by Boneless Group [2], the market share is as follows. The following pie chart figures depict that over 80% of the market is held by 7 operators.

It can be deciphered that the nature of economic structure of mobile telecom industry in India can be described as an OLIGOPOLY. It is supported by further analysis in this work.

OLIGOPOLY IN INDIAN TELECOM

Oligopoly can be defined as a market structure with a small number of large players also called as Oligopolists. These large players have a significant share of the total market size. Immense competition is concentrated within

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these competitors. The other competitors are small and have a minor market share; they are also called niche players of the market

ASSUMPTIONS

Few Sellers - There are few strong and influential firms operating and competing against each other. The other few firms operating in the market are not dominant and have an imperceptible share of the market. The smaller firms in the market do not have the power to retaliate the larger firms. It suggests that firms in oligopoly are interdependent on each other for decision making. Each firm measures, predicts or assumes its potential competitor's reaction when it chooses any business strategy. These decisions could be regarding setting up / change in prices, output or product lines. In a nation, where population is more than 1.3 billion, lies a huge market potential. The fact that there are just 10-12 active players in the market, 7 of which constitute more than 80% of the market's share, substantiates the few sellers assumption of oligopoly.

Interdependence - It is one of the most highlighted features of oligopoly.

Interdependence in terms of decision making processes. The change in price or output by any of the firms causes a direct effect on the income of its competitor. So demand of the product is not the only criterion that sets up the price. It is also the non-price competition that affects the setting up of prices. The firms in the industry are dependent on each other over matters like pricing, policy making, advertising and other issues. As a result of this interdependency the firms have constituted an association called Cellular Operators Association of India (COAI), which protects the common and collaborative interest of its members. Example - One of the reports of COAI

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dated 21st October, 2011 raises the issue of levying of huge penalties by department of telecom on the telecom operators for minor technical and compliance issues, which was dealt by COAI [5]. The competitors dealt with this case as one organisation. The establishment of this association actualizes the interdependency of the firms.

Entry and exit barriers - The barriers are very high to enter and exit the industry. It is one of the many reasons; firms in oligopoly have greater control within the industry. There can be many barriers to enter this industry, some because of the nature of the industry and some because the incumbent firms act as strong wall. , few barriers are (a) High capital investment (b) Well established players with nation-wide presence (c) Government policies and restrictions (d) Continuously evolving technology (e) Licensing costs. The strategic actions of incumbent firms try to destroy nascent, discourage and hinder the entry of new firms. Telecom is a highly technology-centric sector. Access to the technology typically requires a lot of investment. Ownership of telecom license also represents huge entry barrier. Example - Telenor's investment in India failed due to high investment that was required to acquire a telecom license. They had to bid in an auction to get the license but could not match the price quoted the market leaders of the industry. This example supports the assumption of high barriers to entry.

Homogeneous or differentiated products - There is no set standard about homogeneity or differentiation of the product/service. It varies from one industry to another. In telecom, the product is homogeneous, as all the companies provide network for wireless telecommunication. But there are other examples like leather industry, companies deal in leather products but

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there product lines are different, like one company makes jackets, the other makes shoes, others deal in belt and bags, but all are part of the leather industry. The service that is offered in telecom is identical and completely homogeneous.

Non price competition - The competition in oligopoly is not restricted just to price. Non-price competition in telecom includes competition over (a) better coverage of network (b) celebrity endorsements (c) branding (d) aggressive advertising techniques (e) better customer service (f) diversifying into related product line. Non price competition occurs because of the fear of price wars eventually affecting the revenue of a particular firm and also the industry as a whole. In oligopoly non price competition is taken as a grave area of competition. The core behind non price competition is the difficulty faced by competitors to counter techniques like aggressive advertising, personal selling, or improvement in the service. The risk associated with non-price competition is the acceptance of changed product by the existing consumers. But, on the flipside the consumers do get a better product at the same price. It leads to innovative behaviour. Example - Airtel has always endorsed Bollywood superstars to attract masses. Superstars like Sharukh Khan and Amitabh Bachchan are associated with the brand for a long time. Whereas, Vodafone has never endorsed celebrities to the brand and has rather created animated characters called Zoozoos for its strong advertising campaign which created a 'buzz' in the market. Both the companies have indulged in non-price competition of advertising just to lure consumers and target a larger market share.

Ability to set price – Unlike perfect competition, the dominant firms in oligopoly have the advantage to set the price. The nature of oligopoly is such, that industry is the price setter rather than price taker. The only condition to it is that all the firms have to be more or less consistent with the price. [3]

PERFECT COMPETITION

Perfect competition, is the most competitive form of economic structure. Pure Perfect competition hardly exists. [6] Perfect competition means a state of affairs in which the demand for the output of an individual seller is perfectly elastic. In other words we can say that at any hike in price of the product demanded will result in loss of a particular firm as the consumer will shift to the other supplier as he gets the same product at a lesser price.

ASSUMPTIONS (in contrast with assumptions to oligopoly)

Many buyers and sellers – Under perfect competition, there are many buyers and sellers. Each seller is too small to influence the price of the commodity through a change in its price; each firm is a price taker. As the firms are relatively smaller, each produces an insignificant portion of the total market supply thus having no control over the market prices of the product.

Homogeneous product – The product sold in the market is an identical (homogeneous) product. Same product is being produced to be sold in the market by each firm. The product can be perceived as a perfect substitute. This feature creates a perfectly elastic demand for the product.

No entry or exit barriers - Unlike the assumption of oligopoly, perfect competition does not have any barriers to enter or exit the industry. Market is open to any firm who chooses to be a seller of the product. There are no super normal profits in the long run, they can be enjoyed by firms only in the short run. Easy access by the new competitors in the industry affects the super profit equilibrium in the long run.

Perfect information - It is assumed that every buyer and every seller in the market knows everything about the product. If any firm charges a price higher than the market price, the consumers will move towards the product of other firms. The sellers have all the information and have equal access to the resources such as technology used by the other firm.

EXCLUSIVE ASSUMPTIONS TO OLIGOPOLY

Kinked demand curve - This is the most distinct feature of oligopoly. The kinked demand curve advocates two things about a firm's demand curve. Each firm's demand curve is kinked at the prevailing price.

If any firm raises the price above the existing price, the competitors will not follow this change and the firm will lose the market share. This would cause the consumers to shift to the suppliers providing the same service for a lesser price.

If any firm lowers its price below the prevailing market price, the competitors will also try and match the price to retain the market share. Hence the firm's total revenue will decrease and output will just increase marginally.

We consider P_1 as current price and Q_1 as current output. Raising price above P_1 , demand is relatively elastic because other firms do not match a price rise. Firm may lose market share and total revenue. Reducing price below P_1 , demand is relatively inelastic. A firm will gain a slight market share, but other firms will follow the cut in prices total revenue may still fall.

Another feature kinked demand curve holds with itself is the 'price stickiness'. The price that is charged by the firms in oligopoly covers the cost of its production and also gives them excess profit at times. The change in price comes with the collaborative decision of the oligopolists. But the firms fear the loss of their market share when price is hiked and not gaining much when price is reduced, this makes them stick to the prevailing price and hence the price becomes 'sticky'.

SHORT RUN EQUILIBRIUM FOR OLIGOPOLIST

The marginal cost curve crosses through the discontinued part of marginal revenue curve. The profit maximizing output is at Q . The firm's price is P_1 where demand curve is kinked. The marginal cost curve cuts the average cost curve from the minimum possible point. Hence, this shows supernormal profit, normal profit or losses. (Not shown in this figure, can be shown in figure A1)

In the long run, barriers to entry prevent too many firms competing in the industry. Therefore, oligopolists make supernormal profits in the long run. A firm carefully considers the reaction of other firms to its own action. As a result, the kinked demand curve theory depicts that the price and output levels may be stable in oligopoly in the long run.

Collusion – Collusion is an agreement between entities for a profitable purpose. It happens when firms operating in an industry cooperate on some issues for mutual benefits. The decision of a few firms to collude significantly impacts the market. Although collusion is illegal in many economies, it is still practiced. The one practiced is called implicit collusion i. e. when firms make same pricing decisions but do not consult each other. Sometimes the market leader takes a price change decision and other firms tend to follow, also termed as price leadership. In Indian telecom, collusion was seen when companies successfully fixed the spectrum price to be auctioned by the government. Billions of dollars were lost due to this practice and several senior executives of the firms were arrested for the charge.

Cartel formation – A cartel is when a group of firms get together to make output and price decisions. Oligopolistic firms tend to join a cartel to increase their market power and decide jointly on level of output and the price each member will charge. By working together members are able to behave like monopolist. A cartel's profit maximizing decision is the same as that of a monopolist. They decide their output where their marginal revenue is equal to marginal cost and the price is determined by market demand curve at the level of output chosen. The profit of cartel is equal to the area labelled abcd in figure A1. Cartels are hard to maintain, this gives the reason why so less cartels are formed. Members in a cartel are tempted to cheat on their limit to production. When some of the members cheat, cartels cease to earn monopoly profits, hence cartels are broken. Cartel formation is not seen in Indian mobile telecom industry.

Game theory - ' Economists are interested in bargaining not merely because many transactions are negotiated (as opposed to being entirely determined by market forces) but also because, conceptually, bargaining is precisely the opposite of the idealized " perfect competition" among infinitely many traders, in terms of which economists often think about markets. Bargaining situations concern as few as two individuals, who may try to reach agreement on any of a range of transactions which leave them both at least as well off as they could be if they reached no agreement.' [4]

VODAFONE (revenue in millions)

Discount on talk time

No Discount on talk time

AIRTEL

(revenue in millions)

Discount

30, 30

75, 10

No Discount

10, 73

55, 55

The table above shows a hypothetical price war between Airtel and Vodafone over providing discounts over tariff plans. Both the operators can settle at any of the position they choose to. The telecom industry requires cooperation; both can end up in a win-win situation and raise efficiency, here cooperation seems as the rational choice.

In simple terms, it is the theory in which firms competing against each other choose action or strategies that affect each participant. In the case of Indian telecom, the dominant players like Airtel, Vodafone, Reliance or Idea may settle for a reasonable share of the market, rather than bigger share for one and lesser share for the other. It analyses the interdependent behaviour of the firms in an oligopoly. It indicates the how the choices between operating firms affect the outcome of a game.

REVIEW OF DEMAND AND SUPPLY

This part provides a picture of the prevailing demand and supply situation in the Indian mobile telecom sector.

<http://media.wiley.com/Lux/01/9701.nfg001.jpg> FIGURE: A1

The image above illustrates the profit maximization by a firm in oligopoly. The oligopolists maximizes profits by equating marginal costs with marginal revenue, which results in an equilibrium output Q units at an equilibrium price P .

http://www.tutor2u.net/economics/revision-notes/a2-micro-oligopoly-overview_clip_image002.gif

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Using the profit maximization rule, where marginal cost is equal to marginal revenue. The price and quantity of the service do not change regardless of cost. Price remains at P_1 and quantity at Q_1 even at MC_1 or MC_2 . But when price changes from MC_2 to MC_3 it does lead to a change in output and price.

MAJOR FACTORS AFFECTING TELECOM

High infrastructural costs - To enter service areas, service provider incur huge set up and infrastructural costs. These infrastructural costs to develop the service involve risks such as logistical risks, longer time duration to launch the service, setting up of new towers and dearth of highly skilled personnel to develop such infrastructures.

Allotment of spectrum by the Government - One of the major concerns of the industry is the availability of the spectrum that is used for the supply of the service. It is provided by the government and has been a controversial issue in recent times for this sector in India. Being a limited resource, it gives a possibility of unhealthy bidding by the service providers resulting in unviable financial approach to the price thus hampering the growth of highly competitive sector.

Regulation charges - Immense competition in the industry and high regulatory charges imposed by the government result in low tariffs by the providers. This indeed, makes it very difficult for the operating firms to impede smooth implementation of the projects. The chart below gives the information about the regulatory charges firms have to pay to the government.

REGULATORY CHARGES

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Service tax

License fees

Spectrum charges

PERCENTAGE OF REVENUE

12.36

6 - 10

2 - 6

FUTURE OF INDIAN MOBILE TELECOM

Indian mobile telecom is dominated by few large players. The penetration has already touched 100% in urban areas. There is huge potential for growth in the rural market where penetration is just around 40%, that gives a reason to companies to compete for a better market share overall. The government is supporting the firms to reach the unconnected areas. This reach to the rural will not only benefit the firms but also the government and society as a whole as it gives better connectivity and will reap socio-economic benefits.

Future of the market lies in

Newer technology - New technology is a great growth driver for any industry. Adoption of 3G and 4G technology will be instrumental in growth of the telecom sector; it facilitates growth through high speed data services. Newer technology will also help in broadband penetration throughout the country. The launch of 3G already has and further 4G will develop the industry in

terms of VAS (Value Added Services), video calling, gaming, high speed internet and data services.

Onset of WiMAX technology - WiMAX has come up as one of the face changing revolutions in telecommunication. It provides super speed data services through high bandwidth. The first movers to adopt this technology will definitely be the pioneers of the industry in coming times.

Value added services (VAS) - MVAS has been a phenomenal revenue generator for the service providers. The emergence of mobile commerce in recent years has given MVAS a great importance; it has acted as great growth driver for the telecom sector. It includes services like m-banking, m-retailing m-health and many more. Development of MVAS will in turn create a demand for advanced handsets that are capable of accessing MVAS services.

FUTURE ACTION

The Indian mobile subscriber base has seen exponential growth in the past. Seeing the fact that Indian customers are highly sensitive to price. The following actions by the operators are expected to propel the further growth of this sector

Improved telecom infrastructure

Declining tariffs

Skilled and improved personnel

Rising disposable income of consumers

Growing demand for mobile handsets with improved features

Favourable demographics

The structure of Indian telecom being an oligopoly, the firms are likely to face a competitive environment in the future. The main causes for this environment would be competitive firms, continuous pressure on margins and stringent regulatory policies. Companies with first mover advantage in technology, better penetration of the rural market, better operational efficiency and good quality of services will most likely be ahead of their competitors.

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Exhibit 1. 2 <http://www.dnb.co.in/IndianTelecomIndustry/images/Exhibit1.2.png>

FIGURE B2 <http://www.equitymaster.com/research-it/sector-info/telecom/Telecom-Sector-Analysis-Report.asp>

[6] <http://qje.oxfordjournals.org/content/49/1/104.full.pdf>