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Performance of mixed oligopoly model in the context of Indian telecom industry

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Abstract

The logic for state monopoly of public utilities arises from increasing returns to scale and the concern that private business in these areas results in monopolistic exploitation of consumers. The state monopoly however is fraught with the danger of production inefficiency. In this backdrop, the market form of mixed oligopoly is contemplated in markets like health, education, electricity, gas, telecommunications, etc, where public and private sector coexists. The private firms maximize profit but the public firm maximizes social welfare.

Despite this theoretical exposition, it is often observed that public firms fail to make contributions according to their potentiality. As a result the issue of social welfare gets a short shrift. While assessing the behaviour and performance of the firm in this setup we must know the objective functions and the constraints. The asymmetry of objectives between private and public firms and the asymmetry of constraints may explain the below par performance of public firms. This needs focus on the existing theoretical construct on mixed oligopoly and empirical consideration of the performance of some specific public firm. In this paper we study the state owned Indian telecom company Bharat Shanchar Nigam Limited (BSNL) to get an understanding of performance of mixed oligopoly.

1. Introduction:

The state or government is one of the least understood and most influential agent in the economy (Basu. K, 1993). Dissection of the state institutions has started as they have not been able to fulfil the objective for which they have started. Government machinery is composed of a multitude of

individuals with difference in preferences. In modern economic analysis government is treated as an agent with strategic decision making activities. Government is assumed to take part in the economy in order to fulfil the objective of welfare maximisation. Economic models are developed to investigate this kind of description. The surge of these models are in response to the debates on privatisation (Beato and Mas-Colell ,1982; De Fraja and Delbono,1989; Sen, 1990). Public sector enterprises are under scrutiny and the efficiency is also questioned.

In this paper we study the mixed oligopoly market structure and focus on its idiosyncratic problems and prospects. We establish the necessity of the presence of the public sector in telecom industry to make this dynamic sector not only more competitive but more subservient to the needs of the consumers. The role of telecom sector in economic growth is irrefutable and its profitability is also huge. In this regard we can argue in favour of sustainability of the public firms as a capacity building and entity, with capability of sufficient profit making to survive.

The Paper is organised as follows. Section 2 discusses the existing literature. Section 3 sketches a very simple and analytical model. In Section 4 we have discuss the case for BSNL. The implications are in Section 5.

2. Literature Review:

In economic literature we find supportive models where mixed oligopoly market outcome is proved to be efficient than pure oligopoly. As discussed by Rotta(1988) private players are profit maximisers, whereas public firms are social welfare maximizing in nature in the long run. However, they have to bear the social obligations for which inefficiency may creep in. To meet public interests, State owned firms may take those production decisions, which are not compatible with profit making. Lax of supervision and decision making dilemma also bring in inefficiency. So there must be a mechanism that addresses the issue of incompatibility between social obligation and profit making or the issue of public auditing and delay in decision making.

Delbono et al. (1996), using a model similar to Grilo (1994), introduced the possibility that the market might be uncovered (implying that a mixed duopoly cannot reach the social optimum). The authors show that there exist two equally plausible equilibria in which either firm can be the high quality provider. It is also shown that the presence of the public firm in the market decreases quality differences and increases market coverage and welfare. Another example of mixed oligopoly with vertical differentiation and uncovered markets is provided by Jofre-Bonnet (2000). The author uses Motta (1994)'s rendition of the model in Sutton (1991), with fixed quality-dependent costs. The author shows that mixed oligopoly may be the least expensive and the most satisfactory scenario for patients when compared to pure private provision and a public monopoly.

The objective of model discussed by Lutz and Pezzino (2010) is to study the social desirability of a mixed duopoly with vertical product differentiation in a model like à la Mussa and Rosen (1978) when firms face fixed quality-dependent costs and the market is uncovered. The assumption that quality-dependent costs are fixed, implies that quality is enhanced mainly by investments in R&D (rather than the selection or better raw materials or more skilled labour). Such an assumption implies that for a given pair of qualities a welfare maximizing firm competing in the short run in prices (or in quantities) with a profit maximizing rival would try to leave the whole market to be served by the high quality provider (regardless of its ownership). Intuitively, since quality costs do not increase with the volume of consumers served, a welfare maximizing firm prefers all consumers to buy the higher quality.

In extant literature cited above, it is assumed that a public firm will maximise social welfare which is summation of consumers' surplus, producers' surplus, and profit. The objective function can be used for comparative study to address several issues, such as privatisation, nationalisation of entire industry.

3. The Model

In the model we consider an alternative possibility: in the long run the public firm selects quality in order to maximize social welfare, but in the short run the same firm chooses prices (or quantities) to maximize profits. Public sector firm is not by nature inefficient. The business entity is pursuing the objective along with profit maximisation. We can verify whether in this environment mixed oligopoly will deliver a good result than pure oligopolistic market structure.

Problem of public firm arises as it is a politico economic organisation. As state is involved, political involvement comes in pari passu. By politics here we mean the fight over the distribution of the national pie. Allocation of resources also becomes political in the sense that they are linked to the distribution of income. In this construct, public sector firm doesnot remain pure business entity. The word "corporatisation" is commonly used now for explaining the stature of the state owned firm is not at all a reality rather rhetoric.

Political aspect enters into managerial decisions (for providing free services, services at subsidised price, assurance of job security) and threatens the efficiency. Private corporate sector is answerable to share holders, whereas in case of public sector principal of the organisation is general public and the management (representative of government is agent). The political nature of public firm makes them amenable to public audit where every expenditure should be audited elaborately and the management is publicly answerable. This exposes the public firm to type one or type two error. Honest decision maker may be punished, if auditing is tight. This deters decision making and delays performance.

The choice problem of a public sector firm is subject to additional constraints, vis a vis private firms. Profit maximisation without constraint always produces better result than constrained maximisation. State owned firm cannot charge a high price, so as to maximise profit .The social welfare maximisation obligation restricts the profit. This is known as the problem of multiple objectives and sub optimal performance.

4. Case study for BSNL: The Indian telecom market is an example of mixed oligopoly market. BSNL and MTNL are two public sector firms, working side by side other private firms. In connection with the model we can show that there are decision making delays with regard to merger

proposal of BSNL and MTNL. Inefficiency, measured by financial status can be explained by this delay factor. Decision making delay is also observed with regard to procurement tendering. The constrained maximisation is well explained by the issue of meeting social obligation.

THE MARKET SHARE OF BSNL AND MTNL, THE TWO PSUs, WAS MORE THAN 85 % AT THE TIME FORMATION OF BSNL, BUT IT HAS SINCE DECLINED TO LESS THAN 9% (SEP 2015).

Table 1: Subscriber base (%change)

SERVICE PROVIDER	%change over 2014	%change over 2013	%change over 2012
Bharti	11.08%	9.25%	7.60%
Vodafone	8.25%	11.78%	5.29%
Idea	16.02%	12.84%	-8.32%
Reliance	0.21%	-5.27%	15.26%
BSNL	-8.40%	-11.21%	4.01%
Aircel	10.74%	19.93%	-11.74%
Tata	-3.20%	1.23%	11.39%
Telewings	14.27%	29.24%	42.13%
Sistema	-8.35%	-4.42%	25.09%
MTNL	32.97%	-4.89%	-5.19%
Videocon	2.90%	83.13%	-29.00%
Quadrant	20.37%	37.85%	-5.27%

Source: Author's compilation from several reports of Telecom Regulatory Authority of India

The depletion in subscriber base for the state owned operator is depicted in Table 1.After introduction of mobile number portability, the government regulation worked as a backfire for the SOTE and the subscriber churn rate is increasing.

Although BSNL has advantages in the eyes of the customers with regard to transparency, BSNL makes little effort to capitalize on that by aggressive campaigning. An empirical study done by us reveals that according to consumers' perception important factors are not price attributes but quality attributes. So to retain existing customers and for widening the base the company should concentrate

on quality improvement. Another big advantage which BSNL enjoys is its rural infrastructure. Many rural areas have only BSNL network. When tourists visit these areas they find that private mobile telephony is not working for want of towers/network, while BSNL service is available. Despite all the growth in the Telecom sector, the digital divide is continuously increasing. Gap between urban tele-density and rural tele-density is widening. Private players are less interested in high investment oriented and low return paying rural India but for BSNL there is a big opportunity. Unless the State Owned Telecom Operators with proper administrative and marketing policies rise to the occasion, it will really be difficult for them to survive in this highly competitive market.

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