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Strategic behaviours in international telecommunications system

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Abstract

In this paper the international telecommunication market is analysed in order to evaluate the impact of different strategic behaviours of telecommunications carriers. Using the Nash fixed threat bargaining model, we formalize the carriers bargaining behaviour in a growing competitive pressure market. The effect of competition is considered both in the final market and in the intermediate one, in which carriers compete on tariffs to get an appropriate distribution of profits. We show that carriers may have an incentive to a cooperative behaviour in the setting of tariffs and the results of such behaviour in terms of final prices depends upon the competitive pressure degree they are subject. © 2001 Elsevier Science B.V. All rights reserved.

Keywords: International telecommunications; Symbiotic production; Game theory; Bottleneck facilities; Network pricing and tariffs

1. Introduction

Over the last decade, regulatory reforms and technological progress have had strong impacts on the telecommunications sector in most industrialized countries. The globalization process of the international economy, with a rise of telecommunications intensity, induces a growing demand for international telecommunication services [1]. This is changing the functioning of international telecommunication systems, traditionally based upon bilateral trade cartels among the monopolists serving each national market. The increasing volume of international calls and the corresponding growing number of carriers are moving telecommunications from the traditional monopoly to a market with a growing competitive pressure [2]. The other scenario of telecommunication services formed by state monopoly carriers is changing into a single conduit in which there are different exclusive territorially competitive companies interconnected internationally.

In the USA, since 1984 when the regional operating companies were separated from AT&T, deregulation has gone far. In ensuing years, the US telecommunications marketplace became an exceedingly competitive arena and strategic alliances became a core feature of competitive strategy. The recent further deregulation of the USA telecommunications industry through landmark Telecommunications Reform Act of 1996 may accelerate even faster the pace of competitive dynamics in US markets. In particular, the Telecommunications Act

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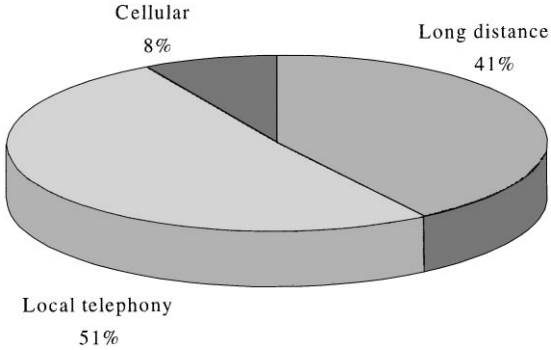

Fig. 1. U.S.A. Telecommunications market in 1995 [4].

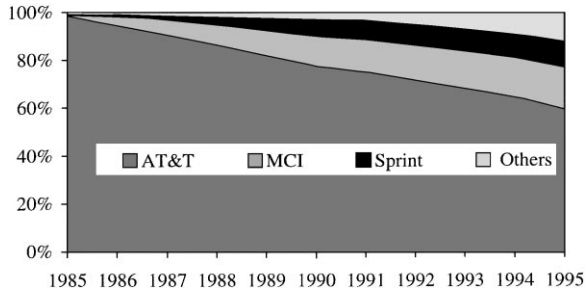

Fig. 2. U.S.A. Long distance market [5].

has authorized the Bell Operating Companies (BOCs) and the Local Exchange carriers (LECs) to provide long distance services competing with the existing Interexchange carriers (IXCs) [3].

In the UK in 1984, British Telecom became a private company, and the Government allowed Mercury to operate in the long distance market. Such transition from monopoly to competition induces new problems to determine competition pressure results.

Long-distance is a very important sector in the whole telecommunications market. For example, in 1995 in the USA this sector made up 41% of the telecommunications market (Fig. 1) [4]. The other sectors were local telephony with 51%, and cellular with 8%. Typically in long distance only very big companies operate, but in the last years the scenario is changing and also small companies are entering the market.

In the USA, for example, AT&T had 95% of the market in 1985 and only 59% in 1995 (Fig. 2) [5]. There are also two other big companies, MCI and Sprint, continuously growing and about 4000 other small companies that operate in circumscribed geographical areas. With the Telecommunications Act of the 1996, also the big companies of local telephony can operate in long distance and, probably, the competition in the next years will be rising.

Many analysts point toward the large difference between the cost of providing international service, which has fallen sharply over recent years due to technological development and the relatively high prices charged by international carriers. The growing margin between the two elements has attracted an increasing range of competitors. In fully liberal markets incumbent carriers face competition from new market entrance with their own infrastructure; in other countries the conventional international service is under pressure from various alternative service provision. This includes the services of resellers which are companies that purchase facilities and resell services to business and residential users. Between 1991 and 1996 the average charge for a one minute international telephone call, from one OECD member country to all others, decreased from US$ 1.34 to US$ 0.95 in peak times and from US$ 1.07 to US$ 0.74 in off-peak time [4]. Although these are important reductions, 23% and 24% in local currency respectively, they still remain modest given the degree to which the costs of providing international infrastructure have fallen.

As shown by Baumol and Sidak [3] for the local telephony, the local exchange carriers services constitute inputs for the activities of the rivals of these firms in other markets, inputs without which the rivals cannot hope to operate. The same competitive problem is in international telecommunications system, in which an international call utilizes the services of a telephone company at each end (final market) where the revenue is collected by the originating telephone company from the party who initiates the call. The company then compensates the other one by the tariffs (intermediate market) for the costs it incurs in handling the call. Therefore, the interconnection services in intermediate market are deemed "bottlenecks" or "essential

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