MARGINAL COSTS AND INVESTMENT UNDER UNCERTAIN DEMAND CONDITIONS[1]

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October 1992

New telecommunications technologies such as digital switches and fiber optics allow telephone companies to provide a wide range of new services. However, the provision of these new technologies complicates the regulation of telephony, especially the pricing of services. When a local telephone company provides both basic services and new competitive services, there are incentives for cross-subsidies and predatory pricing[2]. The telephone company may set prices below costs for the new services and try to recover these costs from ratepayers in regulated basic services.

An inevitable question in addressing such issues is the calculation of the marginal cost of services. For some regulated telecommunications companies, long run marginal (incremental) costs (LRIC)[3] are used as a basis for efficient pricing as well as for examining cross subsidies and predatory pricing. Since most services in the telecommunications network require lumpy and recursive investment, the relevant cost for pricing services has often been the long run marginal cost which allows adjustment of all input factors.

In this paper I present a model for deriving long run marginal costs for services requiring lumpy investments. Although the model is developed for investment in digital switches, the analysis can be extended to other lumpy investment such as airports, bridges, highways, and other infrastructure.

Most telephone companies use the capacity cost method as a surrogate for long run marginal cost. The capacity cost method is simple in principle. The marginal unit for the capacity cost is the marginal equipment or the capacity of the marginal equipment.

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[1] The views expressed in the paper do not necessarily reflect those of the Commission or other Commission Staff.

[2] See Faulhaber (1975) on cross subsidies issue.

[3] We use the terms long run incremental cost (LRIC) and long run marginal cost interchangeably.