



# Open access policies, regulated charges and non-price discrimination in telecommunications

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## ABSTRACT

Open access policies in telecommunications, including interconnection and unbundling, are implemented by regulators in an effort to increase competition in the sector. Lack of cooperation from incumbents is pervasive, given their incentives to engage in non-price discrimination and the moral hazard resulting from the inability of regulators to monitor the contract. We build a relationship between the access price and non-price discrimination, neither assuming a pre-determined market strategic interdependence or a specific demand function format. When the access charge is liberalized, the incentive for non-price discrimination disappears. It may be optimal for the regulator to set a second-best regulated access price to avoid non-price discrimination.

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## 1. Introduction

Open access policies are designed to foster competition in the telecommunications sector, and require adequate incumbent input supply to work properly. This is the case with interconnection, unbundling, carrier-selection and pre-selection.

European Directive 2002/19/EC sets out the provisions governing open access: “making available of facilities and/or services, to another undertaking, under defined conditions, on either an exclusive or non-exclusive basis, for the purpose of providing electronic communications services.” The stated purpose of the regulation (art. 1) is “to establish a regulatory framework, in accordance with internal market principles, for the relationships between suppliers of networks and services that will result in sustainable competition, interoperability of electronic communications services and consumer benefits.”

Direct intuition and the experience in the sector suggest that it is difficult to persuade incumbents to voluntarily assist regulators in this objective. The intended input price the

incumbent charges the entrant is often higher than the price considered reasonable by the regulator. Armstrong (2002) offers a theoretical approach to this point, demonstrating that in a unit demand model the access price chosen by the incumbent, with or without the possibility of bypass, does not differ from that the benevolent regulator would choose to foster entry efficiency. By contrast, in a competitive fringe model, Armstrong finds an unregulated access charge that is higher than the regulator's.

The conditions that determine the cost and quality of the entrant's service are commonly deemed by regulators as inappropriate or discriminatory against entrants. The strong technical interface required between both networks (entrant's and incumbent's) raises the possibility of a deliberate deterioration in the entrant's cost conditions and/or service quality. Noll and Owen (1995) state that this practice was explicit in the interconnection between MCI and AT&T in the long distance service segment in the 1970s. Reiffen and Ward (2002) offer a survey on the empirical evidence of discrimination by regulated firms since the AT&T case.<sup>1</sup>

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<sup>1</sup> See Mini (2001).

Lack of voluntary agreements on interconnection and unbundling has been prevalent in Europe, as evidenced by the Implementation Reports of the European Commission (2000, 2001, 2002, 2003, 2004, 2005, 2006). Likewise, Hausman and Sidak (1999) point out with regard to unbundling in the US that “by the fall of 1996, entrants and Incumbent Local Exchange Companies (ILECs) were unable to reach any voluntary agreements on the pricing of resale and unbundled network elements. As a consequence, hundreds of arbitration proceedings began in the fall of 1996. In most cases, each arbitration was a one-on-one proceeding between a single entrant and the ILEC.”

Although the battles over input charges for the different types of open access policies are usually difficult, the regulator has significant capacity to enforce, ex-post, negotiated or regulated input prices. However, this does not hold for what is referred to as “non-price discrimination,” which can assume very subtle forms, from direct incumbent action to simple omission. Incumbents may simply be less concerned with receiving off-net call failures than on-net call failures. Yet, this may also be the result of the poor internal resources incumbents devote to entrant interconnection points. Further, it may be difficult for the regulator to verify whether delays in repairing interconnection points are due to a lack of incumbent goodwill. As Crandall (2002, p. 27) observes, Competitive Local Exchange Carriers (CLECs) have accused ILECs of failing to implement services on the agreed dates, of call drops and of poor call routing.

According to EC reports, progress in unbundling across Europe is basically constrained by issues of technical complexity, requiring the direct involvement of regulators. Borreau and Dogan (2004) enumerate a number of complaints from entrants in Europe concerning quality degradation. In Germany and Denmark, entrants have accused incumbents of providing unbundled lines that are of poor quality or non-functioning. In short, quality issues can arise before or after a given line is unbundled.<sup>2</sup>

The general pattern of unbundling worldwide has consisted of implementation delays after enactment of the policy. Borreau and Dogan (2004) report that UK regulators required British Telecom to compensate entrants based on their estimated losses any time the company failed to meet contractual obligations, particularly with regard to line delivery.

In summary, the regulator encounters significant difficulties in verifying claims of non-price discrimination against incumbents, requiring increased regulatory intervention. There is ongoing discussion among incumbents and entrants as to the suitability of regulated wholesale price levels. Not surprisingly, entrants, claim they are too high for their survival and market expansion, regardless of the actual regulated price, while incumbents claim they

are too low to recoup their investments.<sup>3</sup> Ultimately, the incumbent's incentives to implement a non-price discrimination strategy are intimately bound to the regulated access price level.

Beard et al. (2001), Bustos and Galetovic (2003), Economides (1998), Sibley and Weisman (1998), Mandy (2000),<sup>4</sup> Mandy and Sappington (2007) – cost and demand sabotage, Weisman and Kang (2001), Mattos (2002, 2007), Laffont and Tirole (2000), Sappington and Weisman (2005) – self sabotage – and Sand (2004) explore non-price discrimination in vertically integrated companies providing inputs to downstream competitors. In general, the authors restrict their analyses to specific hypotheses about market strategic interdependence (Cournot or Bertrand) and demand format (mainly linear demand).

Most of the research associates non-price discrimination with the low profitability of the access business, which results from the LRIC (Long Run Incremental Cost) price regulation<sup>5</sup> methodology. A common feature of most of these models is that access price regulation constitutes a principal cause of non-price discrimination. These models involve a basic trade-off: non-price discrimination helps the incumbent's retail business, but harms its access business.

Our purpose in this paper is to assess the relationship between regulated access pricing, whether in interconnection, unbundling, carrier-selection or pre-selection, and non-price discrimination, neither assuming a pre-determined market strategic interdependence or a specific demand function. In addition, we do not consider sabotage costs, efficiency differential and the double marginalization problem<sup>6</sup> contemplated in other non-price discrimination models. In this sense, our objective is to develop a pure demand model of non-price discrimination.

Section 2 examines the basic non-price discrimination model and addresses the ILEC's incentives to raise rival costs. Section 3 describes a game between the regulator and the ILEC aimed at deriving the optimal behavior of these agents in a sub-game perfect equilibrium with open access policies (OAP). In Section 4, we offer some concluding comments.

<sup>3</sup> Aron et al. (1998), Hausman and Sidak (1999), Jorde et al. (2000) and Pindyck (2007), among others, argue that when there is uncertainty regarding future demand or technology, there is a basic asymmetry which the Long Run Incremental Cost (LRIC) methodology does not take into account. If future demand rises, the entrant will request unbundling and benefits from the good state of nature. But if demand declines, the entrant will simply not request unbundling and avoid losses already incurred by the incumbent, whose cost is sunk. As Pindyck argues, the entrant “benefits on the upside, while avoiding the downside.”

<sup>4</sup> The author provides an interesting summary table of the six theoretical models of “non-price discrimination” developed up to that time. Four assume a Cournot's downstream oligopoly and two, a Bertrand downstream oligopoly.

<sup>5</sup> The LRIC is a method of tariff regulation. The new tariff for a given service is based on a measure of its long-term incremental cost.

<sup>6</sup> Although the entrant's demand elasticity has a crucial role in the analysis, downstream market power and, by extension, double marginalization are ruled out in view of the perfect competition hypothesis at the entrant's fringe.

<sup>2</sup> A more detailed description of the difficulties in the implementation of unbundling is provided in OECD (2003).

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