Pricing to preclude sabotage in regulated industries

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We characterize the optimal access price and retail price for a vertically-integrated incumbent supplier (V) that faces limited competition from a new entrant in the retail sector. The optimal prices provide V with a relatively high wholesale profit margin and a relatively low retail profit margin. Consequently, V has no incentive to raise the costs of its retail rival.

1. Introduction

The Telecommunications Act of 1996 requires incumbent suppliers of telecommunications services in the U.S. to make their networks available to retail competitors on
reasonable terms and conditions.\textsuperscript{1} This Act, like its counterparts throughout the world, reflects the belief that mandated access of this sort can foster industry competition by enabling new suppliers to compete for retail customers without having to build their own ubiquitous networks (Cave, 2006; Bourreau et al., 2010).

One potential impediment to such competition is that a vertically-integrated incumbent supplier may have an incentive to raise the costs of its retail rivals in order to diminish their competitive impact and thereby increase the incumbent’s retail profit (Economides, 1998; Beard et al., 2001; Laffont and Tirole, 2001; Bustos and Galetovic, 2009). On the other hand, limiting the success of retail rivals can reduce their purchase of network access and thereby reduce the incumbent supplier’s wholesale profit (Sibley and Weisman, 1998a; 1998b; Mandy, 2000; Weisman and Kang, 2001; Kondaurova and Weisman, 2003). The strength of each of these countervailing incentives varies with the prevailing regulatory policy. In particular, a relatively high retail profit margin can encourage the incumbent supplier to disadvantage its retail rivals whereas a relatively high wholesale margin can discourage such “sabotage.”

These well-known conclusions suggest that the optimal regulated retail and wholesale profit margins are likely to vary with such industry features as the ability of the incumbent supplier to sabotage the activities of retail rival without regulatory detection and punishment. Specifically, one might suspect that the wholesale profit margin should be increased and the retail profit margin reduced in settings where sabotage is difficult to detect and preclude, \textit{ceteris paribus}. This seemingly sensible policy prescription, though, turns out to be incorrect. We identify conditions under which the optimal regulatory policy is completely insensitive to the incumbent supplier’s ability to raise its rival’s cost. The same policy that is optimal when the incumbent has no ability whatsoever to raise its rival’s cost remains optimal when the incumbent is readily able to sabotage its retail rival. This is the case because, regardless of the incumbent’s ability to disadvantage its rival, the optimal regulatory policy establishes a relatively high price for access to the incumbent’s network and a relatively low price for the incumbent’s retail product. The resulting relatively high wholesale profit margin for the incumbent eliminates its incentive to sabotage its retail rival. Therefore, even when it is particularly adept at raising its rival’s cost, the regulated incumbent supplier will refrain from cost-increasing sabotage under the optimal regulatory policy. Consequently, this optimal policy does not change as the incumbent’s ability to raise the costs of a retail rival changes.

We demonstrate the optimality of a relatively high wholesale profit margin in a setting where a regulator sets both the price of access ($w$) and the retail price ($p_0$) charged by a vertically-integrated incumbent supplier ($V$). Regulators often set both wholesale and retail prices in practice in settings where retail competition is emerging but has not developed to the point where it alone can fully discipline the incumbent supplier’s retail

\textsuperscript{1} 47 U.S.C. § 251.
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