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Entry auctions and strategic behavior under cross-market price constraints

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Abstract

We examine how universal service provisions and price restrictions across markets impact strategic entry and pricing. We develop a simple multi-market model with an oligopolistic (profitable) urban market and entry auctions for (unprofitable) rural service. Cross-market price restrictions induce a firm operating in both markets to become a 'softer' competitor, thus placing the firm at a strategic disadvantage. When we account for entry incentives and strategic bidding, the downstream strategic disadvantage becomes advantageous, leading to higher prices and profits. Price restrictions may also put outside firms, even relatively inefficient ones, at a strategic advantage.

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1. Introduction

We observe many regulated market environments in which the variation of prices across markets and market segments is restricted. Typically, these price restrictions are associated with universal service goals and they arise when the

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price differentials expected to prevail in an unregulated setting are deemed unacceptable by policymakers. Familiar examples of industries with universal service requirements are postal delivery, railroad transport and telecommunications; related cross-market price constraints are also observed in a variety of other markets.[1] Liberalization in many regulatory environments, however, has exposed profitable markets to entry and competition. As discussed by Laffont and Tirole (2000) and others, liberalization has raised important questions regarding the coexistence of price constraints across markets, competition, and the goal of universal service, as many markets and segments are inherently unprofitable on a stand-alone basis.[2]

In a classic analysis, Leontief (1940) develops the theory of multi-market monopoly under cross-market price restrictions. Armstrong and Vickers (1993) introduce competition and examine the effects of price discrimination when an incumbent firm faces a (price-taking) entrant in a profitable market while the incumbent also serves customers in a separate market. A ban on price discrimination across the incumbent's markets, which is often part of a universal service requirement, causes the incumbent to be less aggressive in response to entry. The ban on price discrimination also has a significant impact on the scale of entry in equilibrium. We also examine the impact of cross-market price constraints (a ban on price discrimination) but introduce strategic interaction between competitors.

We focus on the issue of firm selection for a second, inherently unprofitable, 'rural' market and the strategic linkage to a profitable 'urban' market where there is oligopolistic competition. In particular, we examine the use of an auction to determine which firm will supply the unprofitable rural market. As discussed by Armstrong (2000) and Laffont and Tirole (2000), there is significant policy interest in the potential for awarding the right to serve markets via auctions in which bidders compete on requested subsidy levels.

We analyze the strategic implications of universal service requirements and related cross-market price restrictions with a simple model involving oligopoly competition and two markets. Oligopoly competition takes place in a profitable urban market and the resulting urban market price determines the ceiling (under

[1] Universal service provisions exist in several other markets (e.g., a Federal subsidy program was established following deregulation in the Airlines industry to support 'Essential Air Service' to rural, regional airports in the US). In general, cross-market price restrictions arise in a variety of contexts and, even when no formal entry auctions exist, strategic entry incentives may be affected: in international trade, anti-dumping provisions involve a comparison of prices across countries (Prusa, 1994); in pharmaceutical markets, countries often employ global reference pricing and link their domestic prices to those observed abroad (Lanjouw, 1997); and systems like Medicaid involve most-favored-customer rules (Scott Morton, 1997).

[2] According to Laffont and Tirole (2000), p. 218, "Universal service is a knotty and explosive problem. It has been (or will be) a central issue in the political debate surrounding regulatory reform in all network industries and in most countries."