Price-Cap Regulation of Firms That Supply Their Rivals*

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Supplemental Online Appendix

Institutional Background

This research was initially motivated by both authors' work to better understand existing regulation in the market for business data services at the Federal Communications Commission (FCC). Business data services (known as "special access" until 2016) lines are dedicated high-capacity connections used by businesses and institutions to transmit voice and data traffic. Typical uses include the connection of different business units within large enterprises, wireless backhaul, and importantly, wholesale access services. Because competition in the provision of business data services has been limited in the U.S., these services have a history of regulation by the FCC, initially on a "cost-plus" basis, and according to price-cap "incentive" regulation since the early 1990s. The market for business data services has

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grown from approximately $2.6 billion in revenue when the FCC first implemented price-cap regulation to a market that may exceed $75 billion in revenue today (Rysman 2016).

One notable feature of U.S. markets for business data services is the presence of competitive local exchange carriers ("CLECs") that obtain business data services on a wholesale basis to compete with incumbent local exchange carriers ("ILECs") downstream. Competition between the ILECs and CLECs in the market for business data services has frequently been under FCC scrutiny and was most recently the subject of proceedings that sought to determine the appropriate geographic and product markets for price-cap regulation. Under its most recent Chairperson, the FCC has determined to limit the use of price-cap regulation of business data services (FCC 2017), an apparent reversal of the course set out by the prior administration (FCC 2016). Price-cap regulation of business data services remains an evolving and highly contested issue.[1]

Although the FCC has broadly simplified its incentive regulation methodology from what was initially effectively a hybrid of price-cap and rate-of-return regulation,[2] the category of business data services has been subject to particular attention from the FCC since 2000. In 2000, special access was separated from the FCC's trunking basket and began to be regulated under its own price cap rate adjustment mechanism (X-Factor) separate from other price-cap regulated services (see FCC 2000 ¶¶30, 132, 149, 150). In 2005, special access regulation was subjected to an individual rule making proceeding (see FCC 2005), with additional proceedings initiated exclusively for different aspects of business data services regulation in 2015 and 2016. Among other things, the special access proceedings initiated

[1]Shortly after the FCC's April 2017 vote to limit price-cap regulation of business data services, wireless service provider Sprint and broadband provider Windstream sued the FCC, claiming that its 2017 Report and Order is "arbitrary, capricious, and an abuse of discretion." See Buckley, S., 2017. Sprint, Windstream sue the FCC for 'capricious' business data services proposal. *FierceTelecom*, Telecom. May 11, 2017. Retrieved July 23, 2017. Available at http://www.fiercetelecom.com/telecom/sprint-windstream-sue-fcc-for-capricious-business-data-services-proposal?mc_cid=d0138895e2&mc_eid=558f45e107.

[2]For example, in its 1997 Price Cap Performance Review Order, the FCC eliminated a "sharing" regime (implemented as part of its initial 1990 LEC Price Cap Order and further developed in its 1995 Price Cap Review Order) whereby profits that were substantially above the FCC's pre-1990s permitted rate of return had to be shared in part or in whole with customers in spite of the fact that prices were bound by price cap indices (see FCC 1990 ¶¶5, 7, 123-125; 1995 ¶¶19-20; and 1997 ¶1).

an extensive data collection undertaken to reevaluate competition and price-cap regulation in the business data services market (see FCC 2012a, 2012b, 2013, 2014), an investigation of certain business data services pricing practices by ILECs (FCC 2015), and plans to adopt a technology-neutral framework that could extend price-cap regulation to IP-based business data services (FCC 2016).

A key concern of the FCC with regard to price-cap regulation has been the removal of price caps in markets subject to substantial competition. Pursuant to this objective, in 1999, the FCC developed competitive criteria designed to measure the extent to which competitors had made irreversible investment in facilities needed to provide the services at issue (FCC 1999, ¶¶4, 24). The criteria, which measured competition based on collocations of non-incumbents in ILEC wire centers, stipulated that the Commission would grant pricing flexibility at sufficient levels of collocation, including permitting incumbents to raise or lower rates throughout the relevant geographic area unconstrained by price caps at sufficiently high levels of collocation (FCC 1999, ¶153).

The 2005 special access rulemaking was initiated to broadly examine the provision of interstate special access services by price cap LECs. It was started in part to address an AT&T petition claiming that, although the pricing flexibility criteria that the FCC believed would be associated with competitive market entry, were satisfied in many markets, the entry that the FCC had predicted had not occurred. A 2006 Government Accountability Office (GAO 2006) report lent credence to AT&T's claims, urging the FCC to revisit its competitive criteria with regard to the special access market. Nevertheless, in the years that followed, the FCC granted additional regulatory relief to a number of price-capped incumbents.[3] As a result of these grants, for many incumbent providers, although price caps would apply in markets that did not satisfy the FCC collocation criteria, they would do so only for legacy time-division multiplexing (TDM) services, not for existing packet-based,

[3]Though as the FCC had pointed out, relief was granted by operation of law, absent any findings of competition by the Commission. See FCC 2016, ¶¶24-25.

Ethernet technology services.[4]

In 2012, the FCC suspended further grants of pricing flexibility to ILECs in special access areas still subject to price-cap regulation (FCC 2012a). Later that year, the FCC initiated its data collection to reevaluate competition and price-cap regulation in this market (FCC 2012b). Ultimately, the FCC required all providers and purchasers of TDM and packet-based business data services subject to its jurisdiction to provide detailed data concerning market structure, pricing, demand, terms and conditions, and competition and pricing decisions.[5]

Following the data collection, the FCC proposed, among other things, a set of deregulatory rules to govern markets deemed competitive along with tailored rules to safeguard customers in non-competitive markets, which would include the use of price regulation (FCC 2016). The FCC also proposed to adopt a technology-neutral framework for regulation, including potentially eliminating regulatory relief granted to incumbent providers of packet-based services (FCC 2016 ¶¶256-260). However, after the change in administration that followed the 2016 U.S. presidential election and subsequent change of leadership at the FCC,[6] the Commission determined that the data collection and record indicated the presence of intense competition in the market, and that ex ante pricing regulation could inhibit growth and investment in many cases (FCC 2017 ¶¶1, 4). Specifically, the FCC determined that the marketplace for higher-bandwidth packet-based business data is competitive, and that ILECs have a degree of concentration in a declining number of TDM-based service markets (FCC 2017 ¶¶83-84). As such, the FCC provided that there would be no new regulation of packet-based business data services, and that the continuation or curtailment of price-cap regulation of currently regulated TDM-based services would be determined by a new market test.[7]

[4] Unlike more recent packet-based technologies, TDM transmits signals by means of synchronized switches at each end of the transmission line.

[5] An overview of the data collection is available at FCC (2016 ¶¶39-43).

[6] Chairman Ajit Pai was designated Chairman of the FCC by President Donald J. Trump in January 2017. See Federal Communications Commission. About the FCC. Leadership. Ajit Pai. www.fcc.gov. Available at https://www.fcc.gov/about/leadership/ajit-pai.

[7] The test treats as competitive a particular county if 50 percent of the locations with business data services demand in that county are within a half mile of a location served by a competitive provider based

Our primary research interest relates to those markets expected to be deemed insufficiently competitive so as to possibly warrant regulation under the FCC's price caps. Such markets would be expected to include those with a single facilities based (i.e., vertically integrated) incumbent with potential downstream wholesale competitors, but no existing facilities-based competitors—that is, markets where rival entrants are forced to outsource. Various studies submitted to the FCC pursuant to its 2016 proceeding suggest that a substantial geographic portion of the United States consists of such markets (FCC 2016 ¶¶173-185). Our "static" analysis is intended to gauge the welfare impact of wholesale entry in such monopoly markets with and without price-cap regulation, and our "dynamic" investment analysis seeks to assess incentives for further investment by price-cap regulated firms and potential entrants. Although our research is largely motivated by the market for business data services, because the core of our research is theoretical, our findings are applicable, more generally, to markets where firms supply their rivals.

References

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[3] Federal Communications Commission, 1997. "Price Cap Performance Review for Local Exchange Carriers." Fourth Report and Order in CC Docket No. 94-1. "Access Charge

on the FCC's data collection or 75 percent of the census blocks in that county have a cable provider present based on the Commission's Form 477 data. FCC 2017 ¶86.

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[6] Federal Communications Commission, 2005. “Special Access Rates for Price Cap Local Exchange Carriers.” Order and Notice of Proposed Rulemaking in WC Docket No. 05-25. Etc. Washington, DC, January 31, 2005.

[7] Federal Communications Commission, 2012a. “Special Access Rates for Price Cap Local Exchange Carriers.” Report and Order in WC Docket No. 05-25. Etc. Washington, DC, August 22, 2012.

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