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FIXED-MOBILE “INTERMODAL” COMPETITION IN TELECOMMUNICATIONS: FACT OR FICTION?

Abstract: The purpose of this POLICY BULLETIN is to determine whether wireline and wireless telephone services are close enough substitutes to be effective intermodal competitors. Using the standard tools of antitrust economics, this POLICY BULLETIN presents evidence indicating that wireless is not an effective intermodal competitor to wireline telephone service – at least to the extent that wireless offers a meaningful constraint on the market power of a wireline monopoly. The lack of effective intermodal competition between fixed and wireless telephony suggests that efforts to promote *intramodal* competition (e.g., unbundling mandates) remain necessary because consumer savings in wireline telephony since the passage of the Telecommunications Act of 1996 – which are estimated to exceed \$10 billion annually – are likely the result of intramodal competition between wireline carriers.

I. Introduction

One of the most prolific arguments set forth to justify the elimination of the market-opening provisions of the Telecommunications Act of 1996 – under which the Bell Operating Companies (“BOCS”) must make available to competitors unbundled elements of their local networks at just and reasonable wholesale prices in exchange for being allowed to re-enter the long-distance segment of the market¹ – is that unbundling is no longer necessary to stimulate local competition, because the Bells’ market power is constrained by “intermodal” competition from

¹ 47 U.S.C. § 251 *et seq.*

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wireless telephony.² To determine the validity of this argument, we turn to the natural empirical question of whether or not competition from wireless telephony is sufficient to prohibit a small but significant and nontransitory increase in price by a wireline monopoly. That is to say, *the correct inquiry is not whether two different products can do a similar task for some consumers some of the time, but rather whether the use of one product will restrain adequately the exercise of market power for the other.*³ This question is the only one with relevance for communications policy.

Our straightforward antitrust market definition analysis leads to a rejection of the hypothesis that that wireless and wireline telephony are effective “intermodal competitors” – at least to the extent that wireless offers an effective constraint on the market power of a wireline monopoly. Consequently, *even though there may be exceptions, consumers generally do not consider the two services as sufficiently good substitutes such that a small but significant and nontransitory price increase for wireline service is unprofitable.* We arrive at this result in spite of performing a test that is very conservative and more likely to find effective intermodal competition even when it does not exist. The lack of significant intermodal competition suggests that efforts to promote *intramodal* competition (e.g., unbundling mandates) remain necessary because consumer savings in wireline telephony since the passage of the 1996 Act – which are estimated to exceed \$10

² Mark Wigfield, *FCC's Abernathy: Court Won't Affect Phone Service Pricing*, DOW JONES NEWSWIRE (18 March 2004) (According to FCC Commissioner Kathleen Abernathy, “What really drives [fixed-line] pricing is the competition from wireless”). Another popular argument is that unbundling of circuit switching can be eliminated because competitors can deploy and use their own switching. This argument has been discredited, oddly enough, by the BOCs’ own studies. For a summary, see G. S. Ford and T. M. Koutsky, *The UNE-Platform, Impairment and Natural Monopoly: Bell Company Estimates of Cost Disparities and Their Consequences* (January 2003) (www.telepolicy.com). See also R. W. Crandall and H. J. Singer, *An Accurate Scorecard of the Telecommunications Act of 1996: Rejoinder to the Phoenix Center Study No. 7* (January 2004) (describing the combination of unbundled loops and self-supplied switching as “a non-sustainable business plan”) (<http://www.phoenix-center.org/critiques/CrandallSinger.pdf>) and the response by the Phoenix Center, *In Response: A Response to Drs. Crandall and Singer*, (January 2004) (<http://www.phoenix-center.org/critiques/CrandallResponse.pdf>); Larry F. Darby, Jeffrey A. Eisenach and Joseph S. Kraemer, *The CLEC Experiment: Anatomy of a Meltdown*, PROGRESS ON POINT 9.23, (September 2002) (“of the approximately 300 “facilities based” CLECs in operation three years ago, only about 70 remained as of early 2002”).

³ As an illustrative example, take the bus versus airplane analogy. Both provide transit over between cities, but few would argue that the competition between the two would be sufficient to constrain (or allow through merger) an airline monopoly. *But c.f.*, Barry M. Aarons, IPI POLICY REPORT # 175, *Don't Call – Just Send Me an E-mail: The New Competition for Traditional Telecom* (January 27, 2003) (providing anecdotal evidence to argue that because voice, instant messaging and e-mail provide “like” services”, they are *a fortiori* close substitutes and are sufficient to mitigate the Bells’ market power).

billion annually – are due to the more traditional *intramodal* competition between wireline carriers.⁴

II. A Test for Inter-Modal Competition

Because regulation and antitrust, by design, serve as a constraint on profit maximization, regulated firms are obviously motivated to eliminate or change the rules.⁵ A common strategy to weaken the case for regulation or antitrust is to exaggerate the presence of competition in relevant markets. In antitrust, this strategy commonly takes the form of a broadly defined antitrust market by including a wide variety of firms and product/services that allegedly compete directly with the merging entities and their products/services. This particular tact makes the merging parties' market share (and the consequent Herfindahl index or "HHI") seem relatively small.⁶ The concept of "intermodal competition" in local exchange telecommunications markets is one approach to expand the market's boundaries in order to reduce (artificially?) industry concentration and the expectation of market power.⁷

Intermodal competition, while fresh parlance, is nothing new to the economic analysis of industry structure and competition. Whether or not two products are intermodal competitors is no different than the age-old question of whether or not two products are in the same market. The science of placing boundaries around particular product or geographic markets is well

⁴ PHOENIX CENTER POLICY BULLETIN No 8, *The \$10 Billion Benefit of Unbundling: Consumer Surplus Gains from Competitive Pricing Innovations* (27 January 2004) available at <http://www.phoenix-center.org/PolicyBulletin/PCPB8Final.pdf>; see also CompTel/Ascent March 15, 2004 Press Release: *Consumers Spent \$11 Billion Less in 2003 Than Before Competition: Data Shows 23 Percent Decline in Home Phone Bills* (available at <http://www.comptelascent.org/news/recent-news/031504.html>).

⁵ Regulation is defined generally, and includes price/quality regulation, competition policy, and antitrust. We recognize that many economists believe the role of regulation is to create and maintain market power. See, e.g., S. Peltzman, *POLITICAL PARTICIPATION AND GOVERNMENT REGULATION* (1998); R. B. Ekelund Jr., *THE FOUNDATIONS OF REGULATORY ECONOMICS* (1998); C. Rowley, R. Tollison, and G. Tullock, *THE POLITICAL ECONOMY OF RENT-SEEKING* (1988).

⁶ The science of market definition – that is which products, firms, or locations should or should not be included in a competitive analysis – is sufficiently inexact that industry statistics can produce a variety of (somewhat) defensible claims regarding the identity and number of participants in the relevant market. See D. L. Kaserman and J. W. Mayo, *GOVERNMENT AND BUSINESS* (1995).

⁷ See, e.g., Remarks of Michael K. Powell, Chairman Federal Communications Commission at the National Association of Regulatory Commissioners' General Assembly, Washington D.C. (March 10, 2004) ("We are turning a corner on the digital migration. Innovative entrepreneurs are replacing yesterday's slow, limited networks with many different types of high-speed, full-service digital networks, like BPL, WIFI, FTTH, Cable Modem and DSL. *** Competition among these facilities-based networks ... has begun to introduce the transformative forces" into the "last mile"); Remarks of FCC Commissioner Abernathy, *supra* n. 2.

developed with the concepts of *critical elasticity of demand* and/or *critical sales loss* at the center of such analysis. These concepts, in essence, evaluate whether two products are sufficiently similar as to be close substitutes in the eyes of the consumer, and close enough to make a “small but significant and nontransitory increase in price” (“SSNIP”) unprofitable.⁸ In other words, *the question is not whether or not two products or services may be substitutes to some degree or to some consumers. Rather, the relevant question is whether or not the two products or services are sufficiently good substitutes to make a small but significant and nontransitory increase in price unprofitable.*

As the MERGER GUIDELINES explain:

A market is defined as a product or group of products and a geographic area in which it is produced or sold such that a hypothetical profit-maximizing firm ... likely would impose at least a “small but significant and non-transitory” increase in price, assuming the terms of sale of all other products are held constant. A relevant market is a group of products and a geographic area that is no bigger than necessary to satisfy this test.⁹

In practice, delineating a market involves adding groups of products (or geographic markets) to the portfolio of the hypothetical monopolists and asking whether or not a hypothetical monopolist with this product portfolio could profitably impose a SSNIP. Obviously, the ability to profitably impose a SSNIP depends on the sensitivity of purchases to price changes

Prior to defining the critical elasticity of demand and critical sales loss, a simple example of what these tools seek to measure may be helpful. Say a firm produces a product with unit variable cost \$5 and sells 100 units of this product for \$10 each. The firm’s profits are \$500 [= (10 - 5)·100]. Now, the firm contemplates a price increase of 5% to a new price of \$10.50. Will this price increase be profitable? The new profit margin is \$5.50 per unit, so as long as the firm sells 91 units, its profits will rise [(10.50 - 5)·91 = 500.5].¹⁰ If sales fall to 90 units or less, then the price increase is unprofitable.¹¹ Thus, the profitability of a price increase depends on the

⁸ See, e.g., G. J. Werden, *The History of Antitrust Market Delineation*, 76 MARQUETTE LAW REVIEW 123-215 (1992); D. R. Kamerschen, *Testing for Antitrust Market Definition Under Federal Government Guidelines*, 4 JOURNAL OF LEGAL ECONOMICS 1-10 (1994); G. J. Werden, *Demand Elasticities in Antitrust Analysis*, 66 ANTITRUST L.J. 363, 387-96 (1998); P. Massey, *Market Definition and Market Power in Competition Analysis: Some Practical Issues*, 31 THE ECONOMIC AND SOCIAL REVIEW 309-328 (2000); *Times-Picayune Publishing Co. v. United States*, 345 US 594 (1952).

⁹ 1992 DEPARTMENT OF JUSTICE/FEDERAL TRADE COMMISSION HORIZONTAL MERGER GUIDELINES (“MERGER GUIDELINES”) § 1.0 (http://www.usdoj.gov/atr/public/guidelines/horiz_book/toc.html).

¹⁰ Incremental unit costs are assumed to be constant in the relevant range of output.

¹¹ In a perfectly competitive market, sales would fall to zero.

response of sales to price changes, and this response is measured by the own-price elasticity of demand. The critical elasticity of demand and critical sales loss provide the threshold levels of the quantity response making a given price increase unprofitable.

A. Critical Elasticity of Demand

The own-price elasticity of demand is a measure of how sales change when price changes and is computed as the percentage change in quantity sold divided by the percentage change in price. With knowledge of the elasticity, it is possible to measure how much sales fall when a SSNIP is imposed and, by appealing to economic theory, whether or not this sales loss is sufficient to make the SSNIP unprofitable. The profitability of a SSNIP can be evaluated using the concept of the critical elasticity of demand.

The critical elasticity of demand is the largest pre-merger elasticity of demand a hypothetical monopolist could face and still want to raise price by at least the threshold amount (typically 5%). For linear demand and a threshold price increase of t , the critical own-price elasticity of demand (in absolute value)¹²

$$\text{Critical Elasticity of Demand} = \bar{\varepsilon} = \frac{1}{m + 2t} \quad (1)$$

where m is the margin of price over variable costs.¹³ If the actual, econometrically-estimated own-price elasticity of demand (ε) faced by the monopolist is less than the critical elasticity, then a SSNIP is profitable. For example, let m be 0.40 and t be 0.05 (a 5% price increase threshold), such that the critical elasticity is 2.0 [= 1/(0.4 + 0.1)]. If econometric studies indicate the pre-merger own-price elasticity of demand for this market is 1.5, then a hypothetical monopolist could raise price profitably by 5% (*i.e.*, the pre-merger elasticity is smaller than the critical elasticity, $\varepsilon < \bar{\varepsilon}$).¹⁴ Alternately, if the econometrically estimated demand elasticity is 3.0,

¹² Own-price elasticities of demand are negative, by definition. However, they are often expressed as positive values (absolute values) for expositional purposes.

¹³ Werden, *Demand Elasticities*, *supra* n. 8. If p is price and c is marginal cost, the price-cost margin is $(p - c)/p$. Margins are typically computed using accounting data and, as a consequence, are subject to disputes. G. Werden and L. Froeb, CALIBRATED ECONOMIC MODELS ADD FOCUS, ACCURACY, AND PERSUASIVENESS TO MERGER ANALYSIS IN THE PROS AND CONS OF MERGER CONTROL (edited by the Swedish Competition Authority, Swedish Competition Authority, Stockholm 2002).

¹⁴ According to the actual elasticity, the 5% price increase will result in a 7.5% reduction in sales. However, a price increase is profitable as long as sales do not decline by more than 10%.

the hypothetical monopolist would not raise price because the increase would be unprofitable (*i.e.*, the demand response is too large, $\varepsilon > \bar{\varepsilon}$).¹⁵

Importantly, a monopolist would always price in the elastic region of demand ($\varepsilon \geq 1.0$), so any own-price elasticity of demand less than 1.0 would fall below the critical demand elasticity. In other words, regardless of m , if the own-price elasticity of demand is less than 1.0, then the hypothetical monopolist will raise price by 5% and the services offered by the hypothetical monopolist are a “market.” This fact may be useful, since if the own-price elasticity of demand is found to be less than 1.0, then assumptions regarding the margin (m), which can be controversial, are irrelevant to market delineation.¹⁶

B. Critical Sales Loss

Closely related to the critical elasticity of demand is the concept of *critical sales loss*. The critical sales loss is the maximal percentage of sales that can be lost for the SSNIP to be profitable. For linear demand and a threshold price increase of t , the critical sales loss is

$$\text{Critical Share Loss} = \bar{s} = \frac{t}{m + 2t}. \quad (2)$$

From our earlier example ($m = 0.40$ and $t = 0.05$), the critical sales loss is 10% [= $0.1/(0.4 + 0.1)$]. If analysts believe a 5% price increase for a product will result in less than a 10% sales loss for that product, then that product is in its own market. If the percent sales loss were expected to exceed 10%, then a market including just that product would be too narrowly defined. The relationship between the critical elasticity of demand and critical sales loss should be apparent (*i.e.*, they are two sides of the same coin).

C. Delineating the Market for Residential Second Lines

Our analysis of intermodal competition between wireline and mobile telephony focuses on *residential second lines*. This choice is based on a number of factors. First, published estimates of the own-price elasticity of second lines estimated with the price of wireless services in the regression are available.¹⁷ Second, according to some, second lines are at most risk of

¹⁵ Under this scenario, the 5% price increase will result in a 15% reduction in sales. As before, however, a price increase is profitable only as long as sales do not decline by more than 10%.

¹⁶ Werden and Froeb, *Calibrated Models*, *supra* n. 13 at 4.

¹⁷ M. Rodini, M. Ward and G Woroch, *Going Mobile: Substitutability Between Fixed And Mobile Access*, 27 TELECOMMUNICATIONS POLICY 457-476 (2003).

substitution to wireless services (certainly more so than primary lines).¹⁸ The logic is somewhat appealing: with a mobile phone in the household there remains an alternate communication method if the primary wireline phone is tied up (say, by a teenager or internet connection). Further, keeping the primary wireline phone affords the quality and security of wireline telecommunications. Third, econometric studies consistently show that the own-price elasticity of demand is larger for second than primary lines.¹⁹ These latter criteria bias our analysis toward a finding of intermodal competition, since we evaluate the wireline service for which wireless service is a “better” substitute. If we fail to find evidence of effective intermodal competition for residential second lines, then it is clear that there is no effective intermodal competition for primary lines. However, the inverse is not true – intermodal competition for residential second lines does not imply intermodal competition for primary lines.

Mark Rodini, Michael Ward, and Glenn Woroch (2003) provide the most recent econometric estimate of the own-price elasticity of demand for residential second lines.²⁰ Their analysis focused explicitly on substitution between wireline and mobile telephony, so their estimates are most relevant to our computations. While their own-price elasticity estimates are generally larger than earlier studies, they are consistent with previous findings.²¹ Their estimated elasticities are based on a sample of over 90,000 households including, primarily, data from the TNS Telecoms ReQuest Market Monitor. Rodini *et al.* (2003) report an own-price elasticity of demand for residential second lines of -0.62, which is highly statistically significant (better than the 1% level). While mobile prices were included in the regression, the cross-price elasticities were not different from zero.

Based on an analysis of various sources, the margin of wireline service over variable costs (*m*) is assumed to be 50%.²² From Equations (1) and (2), the critical demand elasticity for a 5%

¹⁸ *Id.*

¹⁹ *Id.* See also, James Eisner, and Tracy Waldon (2001) *The Demand for Bandwidth: Second Telephone Lines and On-Line Services*, 13 INFORMATION ECONOMICS & POLICY 301-309 (2001) (elasticity = -0.35); Duffy-Deno, Kevin (2001) *Demand for Additional Telephone Lines: An Empirical Note*, 13 INFORMATION ECONOMICS & POLICY 283-299 (2001) (elasticity = -0.59); D. Lynn Solvason, *Cross-sectional Analysis of Residential Telephone Subscription in Canada using 1994 Data*, 9 INFORMATION ECONOMICS & POLICY 241-264 (1997) (elasticity = -0.48). Primary own-price elasticities are estimated to be well below 0.10. R. Crandall and L. Waverman, *Who Pays for Universal Service? When Telephone Subsidies Become Transparent* (2000) at Table 5-1: http://www.brookings.org/press/books/universal_service.htm.

²⁰ Rodini, *supra* n. 17.

²¹ *Supra* n. 19.

²² The margin is derived by reviewing the following documents: a) the financial filings of the BOCs; b) SBC Ex Parte, CC Docket No. 01-338 (Oct. 11, 2002; Oct 30, 2002); c) T. R. Beard and C. C. Klein, *Bell Companies as Profitable Wholesale Firms: The Financial Implications of UNE-P*, PHOENIX CENTER POLICY PAPER NO. 17 (November 2002) (<http://www.phoenix-center.org/pcpp/PCPP17Final.pdf>); and d) T. R. Beard, G. S. Ford, and C. C. Klein, *The*

(Footnote Continued....)

price increase is 1.67 ($= \bar{\epsilon}$) and the critical sales loss is 8.3% ($= \bar{s}$). To determine whether residential second lines and mobile telephony are in the “same market” or are “intermodal competitors” we need to compare these values to those implied by the own-price elasticity of demand. Table 1 summarizes these comparisons for a variety of assumed margins.

Table 1. Summary of Intermodal Competition Test for Wireless and Residential Second Lines (Price Increase = $t = 5\%$).

Margin m	Critical Elasticity $\bar{\epsilon}$	Actual Elasticity ϵ	Critical Sales Loss \bar{s}	Actual Sales Loss s	Effective Intermodal Competition (Yes/No)
0.40	2.00	0.62	0.100	0.03	No
0.50	1.67	0.62	0.083	0.03	No
0.60	1.43	0.62	0.071	0.03	No
0.70	1.25	0.62	0.063	0.03	No

First, we observe that at a 50% margin (m) the actual own-price elasticity of demand is less than the critical demand elasticity ($0.62 < 1.67$). The implication is that a SSNIP would be profitable, despite the potential substitution with mobile telephony. Consequently, residential second lines and mobile telephony are not effective intermodal competitors. Note that this is not to say that the two cannot, in some instances, operate as substitutes. While possible substitutes in some instances, the substitution is not sufficient to constrain market power in the provision of residential second lines. Also observe that the own-price elasticity of demand for second lines is below 1.0. As discussed earlier, this fact alone is sufficient to declare residential second lines as a market separate from mobile telephony.

Second, the critical sales loss is 8.3%, which may seem small. Critical sales loss is always small when margins are large (in this case, 50%). However, large margins are typically the consequence of highly inelastic demand curves, and that is true in this case. For the 5% price increase, the expected loss in sales is only 3%, which is well below the critical sales loss of 8.3%. Again, the analysis suggests that a SSNIP would be profitable to a hypothetical monopolist of residential second lines and, consequently, that wireline and wireless telephone services are not effective intermodal competitors.

As shown in Table 1, effective intermodal competition is rejected regardless of the assumed margin. For example, at a margin of 60%, the critical elasticity is 1.4 and the critical sales loss is

Financial Implications of the UNE-Platform: A Review of the Evidence, Forthcoming in *COMMLAW CONSPECTUS* (2004). We include capital costs as variable costs for the 50% margin. Excluding capital costs increases the margin to about 60% (we provide results later in the text for this margin). These margins are based on variable costs. If fixed costs are sufficiently large, the service may be unprofitable overall.

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7.1.²³ The conclusions drawn when using these alternate margins are no different than before. Further, the assumption regarding the margin is not very important since the own-price elasticity of demand is less than unity. We find no evidence for effective intermodal competition.

III. The Effect of Industry Structure on Intermodal Competition

Industry structure in the mobile telephony industry also abates the potential for meaningful intermodal competition. Wireless carriers Verizon, Sprint, and Cingular (owned by BellSouth 40% and SBC Communications 60%) are each owned by wireline monopolists and collectively hold about a 63% market share of the national domestic wireless market.²⁴ If Cingular's \$41 billion acquisition of AT&T Wireless²⁵ is successful, then the incumbent wireline carriers will service about 82% of wireless subscribers.²⁶ Thus, even if wireless is an intermodal competitor, then the effects of competition are substantially internalized to the incumbent wireline carriers (and consequently eliminated). In other words, the incumbent wireline carriers have about an 82% probability of capturing any customer canceling wireline service for wireless service. As put forth eloquently by BellSouth CEO and Chairman Duane Ackerman, "Wireless substitution is now a fact. That's okay. We tend to own both."²⁷

Also important is the fact that the joint-ownership of substitute goods gives the firms an incentive to raise the price of both goods, since a higher price for a product raises the demand for its substitutes.²⁸ Consequently, not only does the joint ownership of wireline and wireless

²³ *Id.*

²⁴ iViewResearch, *iViewResearch e-Business Statistics Report*, May 2, 2002 (p. 5) (market share of subscribers are Verizon Wireless 29.4%, Cingular 19.8%, AT&T Wireless 18.9%, Sprint PCS 13.4%, Nextel 9.6%, and T-Mobile 9.0%).

²⁵ Tom Giles and Angus Whitley, *Cingular Parents to Buy AT&T Wireless for \$41 Billion*, BLOOMBERG NEWS (17 February 2004).

²⁶ The BOCs' share alone (excluding Sprint), after the Cingular acquisition, will be over 70%. See, e.g., Jennifer Mears, *Wireless carrier market prime for consolidation*, NETWORK WORLD (September 2, 2002); Peter J. Howe, *New Chief Executive of Sprint PCS Discusses Need for Industry Consolidation*, THE BOSTON GLOBE (November 11, 2002).

²⁷ *More Callers Cut off Second Phone Lines for Cellphones, Cable Modems*, WALL STREET JOURNAL B1 (November 15 2001) (quoting Duane Ackerman); see also *A Wireless World*, BUSINESS WEEK (October 20, 2003) (quoting SBC president Ed Whitacre as conceding that wireless is "not going to displace the wireline network. It's certainly going to be a big product, but it's never going to be the substitute. Reliability is one reason.").

²⁸ J. Tirole, *THE THEORY OF INDUSTRIAL ORGANIZATION* (1995) at 70. See also PHOENIX CENTER POLICY BULLETIN No. 11, *Higher Prices Expected from the Cingular/AT&T Wireless Merger* (forthcoming Spring 2004) (showing that wireless rates are likely to rise as the result of the proposed acquisition of AT&T Wireless by Cingular Wireless). In addition to the cross-service ownership, high concentration in both the wireline and wireless industries facilitates such "collusive" pricing across the two services.

services reduce the potential for intermodal competition, but it provides an incentive to raise the price of both services.²⁹ *In light of the existing and emerging industry structure in wireline and wireless telephone services, perhaps intermodal collusion rather than intermodal competition is a more accurate description of how the two services are related.*³⁰

IV. Conclusion

Using the standard tools of market definition from antitrust economics and academic empirical work on wireline and wireless services, we conclude that wireline service is a market unto itself and mobile telephony does not, today, offer an effective constraint on market power in the wireline industry. In other words, economic analysis suggests that a hypothetical wireline monopoly could impose a “small but significant and non-transitory increase in price.” We are able to reach this conclusion despite limiting our analysis to the wireline service many believe faces the greatest risk of substitution with mobile telephony (*i.e.*, residential second lines). Thus, we confidently conclude that wireless is not an effective intermodal competitor for wireline telephone services.

Our finding is consistent with that of the FCC in its recent *Triennial Review Order*, where the agency concluded that:

... despite evidence demonstrating that narrowband local services are widely available through CMRS providers, wireless is not yet a suitable substitute for local circuit switching. In particular, only about three to five percent of CMRS subscribers use their service as a replacement for primary fixed voice wireline service, which indicates that wireless switches do not yet act broadly as an intermodal replacement for traditional wireline circuit switches. Lastly, the record demonstrates that wireless CMRS connections in general do not yet equal

²⁹ Equally as important, not only will the BOCs resist cannibalizing their wireline services, but the repeated interactions among few firms increases the potential for collusion. See B. D. Bernheim and M. D. Whinston, *Multimarket Contact and Collusive Behavior*, 21 RAND JOURNAL OF ECONOMICS 1990: 1-26; P. Parker and L. Roller, *Collusive Conduct in Duopolies: Multimarket Contact and Cross-Ownership in the Mobile Telephony Industry*” CEPR DISCUSSION PAPER 989 (1994); J. Scott, *Multimarket Contact Among Diversified Oligopolists* 9 INTERNATIONAL JOURNAL OF INDUSTRIAL ORGANIZATION 1991: 225-238.

³⁰ As shown by Tirole, *supra* n. 28, joint ownership of the substitute goods leads to a conscious increase in the price(s) of the service(s). To the extent they are substitutes, therefore, joint ownership of wireless and wireline services leads to explicit collusion.

traditional landline facilities in their quality and their ability to handle data traffic.³¹

We hope that the FCC's sentiment expressed here and the findings in this POLICY BULLETIN will redirect the attention of regulators now relying on intermodal competition to produce benefits for consumers toward more efficacious policies aimed at improving competition in the wireline industry.

³¹ *Review of the Section 251 Unbundling Obligations of Incumbent Local Exchange Carriers* (CC Docket No. 01-338), *Implementation of the Local Competition Provisions of the Telecommunications Act of 1996* (CC Docket No. 96-98), and *Deployment of Wireline Services Offering Advanced Telecommunications Capability* (CC Docket No. 98-147), Report and Order and Order on Remand and Further Notice of Proposed Rulemaking, FCC 03-36, ___ FCC Rcd ___ (rel. 21 August 2003) at ¶ 445; *see also*, the FCC's EIGHTH CMRS REPORT, where although the FCC recognized that wireless traffic (and corresponding revenues) continued to increase, the FCC still found that "only a small percent of wireless customers use their wireless phones as their only phone, and that relatively few wireless customers have "cut the cord" in the sense of canceling their subscription to wireline telephone service." *In the Matter of Implementation of Section 6002(b) of the Omnibus Budget Reconciliation Act of 1993 Annual Report and Analysis of Competitive Market Conditions With Respect to Commercial Mobile Services*, Eighth Report (rel. July 14, 2003) at ¶ 102 (http://hraunfoss.fcc.gov/edocs_public/attachmatch/FCC-03-150A1.pdf).

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