EXECUTIVE SUMMARY

Competition exists today in mobile voice services markets, and the competition is increasingly intense. Competition creates incentives for firms to improve their service qualities and lower their costs and prices, to the benefit of consumers. For the vast majority of telephone customers who subscribe to wireline service, however, the local exchange competition that was a central goal of the Telecommunications Act of 1996 has not developed. Although wireless services do not offer widespread competition to wireline services today, wireless technology has the potential to be a viable alternative that could provide the local exchange competition Congress envisioned.

The ability of any wireless service to fulfill its competitive promise, however, depends on having a regulatory framework and economic environment that are conducive to continued innovation and investment by wireless carriers to develop service offerings competitive with wireline technology in the provision of local exchange telephone services.

Based on a study of 52 wireless markets conducted by PricewaterhouseCoopers, LLP, this paper documents the fact that local, state, and federal governments impose taxes and fees on wireless service providers that significantly decrease their revenues or raise their costs. Along with other regulatory burdens that elevate wireless service costs, these taxes and fees inflate wireless service prices to the detriment of consumers. More important, the consequent reductions in innovation and investment incentives reduce the speed with which meaningful local exchange competition can be expected to develop.

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I. INTRODUCTION

For decades public policy sought to limit local services competition on the grounds that incumbent providers needed protection from competition in return for their providing universal service. The Telecommunications Act of 1996 (the 1996 Act)[1] marks a decisive break from this policy. The 1996 Act reflects policy makers' recognition that local services competition will benefit consumers through lower costs and prices, and increased innovation and quality. More importantly, the 1996 Act takes a number of steps to make local services competition a reality.

Unfortunately, while competition is prevalent in wireless services, the competitive vision of the 1996 Act has not yet reached wireline local exchange services. Mobile voice service, such as that provided by personal communications services (PCS), cellular, and enhanced special mobile radio service carriers is the only form of local telephone service for which residential and small business users benefit from widespread competition. Unlike the markets for wireline local exchange services, there are multiple mobile service providers in almost all geographic markets. As Commissioner Harold Furchtgott-Roth pointed out in a recent speech, seven facilities-based carriers provide wireless voice service in the Orlando, Florida area and another is scheduled to begin service in mid-October.[2] Moreover, the Federal Communications Commission's (the Commission) *Third Annual CMRS Competition Report* reports that 87 percent of the nation's population have three or more operators

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1 Telecommunications Act of 1996, Pub. L. No. 104-104, 110 Stat. 56 (1996). The 1996 Act amends the Communications Act of 1934, 47 U.S.C. §§ 151 et. seq.

2 Remarks of Commissioner Harold W. Furchtgott-Roth before the Personal Communications Industry Association's Annual Trade Show, PCS '98 at Orlando, FL, September 24, 1998, based on data compiled by Telecompetition, Inc. on September 18, 1998.

providing Commercial Mobile Radio Services (CMRS).[3] As additional spectrum has become available for mobile voice services, a variety of providers are investing billions of dollars to compete. The evidence clearly shows that competition in wireless markets is working. Wireless providers today offer important services that fulfill strong consumer demands for mobility, flexibility, and functionality. Service penetration rates and quality continue to increase, while prices continue to decrease. In summary, mobile voice services are a telecommunications policy and competition success story.

The emergence of competition for wireline local exchange services has been far less forthcoming. Residential customers of wireline local exchange carriers, in particular, have seen few benefits to date from the local competition provisions of the 1996 Act. In part, this is because potential wireline competitors have not targeted these consumers. Some question whether they ever will. Bernie Ebbers, WorldCom's Chairman and CEO, has stated that "Not AT&T, not MFS or anyone else, is going to build local telephone facilities to residential customers. Nobody ever will in my opinion."[4]

Wireline providers are unwilling to build facilities where it is not profitable to do so. And it is not generally profitable to build wireline facilities to residential, small business, and rural consumers that duplicate the existing, sunk network investment in local loops. Because wireless local loop service may alter that profitability evaluation, however, it offers hope for facilities-based competition to residential, small business and rural customers. Constantly

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[3] *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*, Third Report, FCC 98-91, released June 11, 1998 (*Third Annual CMRS Competition Report)* at 18. The *Report* identifies approximately 273 Basic Trading Areas (BTAs) as having three or more mobile telephone operators offering service and at least three mobile telephone providers in each of the 50 largest BTAs and 97 of the 100 largest BTAs. The 135 BTAs with four or more wireless providers cover more than 68 percent of the nation's population. *Id.*

improving wireless technologies have the potential to meet the demand for low-usage and economical local loop service—if public policy allows it.

The success of mobile voice and the potential of wireless local loop service are challenged by federal, state and local government assessments and regulatory policies, including sector-specific taxes, costly regulatory requirements, and the lack of competitive neutrality in subsidy policies. As the Commission has recognized, there is a trend toward state and local governments' imposing taxes and fees specifically on telecommunications carriers.[5] These policies raise the costs of wireless services paid by end users, suppressing demand and reducing consumer welfare. Further, these policies reduce the incentives of wireless providers to make the investments needed to compete head-to-head with wireline services, thus limiting consumer choice and again reducing consumer welfare. This paper addresses these issues, describing the benefits competition brings to consumers and analyzing the burdens imposed by government taxes and fees.

II. COMPETITION IS A REALITY IN WIRELESS MARKETS

A. Economic logic and practical experience demonstrate that competition is good for consumers.

Competition is good for consumers because it spurs service quality improvements, leads to innovations which increase quality and reduce costs, and induces firms to develop new service offerings. Competition also diminishes or eliminates the need for regulation, which provides additional benefits in the form of reduced administrative and compliance costs and greater flexibility to experiment with rate structures and service bundles. The

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4 Mike Mills, "Hanging Up on Competition?," *Washington Post,* June 1, 1997 at H1.

5 *Third Annual CMRS Competition Report* at 35.

benefits of competitive markets are clearly demonstrated by practical experience in the markets for customer premises equipment and long distance services, where competition has yielded substantial welfare gains. In local exchange markets, where regulatory strictures have limited competition for decades, the potential gains from competitive markets are predictably large.

The virtues of competition and deregulation have been recognized by Congress and the Commission alike. The central goal of the 1996 Act is

> to provide for a pro-competitive de-regulatory national policy framework designed to accelerate rapidly private sector deployment of advanced telecommunications and information technologies and services to all Americans by opening all telecommunications markets to competition.[6]

Similarly, the Commission has stated that

> [i]n the end, consumers will benefit greatly by the removal of market barriers allowing firms the opportunity for full and fair competition in both the local and long distance markets on the basis of price, quality of service, and technological innovation.[7]

As both Congress and the Commission recognized in making these statements, the success of competition lies in reducing public policy barriers; competition will be "full and fair" only if public policies are not an obstacle.

B. The competitive landscape in wireless markets.

Customer premises equipment and long distance services are not the only areas in which telecommunications competition has brought consumer benefits. Mobile voice is a

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6 Conference Report on the 1996 Telecommunications Act at 1.

7 *In the Matter of Application of Ameritech Michigan Pursuant to Section 271 of the Communications Act of 1934, as amended, To Provide in-Region, InterLATA Services in Michigan*, CC Docket No. 97-137, (*Ameritech Michigan 271 Application) Memorandum of Opinion and Order*, FCC 97-298, released August 19, 1997 at 20.

competition success story: there are now multiple wireless competitors in every major market, investment in mobile facilities is increasing, and wireless prices are decreasing.

Wireless competition began with the Commission's granting of two cellular licenses in every major market in the early 1980s.[8] In 1993, this cellular duopoly faced its first competition when Fleet Call (now Nextel) began to market a mobile telephone service using its specialized mobile radio (SMR) spectrum.[9] Nextel now uses its SMR licenses to provide service nationwide.[10] The Commission's spectrum auctions for broadband PCS dramatically increased the potential for vigorous competition in the wireless industry. Since 1994, the Commission has auctioned off 120 MHz of bandwidth to be used for licensed broadband PCS. Those auctions significantly increased the number of actual and potential mobile voice competitors in every market in the country. Already, PCS is a significant competitive force: service is being offered by PCS licensees in at least 78 of the 102 Block A and B licenses.[11] Merrill Lynch reports that, as of March 1998, 89 of the nation's top 100 metropolitan areas have at least one PCS service provider.[12] Sprint PCS alone is already offering service in over 150 metropolitan areas, a geographic region which includes more than 4000 cities and communities across the country.[13]

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8 *Annual Report and Analysis of Competitive Market Conditions with Respect to Commercial Mobile Services*, First Report, FCC 95-317, released August 18, 1995 (*First Annual CMRS Competition Report)* at ¶3.

9 *Third Annual CMRS Competition Report* at 36. See also Robert Crandall and Leonard Waverman, *Talk is Cheap*, The Brookings Institution, 1995 at 225.

10 *Id.*

11 Based on data taken from *Wireless Week Online* and *Wireless Outpost*. Available at http://www.wirelessweek.com and http://www.wirelessoutpost.com.

12 Linda Runyon, Paul Wuh, and Mark Kinarney, *The Next Generation II: Wireless in the U.S*, Merrill Lynch, March 10, 1998 at 39.

13 Sprint web site. Available at http://www.sprintpcs.com/Info/index.html.

In the words of Commission Chairman William Kennard, "Those auctions in 1995 and 1996 instantly created new competitors. Cellular duopoly? No such thing anymore. Competition? We now routinely have four or five wireless companies in every major city in America."[14] Indeed, each of the fifteen largest markets (by population) in the country currently offers five or more options for wireless communication,[15] and satellite-based competitors may provide additional competition in the future.

The race to bring new PCS offerings on-line has triggered an explosion in wireless investment and market penetration. Between December 1995 and December 1996, cumulative capital investment in wireless infrastructure increased by 35 percent to over $32.5 billion and the number of wireless customers grew by 30 percent.[16] Merrill Lynch estimates that approximately 11 million cellular and PCS "lines" were added in 1997, compared to only 6.7 million land lines.[17] By the end of 1997, there were more than 56 million cellular and PCS subscribers in the U.S., up from 11 million only 5 years earlier.[18]

The increased competition is evident in consumer behavior. In a recent survey, 58 percent of respondents said they considered more than one service provider before making a

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14 Remarks by William E. Kennard, Chairman Federal Communications Commission to WIRELESS 98, Atlanta, Georgia. February 23, 1998. Available at http://www.fcc.gov.

15 Based on data taken from *Wireless Week Online*, *Wireless Outpost* and the Nextel web site. Available at http://www.wirelessweek.com, http://www.wirelessoutpost.com and http://www.nextel.com/coverage/national.shtml respectively.

16 *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*, Second Report, FCC 97-75 (*Second Annual CMRS Competition Report)* Executive Summary and at 4.

17 Linda Runyon, Paul Wuh, and Mark Kinarney, *The Next Generation II: Wireless in the U.S*, Merrill Lynch, March 10, 1998 at 34.

18 See Mike Mills, "Obstacles on the Cell Phone Course? 'Caller Pays' System Lifts Usage Abroad, but Faces Hurdles in U.S.," *Washington Post*, April 3, 1998 at D1, citing data from the Strategis Group.

final selection.[19] According to a 1997 study by Andersen Consulting, wireless churn (or customer turnover) rates in the United States averaged 30 percent annually as consumers shopped among service providers.[20] The study finds evidence to suggest that churn rates will be pushed beyond 40 percent in the near future. These figures confirm what any quick glance at the television or newspaper suggests: active price and product competition exists among wireless companies. Competition and technological innovation have led to numerous new features including caller ID, call waiting, voice mail, and messaging services. A customer desiring mobile phone service can choose cellular or PCS service from among several carriers, as well as select from a variety of rate plans and vertical features.

The increased competition has also resulted in measurable benefits to consumers, most notably in the rapid decline of wireless prices. A Bear Stearns & Company study comparing year-end prices for 1996 and 1997 found that the median price per minute had dropped between 30 and 40 percent for residential users and between 30 and 50 percent for business users.[21] Part of the reason for the wireless price decreases stems from PCS providers' entering the wireless markets. Citing a Yankee Group study, the Commission stated that in markets where at least one PCS operator is providing service, the average combined rates for cellular and PCS are between 15 and 18 percent below cellular rates in markets where no broadband PCS operator is competing.[22] Reports also indicate that prices

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19 Kristen Beckman, "Consumers picked up on PCS competition," *RCR*, March 6, 1998.

20 Cam Granstra, "Loss of Wireless Customers Reaching Epidemic Proportions, According to Andersen Consulting Study," Andersen Consulting press release, August 18, 1997.

21 *Third Annual CMRS Competition Report* at 21 (citing David A. Freedman and Gregory H. Lundberg, *Untethered Stories & Stats*, Equity Research - Wireless Communications, Bear Stearns & Co., Inc. at 1).

22 *Third Annual CMRS Competition Report* at 20 (citing The Yankee Group, *Competition Begins to Have an Impact on Wireless Pricing*, April 18, 1997, YankeeWatch: MobileFLASH at 1).

for mobile telephone service have been decreasing over time. For example, Robinson-Humphrey found that during the second quarter of 1998 alone wireless prices decreased between 4.6 and 8.2 percent.[23] In short, competition in wireless markets is a reality and is continuing to intensify.

III. WIRELESS SERVICES HAVE THE POTENTIAL TO BRING ADDITIONAL COMPETITION TO LOCAL EXCHANGE MARKETS

The competitive nature of wireless markets stands in stark contrast to the situation in wireline local exchange markets, where competition is almost non-existent for the vast majority of consumers. Although wireless services do not offer widespread competition to wireline services today, wireless technology has certain advantages that give it the potential to be a viable commercial alternative to wireline service in the future. With the proper public policy environment, wireless services could provide the local exchange competition Congress envisioned in passing the 1996 Act.

A. The hoped-for explosion in wireline local exchange competition has not happened.

Despite various providers' stated intentions to the contrary, the explosion in local wireline competition contemplated by the 1996 Act has not happened. The major long-distance companies have scaled back or frozen their initially-ambitious plans to enter local

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23 Cited in Lynette Luna, "Consolidation, cash flow & competition concern industry," *RCR*, July 22, 1998. Prior reports from Robinson-Humphrey show quarterly price declines of between 6.1 and 10 percent in the fourth quarter of 1997 and between 0.8 and 1.6 percent in the first quarter of 1998. Perry Walter, "PCS Versus Cellular: A Quarterly Survey of Wireless Pricing in Markets Where PCS Operators have begun Service," *The Robinson-Humphrey Company, LLC*, January 9, 1998 at 7; Perry Walter, *et al.*, PCS Versus Cellular: Qtly Survey Of Wireless Pricing," *The Robinson-Humphrey Company, LLC*, March 27, 1998 at 11.

markets, citing poor profitability.[24] Cable companies have also pulled back on their highly-touted plans,[25] and industry analysts have asserted that "there is no business case for cable telephony."[26]

Available market share data provide additional evidence of the limited extent of wireline competition.[27] The U.S. Department of Justice (Justice Department) found that the incumbent carrier's share of access lines exceeded 98.5 percent in each of the first four states in which an incumbent local exchange carrier filed a Section 271 application for long distance authority.[28] For example, the Justice Department found that Southwestern Bell's

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24 In January of this year, MCI President Timothy Price announced that "as long as the current regulatory environment continues, MCI will not offer resale service to any new residential customers." See January 22, 1998 MCI Press release, available at http://www.mci.com. This was soon followed by an announcement from AT&T's chairman Michael Armstrong that "the company has halted its efforts on the total services resale (TSR) method of local service entry but will continue to support its current local customers....TSR discounts are not big enough to make it an economically viable way for AT&T to provide local service." See AT&T Press release, January 26, 1998, available at http://www.att.com. AT&T apparently is still working on its wireless local exchange plans.

25 TCI, for example dropped its cable telephony plans. See "TCI Drops Telephony Bombshell," Cable Business International, January 1997 at 31; Mark Robichaux, "Bad Call: Malone Says TCI Push into Phones, Internet Isn't Working for Now," *Wall Street Journal*, January 2, 1997, page A1; and Jon Van, "TCI's Cable Phone on Hold," *Chicago Tribune*, August 26, 1998, p. B1. Time Warner also suspended its cable telephony plans. See Stephan Somogyi, "Sages or Stooges?," Upside, June 1997 9(6) at 62-68. It is too early to tell whether the proposed AT&T-TCI merger will reinvigorate efforts to offer telephony over cable TV plant. See Leslie Cauley, "TCI, AT&T Look to Enter Partnerships With Cable-TV Firms on Phone Service," *Wall Street Journal*, September 24, 1998 at B14.

26 David Roddy, chief telecommunications economist at Deloitte and Touche Consulting Group in Atlanta, as quoted in Stephan Somogyi, "Sages or Stooges?," Upside, June 1997 9(6) at 62-68. A report prepared for MCI by Hatfield Associates found that even with optimistic assumptions regarding network development costs, operating costs, market penetration and revenue growth, the business case for cable telephony in the short run is weak. "The Enduring Local Bottleneck II," Hatfield Associates, Inc., April 30, 1997 at 41-43.

27 While a full competitive analysis must take into account more than market share, the extremely high market shares possessed by incumbent local exchange carriers are indicative of their market power. Moreover, as discussed above, potential competitors have found entry to be difficult.

28 BellSouth's share of local access lines was 99.8 percent in South Carolina and 99.61 percent in Louisiana. For South Carolina see *In the Matter of Application by BellSouth Telecommunications, Inc., and BellSouth Long Distance, Inc. for Provision of In-Region, InterLATA Services in South Carolina*, CC Docket No. 97-208, Evaluation of the United States Department of Justice, filed November 4, 1997 at B3. For Louisiana see *In the Matter of Application by BellSouth Telecommunications, Inc., and BellSouth Long Distance, Inc. for Provision of In-Region, InterLATA Services in Louisiana*, CC

"market share in Oklahoma is so near 100 percent as to be practically indistinguishable from a complete monopoly."[29] Moreover, even the 1.5 percent share for competitive local exchange carriers overstates the options available to most residential subscribers—competitive carriers' access lines are highly concentrated in urban areas and are primarily connected to large commercial buildings. In short, competition is not a reality for the vast majority of residential subscribers to wireline local exchange services.

B. Wireless cost advantages.

Wireless service may, in the near future, be able to provide competition to wireline local exchange service for residential customers. Because wireless technology has a different cost structure than wireline technology, there are some situations in which wireless technologies are better suited to provide local exchange service than are wireline technologies.

One cost characteristic of wireless local loops that allows them to be provided at lower cost than wireline loops in some service areas, including rural areas, areas with difficult terrain, and new residential housing developments, is that wireless infrastructure costs do not vary with loop length.[30] Because of this cost advantage, wireless service today is frequently the least-cost technology in sparsely populated regions. The cost difference can

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Docket No. 97-231, Evaluation of the United States Department of Justice, filed December 10, 1997 at B3. Michigan was little better, with an aggregate market share for CLEC's falling between 1.2 percent and 1.5 percent. See *Ameritech Michigan 271 Application*, Evaluation of the United States Department of Justice, filed June 25, 1997 at B3. Resold lines were included in the competing local exchange carriers' share for these calculations.

29 *In the Matter of Application by SBC Communications Inc., Pursuant to Section 271 of the Communications Act of 1934, as amended, To Provide In-Region, InterLATA Services in Oklahoma*, CC Docket No. 97-121, Evaluation of the United States Department of Justice, filed May 16, 1997 at 52.

30 David Gabel and Mark Kennet, "The effect of cellular service on the cost structure of a land-based telephone network," *Telecommunications Policy*, 21(5) at 411-422.

be enormous. For example, Dubois Telephone estimated that it would cost $63,000 to upgrade service to twenty-one customers in a remote area using wireless technology, while the cost for a comparable wireline system upgrade would be $450,000.[31]

Although it is difficult to gauge precisely how many loops are least expensively served by wireless technologies, the number is certainly substantial. Estimates of the costs of wireless local loop systems range from about $500 to $1,500 per customer.[32] Advanced Micro Devices estimates that, at about $1,000 per customer, wireless local loop is more cost-effective than wireline for at least 20 percent of the service lines deployed in a typical network.[33] Similarly, Crandall and Waverman estimate that wireless service would be price competitive with unsubsidized wireline service in about 25 percent of U.S. loops.[34] US West has stated that it sees wireless local loop as the access technology of choice for reaching customers in rural areas or new residential housing developments lacking in wireline infrastructure.[35]

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31 Testimony of Michael Kenney, plant supervisor and engineering manager for Dubois Telephone, before the Wyoming Public Service Commission. See *In the Matter of the Application of Dubois Telephone Exchange, Inc., for Authority to Increase its Rates for Local Telephone and Switched Access Services*, Docket No. 70007-TR-95-15, *Final Order*, Issued June 30, 1997. Available at http://www.psc.state.wy.us.

32 The Nortel/Ionica system, currently being installed in Great Britain, has an installed cost of less than $1000 per subscriber, not including tower and site costs. See David Trinkwon, "Technology of Fixed Wireless Access," presented at the Columbia Institute for Tele-Information on October 30, 1996. Available at www.ctr.columbia.edu. An Office of Technology Assessment study found that wireless local loop costs $800-$1200 per subscriber. See Congress of the United States, Office of Technology Assessment, "Wireless Technologies and the National Information Infrastructure", OTA-ITC-622 at 216-17. Western Wireless is sponsoring and preparing to submit to the Commission a forward-looking wireless cost model. Letter from Michelle C. Farquhar, Counsel for Western Wireless, to Magalie Roman Salas, Secretary, Federal Communications Commission, dated August 13, 1998.

33 "Wireless Local Loop Tutorial," International Engineering Consortium Web Proforums. Available at http://www.webproforum.com.

34 Robert W. Crandall and Leonard Waverman, *Talk is Cheap*, The Brookings Institution, Washington D.C., 1995 at 234.

35 Paul Rubin, "Air Apparent," *Tele.com*, July 1997. Available at http://www.teledotcom.com.

Wireless local loop technology has a second cost characteristic that makes it particularly attractive for new entrants into existing local exchange carrier service areas. Competitive local exchange carriers will likely have to build out their systems before developing large subscriber bases. A competitive carrier can anticipate a low market share and therefore a sparse subscriber population for several years even if the service area is densely populated. Compared to wireline technology, barriers to entry for wireless local loop technology are significantly reduced because a large portion of the wireless network infrastructure need not be deployed until customers are signed up. Northern Telecom, for example, has found that thirty to seventy percent of wireless per-subscriber infrastructure costs are not incurred until a customer is connected to the network.[36] This marketplace reality means that wireless technology may well be the least-cost entry option in a large portion of the country's service areas. Compounding this benefit is the fact that wireless technology imposes relatively low sunk investment costs on entrants, limiting their risk in the event of failure. By increasing the attractiveness of entry, wireless technologies increase the likelihood of entry and the strength of competition, to the benefit of consumers.

It also is important to recognize that rapid technological advances in radio electronics are lowering costs and thus improving the potential competitive position of wireless services.[37] Wireless costs have been trending downward relative to wireline costs.[38] Thus,

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36 David Trinkwon, "Technology of Fixed Wireless Access," presented at the Columbia Institute for Tele-Information on October 30, 1996 at 14. Available at http://www.ctr.columbia.edu. See also, *In the Matter of Federal State Joint Board on Universal Service Forward-Looking Mechanism for High Cost Support for Non-Rural LECs*, CC Docket Nos. 96-45 and 97-160, *Comments of Northern Telecom, Inc.*, September 24, 1997 at 5. Northern Telecom estimates that initial fixed costs vary with subscriber density from $5 to $1000 per home covered and connection costs vary from $400 to $1500 per line connected.

37 Rob Frieden, "Business, Legal, Regulatory and Spectrum Challenges to Widespread Deployment of Wireless Telephony." Available at http://www.ctr.columbia.edu.

the potential scope for cost-effective provision of wireless service—and meaningful local exchange competition—is increasing over time. It follows that there is a strong public interest in ensuring that regulatory and tax policies do not discourage continued innovation and investment.

C. Wireless service is potentially competitive with incumbent local exchange carriers for residential service.

Consumer choice is based on more than costs. As they continue to improve, wireless technologies can provide a competitive combination of cost, voice quality, data transmission capability, and reliability to residential customers in the smaller cities, towns, suburban and rural or remote areas. That competition is likely to come in two forms initially. First, there will be some limited, direct competition to replace incumbent local exchange carrier service. Such direct competition will probably occur first where the incumbent local exchange carrier is slow to provision new loops and upgrade existing loops that are in need of repair or otherwise has a record of poor service provision. One example of this opportunistic entry strategy is occurring in Puerto Rico, where Centennial Telephone, taking advantage of long waits for service from the incumbent, has been successfully offering wireless local loop service with its PCS license.[39] Three additional PCS licensees have announced plans to offer wireless local loop services in direct competition with the wireline incumbent. The largest of

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38 "Wireless Local Loop Tutorial," International Engineering Consortium Web Proforums citing a study by Herschel Shosteck Associates, Inc. Available at http://www.webproforum.com.

39 Elizabeth V. Mooney, "Centennial forges ahead in Puerto Rico and U.S. markets," *RCR*, February 17, 1998. Available at www.rcrnews.com.

the three, 21st Century Telesis, intends to install wireless local loop systems in its twenty-seven PCS markets covering nearly eight million people.[40]

The most widely publicized example of an effort to compete directly with incumbent local exchange carriers for residential customers using wireless service was AT&T's announcement in February 1997 that it intended to deploy a wireless local loop system beginning in 1998.[41] That planned deployment is now delayed, as AT&T recently stated that, although the system performed well in recent trials, it is being taken back to the lab for additional cost-reduction development work.[42]

Finally, the Commission recently auctioned 864 licenses to 1300 MHz of local multipoint distribution services (LMDS) spectrum.[43] These newly licensed LMDS carriers will have the bandwidth to provide local loop service bundled with other services, such as high-speed Internet access and video.

A second form of wireless competition for local exchange revenues is also beginning to occur for certain services, such as second and third lines, where *mobile* wireless service can be a good substitute for wireline service.[44] Today, mobile voice service generally is not priced competitively with basic wireline service for a consumer with a high volume of calling

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40 "21st Century Telesis Signs with Hughes Network Systems for World's First Commercial PACS Network," *PRNewswire*, April 2, 1998. The other two licensees are GCI Communications and Windkeeper Communications, with licenses for Anchorage, Alaska and the U.S. Virgin Islands, respectively.

41 J. Keller, "AT&T Unveils New Wireless System Linking Home Phones to Its Network," *Wall Street Journal*, February 26, 1997 at B3.

42 *Wireless Week Online*, February 24, 1998, quoting AT&T President John Zeglis. Available at www.wirelessweek.com. The project is apparently still under consideration at AT&T as one of several potential methods for local service entry. See also the June 1998 issue of *tele.com*. Available at http://www.teledotcom.com.

43 *LMDS Auction Closes*, FCC Public Notice DA 98-572, released March 26, 1998. See also *Local Multipoint Distribution Service Auction*, FCC Fact Sheet, released March 25, 1998.

44 *Second Annual CMRS Competition Report* at ¶53-56.

from a fixed site to nearby end users. But some customers are willing to pay a premium for mobility and extended area calling.[45] In addition, wireless providers typically offer packages containing vertical services such as caller ID, paging, and voice-mail in addition to access, so that on a bundled basis wireless prices are approaching wireline levels for customers with specific calling patterns.[46] Much of the wireline substitution occurring today is likely usage that might otherwise have gone to second lines. This trend is expected to continue. George Schmitt, president of Omnipoint Communications, says "If you are asking [whether] I am going to be able to take over Nynex in Manhattan, the answer is, 'No, not in the near term.' But I may be able to convince a lot of people that some of their lines could be wireless."[47]

A significant limitation on the extent of competition between mobile wireless service and local exchange service has historically been the per-minute charges for air time.[48] This constraint is beginning to disappear in markets where PCS providers have begun to offer high-volume service options with prices significantly under 10 cents per minute.[49] Perhaps the most striking example of this trend is WirelessNorth, which offers unlimited local calling

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45 For anecdotal evidence, see Roy Furchgott, "Cutting the Cord," *The New York Times*, September 17, 1998, p. G1.

46 *In the Matter of Second Application by BellSouth Corporation, BellSouth Telecommunications, Inc., and BellSouth Long Distance, Inc., for Provision of In-Region, InterLATA Services in Louisiana*, Affidavit of Anirudda Banerjee, CC Docket No. 98-121. See also, Declaration of Carl Shapiro and John Hayes on Behalf of Sprint, filed August 4, 1998 in the same proceeding.

47 As quoted in Paul Shultz, "A Brief Overview of PCS." Available at http://www.ntca.org.

48 To date, mobile wireless service has been further limited in its ability to substitute for basic telephone service by its relatively low data transmission rates, lower voice quality, and the fact that wireless customers pay for both incoming and outgoing calls.

49 See "PCS Versus Cellular: A Quarterly Survey of Wireless Pricing in Markets where PCS Operators have Begun Service," The Robinson-Humphrey Company, LLC, January 9, 1998. Some examples of promotional rates offered are: (1) GTE Wireless offers 5 cents per minute airtime charges on some volume PCS plans; (2) Western Wireless offers 900 minutes, 400 mid-week plus 500 weekend for $49.95 and 1300 minutes, 800 mid-week plus 500 weekend, for $79.95; (3) Sprint offers 1400 minutes, 400 mid-week plus 1000 weekend, for $60 and 1800 minutes, 800 mid-week plus 1000 weekend, for $90. See http://www.wirelessoutpost.com. A typical residential customer uses his or her wireline phone about 900 minutes per month. See Crandall and Waverman, *Talk is Cheap* at 230.

on its mobile wireless system in Fargo, North Dakota for $75 per month.[50] These prices still are significantly higher than comparable wireline service prices, however, and are attractive only where wireless services offer non-price benefits over wireline, such as mobility or the absence of the need to install inside wiring.

Wireless services are widely recognized and accepted by communications consumers, but they have not yet been offered at prices that make them competitive with wireline local exchange services for the vast majority of consumers. Survey results show that 42 percent of Americans would switch to mobile phone service if the price were comparable to wireline residential service.[51] As technological innovations continue to reduce costs, wireless providers will be in an increasingly strong position to compete in local exchange markets. However, technology is not the only driver of costs. As we discuss below, a variety of federal, state, and local policies influence costs by imposing taxes, fees, and regulatory burdens. Moreover, these policies adversely affect the incentives for firms to invest in continued cost reductions.

IV. TAX AND FEE SURVEY

The ability of wireless services to fulfill their competitive promise depends upon the regulatory framework under which carriers operate. The prices that consumers pay are increased, and competition is weakened and distorted, by regulatory policies that unnecessarily raise wireless costs or create artificial competitive advantages for wireline carriers. In this section, we present the results of a PricewaterhouseCoopers survey of taxes

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50 Jason Meyers, "Leading the Charge: WirelessNorth Unveils Flat-Rate Offering," *Telephony*, February 2, 1998.

51 *InsidePCIA*, Vol. 1, Issue 4 (July 1998) at 1. See also Lynette Luna, "WLL is vision for future, but remains slow to become reality," *RCR*, September 29, 1997.

and fees levied on wireless services at both the state and local level. We then analyze generally the effects of the many fees, taxes and assessments levied on wireless carriers. Both the survey and our analysis focus on the explicit burden imposed by these taxes and fees. However, it should be noted that carriers incur significant additional costs to comply with the widely varying taxes and fees across jurisdictions, and we have not attempted to quantify these compliance costs.

The fees, taxes, and assessments levied on the wireless industry take many forms. The lengthy list of local, state, and federal taxes and other assessments that wireless carriers face sum to a substantial burden that ultimately raises prices to consumers. As we demonstrate below, the variety of taxes and other assessments applied to wireless services can easily claim more than 20 percent of the carrier's annual intrastate revenues, and these taxes are in addition to the state and federal corporate income taxes that wireless carriers must pay.

A. Survey results.

At the request of PCIA, PricewaterhouseCoopers recently conducted a comprehensive study of the state and local tax burden on the wireless industry. The PricewaterhouseCoopers survey, attached as Appendix A to this report, includes detailed data on corporate income taxes, sales/use taxes, gross receipts taxes, property taxes, franchise taxes, lease taxes, business occupational/license taxes and fees, universal service fund fees, TDD/TDS fees, 911 fees, antenna/permit fees, recording and transfer fees, and public utility and utility user fees imposed on wireless carriers at state and local levels.

Table 1 summarizes the state and local taxes and fees imposed on wireless carriers that are readily quantifiable as either decreasing wireless carrier's net intrastate revenues or

increasing their costs. These taxes and fees include state and local public utility commission fees, business occupational/license fees, universal service taxes and assessments, 911 fees, sales and use taxes, and municipal special district and school district taxes.[52] The table shows the rates for these taxes and fees expressed as percentages of wireless intrastate revenues.[53] Table 1 also includes federal excise taxes and schools and libraries fund taxes in the reported totals for each metropolitan area. These federal taxes, which total 3.76 percent, are not separately reported in the table.

Table 1 does not include several taxes and fees covered by the PricewaterhouseCoopers survey whose effects on carriers revenues and costs are not readily quantifiable. The taxes and fees that Table 1 does not report include:

- state and local corporate income taxes;
- property taxes;
- recording and transfer fees;
- franchise taxes;
- lease taxes;
- incorporation registration fees; and
- antenna/permit fees.

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52 Some of these taxes and fees, such as certain universal service assessments and 911 fees, are used to establish funds that reimburse carriers for costs incurred to provide government-mandated services. We do not question the public interest in establishing these services. We include these taxes and fees in this study, however, to provide a comprehensive accounting of the financial burdens placed by policy makers on wireless service providers and their customers.

53 Some taxes and fees are assessed as a specific dollar amount per customer served rather than a percentage of revenues. We converted these fees to a percentage of revenues by assuming that a typical wireless customer spends $40 per month on service. See, for example, the "U.S. Cellular Market Forecast," by Herschel Shosteck Associates, Inc., in *1998 Wireless Market Portfolio, A Collection of Forecasts on the Wireless Industry*, compiled by the Personal Communications Industry Association, released September 1998. Other taxes and fees are assessed on gross income rather than revenues. We converted these taxes to a percentage of revenues by assuming that gross income is 35 percent of revenues. See *Third Annual CMRS Competition Report*, Table 7E. See also "Table 5: Projected Financial Model for a Typical Cellular Company," *The Wireless Communications Industry*, Donaldson, Lufkin and Jenrette, Spring 1998.

These taxes were not included in Table 1 because of the difficulties in quantifying their net effects on wireless carriers' revenues and costs and, therefore, on the carriers' pricing and investment incentives.[54]

In examining the taxes and fees reported in Table 1, five points are worth noting:

1. *The financial burdens are large.* The total federal, state and local tax burden on intrastate revenues exceeds twenty percent in some jurisdictions. By raising wireless carriers' costs, these taxes and fees raise wireless service prices.

2. *Assessment levels and policies vary widely across the tax jurisdictions.* This pattern confronts wireless providers who cross jurisdictional lines with a complicated set of burdens, which may be particularly challenging for new entrants. The revenue tax and fee burden ranges from 3.76 percent to 24.78 percent across the areas surveyed.

3. *Local governments are frequently responsible for a large portion of the total tax burden borne by wireless providers in a given area.* This pattern is a cause for potential concern for two reasons. First, it adds to the complexity noted in the previous point. Second, tax burdens in one locality may affect the availability and pricing of wireless services in neighboring jurisdictions when providers' service areas cross jurisdictions. These spillover effects can give rise to incentives to engage in "beggar thy neighbor" policies.

4. *Actual financial burdens are greater than those reported here.* As already noted, not all of the taxes and fees surveyed by PricewaterhouseCoopers are quantified in Table 1. For example, state and local property taxes are assessed on the reasonable value of a carrier's property. Likewise, recording and transfer fees are assessed on property values. Even though the tax or fee burden for an individual carrier is not quantifiable without knowing the base for the taxes and fees, carriers are obligated to pay these taxes and fees in addition to those summarized in Table 1.

5. *Future tax and fee burdens may well be greater than present ones.* Today, most states do not levy explicit charges on wireless carriers to support state universal service programs, but many have initiated that process. Early indications are that these state universal service taxes could be very substantial. The Kansas universal service program, which is currently being challenged in the courts, assesses wireless carriers

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[54] In some cases (*e.g.*, property taxes), a carrier-by-carrier analysis would be needed to determine the dollar amounts involved or to express the taxes as percentages of overall costs or revenues. In other cases (*e.g.*, corporate income taxes), the effects of the tax on a wireless carrier's pricing and investment decisions are sensitive to its particular financial situation and certain features of tax accounting.

at 7.33 percent of intrastate revenues.[55] If the Commission maintains its current policy of funding only 25 percent of its estimate of universal service costs, and if states move from implicit taxes (such as cross-subsidies among various wireline services) to explicit ones, the magnitudes of state universal service taxes can be expected to be large in many cases. Even if the Commission increases the federal percentage of the total burden, there is a threat that federal universal service taxes will increase but states will not reduce their universal service taxes commensurately.

B. Case studies

In this section, we examine the specific situations in six cities to illustrate the range of taxes that wireless providers face.

1. Los Angeles, California.

Los Angeles has the highest tax and fee burden of any metropolitan area in the PricewaterhouseCoopers survey. As reflected in Table 2, the readily quantifiable fees and taxes on intrastate revenues in Los Angeles total 24.78 percent. On the local level, wireless providers operating in Los Angeles must pay a 10 percent public utility fee on gross telecommunications revenues.[56] The State of California requires wireless carriers to contribute a total of 6.75 percent of intrastate revenues to four different universal service funds.[57] Wireless carriers must also pay a 0.11 percent tax to support the California Public

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55 From March 1, 1997 through March 1, 1998 the assessment was 9.89 percent. The assessment for March 1, 1998 until March 1, 1999 is 7.33 percent. See *In the Matter of a General Investigation into Competition within the Telecommunications Industry in the State of Kansas*, State Corporation Commission of the State of Kansas, Docket No. 190 , 492-U 94-GIMT-478-GIT, December 27, 1996. In August 1997 the Kansas Court of Appeals held that parts of the Kansas USF tax violate the Telecommunications Act of 1996. *Citizens' Utility Ratepayer Board et al. v. The State Corporation Commission of Kansas*, No. 78,548 (Kansas Court of Appeals 1997). In March 1998 the Kansas Supreme Court reversed the Court of Appeals decision and upheld the validity of the state commission's order in all respects. *Citizens' Utility Ratepayer Board et al. v. The State Corporation Commission of Kansas*, 956 F 2d 685 (Kansas 1998).

56 The Los Angeles local public utilities fee is assessed on both *intra*state and *inter*state revenues. See also, Jube Shiver, Jr., "Telecom Talk: Cell Phone Industry Calls on Uncle Sam for Tax Relief," *Los Angeles Times*, March 2, 1998, D7.

57 The California USF assessments are listed in California Public Utilities Commission, *Rulemaking on the Commission's Own Motion into Universal Service and to Comply with the Mandates of Assembly*

Utilities Commission, as well as a 0.05 percent TDD/TDS fee. In addition, they must contribute 0.72 percent of intrastate revenues to state funds for implementing E911. At the federal level, all telecommunications carriers in the U.S. must pay a three percent excise tax and a 0.76 percent schools and libraries fund tax on intrastate revenues.[58]

Bill 3642, Decision No. 96-10-066, October 25, 1996, Appendix E. Wireless carriers are eligible to receive subsidies in California if they satisfy certain service requirements that disadvantage wireless technologies. See section V.B below. The California Public Utilities Commission recently initiated a rulemaking to consider, among other things, whether to revise the Universal Lifeline Telephone Service (ULTS) program to foster competition in the provision of ULTS and competitive choices for ULTS customers.

58 The federal USF assessments are third quarter 1998 contribution factors as approved by the Commission, FCC Public Notice DA 98-1130, June 12, 1998. The federal excise tax and the schools and libraries fund tax are assessed on both *inter*state and *intra*state revenues. There are additional federal telecommunications taxes of 0.039 percent for telecommunications relay services and 3.14 percent for the federal high cost/low income fund which are assessed solely on interstate revenues. The federal high cost/low income fund assessment is projected to increase in fourth quarter 1998, to 3.18 percent of interstate revenues. See FCC Public Notice DA 98-1649, August 18, 1998.

TABLE 2: TAXES AND FEES ON INTRASTATE REVENUES IN LOS ANGELES, CALIFORNIA [59]

Policy Level	Fund/Tax	Assessment Amount
Local	Public Utility Fee	10.00%
	Business Occupation and License Tax	3.75%
State	High Cost Funds	3.14%
	TDD /TDS Fee	0.05%
	Universal Lifeline Fund	3.20%
	E911	0.72%
	Public Utility Commission Fee.	0.11%
	Teleconnect Fund	0.05%
Federal	Excise Tax	3.00%
	Schools & Libraries Fund	0.76%
Total		**24.78%**

In addition, as already noted, several state and local taxes and fees imposed on wireless carriers are not included in the Table 2 summary. For example, California imposes a 7.6 percent corporate income tax on those wireless carries earning income in the state. Wireless carriers operating in Los Angeles must also pay state and local property taxes,[60] and local antenna/permit fees.[61] Wireless carriers new to the Los Angeles area must pay a state

59 State USF assessments as listed in California Public Utilities Commission, *Rulemaking on the Commission's Own Motion into Universal Service and to Comply with the Mandates of Assembly Bill 3642*, Decision No. 96-10-066, , October 25, 1996, Appendix E. California reduced the Teleconnect Fund surcharge from 0.41 percent to 0.05 percent on August 1, 1998. Federal USF assessments are second quarter 1998 contribution factors as proposed by FCC, FCC Public Notice DA 98-413, February 27, 1998. The local Los Angeles tax is also assessed on interstate revenues.

60 The California property tax is not to exceed 1 percent of the "full cash value" of the property. PricewaterhouseCoopers State Survey at 6.

61 Los Angeles also imposes a Conditional Use Permit and an environmental fee. PricewaterhouseCoopers Local Survey at 12.

franchise tax,[62] and every time a carrier transfers property, it must pay a state recording and transfer fee.[63]

2. Miami, Florida.

As reflected in Table 3, the readily quantifiable fees and taxes on intrastate revenues in the City of Miami total 22.76 percent. On the local level, a wireless carrier must pay a 7 percent public utility fee on gross telecommunications revenues. The carrier is also subject to a state administered sales/use tax of 7 percent on intrastate revenues and must pay into a state universal service fund at a rate of up to 2.5 percent.[64] These taxes are in addition to the federal 3 percent excise tax and the 0.76 percent schools and libraries fund tax on intrastate revenues.

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62 For income years commencing after 1996, the minimum tax that must be prepaid by a qualified "new corporation" when it incorporates or qualifies to transact business in California is $600. PricewaterhouseCoopers State Survey at 6.

63 The tax rate is $0.55 for each $500 of value. PricewaterhouseCoopers State Survey at 6.

64 Florida law sets each carrier's share of the Universal Service Fund subsidy on their individual gross operating revenues (not to exceed 2.5 percent) during the previous six months. If individual carrier revenues are less than $10,000, then no contribution is due. PricewaterhouseCoopers State Survey at 16.

TABLE 3: TAXES AND FEES IN MIAMI, FLORIDA

Policy Level	Fund/Tax	Current Assessment
Local	Public Utility Fee	7.00%
State	Sales / Use Tax	7.00%
	Universal Service Fund	2.50%
	Gross Receipts Tax	2.50%
Federal	Excise Tax	3.00%
	Schools & Libraries Fund	0.76%
Total		**22.76%**

In addition, as already noted, there are state and local taxes and fees imposed on wireless carriers that are not included in the Table 3 summary. For example, wireless carriers earning income in Florida are subject to a 5.5 percent corporate income tax. Dade County also imposes local property taxes.[65]

3. Dallas, Texas.

As described in Table 4, the readily quantifiable fees and taxes on intrastate revenues in Dallas total 14.51 percent. Wireless service providers pay a combined rate of 2 percent in sales/use taxes on the local level[66] and 6.25 percent in sales/use taxes on the state level. Moreover, Texas assesses 1.25 percent on intrastate revenues at the state level for its Telecom Infrastructure Fund (TIF).[67] Similar to the federal school and library fund, the TIF assists schools, libraries and public healthcare facilities with acquiring computers,

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65 The Dade County property tax is assessed on 23.88 percent of "just property value." The applicable tax rates vary according to the life of the tangible property. Intangible personal property is subject to additional ad valorem taxation. PricewaterhouseCoopers Local Survey at 19.

66 The combined 2 percent tax rate consists of a 1 percent city sales tax and a 1 percent special district tax on telecom services that originate within Dallas or are charged to a billing address in Dallas. PricewaterhouseCoopers Local Survey at 65-66.

communications equipment, and Internet connectivity. Wireless carriers, although required to pay into this fund, are unlikely to receive any direct benefit from near-term TIF projects because they do not provide suitable data services. Wireless carriers in Dallas must also pay a state-imposed fee of 1.25 percent of intrastate revenues for implementing E911.

TABLE 4: TAXES AND FEES IN DALLAS, TEXAS

Policy Level	Fund/Tax	Assessment Amount
Local	Sales / Use City Tax	1.00%
	Sales / Use Special District Tax	1.00%
State	Telecom Infrastructure Fund	1.25%
	Sales / Use Tax	6.25%
	E911	1.25%
Federal	Excise Tax	3.00%
	Schools & Libraries Fund	0.76%
Total		**14.51%**

In addition, there are several state and local taxes and fees that wireless carriers must pay but are not included in the Table 5 summary. Wireless carriers operating in Dallas must pay state and local property taxes.[68] Texas also requires wireless carriers to pay a state franchise (capital stock) tax.[69] Finally, Texas levies a 4.25 percent corporate income tax imposed on wireless carriers earning income in the state.

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67 Antony Bruno, "Texas raises $64M from telecom fund," *RCR*, January 29, 1998.

68 The Texas property tax is assessed on the taxable property of a wireless telephone company by local tax districts such as counties, municipalities, school districts, and special districts. Most intangible personal property is exempt from taxation. PricewaterhouseCoopers Local Survey at 69.

69 The State of Texas imposes a tax of 0.25 percent per year of "privilege period" on net taxable capital and a tax of 4.5 percent on net taxable earned surplus. PricewaterhouseCoopers State Survey at 58.

4. *New York, New York.*

The readily quantifiable fees and taxes on intrastate revenues in New York City sum to 18.84 percent, as illustrated in Table 5. On the local level, wireless carriers are subject to a 4 percent sales/use tax and two gross receipts taxes at a combined effective rate of 0.82 percent.[70] On the state level, wireless carriers are subject to a 4.26 percent sales/use tax, as well as a state-administered 911 fee of 1.75 percent of intrastate revenues. The State of New York also requires wireless carriers to pay an additional gross receipts tax of 4.25 percent on telecommunications services.

TABLE 5: TAXES AND FEES IN NEW YORK, NEW YORK

Policy Level	Fund/Tax	Assessment Amount
Local	Sales / Use Tax	4.00%
	Gross Receipts Tax	0.82%
State	Sales / Use Tax	4.26%
	911 Fee	1.75%
	Gross Receipts Tax	4.25%
Federal	Excise Tax	3.00%
	Schools & Libraries Fund	0.76%
Total		**18.84%**

70 The locally administered gross receipts tax comprises two taxes on gross income: (1) 2.35 percent of the monthly gross operating income of vendors of utility services from intracity sales made or services rendered within New York City, and (2) a 1 percent utilities tax on the gross operating income from sales of utility services within the city. PricewaterhouseCoopers Local Survey at 50. These taxes were converted to a percentage of revenues using the assumption that gross operating income is 35 percent of revenues. See note 53 *op cit.*

In addition to the taxes summarized in Table 5, wireless carriers are subject to a state property tax,[71] a state recording and transfer fee,[72] and a franchise (capital stock) tax.[73] Moreover, the State of New York requires wireless carriers to pay an 11.5 percent corporate income tax.

5. *Chicago, Illinois.*

As shown in Table 6, readily quantifiable fees and taxes on intrastate revenues total 21.89 percent in Chicago. On the local level, Chicago imposes the following taxes on the intrastate revenues of wireless carriers: a 5 percent business occupation and license tax, a 911 fee of 3.13 percent, and a gross receipts tax of 5 percent. On the state level, wireless carriers are required to pay a 5 percent sales/use tax on intrastate revenues.

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71 The New York State Board of Equalization and Assessment imposes a property tax at a rate not exceed the full value of property. The assessment is done only if the property is classified as a "special franchise." PricewaterhouseCoopers State Survey at 42.

72 New York imposes a tax on the transfer of real property or interest therein when the consideration paid exceeds $500. PricewaterhouseCoopers State Survey at 42.

73 The New York State Administered Franchise Tax is the maximum of the three options: (a) $75; (b)1.5 mills per dollar of net value of issued capital stock allocated to New York; or (c) 0.375 mills for each 1 percent of dividends paid. PricewaterhouseCoopers State Survey at 42.

TABLE 6: TAXES AND FEES IN CHICAGO, ILLINOIS

Policy Level	Fund/Tax	Assessment Amount
Local	Business Occupation / License Tax	5.00%
	911 Fee	3.13%
	Gross Receipts Tax	5.00%
State	Sales / Use Tax	5.00%
Federal	Excise Tax	3.00%
	Schools & Libraries Fund	0.76%
Total		**21.89%**

Not included in Table 6 is the Illinois corporate income tax of 7.3 percent. In addition, wireless carriers must pay a local property tax,[74] a state recording and transfer fee,[75] and a franchise (capital stock) tax.[76]

6. Seattle, Washington.

As reflected in Table 7, the readily quantifiable fees and taxes on intrastate revenues in Seattle total 14.93 percent. Wireless carriers in Seattle pay a locally administered sales/use tax of 4.2 percent on intrastate revenues and a state-administered sales/use tax of 6.5 percent on intrastate revenues. On the state level, wireless carriers also pay a gross receipts tax of 0.47 percent.

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74 The property tax in Cook County is levied on 1/3 of the property's fair cash value. The tax rates vary with the type of property. PricewaterhouseCoopers Local Survey at 23.

75 The State of Illinois imposes state recording tax and transfer fee of 50¢ per $500. PricewaterhouseCoopers State Survey at 18.

76 The State of Illinois assesses a franchise tax of 0.1 percent on paid-in capital ($25 minimum and $1,000,000 maximum). PricewaterhouseCoopers State Survey at 18.

TABLE 7: TAXES AND FEES IN SEATTLE, WASHINGTON

Policy Level	Fund/Tax	Assessment Amount
Local	Sales / Use Tax	4.20%
State	Sales / Use Tax	6.50%
	Gross Receipts Tax	0.47%
Federal	Excise Tax	3.00%
	Schools & Libraries Fund	0.76%
Total		**14.93%**

In addition to the taxes described in Table 7, wireless carriers must pay a local and state administered property tax[77] and a state recording and transfer fee.[78]

V. FEDERAL, STATE & LOCAL POLICIES RAISE WIRELESS SERVICE PRICES AND HARM CONSUMERS

A. Consumer welfare is reduced by taxes and assessments.

One effect of these charges is to raise wireless providers' costs, which ultimately translates into higher prices. These higher prices suppress demand and lower consumer welfare. It is worth understanding the loss of consumer welfare in greater detail. There are two types of economic costs associated with a tax. First, there is the direct cost of the tax. For every dollar of revenue raised, a dollar has to be taken away from a consumer or firm. In

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77 The local property tax in King County is assessed on the value of all non-operating property of wireless companies. Non-operating property is property that is not reasonably necessary, not used, or not available for use in the ordinary conduct of the company's business. PricewaterhouseCoopers Local Survey at 75. The state property tax is assessed by the Washington State Department of Revenue on 100 percent of true and fair value. The tax rates vary with the type of property. PricewaterhouseCoopers State Survey at 66.

78 The State of Washington imposes an excise tax upon the sale of real property at the rate of 1.28 percent of the selling price. PricewaterhouseCoopers State Survey at 66.

competitive markets, such as those for wireless services, even if the tax is "levied" on carriers, it will be reflected in higher prices paid by consumers. Thus, consumers will bear these direct costs of taxation. Inevitably, a second cost arises as well: the imposition of a tax distorts providers' investment and supply decisions and subscribers' consumption decisions, thereby giving rise to efficiency losses. Importantly, these efficiency costs are over and above the direct losses of income that consumers suffer from bearing the tax burdens.[79] These efficiency costs are referred to by economists as the *deadweight loss* of taxation because they represent costs for which there are no offsetting benefits.

These distortions and the attendant harm to consumer welfare arise for two reasons. First, taxes and fees push prices further above incremental costs and suppress demand, artificially reducing the use of mobile phones. This reduced phone use is inefficient: when prices exceed incremental costs, there are consumers who choose not to make calls even though they value the calls at more than their incremental cost. Second, taxes and fees may violate the principle of competitive neutrality. Some taxes and fees are inherently discriminatory, favoring wireline providers over wireless ones. In part this is because some of these taxes were designed and intended for monopoly local exchange carriers and reflect wireline service concepts and methods. It should not be surprising, therefore, that such taxes are frequently inappropriate when applied to competitive wireless services. And even where taxation is appropriate, its implementation can fail to be technology neutral.

[79] In other words, if a tax raises $5 billion and the efficiency losses are $2 billion, then consumer welfare is reduced by $7 billion.

Right-of-way taxes and franchise fees, for example, are inappropriate for application to wireless carriers.[80] Wireless carriers do not use public rights-of-way as extensively as wireline carriers and the taxes levied on the industry should reflect this reduced cost to the public.[81] Taxing wireless carriers for public costs they do not cause diminishes an important source of wireless technology's competitive advantage. Moreover, tracking and complying with each city's rules and assessments, which vary extensively within and across states, is a significant administrative cost. Because wireless carriers make little use of public rights-of-way, this administrative cost is likely to be disproportionately large relative to wireless providers' use of the rights-of-way.

Similarly, wireless carriers are not granted monopoly franchises and should not be taxed as if they were. Moreover, because PCS licensees paid for the right to provide wireless service and also incurred costs to relocate incumbent users of the spectrum when they purchased their licenses, charging these carriers additional franchise fees can amount to double taxation.

Gross receipts taxes are also problematic in that even when applied "equally" to incumbent wireline and competitive wireless carriers, they have different impacts on the two services and disproportionately harm wireless carriers. In general, revenue taxes harm higher

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80 Roseville, Minnesota passed a city ordinance that applied specifically to "wireless telecommunications services" and required carriers to apply for a franchise to use of public rights-of-way. Although the ordinance did not set a specific fee, it indicated that the decision to grant a franchise would include consideration of the adequacy of the proposed compensation to be paid to the city. This ordinance was mooted when the State of Minnesota enacted a statute in May 1997 that forbade municipalities from requiring telecommunications providers to obtain franchises for use of rights-of-way, and forbade them from charging fees to use rights-of-way other than cost-based fees defined in the statute. In the light of this statutory change, the City of Roseville has repealed its Franchise and Permit Ordinances.

81 Since wireless carriers do not cause these costs to the same extent as wireline carriers, they should not pay the same fees. Some states already recognize that wireless carriers should not be taxed at the same rate as wireline carriers for access to public rights-of-way. The State of Illinois, for example, excludes

quality and higher price services. Wireline and wireless services are not perfectly comparable—many wireless services add mobility. Wireless customers pay a premium for mobility, and gross receipts taxes add an additional cost to this feature, making wireless service less competitive with wireline service. When faced with an additional tax, some of those customers on the margin between purchasing wireline service and a premium wireless service will purchase wireline service instead. Thus, consumer choice—and the limited competition that exists today and may otherwise grow in the future—are distorted.

Lastly, tax and fee assessments harm telecommunications consumers and wireless carriers by reducing the profitability of investment in wireless service, decreasing the incentives for both entry by new wireless carriers and expansion by existing carriers.

B. Consumer welfare is reduced by other federal, state, and local policies that raise wireless service costs and discourage investment.

We already have noted that Table 1 understates current—as well as likely future—tax and fee burdens. It also is important to recognize that there are a number of regulatory policies other than taxes and fees that inefficiently raise wireless service providers' operating costs and thus discourage new investment and elevate prices. These include costs of wireless number portability, complying with CPNI rules and meeting the obligations imposed by the Communications Assistance for Law Enforcement Act.[82] Moreover, certain aspects of state and federal universal service policies inhibit wireless participation, again reducing

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wireless telecommunications revenues from its telecommunications infrastructure tax. See Illinois Department of Revenue Informational Bulletin FY 98-16.

82 Additional federal regulations, fees, and filing requirements that raise carriers' costs include: (1) telecommunications relay service fees; (2) fees to provide service to individuals with disabilities (TTY/TDD fees); (3) license application fees; (4) antenna structure registration fees; (5) Telephone Operator Consumer Services Improvement Act costs; (6) Federal Aviation Administration requirements for marking and lighting; (7) annual regulatory fees; and (8) periodic data reporting requirements.

investment incentives, distorting competition, and increasing service prices, all to the detriment of consumers. For example, wireless carrier eligibility for universal service funds is largely untested.[83] The resulting uncertainty reduces wireless carriers' investment incentives in high-cost and other subsidized areas.

California's state universal service fund is illustrative of distortions that can arise in state programs and that may become an increasing problem as more states implement universal service programs. California requires eligible carriers to adhere to a "LEC-like" rate structure of either flat-rate or flat-plus-measured-rate service, with free unlimited incoming calls. While these pricing structures are economically rational for wireline technologies (in which the costs of a particular call are low relative to the costs of installing the dedicated loop facilities), these structures do not fit well with wireless cost structures (in which traffic-sensitive air-time costs are prominent). In addition, California's high-cost funds are not available to all carriers doing business in a high-cost area, nor are they available for each customer.[84] Rather, carriers must assume carrier-of-last-resort status,[85] and all of the

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83 Wireless carriers are in principle eligible for federal universal service support. However, to receive funds they must be designated an eligible carrier by the applicable state commission. See *Third Annual CMRS Competition Report* at 8 and note 28. Further, states inappropriately can restrict the ability of carriers to withdraw funds. In Kansas, for example, only the incumbent carrier is eligible to withdraw funds in exchanges with more than 10,000 access lines. See *In the Matter of Western Wireless Corporation Petition for Preemption, Pursuant to Section 253 of the Communications Act, of Kansas Statutes and Rules that Discriminate Against New Entrants*, Petition for Preemption, CWD 98-90, dated July 20, 1998 at 5.

84 California operates two high-cost funds. California High Cost Fund A (CHCF-A) ensures that customers served by small and mid-size local exchange carriers have "access to telephone services at reasonable rates." The CPUC collects the money through a CHCF-A surcharge on all telecommunications carriers and distributes it to small and mid-size LECs as needed. The California High Cost Fund B (CHCF-B) is used to "subsidize high cost areas of the state." All telecommunications carriers in California pay into both funds, but only the seventeen smaller LECs are eligible for support under CHCF-A and only the five large LECs and other "carriers of last resort" are eligible for support under CHCF-B. See CPUC *Rulemaking on the Commission's Own Motion Into Universal Service*, op cit., Decision No. 96-10-066, October 25, 1996 at 2 and Appendix B.

85 A carrier of last resort is defined in California to be "A carrier who provides local exchange service and stands ready to provide basic service to any customer requesting such service within a specified

regulatory obligations that accompany that status, in the entire high-cost area to receive subsidies. Imposition of these requirements harms consumers by limiting their options and blocking wireless entrants from implementing pricing schemes that efficiently reflect the cost characteristics of their networks, which are very different from those of wireline networks.[86]

Lastly, it should be kept in mind that—due to the multiple jurisdictions involved—some taxes and fees fall on intrastate revenues, some on interstate revenues, and some on both. As our focus is on the effects of taxation on local exchange competition, Table 1 is limited to those taxes that are levied on *intra*state revenues. Taxes on *inter*state revenues, however, also reduce the overall incentives to invest in wireless communications infrastructure and thus adversely affect competition in the provision of *intra*state services. While the magnitudes are uncertain at this point, federal universal service taxes and the federal excise tax alone could place a burden of 7 percent or more on interstate revenues.[87]

VI. CONCLUSION

The findings of this study demonstrate that wireless carriers in many parts of the country face significant economic burdens from local, state, and federal taxes and fees. These taxes and fees reduce wireless investment incentives and distort wireless cost

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area. To be a carrier of last resort, the provider must meet Commission-approved qualifications." CPUP Decision No. 96-10-066, op cit., Appendix B.

86 Moreover, these requirements are unnecessary: when consumers choose measured service from a competitive local exchange carrier over the incumbent's flat-rate offer, these consumers are voting with their feet—they prefer the alternative structure. There is no public interest in denying them this option.

87 Estimated annual program costs based on actual 3rd and 4th quarter program costs as reported in FCC Public Notices DA 98-1130 and DA 98-1649. The contribution base is based on actual July-December 1997 telecommunications revenues as used by the Commission to establish 3rd and 4th quarter 1998 contributions. Consistent with Commission policy, our analysis assumes 1 percent uncollectibles.

structures. By increasing costs, the various taxes and fees raise retail prices, which in turn suppresses calling and reduces both consumer welfare and efficiency. By reducing innovation and investment incentives, these taxes and fees reduce consumer choice, lower service quality, and reduce the rate of price decreases that consumers might otherwise enjoy.

Table 1

Effective Revenue Taxes in Selected MSAs

MSA	*Public Utility, Regulatory, Business Occupational and License Fees*		*Sales / Use Tax*		*911 Fee*	*TDD/TDS Fee*	*Gross Receipts*	*Universal Service Fund*	MSA TOTAL [2]
	Effective % of Revenues		Effective % of Revenues		Effective % of Revenues	Effective % of Revenues	Effective % of Revenues	Effective % of Revenues	
	STATE	LOCAL [1]	STATE	LOCAL [1]					
Albuquerque	0.50% [3]	0.00%	4.25%	1.44%	0.00%	0.00%	0.00%	0.00%	9.95%
Atlanta	0.00%	0.00%	4.00%	3.00%	3.75%	0.00%	0.00%	0.00%	14.51%
Baltimore	0.00%	0.00%	5.00%	0.00%	0.25%	0.00%	2.00%	0.00%	11.01%
Billings	0.00%	0.00%	0.00%	0.00%	1.25%	0.00%	1.80%	0.06%	6.87%
Birmingham	0.00%	0.10%	0.00%	0.00%	0.00%	0.00%	4.00%	0.00%	7.86%
Bismarck	0.00%	0.00%	5.00%	1.00%	0.00%	0.00%	2.50%	0.00%	12.26%
Boise	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	3.76%
Boston	0.00%	0.00%	5.00%	0.00%	0.00%	0.00%	0.00%	0.00%	8.76%
Burlington	0.00%	0.00%	2.18%	0.00%	0.00%	0.00%	0.00%	2.00% [3]	7.94%
Casper	0.00%	0.00%	3.00%	2.00%	0.00%	0.00%	0.00%	0.00%	8.76%
Charleston	0.00%	2.00%	0.00%	0.00%	1.88%	0.00%	0.00%	0.00%	7.64%
Chicago	0.00%	5.00%	5.00%	0.00%	3.13%	0.00%	5.00%	0.00%	21.89%
Cleveland	0.00%	0.00%	5.00%	2.00%	0.00%	0.00%	0.00%	0.00%	10.76%
Dallas	0.00%	0.00%	6.25%	2.00%	1.25%	0.00%	0.00%	1.25%	14.51%
Denver	0.00%	0.00%	3.00%	3.50%	1.15%	0.00%	0.00%	0.00%	11.41%
Des Moines	0.00%	0.00%	5.00%	1.00%	1.25%	0.00%	0.00%	0.00%	11.01%
Detroit	0.00%	0.00%	6.00%	0.00%	0.00%	0.00%	0.00%	0.00%	9.76%
Greensboro	0.00%	0.00%	6.50%	0.00%	1.45%	0.00%	3.22%	0.00%	14.93%
Greenville	0.00%	0.00%	5.00%	1.00%	0.00%	0.00%	0.00%	0.00%	9.76%
Hartford	0.00%	0.00%	6.00%	0.00%	1.25%	0.00%	0.00%	0.00%	11.01%
Honolulu	0.18%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	3.94%
Indianapolis	0.15%	0.00%	5.00%	0.00%	1.75%	0.00%	0.00%	0.00%	10.66%
Jackson	0.00%	0.00%	7.00%	0.00%	2.50% [3]	0.00%	0.00%	0.00%	13.26%
Juneau	0.80%	0.00%	0.00%	8.00%	0.00%	0.00%	0.00%	0.00%	12.56%
Las Vegas	0.00%	5.00%	6.50%	0.00%	0.00%	0.00%	2.00%	0.00%	17.26%
Lincoln	0.00%	0.00%	5.00%	1.50%	0.00%	0.00%	0.00%	0.00%	10.26%
Los Angeles	0.11%	13.75%	0.00%	0.00%	0.72%	0.05% [3]	0.00%	6.39%	24.78%
Louisville	0.18%	0.00%	6.00%	0.00%	0.00%	0.00%	3.00%	0.00%	12.94%
Miami	0.00%	7.00%	7.00%	0.00%	0.00%	0.00%	2.50%	2.50% [3]	22.76%
Milwaukee	0.00%	0.00%	5.00%	1.60%	0.00%	0.00%	5.77%	0.00%	16.13%
Minneapolis	0.00%	0.00%	6.50%	5.00%	0.75%	0.00%	0.00%	0.00%	16.01%
N. Little Rock	0.04% [3]	0.00%	4.50%	1.50%	1.25%	0.00%	0.00%	0.00%	11.05%
Nashville	0.00%	0.00%	6.00%	2.75%	0.00%	0.00%	0.00%	0.00%	12.51%
New Orleans	0.00%	0.00%	3.00%	2.00%	0.00%	0.00%	0.00%	0.00%	8.76%

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Effective Revenue Taxes in Selected MSAs

MSA	*Public Utility, Regulatory, Business Occupational and License Fees*		*Sales / Use Tax*		*911 Fee*	*TDD/TDS Fee*	*Gross Receipts*	*Universal Service Fund*	MSA TOTAL [2]
	Effective % of Revenues		Effective % of Revenues		Effective % of Revenues	Effective % of Revenues	Effective % of Revenues	Effective % of Revenues	
	STATE	LOCAL [1]	STATE	LOCAL [1]					
New York	0.00%	0.00%	4.26%	4.00%	1.75%	0.00%	5.07%	0.00%	18.84%
Newark	0.00%	0.00%	6.00%	0.00%	0.00%	0.00%	0.00%	0.00%	9.76%
Norfolk	0.20%	1.50%	0.00%	0.00%	1.88%	0.00%	0.00%	0.00%	7.34%
Oklahoma	0.00%	0.00%	4.50%	4.88%	0.00%	0.00%	0.00%	2.50%	15.64%
Philadelphia	0.00%	0.00%	6.00%	1.00%	0.00%	0.00%	0.50%	0.00%	11.26%
Phoenix	0.12%	1.40%	5.00%	5.20%	0.25%	0.00%	0.00%	0.00%	15.73%
Portland	0.00%	0.00%	6.00%	0.00%	0.00%	0.00%	0.00%	0.00%	9.76%
Portland	0.00%	1.50%	0.00%	0.00%	0.00%	0.00%	0.25% [3]	0.00%	5.51%
Portsmouth	3.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	6.76%
Providence	0.00%	0.00%	7.00%	0.00%	1.18%	0.00%	5.00%	0.00%	16.94%
Salt Lake	0.00%	0.00%	4.88%	2.70%	1.43%	0.00%	0.00%	1.00%	13.76%
San Francisco	0.11%	8.73%	0.00%	0.00%	0.72%	0.05% [3]	0.00%	6.75%	20.12%
Seattle	0.00%	0.00%	6.50%	4.20%	0.00%	0.00%	0.47%	0.00%	14.93%
Sioux Falls	0.00%	0.00%	4.00%	2.00%	0.00%	0.38%	0.15%	0.00%	10.29%
St. Louis	0.00%	0.00%	4.23%	4.40%	0.00%	0.00%	0.00%	0.00%	12.39%
Washington D.C.	0.00%	10.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	13.76%
Wichita	0.00%	0.00%	4.90%	2.00%	0.00%	0.00%	0.00%	0.00%	10.66%
Wilmington	4.25%	0.01%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	8.02%

Notes:

(1) "Local" includes County, City, School District and Special District taxes.

(2) MSA Total includes Federal taxes (3% Excise Tax and 0.76% Schools & Libraries Fund Tax).

(3) This is the maximum rate allowed, actual rates determined on a case-by-case basis.