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Before the
Federal Communications Commission
Washington, D.C. 20554

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FCC Mail Room

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 Mobile
Wireless, Including Commercial Mobile Services

WT Docket No. 09-66
(Terminated)

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FOURTEENTH REPORT

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statements; Commissioners McDowell and Baker concurring and issuing separate statements.

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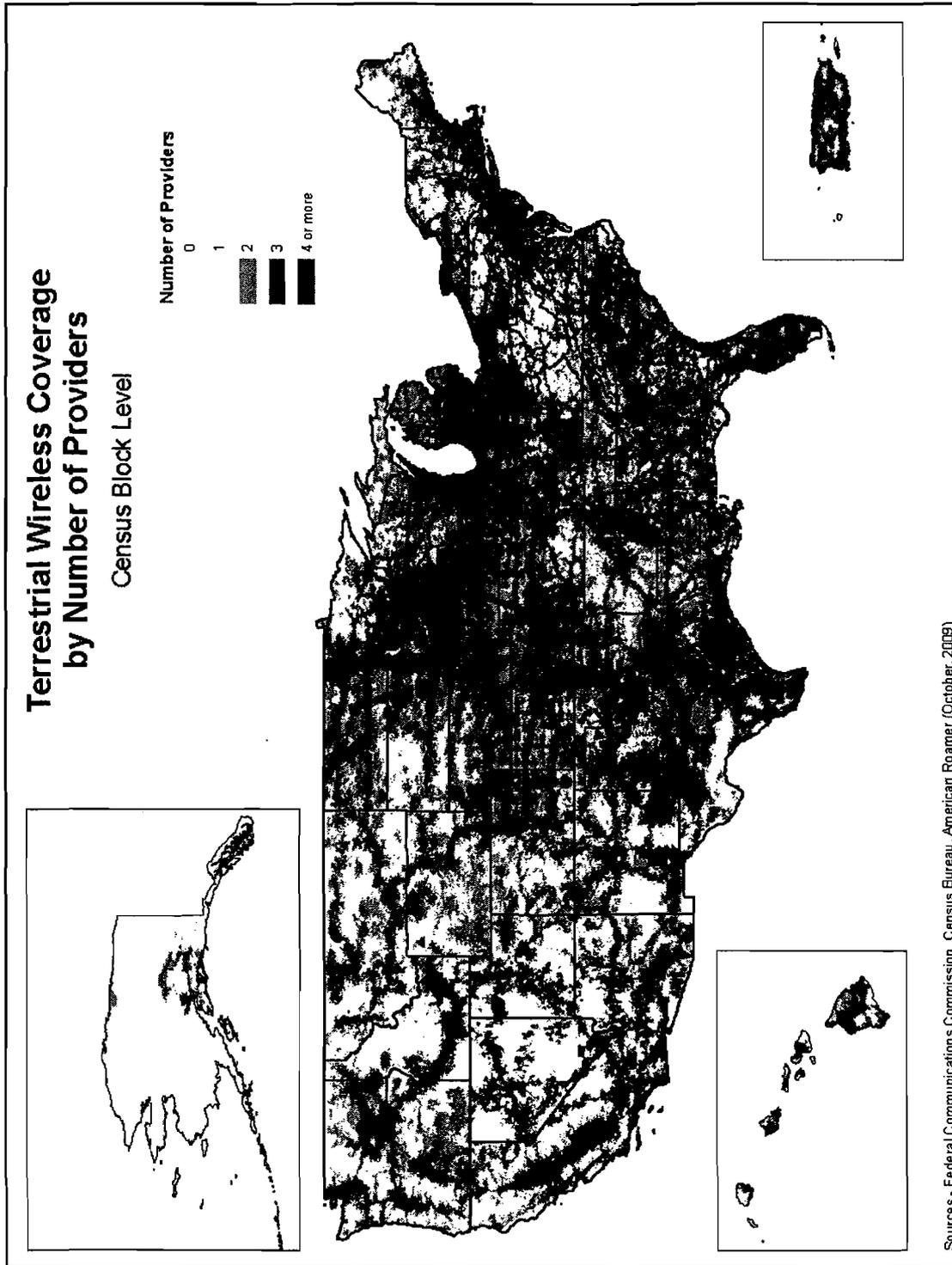
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Map 1: Mobile Wireless Competitors



I. EXECUTIVE SUMMARY

1. In this Mobile Wireless Competition Report, we present our findings regarding the state of competition in the mobile services marketplace, pursuant to Congress's instruction in section 332(c)(1)(C) of the Communications Act. Promoting competition is a fundamental goal of the Commission's policymaking. Competition has played and must continue to play an essential role in mobile – leading to lower prices and higher quality for American consumers, and producing new waves of innovation and investment in wireless networks, devices, and services.

2. In this Mobile Wireless Competition Report to Congress (*Fourteenth Report or Report*), we incorporate several important new forms of analysis that reflect fundamental shifts in the mobile marketplace. For example, whereas previous reports analyzed Commercial Mobile Radio Service (CMRS) competition and discussed a variety of metrics – including number of providers, subscribers, usage, and prices – this *Report* integrates an analysis of CMRS into an analysis of all mobile wireless services, such as voice, messaging, and broadband. This *Report* also goes beyond previous reports in reflecting the transformative importance of mobile wireless broadband, which has resulted in a shift from devices that can place traditional phone calls to pocketable devices that can access the entire Internet. Because each of the interrelated segments of the mobile wireless ecosystem has the potential to affect competition, this *Report* analyzes competition across the entire mobile wireless ecosystem, including, for the first time, in-depth analyses of “upstream” and “downstream” market segments, such as infrastructure and devices.

3. As described in this Mobile Wireless Competition Report, the mobile wireless ecosystem is sufficiently complex that any review or analysis of competitive market conditions must take into consideration a multitude of factors. As a result, rather than reaching an overarching, industry-wide determination with respect to whether there is “effective competition,” the *Report* complies with the statutory requirement by providing a detailed analysis of the state of competition that seeks to identify areas where market conditions appear to be producing substantial consumer benefits and provides data that can form the basis for inquiries into whether policy levers could produce superior outcomes.¹ As the mobile wireless marketplace evolves, driven in particular by mobile wireless broadband and data usage, the Commission's analyses and policies with respect to key inputs – such as spectrum – also must evolve in order to ensure a robust level of competition going forward.

4. The *Report* – which reflects market conditions prevailing in 2008 and 2009² – finds evidence of several key trends in the mobile wireless industry:

- *Maturation of the Mobile Voice Segment.* As of the end of 2008, 90 percent of Americans had a mobile wireless device, and Americans used these devices to talk for an average of 709 minutes each month. While usage statistics have generally increased over time, this year marks the first instance of reduced (though still substantial) voice usage, perhaps due to increased reliance on text and multimedia messaging. Voice revenues stayed relatively steady compared to past periods, with average revenue per user (ARPU) slightly decreasing but revenue per minute (RPM) slightly increasing.
- *Transition to a Data-Centric Market.* Data traffic has grown significantly, due to the increased adoption of smartphones and data consumption per device. Indeed, with overall revenue per

¹ For a more detailed discussion of our analysis of effective competition, as required by Section 332(c) of the Communications Act, see paragraphs 11-16 *infra*.

² Where possible, the *Report* uses the most current data available, including network coverage data from American Roamer from the fourth quarter of 2009. In other instances, particularly where year-end metrics are discussed or annual comparisons are made, the *Report* uses year-end 2008 data. See Section II, Introduction, *infra*, for an additional discussion of data timeframes.

mobile customer generally remaining flat the past several years, revenue from newer data services is replacing revenue from traditional services.

- *Proliferation of Devices and Applications.* Handset manufacturers have introduced a growing number of smartphones that provide mobile Internet access and other data services, and use operating systems that provide many of the functionalities of personal computers. The four nationwide providers launched about 67 new smartphones in 2008 and 2009, based upon several different platforms (e.g., Apple iPhone, Android, BlackBerry, Palm, and Windows Mobile). The Android and iPhone platforms have been particularly successful in creating an entire ecosystem of applications and services. As of December 2009, there were over 100,000 applications on the Apple App Store, and 15,000 on the Android Market.
- *Continued Industry Concentration.* Over the past five years, concentration has increased in the provision of mobile wireless services. The two largest providers, AT&T, Inc. (AT&T) and Verizon Wireless, have 60 percent of both subscribers and revenue, and continue to gain share (accounting for 12.3 million net additions in 2008 and 14.1 million during 2009). The two next-largest providers, T-Mobile USA (T-Mobile) and Sprint Nextel Corp. (Sprint Nextel), had a combined 1.7 million net loss in subscribers during 2008 and gained 827,000 subscribers during 2009. One widely-used measure of industry concentration indicates that concentration has increased 32 percent since 2003 and 6.5 percent in the most recent year for which data is available.
- *Robust Capital Investment but Declining Relative to Industry Size.* Providers continue to invest significant capital in networks, despite the recent economic downturn. One source reports capital investment at around \$25 billion in both 2005 and 2008, while another shows that capital investment declined from around \$25 billion to around \$20 billion during the same period and that investment during the first half of 2009 was \$8.9 billion. Because industry revenue has continued to grow, both sources show that capital investment has declined as a percentage of industry revenue over the same period (from 20 percent to 14 percent).³
- *Role of Spectrum for Mobile Broadband.* Especially as mobile wireless data usage grows, spectrum becomes an increasingly pivotal input. In particular, lower-frequency spectrum possesses superior propagation characteristics that create certain advantages in the provision of mobile wireless broadband service, especially in rural areas. Lower-frequency spectrum potentially allows for a higher quality of coverage with fewer cell sites, when compared to other frequency bands used to provide mobile services. Conversely, higher-frequency spectrum may be effective for increasing capacity, particularly within smaller, more densely-populated geographic areas. Recent auctions reflect that lower frequency bands are more highly valued than higher frequencies. A significant portion of spectrum below 1 GHz is held by the two largest providers: 67 percent of the 700 MHz band, and 91 percent of the Cellular band, based on megahertz-POPs (MHz-POPs).⁴

Selected developments and key metrics with respect to the current state of mobile wireless competition are highlighted below:

Number of Providers & Network Deployment

For the third consecutive Report, the Commission has conducted an analysis of service provider coverage

³ All dollar figures included in this Report have not been adjusted for inflation (i.e., they are nominal dollars) unless stated otherwise.

⁴ "MHz-POPs" refers to the amount of spectrum in a given license or set of frequencies multiplied by the population covered by the geographic area of the spectrum license. For example, the MHz-POPs of a 20 megahertz license covering a geographic area with a population of 1,000 would be 20,000.

by census block, based on data from American Roamer⁵ and population data from the 2000 Census.⁶

Mobile Voice Providers. The coverage analysis suggests that approximately 284 million people, or 99.6 percent of the U.S. population, are served by one or more mobile voice providers. Approximately 281 million people, or 98.6 percent of the population, are served by at least two mobile voice providers. Approximately 273 million people, or 95.8 percent of the population, are served by at least three mobile voice providers.

Mobile Broadband Providers. Approximately 280 million people, or 98.1 percent of the U.S. population, are served by one or more mobile broadband providers,⁷ according to the coverage analysis. Approximately 255 million people, or 89.5 percent of the U.S. population, are served by two or more mobile broadband providers. Approximately 217 million people, or 76.1 percent of the population, are served by at least three mobile broadband providers. During 2008 and 2009, the four nationwide mobile wireless service providers (AT&T, Verizon Wireless, Sprint Nextel and T-Mobile), as well as other mobile operators, continued to expand service into new markets and to upgrade their networks with mobile broadband technologies. They also announced plans to deploy 4G network technologies.

⁵ We note that the American Roamer analysis likely overstates the coverage actually experienced by consumers, because American Roamer reports advertised coverage as reported to it by many mobile wireless service providers, each of which uses a different definition of coverage. The data do not expressly account for factors such as signal strength, bit rate, or in-building coverage, and they may convey a false sense of consistency across geographic areas and service providers. Nonetheless, the analysis is useful because it provides a quantitative baseline that can be compared across network types, technologies, and carriers, over time. *Connecting America: The National Broadband Plan*, FCC, at 39 (Chapter 4) (rel. Mar. 16, 2010), available at www.broadband.gov (*National Broadband Plan*). We also recognize that an analysis of coverage at the nationwide level provides only a general benchmark. A nationwide average will mask regional disparities in coverage and create an overall picture that does not capture variances across the country. See Section III.C.1, Number of Competitors, *infra*.

⁶ Unless otherwise noted, population data in the *Report* is taken from U.S. Census Bureau (Census Bureau). For purposes of calculating numbers on broader geographic bases, such as the nationwide penetration rate, we use Census Bureau population estimates as of July 1, 2008. See *infra* note 473. For purposes of calculating the extent of service provision based on census blocks, we use 2000 Census population figures because that is the Census Bureau's most recent data about population at the census block level.

⁷ For purposes of this *Report*, "mobile broadband" refers to mobile Internet access and other data services provided using Third Generation (3G) and Fourth Generation (4G) mobile network technologies, CDMA EV-DO, WCDMA/HSPA, and WiMAX. Therefore, this coverage analysis estimates the U.S. population, based on census blocks, covered by these technologies. See Section IV.B.1, Network Coverage and Technology Upgrades and Appendix B, Mobile Wireless Network Technologies, *infra*, for an additional discussion.

3G/4G Deployment by Selected Mobile Wireless Service Providers

Service Provider	3G Deployment	4G Deployment
AT&T	As of October 2009, HSPA network covered 230 million POPs in more than 350 metropolitan areas.	Plans LTE trials in 2010 and deployment in 2011.
Verizon Wireless	As of mid-2009, EV-DO network covered 284 million POPs.	Expects to launch LTE in 25-30 markets in 2010 and to cover 285 million POPs by 2013.
Clearwire	Not applicable.	As of September 2009, WiMAX network covered over 10 million POPs, expected to cover 120 million POPs by end of 2010.
Sprint Nextel	As of August 2009, EV-DO network covered 271 million POPs.	Ownership interest in Clearwire and reselling Clearwire WiMAX service.
T-Mobile	As of August 2009, HSPA network covered 121 million POPs, expected to cover 200 million POPs by year-end 2009.	No U.S.-specific plans.

The following table, again using data from the census block coverage analysis based on American Roamer data, depicts the growth in population coverage for mobile wireless broadband service over the past year:

**Mobile Wireless Broadband Network Population Coverage,
Selected Facilities-Based Providers**

Service Provider	Covered POPs November 2008 (millions)	Covered POPs November 2009 (millions)
AT&T	189.0	212.3
Verizon Wireless	241.7	266.7
Sprint Nextel	218.9	226.9
T-Mobile	88.4	133.9
Alltel	57.7	--
Leap	19.7	79.2
US Cellular	13.1	26.6

Subscribers and Net Adds

With wireless market penetration approaching 90 percent as of the end of 2008, overall wireless industry growth has slowed down. At the end of 2008, based upon Numbering Resource Utilization Forecast (NRUF) data, there were over 277 million mobile wireless subscribers in the United States, up from 263 million at the end of 2007. As of the end of 2008, there were 25.1 million mobile wireless high-speed Internet access subscribers and 86 million mobile high-speed-capable devices in use in the United States.

Mobile Wireless Subscribership								
Year	Subscribers		Subscribers - Increase from Previous Year		Penetration Rate		Penetration Rate - Percent Increase from Previous Year	
	(millions)		(millions)		(percent)		(percent)	
	NRUF*	CTIA	NRUF	CTIA	NRUF	CTIA	NRUF	CTIA
1999	n/a	86	n/a	16.8	n/a	32%	n/a	23%
2000	n/a	109.5	n/a	23.4	n/a	39%	n/a	21%
2001	128.5	128.4	n/a	18.9	45%	45%	n/a	16%
2002	141.8	140.9	13.3	12.4	49%	49%	9%	9%
2003	160.6	158.7	18.8	18	54%	55%	10%	12%
2004	184.7	182.1	24.1	23.4	62%	62%	15%	14%
2005	213	207.9	28.3	25.8	71%	70%	15%	13%
2006	241.8	233	28.8	25.1	80%	78%	13%	11%
2007	263	255.4	21.2	22.4	86%	85%	7%	9%
2008	277.6	270.3	14.6	14.9	90%	89%	5%	5%

*NRUF data is not available for the calendar years prior to 2001.

Industry net new subscriber additions (or “net adds”) totaled between 14.5 and 15 million during 2008, a 33 percent drop from the 2007 net additions.

Net adds have not been distributed evenly among major service providers. The two largest providers garnered 12.3 million net new subscribers during 2008 and 14.1 million during 2009, while the two next-largest providers combined lost 1.7 million subscribers during 2008 and gained 827,000 subscribers during 2009.

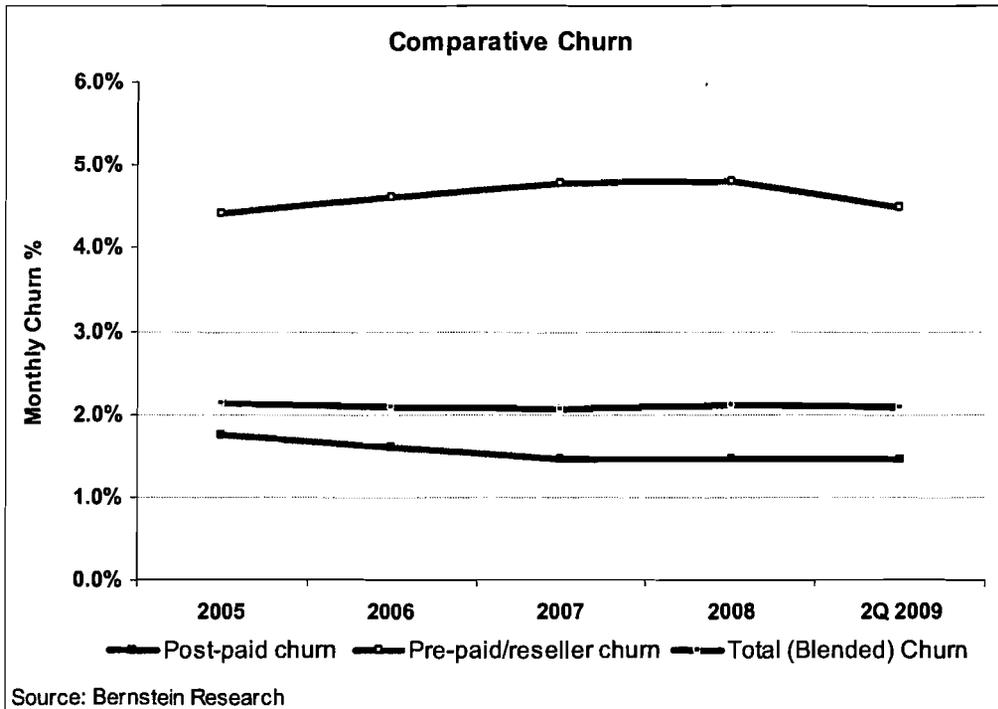
Net Additions by Service Provider

Service Provider	Subscribers Year-End 2008 (Thousands)	2008 Net Additions (Loss)	2008 Percent Increase (Loss)	Subscribers Year-End 2009 (Thousands)	2009 Net Additions (Loss)	2009 Percent Increase (Loss)
AT&T	77,009	6,785	9.7%	85,120	8,111	10.5%
Verizon Wireless**	72,056	5,558	8.4%	91,249	19,193	26.6%
Sprint Nextel	48,338	(4,667)	(8.8%)	48,133	(205)	(0.4%)
T-Mobile	32,758	2,973	10.0%	33,790	1,032	3.2%
Alltel	13,219	(181)	(1.4%)	--	--	--
US Cellular	6,196	74	1.2%	6,141	(55)	(0.9%)
MetroPCS	5,367	1,404	35.4%	6,640	1,273	23.7%
Leap	3,845	981	34.3%	4,954	1,109	28.8%

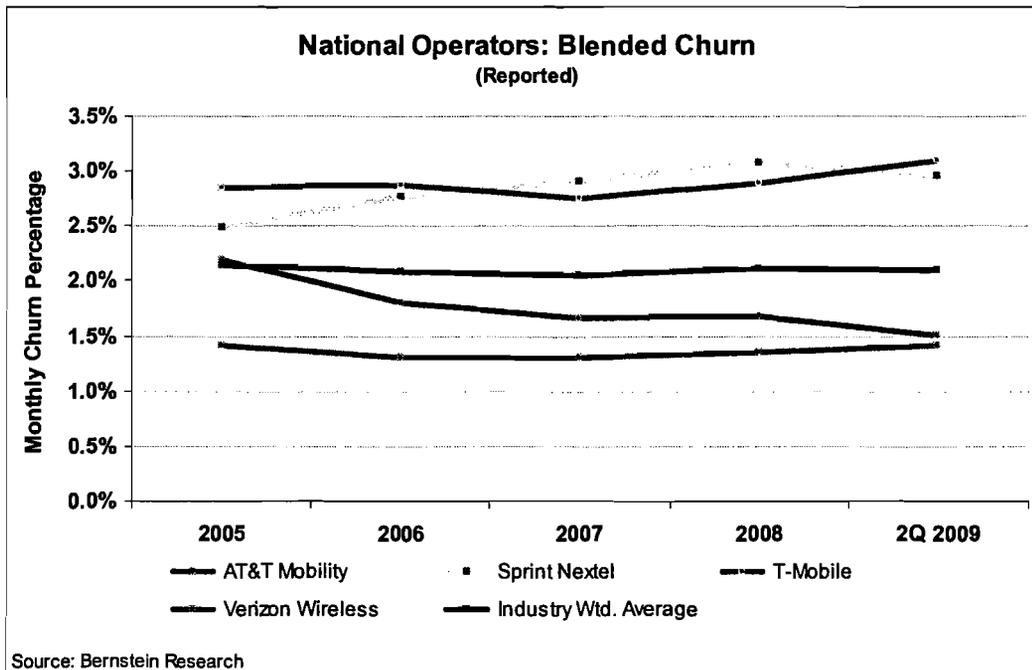
**Verizon Wireless’s 2009 subscriber figures include subscribers added as a result of the Alltel merger. If subscribers from the Alltel acquisition were excluded, Verizon Wireless’s “organic” net adds for 2009 would total approximately 5.97 million, an increase of 8.3 percent.

Churn

During the past year, churn has increased slightly from 1.9 percent to around 2.1 percent per month, with pre-paid churn rates significantly higher than post-paid churn rates. Churn rates of the two largest national service providers are half the rates for the next two largest providers.



Annual Churn is an average for each of the four quarters



Annual Churn is an average for each of the four quarters. Verizon Wireless is combined with Alltel churn.

Usage

In 2008, wireless voice usage per subscriber declined for the first time in 11 years. At the same time, use of text messaging and other wireless data services increased over the previous year. The decline in voice minutes-of-use, coupled with the increase in data use, suggests that although only about 40 percent of consumers currently use data services, these consumers may be substituting data services, such as text messaging, for traditional voice services. The following data describe top-line usage trends for specific

service segments:

Voice: Average minutes-of-use per subscriber per month (MOUs) declined to about 708 minutes for the six months ending in December 2008,⁸ down from 769 minutes in the same period of 2007, and the first decrease in MOUs since 1997.

Text Messaging: The average mobile wireless subscriber sent 388 text messages per month during the second half of 2008, a 169 percent increase from the 144 text messages sent per month during the same period of 2007.

Multimedia Messaging: The average mobile wireless subscriber sent 5.8 multimedia messages (MMS) per month during the second half of 2008, a 152 percent increase from the 2.3 multimedia messages sent per month during the same period of 2007.

Mobile Broadband Services: The wireless industry does not currently report aggregate or per-subscriber mobile broadband/Internet traffic metrics (*i.e.*, megabytes (MB) consumed). Nonetheless, one analyst estimates per-subscriber mobile data traffic by type of device and found that traditional handset users generate, on average, 25 MB of traffic each month, BlackBerry users generate 54 MB, iPhone users generate 275 MB, other smartphone users generate 150 MB, and laptop “aircard” users generate 1.4 gigabytes (GB).

CPI and Unit Prices

Two measures of pricing for wireless services are the Consumer Price Index (CPI) and unit price (revenue per user per month divided by average unit consumption per month). The annual Cellular CPI decreased by approximately 0.2 percent from 2007 to 2008, while the overall CPI increased by 3.8 percent during this period. After many years of declines, voice revenue per minute was \$0.054 in December 2008, an increase of two percent from 2007. This slight increase reflects that a reported decrease in voice ARPU was more than offset by a decrease in minutes of use per subscriber per month (see below).

The price of messaging services, on an average price per unit basis, continued to decline in 2008. Average revenue per text message in 2008 decreased by \$0.014 from the prior year, from \$0.025 in 2007 to \$0.011 per message in 2008. Average revenue per text message was \$0.036 in 2006.

Revenue and ARPU

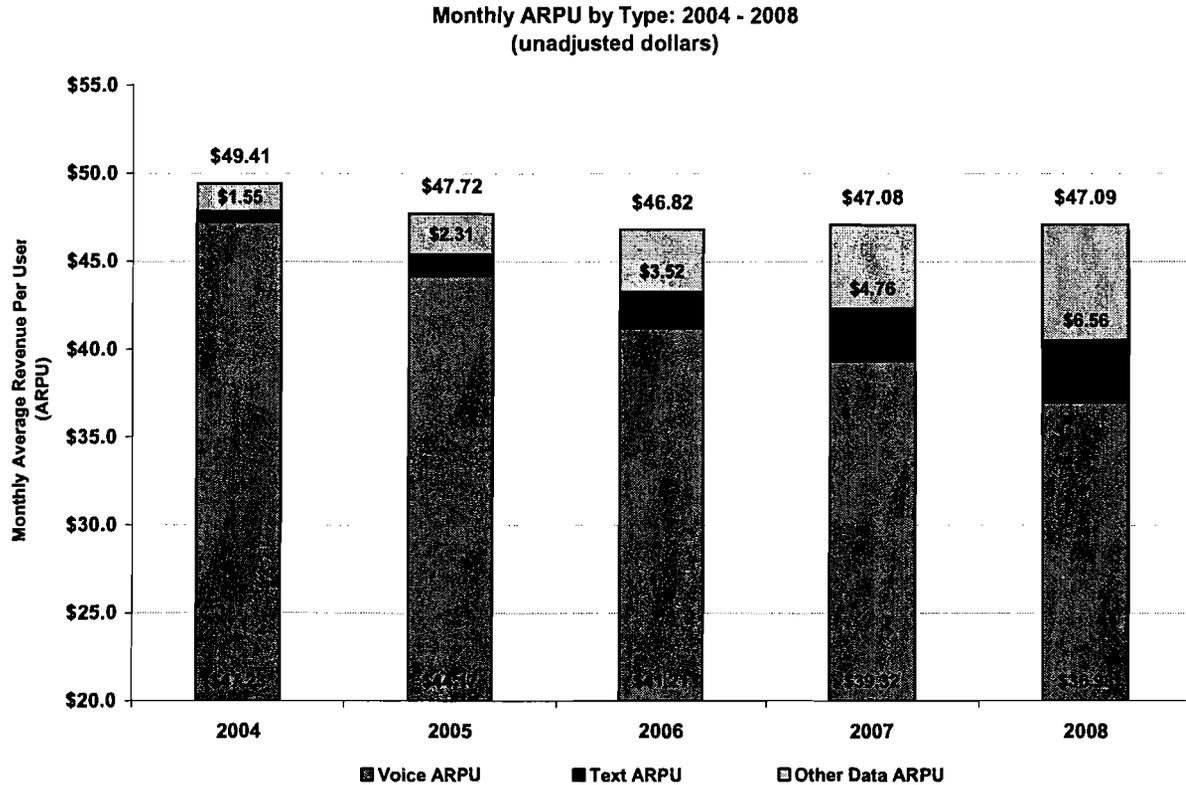
Revenues for the mobile wireless industry have increased each year between 2004 and 2008, although the annual growth rate for industry revenues has been declining since 2007. Total mobile wireless industry revenue grew to \$150.6 billion in 2008, up from \$140.9 billion in 2007 for a 6.9 percent increase (a more modest annual growth rate than the prior year, when industry revenue was \$127.1 billion in 2006). For the first half of 2009, industry revenue totaled \$75.8 billion, a 4.3 percent increase over the first half of 2008.

Voice revenues grew to \$118.3 billion in 2008 from approximately \$117.7 billion in 2007, text messaging revenues grew to \$11.4 billion in 2008 from approximately \$9 billion in 2007, and other data revenues – including MMS and Internet access – grew to \$21.0 billion in 2008 from \$14.3 billion in 2007.

Monthly ARPU remained nearly unchanged between 2007 and 2008, increasing \$0.01 from \$47.08 to \$47.09. The average wireless consumer pays approximately \$565 per year for service and the average household (of 2.5 persons) pays \$1,271 per year for service. An average American household spends about the same proportion of its income on wireless services as it spends on electricity (2.5 percent on wireless services and 2.7 percent on electricity). Total ARPU has generally been flat over the past several years. Voice ARPU, which excludes the portion of ARPU generated by data, continued to decline between 2007 and 2008, decreasing from \$39.32 to \$36.98 per month. Declining monthly voice ARPU was offset by continued growth in monthly ARPU for text and other data services, such as mobile

⁸ Data is averaged over a six-month period.

broadband. Text ARPU increased from \$3.00 in 2007 to \$3.55 in 2008 per month. Monthly ARPU for other data services, such as mobile Internet access and mobile messaging service, also continued to increase, rising from \$4.76 in 2007 to \$6.56 in 2008. In 2008, monthly ARPU for text and other data services accounted for approximately 21 percent of total monthly ARPU, up from approximately 16 percent in 2007, and compared to about 4 percent in 2004.



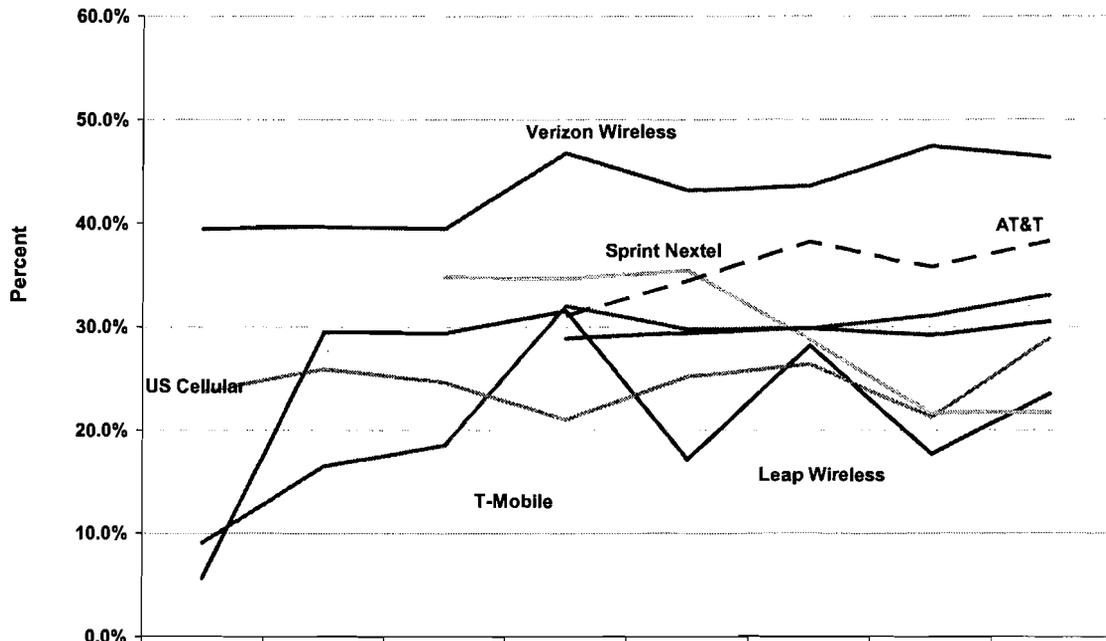
Voice ARPU Calculation incl. Toll revenues

Source: CTIA & Analyst Data, FCC Analysis

Profitability

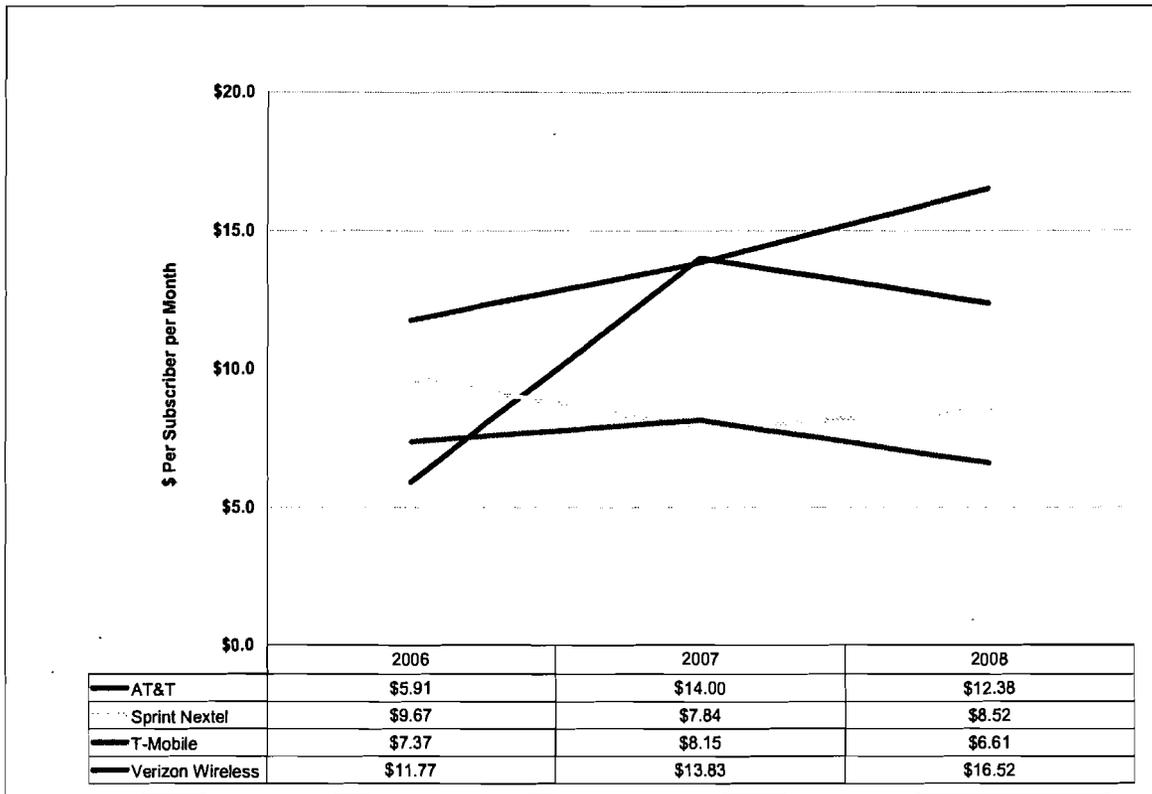
Measures of profitability are useful indicators of absolute and relative provider performance, entry and exit conditions, growth conditions, and the intensity of rivalry. Because measuring the profitability of firms in a capital-intensive industry such as the mobile wireless industry is not as straightforward as in other industries, industry analysts often employ more than one measure. Analysts sometimes use Earnings Before Interest, Taxes, Depreciation, and Amortization (EBITDA) as an indicator of profitability, but this metric does not include the substantial cost of capital investment in tangible assets such as networks or in intangible assets such as spectrum licenses. For the first time, the *Report* includes indicators of service provider profitability – measured by EBITDA margin (EBITDA divided by service revenue), by EBITDA per subscriber, and by EBITDA minus capital expenditures (EBITDA minus CAPEX) per subscriber. While the seven largest mobile wireless service providers all had EBITDA margins over 20 percent during the second quarter of 2009, only four – AT&T, MetroPCS, T-Mobile, and Verizon Wireless – had EBITDA margins greater than 30 percent, and the two largest providers had the highest EBITDA margins. In addition, these two providers had the highest EBITDA minus CAPEX per subscriber of the top four providers in 2007 and 2008.

Reported EBITDA Margins: 2002 – 2009 (Selected Providers)

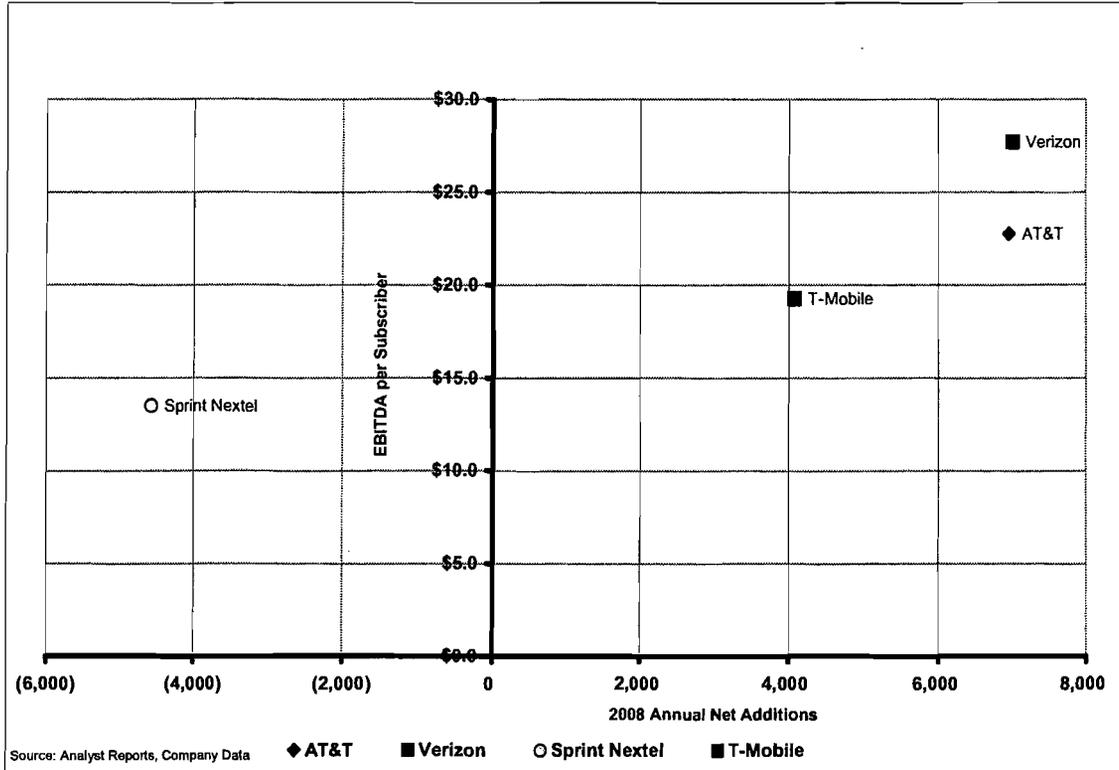


	2002 (Q4)	2003 (Q4)	2004 (Q4)	2005 (Q4)	2006 (Q4)	2007 (Q4)	2008 (Q4)	2009 (Q2)
Verizon Wireless	39.5%	39.7%	39.5%	46.8%	43.2%	43.6%	47.5%	46.3%
T-Mobile	9.1%	16.5%	18.5%	32.0%	29.8%	29.8%	31.1%	33.1%
Leap Wireless	5.7%	29.5%	29.4%	31.6%	17.1%	28.2%	17.7%	23.5%
US Cellular	23.7%	25.9%	24.6%	21.0%	25.2%	26.4%	21.3%	28.9%
Sprint Nextel			34.8%	34.6%	35.4%	28.7%	21.6%	21.7%
AT&T				31.1%	34.4%	38.2%	35.8%	38.3%
Metro PCS				28.9%	29.4%	29.9%	29.2%	30.5%

EBITDA minus CAPEX per Subscriber per Month (Selected Providers)



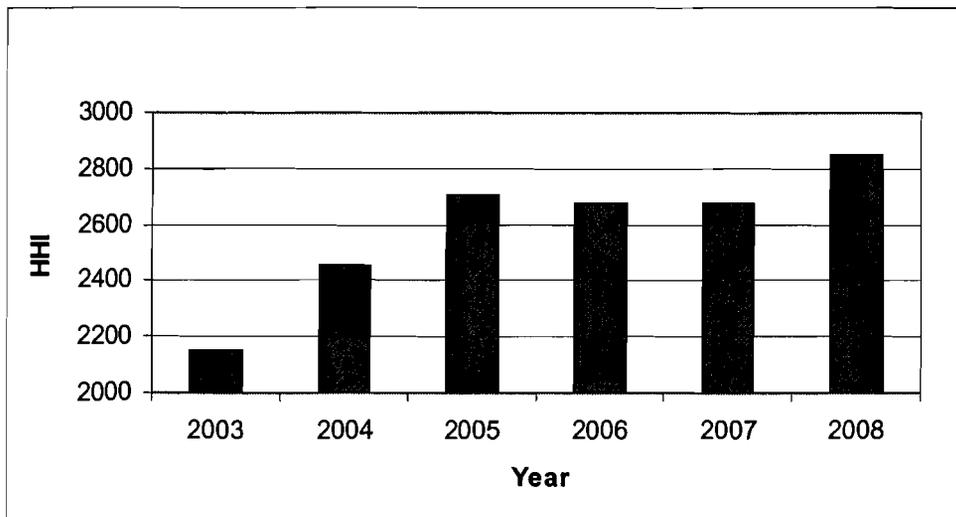
Subscriber Net Additions vs. EBITDA Per Subscriber: 2008



Market Concentration

The Herfindahl-Hirschman Index (HHI) is used to measure concentration of mobile wireless service providers. Average HHI (weighted by Economic Area (EA) population) increased in 2008 relative to prior years. Both the lowest EA HHI value and the highest EA HHI value are both higher than preceding years' lowest and highest EA HHI values. The weighted average of the HHIs (weighted by EA population) was 2848 in 2008, an increase from 2674 in 2007. The weighted average HHI has increased by nearly 700 since we first calculated this metric in 2003.

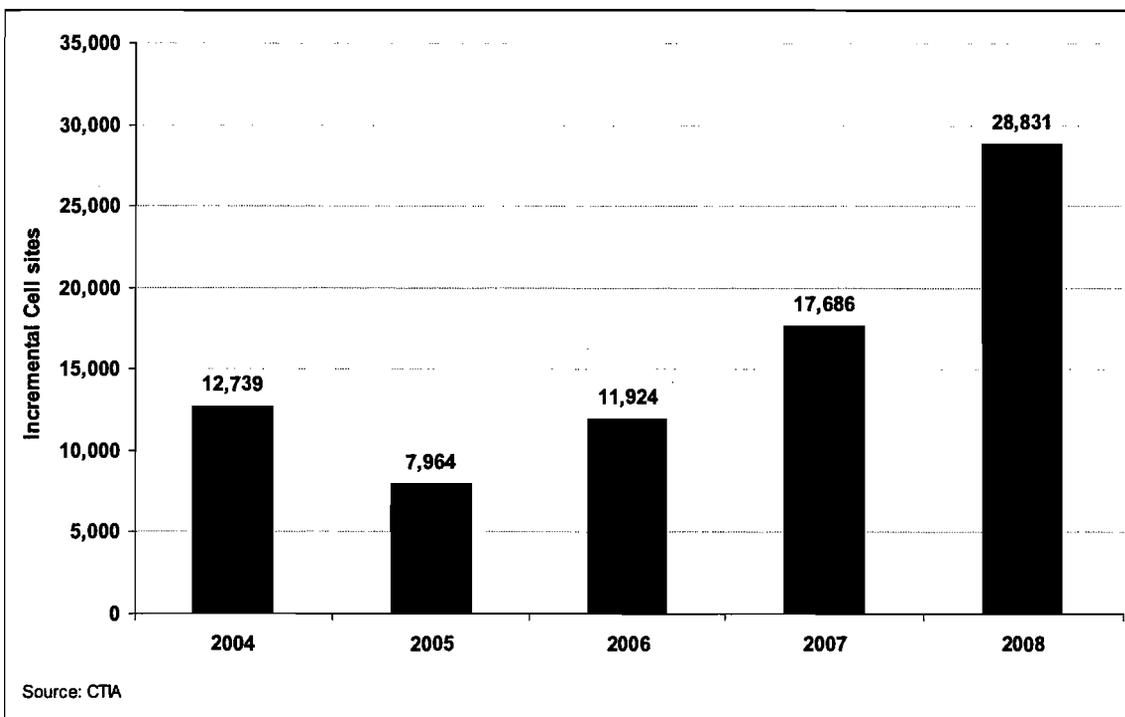
Average Herfindahl-Hirschman Index



Investment

Data from the Census Bureau suggests that, after decreasing by more than 20 percent between 2006 and 2007, capital expenditures by wireless providers rebounded in 2008, increasing by approximately 15 percent over the previous year to more than \$25.5 billion. CTIA–The Wireless Association (CTIA), however, reports that incremental capital investment by wireless operators totaled \$20.2 billion in 2008, a 4.4 percent decrease from the \$21.14 spent in 2007 and a 20 percent decrease from the \$25.2 billion spent in 2005. CTIA also reports that capital investment for the first half of 2009 totaled \$8.9 billion, a seven percent drop from the first half of 2008.

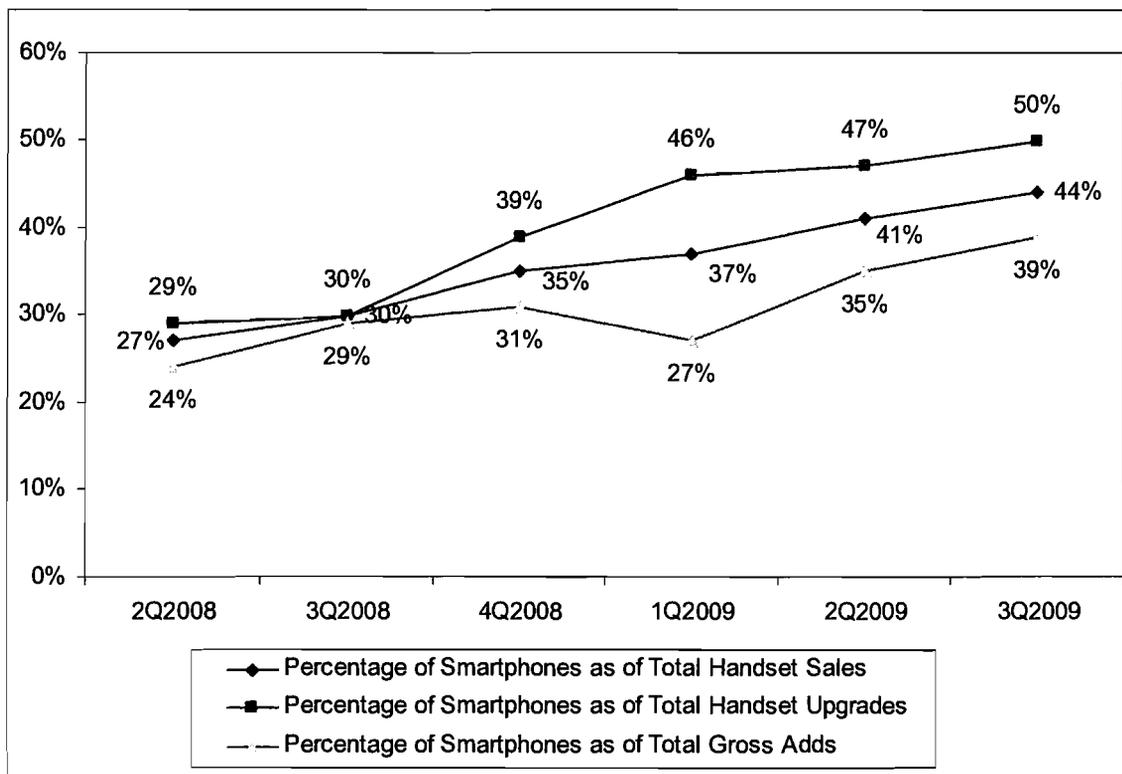
Data from both CTIA and the Census Bureau show that annual capital investment as a percentage of total industry revenue has been declining. According to CTIA data, capital expenditures, as a percentage of total revenue, declined from 22 percent in 2005 to 14 percent in 2008. According to CTIA, 2008 saw an increase in the pace of new cell site deployment, with nearly 29,000 cell sites deployed (compared to about 18,000 the prior year).



Mobile Wireless Handsets/Devices

Wireless handsets have evolved from the more traditional handsets that offer basic features such as voice and text messaging, to smartphones that offer Internet connectivity. Over the past two years, the industry has experienced an increase in smartphone adoption, led by the Apple iPhone. Smartphones accounted for 44 percent of total handsets sold in the third quarter of 2009, up from 27 percent in the second quarter of 2008.

Smartphone Adoption Rates in the United States



The iPhone's share of the smartphone business segment has grown as well, from 5 percent in the first quarter of 2008 to 17 percent in the third quarter of 2009. Google's Android operating system was also a notable development in 2008-2009. The emergence of new smartphone operating systems – Apple, Android, Research in Motion Ltd. (RIM) BlackBerry, Palm, and Windows Mobile – represents a shift in the mobile wireless ecosystem. In addition to launching new smartphones, several service providers began offering a range of data-only devices, including netbook computers with embedded modems, wireless data cards, and mobile Wi-Fi hotspots.

Spectrum

Spectrum is a necessary component of providing mobile wireless service. Sufficient access to spectrum with propagation characteristics suited to the efficient provision of mobile broadband service may be a contributing factor in the ability of a wireless service provider to compete effectively. Access to lower-frequency spectrum may account for some of the disparities in operating economics among providers.

Backhaul

Consumers are increasingly adopting Internet-connected mobile computing devices, such as smartphones, for purposes such as video and Internet browsing. Such data services consume greater amounts of bandwidth than traditional voice services, resulting in a greater need for backhaul capacity. Further, the rollout of 4G networks using Long Term Evolution (LTE) and WiMAX technologies, which support higher data throughput rates and lower latencies, will make access to sufficient backhaul for wireless service even more critical over time. While copper circuits currently serve as the predominant choice for backhaul, fixed wireless (including microwave) and fiber solutions are gaining popularity. Allowing the more efficient installation of fiber facilities, as well as providing for the more flexible use of microwave frequencies for backhaul, may help promote access to backhaul solutions that are critical to the deployment of wireless broadband and other services.

Roaming

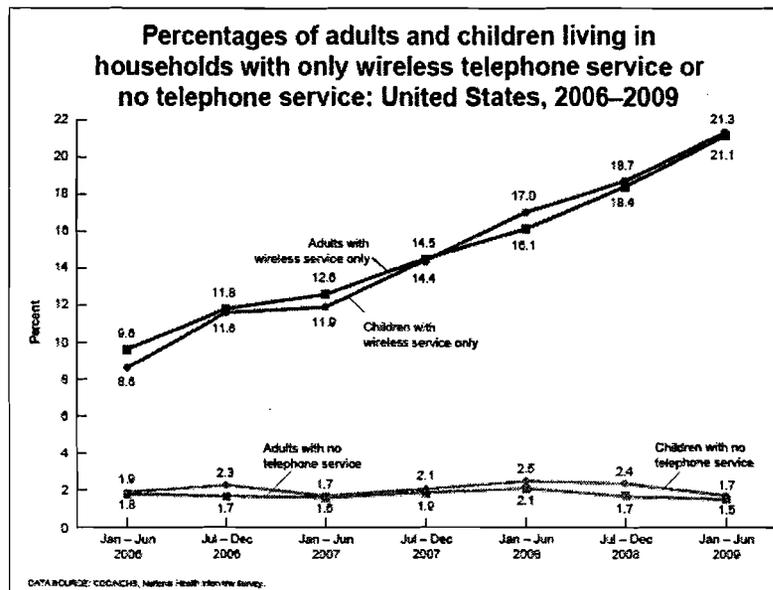
While reported annual roaming traffic has grown, roaming minutes as a percentage of total minutes has dropped significantly. Roaming minutes increased from 13 billion minutes in 1999 to 121.4 billion minutes in 2008. Yet this growth has been much slower than overall traffic growth, which increased from 147.7 billion minutes to 2.2 trillion minutes. Therefore, roaming as a percentage of overall traffic has decreased from 8.8 percent in 1999 to 5.5 percent in 2008, a relative decline of nearly 40 percent.

Service Quality

The J.D. Power and Associates (J.D. Power) 2009 Wireless Call Quality Performance Study (Volume 1) indicates that network quality for the industry overall has held steady since the 2008 study, with the number of problems reported by consumers remaining virtually unchanged at 15 problems per 100 calls.

Intermodal Competition

In the first half of 2009, 22.7 percent of households (or more than one out of every five), were wireless-only, up from 17.5 percent in the first half of 2008, 13.6 percent in the first half of 2007, and 10.5 percent in the first half of 2006. The percentages of adults and children living in such households are depicted in the chart below:



Urban-Rural Comparisons

Roughly 61 million people, or 21 percent of the U.S. population (including Puerto Rico), live in rural counties (defined as counties with a population density of 100 persons or fewer per square mile). These counties comprise 3.1 million square miles, or 86 percent of the geographic area of the United States. Analysis based on American Roamer data shows that 98.5 percent of the U.S. rural population, based on census blocks, receives coverage by at least one mobile wireless voice provider.⁹ In addition, 94.5 percent of the rural population lives in census blocks with two or more mobile voice operators competing to offer service, 83.1 percent live in census blocks with at least three competing mobile voice operators, and 65.5 percent live in census blocks with at least four competing mobile voice operators. The figures on the percentage of the U.S. rural population covered by a certain number of providers are similar to those in the *Thirteenth Report*. In that *Report*, the Commission estimated, based on July 2007 American Roamer data, that 94.2 percent of the rural population had a choice of at least two providers, 82.1 percent

⁹ See *infra* note 5 for a discussion of American Roamer data.

of the rural population had a choice of at least three providers, and 65.2 percent had a choice of at least four providers.

Estimated Mobile Voice Providers in Rural Areas by Census Block

Total Number of Providers in a Block	Number of Rural Blocks	POPs Contained in Rural Blocks	% of Total U.S. POPs	Square Miles Contained in Those Blocks	% of Total U.S. Square Miles
Total for Rural U.S.	4,169,790	60,836,650	21.3%	3,367,687	88.6%
			% of Total Rural U.S. POPs		% of Total Rural US Square Miles
1 or More	3,937,968	59,907,519	98.5%	2,310,870	68.6%
2 or More	3,575,744	57,469,158	94.5%	1,759,319	52.2%
3 or More	2,831,795	50,527,557	83.1%	1,131,548	33.6%
4 or More	1,978,475	39,828,360	65.5%	641,065	19.0%
5 or More	979,198	23,413,805	38.5%	257,068	7.6%
6 or More	220,472	5,327,376	8.8%	50,192	1.5%
7 or More	17,056	369,429	0.6%	3,918	0.1%

Source: Commission estimates based on data supplied by American Roamer, Oct. 2009.

Notes: POPs are from the 2000 Census, and the square miles include the United States and Puerto Rico.

Looking at mobile broadband service, the U.S. population in rural areas is not served by as many mobile broadband providers as other areas of the country. While 76 percent of the total U.S. population lives in census blocks with three or more mobile broadband providers, only 30 percent of the rural population is served by at least three broadband providers. In addition, 58 percent of the total U.S. population lives in census blocks with four or more mobile broadband providers; in rural areas, only ten percent of the population is served by four or more providers.¹⁰

Estimated Mobile Broadband Providers in Rural Areas by Census Block

Total Number of Providers in a block	Number of Blocks	POPs Contained in Those Blocks	% of Rural U.S. POPs	Square Miles Contained in Those Blocks	% of Rural U.S. Square Miles
1 or More	3,422,482	55,990,890	92.0%	1,688,928	50.2%
2 or More	1,889,535	37,592,392	61.8%	706,670	21.0%
3 or More	635,043	18,032,174	29.6%	142,609	4.2%
4 or More	160,703	6,350,563	10.4%	24,500	0.7%

Source: Commission estimates based on data supplied by American Roamer, Nov. 2009 (EV-DO/HSDPA/WiMAX Coverage).

Notes: POPs are from the 2000 Census, and the square miles include the United States and Puerto Rico.

International Comparisons

A comparison of the United States market with other developed markets reveals that consumers in the United States pay relatively more on a monthly basis than most other countries but also consume more airtime and enjoy lower unit rates. Despite the decrease in MOUs from 2007 to 2008, U.S. mobile subscribers continue to lead the world in voice usage by a substantial margin, with Western European

¹⁰ See Section III.C.1, Number of Competitors, *infra*.

subscribers averaging 158 MOUs and Japanese subscribers averaging 139 MOUs, compared to more than 700 minutes in the United States. Japan has the highest average monthly bill (ARPU) for mobile services (\$56.82), followed by the United States (\$51.54). The U.S. average monthly bill is significantly higher than the Western European average (\$33.45). At \$0.05 per minute, mobile calls remained less expensive on a per minute basis in the United States than in Western Europe, where voice RPM averaged \$0.16 at the end of 2008, and Japan, where voice RPM averaged \$0.26 at the end of 2008. At nearly 90 percent, U.S. mobile penetration is lower than average mobile penetration in Western Europe (128 percent) but higher than mobile penetration in Japan (86 percent).

Country	Penetration (% of Pops)	Prepaid (% of Subs)	MOUs	Revenue per Minute (\$)	ARPU (\$)	Data (% of ARPU)
Receiving Party Pays						
USA	88.9	17.1	829	0.05	51.54	25.5
Canada	64.8	21.2	444	0.09	49.24	17.8
Hong Kong	147.6	44.9	447	0.04	20.40	26.7
Singapore	135.8	48.6	377	0.06	32.08	27.3
Calling Party Pays						
UK	125.5	62.0	192	0.12	35.35	27.8
Germany	130.6	56.6	102	0.16	20.59	25.3
Italy	152.7	88.3	131	0.16	26.87	24.7
Sweden	123.6	35.0	206	0.10	28.05	20.9
France	91.9	34.2	246	0.14	44.37	18.3
Finland	127.5	12.7	244	0.12	33.91	18.9
Japan	85.7	1.4	139	0.26	56.82	41.0
South Korea	93.9	3.0	320	0.08	30.34	17.0
Australia	109.9	44.9	218	0.11	34.57	32.4

II. INTRODUCTION

5. In 1993, Congress created the statutory classification of Commercial Mobile Radio Services¹¹ (CMRS) to promote the consistent regulation of mobile radio services that are similar in nature.¹² At the same time, Congress established the promotion of competition as a fundamental goal for CMRS policy formation and regulation. To measure progress toward this goal, Congress required the Commission to submit annual reports that analyze competitive conditions in the industry.¹³

6. Congress called on the Commission to report on “competitive market conditions with respect to commercial mobile services.”¹⁴ In particular, the statute requiring the annual report on CMRS competition states:

The Commission shall review competitive market conditions with respect to commercial mobile services and shall include in its annual report an analysis of those conditions. Such analysis shall include an identification of the number of competitors in various commercial mobile services, an analysis of whether or not there is effective competition, an analysis of whether any of such competitors have a dominant share of the market for such services, and a statement of whether additional providers or classes of providers in those services would be likely to enhance competition.¹⁵

In the *Thirteenth Report*, the Commission found effective competition in the CMRS market based on a variety of metrics, including the number of providers, subscribers, usage, and prices.¹⁶ Since the period covered by the *Thirteenth Report*, CMRS competition has grown stronger by some of the measures previously considered, but weaker by others. To better comply with Congress’s mandate to assess market conditions, this *Report* looks beyond the metrics considered in the *Thirteenth Report* and undertakes a

¹¹ Commercial Mobile Services came to be known as the Commercial Mobile Radio Services, or “CMRS.” CMRS includes a large number of terrestrial services and some mobile satellite services. See 47 C.F.R. § 20.9(10).

¹² The Omnibus Budget Reconciliation Act of 1993, Pub. L. No. 103-66, Title VI, § 6002(b), amending the Communications Act of 1934 and codified at 47 U.S.C. § 332(c). As in the past, this *Report* bases its analysis on a consumer-oriented view of mobile services by focusing on specific product categories, regardless of their regulatory classification. In some cases, this includes an analysis of offerings outside the umbrella of “services” specifically designated as CMRS. However, because these other services can affect competition in the CMRS market and because providers of these other services can compete with CMRS providers, the Commission has indicated that it is important to consider them in the analysis. As the Commission said, paraphrasing the Department of Justice/Federal Trade Commission guidelines on merger review, “When one product is a reasonable substitute for the other in the eyes of consumers, it is to be included in the relevant product market even though the products themselves are not identical.” Application of Echostar Communications Corporation, General Motors Corporation, and Hughes Electronics Corporation (Transferors) and Echostar Communications Corporation (Transferee), *Hearing Designation Order*, 17 FCC Rcd 20559, 20606, ¶ 106 (2002).

¹³ 47 U.S.C. § 332(c)(1)(C).

¹⁴ 47 U.S.C. § 332(c)(1)(C). As noted in previous *Reports*, any individual proceeding in which the Commission defines relevant product and geographic markets, such as an application for approval of a license transfer, may present facts pointing to narrower or broader markets than any used, suggested, or implied in this *Report*. See, e.g., 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, *Twelfth Report*, 23 FCC Rcd 2241, 2252, n. 5 (2008) (*Twelfth Report*).

¹⁵ 47 U.S.C. § 332 (c)(1)(C).

¹⁶ 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, *Thirteenth Report*, 24 FCC Rcd 6185 (WTB 2009) (*Thirteenth Report*).

more expansive and detailed analysis of the mobile wireless industry than past reports.

7. In order to improve upon the competitive analysis of previous *Reports*, the Wireless Telecommunications Bureau, in May 2009, released a *Public Notice* soliciting data and information in order to evaluate the state of competition among providers of CMRS.¹⁷ The *Fourteenth Report Public Notice* sought comment generally on which indicators are useful for analyzing competitive market conditions with respect to CMRS.¹⁸ In August 2009, the Commission released a *Notice of Inquiry (NOI)* seeking to expand and enhance its understanding of mobile wireless competition in various ways.¹⁹ The *NOI* requested input on the analytic framework the Commission should use to examine and describe competition in the mobile wireless market.²⁰ The August 2009 *NOI* also sought information on the competitive effects of vertical relationships between wireless service providers and other markets that supply inputs that are required to produce the services, applications, and content used by consumers.²¹ In particular, it sought comment on the various input segments, the contractual relationships firms in these segments have with providers of mobile wireless services, and the effects of these relationships on mobile wireless competition.²²

8. The *Fourteenth Report* integrates data on market conditions with respect to CMRS into a general analysis of competition in the mobile wireless services marketplace. Many providers of CMRS also offer a variety of mobile data services, including mobile broadband Internet access service, which is not classified as “CMRS,”²³ and other mobile data services whose regulatory status the Commission has not addressed.²⁴ For the *Fourteenth Report*, our analysis of the mobile wireless services industry includes voice, messaging, and broadband services because they often jointly use the same spectrum, network facilities, and customer equipment; and many mobile providers have integrated the marketing of these services, often offering them in bundles. Also, consumers are increasingly substituting among voice, messaging, and data services, and, in particular, are willing to substitute from voice to messaging or data services for an increasing portion of their communication needs.

¹⁷ “Wireless Telecommunications Bureau Seeks Comment on Commercial Mobile Radio Services Market Competition,” WT Docket No. 09-66, *Public Notice*, 24 FCC Rcd 5618 (WTB 2009) (*Fourteenth Report Public Notice*).

¹⁸ *Fourteenth Report Public Notice*, 24 FCC Rcd at 5619-5620.

¹⁹ Implementation of Section 6002(b) of the Omnibus Budget Reconciliation Act of 1993, Annual Report and Analysis of Competitive Market Conditions with Respect to Mobile Wireless, including Commercial Mobile Services, *Notice of Inquiry*, 24 FCC Rcd 11357, 11359, ¶ 5 (2009) (*Competition Report NOI*).

²⁰ *Id.*

²¹ *Id.* See Appendix E for a list of commenters.

²² *Competition Report NOI*, 24 FCC Rcd at 11364-11366, ¶¶ 23-27.

²³ In 2007, the Commission classified wireless broadband Internet access service as an information service under the Communications Act and found that wireless broadband Internet access service using mobile technologies was not a “commercial mobile service” as defined in the Act. Appropriate Regulatory Treatment for Broadband Access to the Internet over Wireless Networks, WT Docket No. 07-53, *Declaratory Ruling*, 22 FCC Rcd 5201 (2007).

²⁴ We note that the regulatory classification of a particular wireless service offered by a CMRS carrier is determined on a case-by-case basis. See Amendment of the Commission’s Rules to Permit Flexible Service Offerings in the Commercial Mobile Radio Service, WT Docket No. 96-6, *Second Report and Order and Order on Reconsideration*, 15 FCC Rcd 14680, 14683, ¶ 7, 14687, ¶ 15 (2000). Aside from broadband Internet access service, the regulatory classification of services and applications that rely on Internet Protocol (IP-enabled services) is pending. See IP-Enabled Services, WC Docket No. 04-36, *Notice of Proposed Rulemaking*, 19 FCC Rcd 4863 (2004). In addition, the Bureau has sought comment on a petition seeking clarification on the regulatory classification of text messaging services. See “Wireless Telecommunications Bureau Seeks Comment on Petition for Declaratory Ruling That Text Messages and Short Codes Are Title II Services or Are Title I Services Subject to Section 202 Non-Discrimination Rules,” *Public Notice*, 23 FCC Rcd 262 (WTB 2008).

9. The ongoing transition of mobile wireless services from interconnected mobile voice service to an array of voice, messaging, and broadband services provided on previous and next generation mobile networks has contributed to the growth in diverse mobile wireless market segments that are involved in bringing these information products to consumers. These interrelated market segments form the mobile wireless ecosystem, the various parts of the supply and production network that bring thousands of mobile wireless products to Americans every day. Each of the segments in the mobile wireless ecosystem has the potential to affect competitive and consumer outcomes in the mobile wireless services segment. As a result, unlike previous annual reports on the state of CMRS competition,²⁵ this *Report* analyzes competition across the entire mobile wireless ecosystem, expanding its analysis to include new “upstream” and “downstream” market segments such as device and infrastructure, and how the vertical relationships among these segments affect mobile wireless competition.²⁶

10. Figure 1 below provides an illustration of the mobile wireless ecosystem and the sections of the *Fourteenth Report* in which each of the ecosystem segments is discussed. The input segments are divided into spectrum, towers, network equipment, and backhaul facilities.²⁷ Following these inputs, the transmission of mobile wireless services includes voice services, messaging services,²⁸ and data services (including broadband). The downstream segments include mobile devices, device operating systems, and mobile applications, content, and mobile commerce.²⁹ Mobile devices, the endpoints of mobile networks, are the last of many links in mobile wireless networks that connect consumers to the network. For more and more consumers, mobile devices are evolving from voice-only handsets to handheld computers with sophisticated operating systems capable of supporting many of the same functionalities and software applications of personal computers (*e.g.*, Internet browsers, video players, and e-mail programs). Mobile devices can also include devices that do not even provide circuit-switched voice service, such as modems for portable computers and electronic books. The final layer of the mobile wireless ecosystem consists of the information products that are transmitted over mobile data networks and directly consumed by subscribers. These information goods include mobile applications, content (*e.g.*, video and music files, web sites, photos, and documents), and mobile commerce (*e.g.*, electronic shopping and financial transactions using a mobile device). It is recognized that these input segments can affect entry, competition, output, or prices in the provision of mobile wireless services. The importance of the downstream segments to consumers’ mobile wireless experience is increasing with the deployment of mobile broadband networks that support Internet-based applications.

²⁵ See 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, *First Report*, 10 FCC Rcd 8844 (1995); *Second Report*, 12 FCC Rcd 11266 (1997); *Third Report*, 13 FCC Rcd 19746 (1998); *Fourth Report*, 14 FCC Rcd 10145 (1999); *Fifth Report*, 15 FCC Rcd 17660 (2000); *Sixth Report*, 16 FCC Rcd 13350 (2001); *Seventh Report*, 17 FCC Rcd 12985 (2002); *Eighth Report*, 18 FCC Rcd 14783 (2003); *Ninth Report*, 19 FCC Rcd 20597 (2004); *Tenth Report*, 20 FCC Rcd 15908 (2005); *Eleventh Report*, 21 FCC Rcd 10947 (2006); *Twelfth Report*, 23 FCC Rcd 2241; *Thirteenth Report*, 24 FCC Rcd 6185. The reports can also be found on the Commission’s website at http://wireless.fcc.gov/index.htm?job=cmrs_reports.

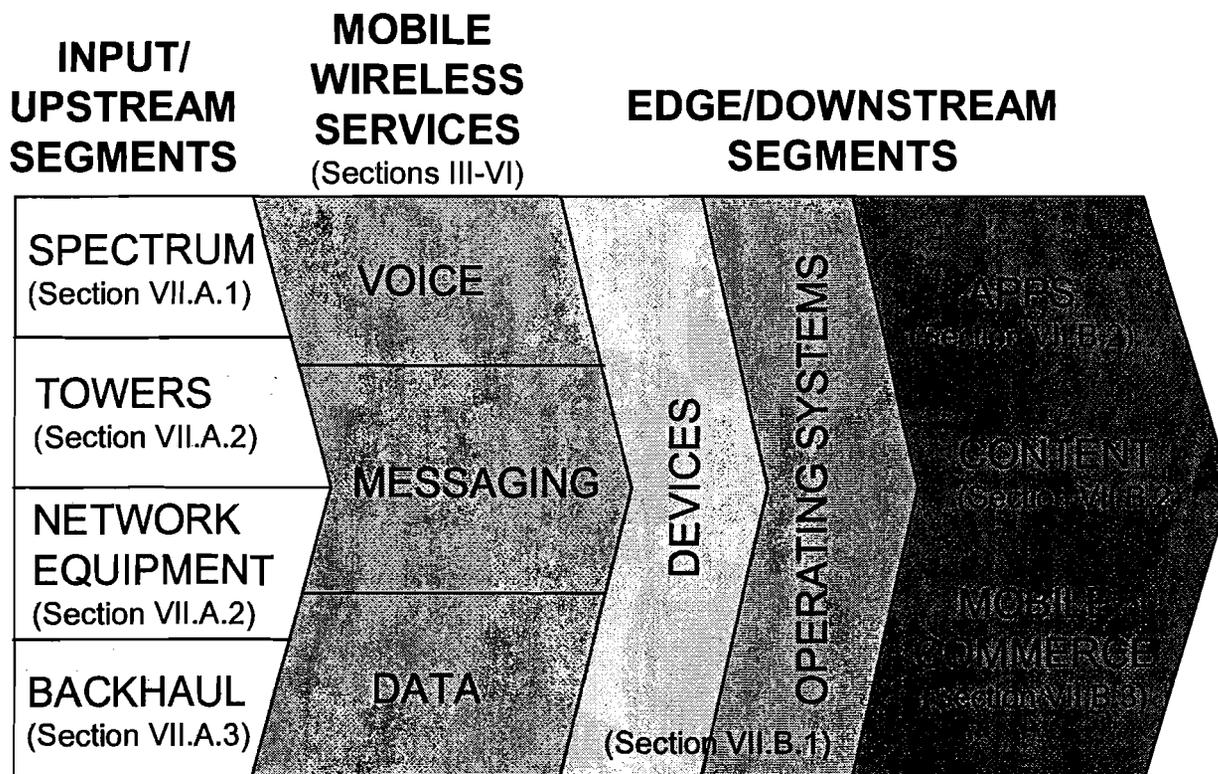
²⁶ Commenters have supported expansion of the analysis of the mobile wireless ecosystem. See, *e.g.*, California PUC Reply at 2; New Jersey Division of Rate Council Comments at 4.

²⁷ Spectrum, towers, network equipment, and backhaul facilities can be viewed as input or upstream markets because of their input relation to mobile wireless networks.

²⁸ Messaging includes text and multimedia (photo and video) message services, also referred to as SMS (Short Message Service) and MMS (multimedia messaging services), respectively.

²⁹ Mobile devices, device operating systems, and mobile applications, content, and mobile commerce can be viewed as edge or downstream markets because they are products that utilize mobile wireless services.

Figure 1. Mobile Wireless Ecosystem



11. In this *Report*, the discussion of the middle part of the mobile wireless ecosystem – mobile wireless services – includes a detailed analysis of mobile wireless service market conditions, including an analysis of whether there is effective competition in the CMRS market, as required by Section 332(c) of the Act. As discussed above, the statute requires an identification of the number of competitors in the various commercial mobile services, an analysis of whether any of the competitors have a dominant share of the market for the services, and a statement of whether additional providers or classes of providers in the services would be likely to enhance competition. In May 2009, the Wireless Telecommunications Bureau released a *Public Notice* seeking comment on which indicators are the most relevant for analyzing competitive market conditions and whether any specific criteria should be used to more precisely define a standard of effective competition.³⁰

12. This competitive analysis of mobile wireless services in the *Fourteenth Report* considers data that provide information on whether any wireless service provider is exercising undue market power – the ability to profitably charge prices above cost for a sustained period of time due to a lack of competitive constraints.³¹ This analysis has been organized in four distinct categories: market structure, provider conduct, market performance, and consumer behavior.³² First, within market structure, the

³⁰ *Fourteenth Report Public Notice*, 24 FCC Rcd at 5619-5621.

³¹ See Dennis W. Carlton and Jeffrey M. Perloff, *Modern Industrial Organization* (4th ed.), Addison, Wesley, Longman, Inc., 2005, at 8, 249-251 (*Modern Industrial Organization*).

³² This organization is a variant of the Structure-Conduct-Performance framework in economics. We employ this framework as a taxonomy to organize the data, and we recognize the modern critique of economists that this framework is a descriptive model and some of its assumptions are not found in current economic models. See, e.g., *Modern Industrial Organization* at 2, 268. Numerous commenters supported the use of this framework. See, e.g., (continued....)

number of competitors is analyzed and measures of concentration are calculated because there is some relation between the ability to exercise market power and market concentration, *i.e.*, without competitors or potential entry, there can be no competitive constraints on market power. The *Report* also investigates entry and exit of wireless service providers, the potential for any antitrust violations in the mobile wireless market, and the existence of any intermodal sources of competition. These factors provide additional valuable information on the amount of competitive pressure existing in the mobile wireless services market that can serve to restrain exercises of market power. Entry and exit conditions may affect the number of competitors that can enter and compete in the market, and, as discussed above, this in turn can influence whether any firm can exercise undue market power. Mergers, a type of exit, are closely reviewed by the Commission because mergers can potentially form stronger competitors that restrain competitors from exercising market power. At the same time, a merger may increase the risk that the merged firm may itself exercise undue market power. Last, although mobile wireless services have some unique characteristics, we regularly assess whether intermodal sources of competition (*e.g.*, wireline, fixed wireless, and satellite communication services) can or will place competitive pressure on mobile wireless service providers.

13. Second, price and non-price rivalry are examined as part of provider conduct. We discuss product differentiation, network investment and technology upgrades, advertising and marketing, and innovation because such non-price modes of competition can impose significant competitive constraints, especially in high technology industries that experience rapid innovation.

14. Third, the section on market performance evaluates evidence of the outcomes of competitive conditions in the mobile wireless industry from the consumer's point of view, focusing on the benefits to consumers of competition, such as lower prices, higher consumption, and better quality. In contrast, the sections on market structure, provider conduct, and consumer behavior examine various structural and behavioral determinants of such market outcomes. Within market performance, prices of services across competitors provide more direct evidence of competitive outcomes and the strength of competitive rivalry than do measures of concentration. The study of prices also provides evidence of any unusual increases or upward trends in prices. In addition, the quantity of services consumed is analyzed because exercises of undue market power are often accompanied by observable restrictions on the quantity of services produced.³³

15. Accordingly, this *Report* complies with the statutory requirements for analyzing competitive market conditions with respect to commercial mobile services by employing the competition analysis described above. We analyze the extent of competitive pressure and rivalry present in the mobile wireless market, the benefits received by consumers, and trends in indicators of firm rivalry and consumer benefits over time. This analysis of competitive conditions also tries to identify areas where competition is strong and also areas that could benefit from increased competition. In some cases, the *Report* provides data that can form the basis for in-depth proceedings, special oversight, or targeted regulations that could promote competition and consumer welfare.

16. The mobile wireless ecosystem is sufficiently complex such that no single definition of effective competition adequately encompasses both general indicators of competition and challenges inherent in the mobile wireless industry, such as spectrum availability, network interconnection issues,

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Mercatus NOI Comments at 2; CTIA NOI Comments at 72-75, and Verizon Wireless NOI Comments at 2, 7, 8, and 12.

³³ See Ernest Gellhorn, *Antitrust Law and Economics* (4th ed.), West Publishing, 1994, at 117 (stating "Market shares are not synonymous with market power; they should mark the beginning for careful analysis, not the end of it.") (*Antitrust Law and Economics*). See also, Michael Whinston, *Antitrust Policy toward Horizontal Mergers*, in *Handbook of Industrial Organization*, Volume 3, edited by Mark Armstrong and Robert Porter, at 2411-2414; Massimo Motta, *Competition Policy: Theory and Practice*, Cambridge University Press, at 117 (*Competition Policy*).

and network access issues.³⁴ Further, there is no definition of “effective competition” that is widely accepted by economists or competition policy authorities such as the U.S. Department of Justice (DOJ).³⁵ The DOJ’s position on competition policy is in agreement with the approach taken in the *Fourteenth Report*.³⁶ The DOJ states, “[t]he operative question in competition policy is whether there are policy levers that can be used to produce superior outcomes, not whether the market resembles the textbook model of perfect competition.”³⁷ We note as well that the Commission’s first seven Annual CMRS Competition Reports did not include an overall conclusion regarding whether or not the CMRS marketplace was effectively competitive. Instead, they provided an analysis and description of the CMRS industry’s competitive metrics and trends. Thus, this *Report* returns to the approach of those Reports, but with an expanded and more detailed analysis of the entire mobile wireless ecosystem.

17. *Structure of the Report.* The *Fourteenth Report* addresses the markets and market segments that constitute the mobile wireless ecosystem. The mobile wireless services market, including CMRS, is addressed in Sections III - VI. These sections follow the market structure-provider conduct-market performance-consumer behavior competitive analysis framework described above. The input segments of the mobile wireless services market are analyzed in Section VII.A and the handset/device market, mobile applications, and mobile commerce are analyzed in Section VII.B. Intermodal Competition is discussed in Section VIII. Differences across Geographic Markets, including Urban-Rural Comparisons and International Comparisons, are addressed in Section IX. The Appendices discuss spectrum available for mobile wireless services (Appendix A), provide an extended discussion on mobile wireless network technologies (Appendix C), and present tables and maps (Appendix D).

18. *Data Timeframes.* The *Fourteenth Report* focuses on conditions prevailing in the mobile wireless industry during 2008 and 2009. Given that the industry is dynamic and that market conditions are rapidly evolving, we strive to use the most recent data available in our analysis. In cases where our analysis relies on annual year-end metrics – such as with subscribership levels, penetration rates, and concentration – we use, and have included in the *Report*, year-end 2008 data. In other cases, where our analysis is based on metrics reported quarterly or semi-annually, we have included data through the second or third quarter of 2009, or mid-2009, respectively. The *Report*’s analysis of network coverage and the number of providers is based on data provided by American Roamer in October 2009 (for voice or overall network coverage) and November 2009 (for mobile broadband and next-generation network coverage). Many sections of the *Report* also discuss major industry developments, where relevant, that occurred during 2009 and early 2010.

19. *Dollar Amounts.* Dollar figures stated in this *Report* have not been adjusted for inflation (*i.e.*, they are nominal dollars) unless stated otherwise.

³⁴ See *e.g.*, *Ex Parte* Submission of the United States Department of Justice, GN Docket No. 09-51, at 11 (filed Jan. 4, 2010) (stating that “[w]e do not find it helpful to define an abstract notion of whether or not broadband markets are ‘competitive.’”); AT&T PN Comment at 10 (stating that “[r]eal world markets are incredibly complex and cannot be simplified to “silver bullet” or bright-line indicator metrics”). We also note that the Commission’s first seven Annual CMRS Competition Reports did not include an overall conclusion regarding whether or not the CMRS marketplace was effectively competitive.

³⁵ See *Ex Parte* Submission of the United States Department of Justice, GN Docket No. 09-51 at 11 (filed Jan. 4, 2010).

³⁶ See *id.*

³⁷ *Id.*