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Written Statement of

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Before the

House of Representatives

Committee on Energy and Commerce

Subcommittee Telecommunications and the Internet

Hearing on

"An Examination of Competition in the Wireless Industry"

May 7, 2009

Testimony of George S. Ford, PhD

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I. Introduction

Mr. Chairman, Ranking Member Stearns, and members of the Subcommittee, good morning and thank you for inviting me to testify today.

My name is Dr. George S. Ford, and I am the Chief Economist of the Phoenix Center for Advanced Legal and Economic Public Policy Studies, a non-profit 501(c)(3) organization that focuses on publishing academic-quality research on the law and economics of telecommunications and high-tech industries. Our research agenda is consistently targeted at providing policymakers information about the important role that pro-entry policies must play in the communications industry. In the last decade, we have written nearly fifty papers on telecommunications policy, many of which have been published in academic journals. Moreover, we make all of our research—as well as rebuttals by those who do not agree with us—available free at our website, www.phoenix-center.org. I hold a Ph.D. in Economics from Auburn University, and the economics of the communications industry has been the focus of my career—starting with my Ph.D. dissertation on competition in the cable television industry. Before joining the Phoenix Center full time, I worked at MCI and Z-Tel Communications, Inc.,

in addition to a stint at the Competition Division in the Federal Communications Commission's Office of General Counsel. I have authored numerous research studies that explore this industry, and many of these studies have been published in peer-reviewed academic journals, books and other academic outlets.

Before beginning my testimony today, I wish to make it clear that the Phoenix Center makes it a policy not to endorse or support any particular piece of federal or state legislation or proposed regulation. Our mission is not to tell policymakers *what* to think about an issue but more *how to think* about it. As such, our contributions to communications policy are decidedly more analytical than most, and we refuse to ignore the institutional realities and economic constraints of the communications business.

That realistic analytical perspective is particularly important for the topic of today's hearing—competition in the wireless industry. You no doubt have seen statistics on the industry demonstrating consistent and sizeable price declines over time, rising subscription, the number of competitors in various markets, and so forth.

By most accounts, the wireless industry today is *workably* competitive. Note that I did not say it was *perfectly* competitive. Perfect competition is a textbook Nirvana that is not a realistic benchmark for any industry, much less the wireless industry. By workably competitive, I mean to imply that the rivalry among the firms in the industry is sufficiently intense that regulatory intervention is unlikely to render any positive outcomes and highly likely to produce costly unintended consequences. In much of the debate over wireless regulation, one side argues that competition is flawless, while the other side argues that competition stinks and regulation is flawless. In truth,

competition is rarely perfect, but regulation is *never* perfect.[1] Effective regulation is very difficult to achieve even under the best of circumstances. Even a little competition trumps regulation in almost all instances.

What evidence is there to support the hypothesis of workable competition? First, industry data show that the vast majority of Americans have access to at least three or four wireless service providers with choices of literally dozens of handsets. There were 270 million wireless subscribers in 2008, or 87% of the U.S. population with a wireless phone.[2] I am not fond of international comparisons because there is too much put into the "other things constant" column,[3] but prices for wireless services in the United States are far lower than they are in Europe, for example, and American citizens have far more choice in providers as well. Minutes of use in the United States literally dwarfs usage in other OECD countries. Mobile broadband is growing rapidly as well. The growth in

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[1] As both the courts and the FCC have consistently recognized, ratemaking is "far from an exact science". *See, e.g., Federal Power Commission, v. Conway Corporation et al.,* 426 U.S. 271, 278 (1976); *WorldCom, Inc. v. FCC,* 238 F.3d 449, 457 (2001); *Southwestern Bell Telephone Co. v. FCC,* 168 F.3d 1344, 1352 (D.C. Cir. 1999); *Time Warner Entertainment Co. v. FCC,* 56 F.3d 151, 163 (D.C. Cir.1995); *United States v. FCC,* 707 F.2d 610, 618 (D.C. Cir. 1983); *see also Access Charge Reform,* Fifth Report and Order and Further Notice of Proposed Rulemaking, 14 FCC Rcd 14221 (1999) at ¶ 14483, where the FCC justified its special access deregulation triggers by noting that "regulation is not an exact science".

[2] This information was gathered by CTIA-The Wireless Association from its members. *See* http://www.ctia.org/media/industry_info/index.cfm/AID/10323.

[3] *See, e.g.,* Testimony of George S. Ford, PhD, Chief Economist Phoenix Center for Advanced Legal & Economic Public Policy Studies, Before the House Committee on Commerce and Energy - Subcommittee on Telecommunications and the Internet Hearing on "Digital Future of the United States: Part IV: Broadband Lessons from Abroad"(April 24, 2007)(available at: http://www.phoenix-center.org/FordRankingTestimony24April2007.pdf); *see also* G.S. Ford, T.M. Koutsky and L.J. Spiwak, *The Broadband Performance Index: A Policy-Relevant Method of Comparing Broadband Adoption Among Countries*, PHOENIX CENTER POLICY PAPER NO. 29 (July 2007)(available at: http://www.phoenix-center.org/pcpp/PCPP29Final.pdf); G.S. Ford, T.M. Koutsky and L.J. Spiwak, *The Broadband Efficiency Index: What Really Drives Broadband Adoption Across the OECD?* PHOENIX CENTER POLICY PAPER NO. 33 (May 2008)(available at: http://www.phoenix-center.org/pcpp/PCPP33Final.pdf); G. Ford, PHOENIX CENTER PERSPECTIVES NO. 08-03 (Second Edition): *Broadband Expectations and the Convergence of Ranks* (October 1, 2008)(available at: http://www.phoenix-center.org/perspectives/Perspective08-03Final.pdf).

mobile broadband is reaching the United States rapidly. In 2007, 68% of all broadband subscribers added in the United States were mobile connections. Prices and quality in the industry have risen so significantly that recent studies show that about 17% of the U.S. households have abandoned wireline phone service altogether in favor of mobile telephony.[4] Most significantly, there is not a shred of evidence of which I am aware that shows collusion or a lack of competition in the wireless industry.[5]

These data reflect favorably on the economic performance of the industry and are important. But equally as important is a meaningful framework with which these data can be converted into information that is useful for developing policy. In this testimony,

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[4] Nielsen Media, CALL MY CELL: WIRELESS SUBSTITUTION IN THE UNITED STATES (Sept. 2008)(available at: http://www.nielsenmobile.com/documents/WirelessSubstitution.pdf).

[5] *In re Implementation of Sections 3(n) and 332 of the Communications Act, Regulatory Treatment of Mobile Services,* Second Report & Order, FCC Docket No. 94-31 (rel. Mar. 7, 1994) at ¶ 149 ("[c]omplex pricing structures, such as are used in the cellular industry, make it difficult for a carrier to sustain collusive pricing."). Indeed, economic theory suggests that product differentiation often impedes oligopolistic coordination. As observed by Kaserman and Mayo:

> [W]here firms in the market produce a product whose differences are either nonexistent or so minor that the only dimension of competition between firms is price[,] it is relatively easy for firms to agree to establish an anticompetitive price. Where firms compete in many dimensions (for example, price, quality, and new service or product innovations), however, it becomes more difficult to successfully collude because firms will need to establish limits on competition in each of the relevant dimensions.

D. Kaserman and J. Mayo, GOVERNMENT AND BUSINESS: THE ECONOMICS OF ANTITRUST AND REGULATION (1995) at 159; s*ee also,* F.M. Scherer & David Ross, INDUSTRIAL MARKET STRUCTURE AND ECONOMIC PERFORMANCE (1990) at 279 ("When products are heterogeneously differentiated, the terms of rivalry become multidimensional, and the coordination problem grows in complexity by leaps and bounds."); P. Areeda and H. Hovenkamp, ANTITRUST LAW: AN ANALYSIS OF ANTITRUST PRINCIPLES AND THEIR APPLICATION (2d Ed. 2002) at ¶ 404a (product complexity, differentiation, or variety "multiplies avenues of rivalry and hence the decisions that must be coordinated, because even if firms reach a coordinated price, they may continue to compete by improving product quality."); *see also, In re Implementation of Sections 3(n) and 332 of the Communications Act, Regulatory Treatment of Mobile Services,* Second Report & Order, FCC Docket No. 94-31 (rel. Mar. 7, 1994) at ¶ 149 ("[c]omplex pricing structures, such as are used in the cellular industry, make it difficult for a carrier to sustain collusive pricing."); *but cf.,* S. Martin, ADVANCED INDUSTRIAL ECONOMICS (1993) at 116-7 ("[p]roduct differentiation reduces the incremental profit to be gains by departing form a joint-profit-maximizing configuration because product differentiation insulates rivals' markets and reduces the extent to which a single firm can lure rivals' customers into its own market.").

I hope to provide you with a few key economic ideas that will help put the data into context. My testimony is not, of course, a complete framework, and is driven by economic science. Understanding competition in the wireless industry is more complex than any single piece of testimony can portray. To this end, I will spend the bulk of my time discussing a few economic principles relevant to evaluating wireless industry competition and firm conduct. After which, I will briefly describe my research on the merits of a single, national regulatory framework for wireless services, which I know is a topic of great interest for this committee.

II. Concentrated Markets and Public Policy

We must recognize that being a provider in the mobile telecommunications industry requires significant capital expenditures, both on an upfront and continuing basis. The industry incurs about $20 billion in capital expenditures annually, operates nearly one-quarter of a million cell sites (242,130), and employs about the same number of persons (268,500).[6] Industrial economics teaches us that in industries with large fixed and sunk costs relative to retail expenditures, only a relatively few number of firms will be able to survive and continue to offer service.[7] In my professional opinion, even in a "best case scenario," only a handful of firms, say three or five, will be able to provide mobile services, including mobile broadband, to consumers. A three to five firm equilibrium is outstanding in telecommunications, and the wireless industry is the most

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6 CTIA, *supra* n. 2.

7 G. S. Ford, T. M. Koutsky and L. J. Spiwak, *Competition After Unbundling: Entry, Industry Structure and Convergence,* PHOENIX CENTER POLICY PAPER NO. 21 (July 2005); *and reprinted in* 59 FEDERAL COMMUNICATIONS LAW JOURNAL 331 (2007).

competitive in this regard of any industry segment. This fewness is a consequence of the underlying economics of the industry. Any discussion that begins with the notion that large numbers of competitors and entrants are possible in this industry is fundamentally incorrect. More importantly, accepting such a premise can lead to incorrect policy choices.

However, the fact that only a few number of firms may be viable in the industry need not be a cause for concern, though it may be a reason for regular review of the industry. Congress requires that the Federal Communications Commission ("FCC") conduct an annual review of competition in commercial mobile radio service (CMRS), and the FCC has generated thirteen such reports. Those reports go into great detail about actual economic performance in the industry, important insights beyond simple analysis of market concentration ratios.[8] Indeed, in some models of competition, a competitive outcome can be observed with only two firms, and, moreover, intense price competition in an industry with high fixed costs can result in a concentrated market. In that latter case, market concentration is an *indicator* of intense competition, not a symptom of a problem.[9] In industries such as wireless communications there is a trade-off between intense competition and the number of firms. The more intense is the competition, whether naturally occurring or induced by regulation, the fewer the number of firms that can survive. In this environment, with large fixed costs, the textbook observation "more firms means more competition" is not very useful.

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8 *Id.*, 59 FEDERAL COMMUNICATIONS LAW JOURNAL at 339-40, 346-50 and citations therein.

9 *Id.*, 59 FEDERAL COMMUNICATIONS LAW JOURNAL at 346-50.

I do not mean to imply that market concentration information should be ignored, but it must be placed in the correct context. Observing that a market in the wireless industry is more or less concentrated does not lead one to any one set of unambiguous conclusions as to what to do about it. While it often assumed that observing that there are only few firms implies that there is little competition, there is no unambiguous theoretical support for that position. When a person or group associates few firms with little competition, all we know is which, among many, theoretical possibilities has been chosen. This choice says nothing about the facts or empirical regularities of the industry.

An equilibrium of a few firms in the wireless industry, say about four or five in larger metropolitan markets and even fewer in smaller markets, is a result of the underlying economics of the industry. Wishing for a large number of network providers in mobile telephony and broadband is a waste of wishes. Policies deliberately designed to de-concentrate the market to more than the equilibrium number of firms are destined to fail and are likely to spawn a series of inefficiencies and market distortions, and inevitably mergers.

There may be a time, in the future, when the cost structure radically changes, or the market size dramatically increases, or hopefully both, when one or more additional firms may be economically feasible.[10] But based on the evidence that I have seen and my experience, I do not believe that day is today. Deployments of new wireless services still

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[10] VoIP was transformative in the wireless phone market, reducing the cost of entry by cable systems into the wireline telephone market, creating widespread competition in that market in very short order.

require considerable investment in antennae, handsets, and large customer and operational support systems. The technologies appear to be changing faster than investment decisions can be made. Simply to keep up, network providers invest billions in those assets every year, and these assets are expected to have very short economic lives. There is no reason to believe that next-generation technology will require any less of an effort.

The inherent economic limitations on the number of providers is relevant for policies limiting the amount of spectrum held by a single firm—commonly called spectrum caps. Contrary to widely held beliefs, it is not possible to increase the equilibrium number of firms in the industry simply by increasing the amount of spectrum. Whether there are two or ten firms, the cost to deploy and upgrade a wireless network is roughly the same. Dividing the market in smaller pieces by divvying up spectrum will not increase the equilibrium number of firms, it will only cause an unstable, non-equilibrium condition. While important, spectrum is only one input into the industry and is only one part of the industry cost structure.

Economic logic also suggests that there should not be limits placed on the amount of spectrum one firm or an incumbent provider may bid upon, subject to antitrust review. The consideration of spectrum caps involves a tradeoff. You can divide the spectrum into small pieces and try to force a many-firm outcome of sellers selling low bandwidth offerings, or give larger blocks to a fewer firms and let them compete on price, quality, and innovation in higher bandwidth services. In most cases, the latter provides greater social value than the former, and only in part because the

former is unlikely to be sustainable. Broadband competition (competition over quality) offers significant gains to consumers, whereas the gains from the price cuts of the fourth or fifth narrowband firm could be relatively small.

More spectrum means more value in wireless communications. I recommend that as much spectrum as possible, as quickly as possible, get auctioned off to the highest bidder. The more spectrum a firm has, the more that can be done with it. Mobile broadband is possible only when there is sufficient access to spectrum. I also recommend that the bulk of spectrum be licensed. Licensed spectrum allows for secondary markets to emerge where spectrum assets can be traded, borrowed, and shared.[11] This promotes more efficient spectrum usage without the interference and congestion problems inherent to unlicensed spectrum. There may be a role for some unlicensed spectrum, and we have seen significant benefits from some uses of it. However, economic theory points to higher expected gains from licensed spectrum. A well functioning secondary market may be a more effective tool for innovation as unlicensed spectrum.

III. The Wireless Industry as a Multiproduct Industry: Policy Consequences

The wireless industry is a multiproduct industry. A typical wireless carrier offers local calling, nationwide calling, international calling, email, text messaging, picture messaging, broadband Internet, narrowband Internet, Blackberry services,

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[11] G.S. Ford and T.M. Koutsky, *Unnecessary Regulations and the Value of Spectrum: An Economic Evaluation of Lease Term Limits for the Educational Broadband Service*, PHOENIX CENTER POLICY BULLETIN NO. 15 (February 2006)(available at http://www.phoenix-center.org/PolicyBulletin/PCPB15Final.pdf).

handsets, netbooks, broadband access cards, home phone equipment, home VOIP telephony, equipment insurance, local repair and replacement services, and even assistance if you have a flat tire. The economic implications of the multiproduct nature of these firms are critical to understand. A wireless carriers does not offer a price for a service, it offers a set of prices for a set of services. Furthermore, many of these services are bound together with both cost and demand interdependencies. In other words, one cannot say the price of service is X without also saying the price for all other services offered are A, B, C, D, and so forth. All the prices are part of the offering. If one price changes, then the others are likely to change as well. This fact implies that it makes no sense to pick a single product or service, such as text messaging or handsets, and compare its price to some inherently artificial measure of cost. With strong demand complementarities, for example, it is quite possible for the price of a product or service to be below its costs, and another to be well above costs, even if the firm is making no profit. The former is not predatory and the latter is not monopolistic, but both prices are entirely consistent with the maximization of consumer well being. The restaurant business is intensely competitive, yet the price of wine is three-times its costs and the bread and water are free.[12] In wireless communications, subsidized handsets are a great example.

In a multiproduct setting, the only meaningful measure of competitive outcomes is the price and profit of the entire range of services offered and sold. Any attempt to

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12 T. Beard and J. Stern, *Continuous Cross Subsidies and Quantity Restrictions*, 56 JOURNAL OF INDUSTRIAL ECONOMICS 840-861 (2008).

single out individual products or service for price-cost comparisons is largely meaningless. All the demand and cost interdependencies relevant to the firm's pricing decision must be included in any analysis of a single product.

IV. Network Management, Terms and Pricing

The capacity of the wireless networks are limited, far more so than landline networks.[13] These limitations are put under even greater strain with the advent of bandwidth hogging applications such as "peer to peer" or "P2P" applications such as BitTorrent and Skype.[14] As such, operators must sometimes limit the use or operation of particular applications on their networks. The aim of such network management efforts is typically to maintain quality of service to all users. It is not possible to exclude the potential for anticompetitive motivations, but such limitations are not, in and of themselves, anticompetitive in intent. Even in the case of Skype, there is no anticompetitive claim on a carrier's refusal to offer its network to a potential rival—or, indeed, anyone—for free.

As for congestion, ideally it could be managed via the price system, rather than blocking or limiting access via terms and conditions. In fact, it is legitimate to interpret blocking as a pricing solution, where the service is never sensible to offer so the price is

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13 *See* William H. Lehr and John M. Chapin, *Rethinking Wireless Broadband Platforms* (2009) (available at:http://people.csail.mit.edu/wlehr/Lehr-Papers_files/Lehr%20Chapin%20Rethink%20Wireless%20Broadband%20Apr2009.pdf).

14 As even the U.S. Supreme Court has recognized, "The creator of [P2P] software has no incentive to minimize storage or bandwidth consumption, the costs of which are borne by every user of the network." *Metro-Goldwyn-Mayer Studios Inc., v. Grokster, Ltd.*, 545 U.S. 913, 920 (2005).

set at infinity. Practically, it is not always easy to implement a pricing solution, so cruder and cheaper methods may better serve the purpose for both consumers and providers until more sophisticated pricing models can be developed.

In the multiproduct setting, prices for individual products or services may appear strange to some observers and anticompetitive to others. Yet that need not be the case. When considering a price or pricing approach, the relevant question to ask is whether or not a particular pricing decision could be supported by a pricing algorithm that seeks to make consumers best off while the firm makes just enough profit to stay in business.[15] While some pricing decisions in the wireless industry are criticized by some groups, it is most often the case that a pricing decision comports with those of a welfare maximizing social planner. Some may not like the prices, but changing them reduces the overall well being of society. This is not surprising, since firms often behave in a manner consistent with that algorithm by merely seeking profits. If the pricing decision of firms cannot be supported in this way, then there may be good reason to scrutinize the prices more carefully. The common notion that "these prices are bad because I don't like them" is not a meaningful standard of review.

Again, consider the case of Skype on the wireless network. Assume, for the moment, that the technological problems with Skype on the mobile platform are not too severe. My understanding is that they are, but we can ignore that for the moment to

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[15] This algorithm is called Ramsey Pricing. *See, e.g.*, S. J. Brown and D. S. Sibley, THE THEORY OF PUBLIC UTILITY PRICING (1986), Ch. 3.

make another point. Say that the Skype users substitute to Skype minutes and thereby reduce their minutes purchased from their wireless carrier to save money. While it has been argued that this is competition, it really is not. What has happened, in fact, is that the broadband service of the wireless carriers has now become a substitute for its voice service. This change results in a different price vector in that the price of broadband will be increased relative to voice to offset the lost profits from the voice traffic.[16] Given that pricing is often not very precise, and any attempt by the wireless carrier to raise the price of broadband solely to those using Skype will be discouraged by some policymakers, the firm may increase the price to all customers with few voice minutes, or offer a block pricing approach in an effort to capture those substituting for its voice service. Notably, this decision is not anticompetitive. The exact same price change would result if the network was run by a social planner intent on maximizing consumer well being subject to a zero profit constraint on the firm.[17]

V. The Effect of "Wireless *Carterfone*" Policies on Industry Structure

Another aspect of the wireless industry that has received considerable policy attention in recent years has been the practice of bundling services and equipment. The topic is frequently described as "Wireless *Carterfone*," referencing the 1960's decision allowing consumers to attach their own telephones to the wireline network. The problem, however, is that the market conditions warranting *Carterfone* at that time are

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[16] T.R. Beard, G.S. Ford and L.J. Spiwak, *Why ADCo? Why Now? An Economic Exploration into the Future Industry Structure for the "Last Mile" in Local Telecommunications Markets*, PHOENIX CENTER POLICY PAPER NO. 12 (November 2001); *reprinted in* 54 FED. COM. L. J. 421 (May 2002)

[17] This change in prices is consistent with Ramsey pricing.

significantly different than the current conditions in wireless industry.[18] The wireless industry is not a monopolist, is not rate of return regulated at all levels, and is not vertically integrated into the handset market. The response of the wireline network to handset entry was motivated, in large part, by the regulation itself.

The need for *Carterfone*-style regulation is by no means certain. In fact, the industry is in period of significant change in regard to the treatment of equipment. Just a few years ago, wireless carriers offered mobile telephone service, and that was it. In that environment, the devices were simple and performed a single task. Today, the voice portion of the business is increasingly small part of the business. The handset is not longer a phone, it is a small computer. It is an advanced device capable of many services, both related to the wireless network and not. As a consequence, the industry is evolving to a more open network with regard to attaching devices, recogizing that the value of the network is driven as much by the equipment as the network service itself. This evolution is a natural consequence of the changes in the industry.

The inherent evolution toward more open networks could be interpreted as reducing the harm to regulating or even mandating such openness, but that is not the case. Regulators have no more idea where the wireless market is heading than the government regulators knew where the mortgage industry was heading, and the latter

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[18] G. S. Ford, T. M. Koutsky and L. J. Spiwak, *Wireless Net Neutrality: From Carterfone to Cable Boxes*, PHOENIX CENTER POLICY BULLETIN NO. 17 (April 2007)(available at: http://www.phoenix-center.org/PolicyBulletin/PCPB17Final.pdf), *portions of which are to be reprinted* in 25 SANTA CLARA COMPUTER AND HIGH TECHNOLOGY LAW JOURNAL (forthcoming Spring 2009).

was a lot easier to predict than the former. Openness will be driven by the interactions of sellers and buyers, and the information contained in those interactions is far greater than that contained in a hundred FCC proceedings. There is a big difference between a firm responding to consumers' desires with nuanced packages and bundles of services versus a heavy-handed government-mandated "openness" that could have severe unintended consequences on industry structure.

In fact, mandated openness can sharply reduce the profitability of the network service provider, potentially even to the point that such a mandate could reduce the equilibrium number of firms in the industry. As a result, mandated openness can result in significantly *less* competition and choice for consumers of network service operators. We had a measureable example of this impact at the recent auction of the C block in the 700 MHz band, which carried with it an open network mandate. This auction occurred parallel to auction of similar unencumbered spectrum, so we had a real world example as to how the market viewed the effects of the open network mandates upon firm profitability.

Our findings were significant.[19] In particular, we found that that imposition of wireless *Carterfone* mandates reduced the expected profitability of the firm providing broadband wireless services using that spectrum by approximately 32%. Chopping a firm's profitability by nearly a third—particularly in difficult economic times—clearly

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[19] G S. Ford, T. M. Koutsky and L.J. Spiwak, *Using Auction Results to Forecast the Impact of Wireless Carterfone Regulation on Wireless Networks*, PHOENIX CENTER POLICY BULLETIN NO. 20 (Second Edition) (May 2008)(available at: http://www.phoenix-center.org/PolicyBulletin/PCPB20Final2ndEdition.pdf).

matters, and it certainly can mean the difference between staying in market or closing shop.

Because of the significant fixed and sunk costs involved with building and operating a facilities-based wireless network, such a dramatic change in industry profitability could have a radical impact upon market structure and result in a more highly-concentrated market. Markets may shrink from four or three providers to two or one—or, worse yet, zero. Thus, if the argument is that wireless *Carterfone* is required because of a purported lack of competition, the wireless *Carterfone* is, by definition, a self-defeating exercise and would cause the exact opposite result it is intended to remedy.

We also estimated, albeit admittedly crudely, that applying the open platform regulations imposed upon the Upper C block to all CMRS spectrum could cause a $50 billion decrease in wireless carrier network investment over the next ten years. Given Congress's and President Obama's stated effort to stimulate additional broadband investment, wireless *Carterfone* again appears to be a self-defeating exercise.

Finally, by shrinking and commoditizing the market for broadband wireless services, applying such regulation across the board is likely to cause particular harm to small or medium-sized wireless firms by enhancing the role of scale economies in determining industry structure. As these small and medium often serve the unserved

and underserved areas that the American Recovery and Reinvestment Act of 2009 is targeted to, we again find ourselves working at cross purposes.[20]

In addition, my research shows that wireless *Carterfone* policies also could lead to higher handset prices.[21] This result is particularly harmful to low income persons.

There are many facets of handset subsidies and other handset practices that are misunderstood. First, handset subsidies can occur in a competitive setting, so such subsidies are consistent with competitive rivalry.[22] This finding conflicts with arguments that such practices are anticompetitive. The coupling of handsets and services is a mode of competitive rivalry, benefitting consumers and reducing the profits of firms.[23] Handset features and deals are used to induce switching, and switching often results in lower prices paid for services.

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[20] *See also* G.S. Ford, T.M. Koutsky and L.J. Spiwak, *The Burden of Network Neutrality Mandates on Rural Broadband Deployment*, PHOENIX CENTER POLICY PAPER NO. 25 (July 2006)(available at: http://www.phoenix-center.org/pcpp/PCPP25Final.pdf)(Using publicly available network cost models and data, we show that under plausible conditions, while network neutrality mandates negatively impact broadband deployment in all geographic areas regardless of average cost characteristics, such rules could disproportionately impact broadband deployment in high-cost areas. Moreover, our analysis that suggests the differential reduction in service availability for high-cost rural areas is six times as much as in lower cost, more urbanized markets.)

[21] G. S. Ford, T.M. Koutsky and L.J. Spiwak, *Consumers and Wireless Carterfone: An Economic Perspective*, PHOENIX CENTER POLICY BULLETIN NO. 21 (September 2008)(available at: http://www.phoenix-center.org/PolicyBulletin/PCPB21Final.pdf).

[22] Recently, J.D. Power estimated that 36% of wireless customers received a free phone from their carrier, and many more consumers received highly subsidized handsets. J.D. Power and Associates, U.S. WIRELESS MOBILE PHONE EVALUATION STUDY (2007). Even without conventional complementarity, below cost pricing of a good is possible. *See* T.R. Beard and M. Stern, *Continuous Cross Subsidies and Quantity Restrictions*, JOURNAL OF INDUSTRIAL ECONOMICS (Forthcoming 2008).

[23] *See, e.g.*, Amol Sharma, *AT&T's Bet on the iPhone*, WALL STREET JOURNAL (June 9, 2008)(quoting Ralph de la Vega, CEO AT&T Wireless: "It seems like $199 is the right kind of price point to get significant mass-market adoption. It's going to impact earnings in 2008 and 2009 in a negative way, but will turn very profitable in the long term."); *AT&T Takes Shot At Verizon Wireless With Subsidized IPhone*, DOW JONES NEWS SERVICE (June 9, 2008) ("the iPhone's significant price highlights the escalating battle between it and Verizon

Footnote Continued…

Second, theory (and common sense) indicates that steep discounts and subsidies on wireless handsets require a strong complementarity between the equipment and the services. The so-called "restrictive practices" like phone locking, termination fees, functionality "crippling," and even exclusive distribution rights for equipment all have the effect of increasing the degree of complementarity between the device and the services. This increased complementarity drives the price cut for equipment, thereby creating consumer benefits. In this light, actions deemed anticompetitive by some are, in fact, a feature of competitive rivalry and benefit consumers substantially.

Finally, as wireless *Carterfone* regulations explicitly lower the complementarity between handset and service sales, wireless *Carterfone* regulations *lower* the incentive for wireless providers to offer handset subsidies. As a result, should policymakers impose wireless *Carterfone* obligations, consumers would pay *more* for mobile handsets. Regulating early termination fees is likely to have a similar consequence —higher prices for handsets. Our analysis also indicates, however, that under certain conditions wireless service prices may not fall as a consequence of elimination of handset subsidies. In short, wireless *Carterfone* regulation can force consumers to pay more for the same bundled service they receive today, a decidedly anti-consumer outcome. As such, one feature of wireless *Carterfone* regulation is to affect a transfer from consumers to wireless

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Wireless, the nation's two largest carriers, especially for a demographic of users that tend to spend more per month on data services. 'The pricing is extremely aggressive and will definitely result in far more consumers getting their hands on the device,' said Ross Rubin, an analyst at consumer research firm NPD Group. 'They understand that to build market share in this new wireless world, they have to be a lot more aggressive.'")

service providers. The notion that wireless *Carterfone* is unequivocally beneficial to consumers, therefore, is simply not supported by economic analysis.

VI. The Importance of a Single, National Wireless Regulatory Framework

When I was a young staffer at the FCC, a senior economist was fond of pointing out that the "m" in CMRS stands for "mobile." As such, regulation of a single aspect of service in one geographic area can have effects well beyond the borders of the regulating state or municipality.

Recently, the Phoenix Center looked at this problem and found that that when local regulation in one jurisdiction has sufficiently large "extra-jurisdictional" effects in other locations, overall social welfare. The idea is not necessarily new, but our approach was unique in this area. We showed that welfare can be reduced *even if state and local governments act as efficient regulators*. This observation is important because it shows that the debate over the proper regulatory framework for the wireless industry *need not* be driven by an assessment of which set of regulators, federal or state, is more competent. Accordingly, because state and local regulation in the wireless industry has the tendency to spill across borders, our analysis suggests that society is likely better to be off with a single, national regulatory framework for wireless services.[24]

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[24] G. S. Ford, T. M. Koutsky and L. J. Spiwak, *An Economic Approach to Evaluating a National Wireless Regulatory Framework,* PHOENIX CENTER POLICY BULLETIN NO. 19 (October 2007)(available at: http://www.phoenix-center.org/PolicyBulletin/PCPB19Final.pdf) *and reprinted as* T.R. Beard, G. S. Ford, T. M. Koutsky and L. J. Spiwak, *Developing A National Wireless Regulatory Framework: A Law And Economics Approach,* 16 COMLAW CONSPECTUS 391 (2008).

Indeed, competition or consumer marketing demands frequently cause wireless firms to have a national uniform pricing structure and uniform, comprehensive billing systems.[25] The competitive and technology conditions of such communications services do not generally permit a provider to establish fifty different business models, one for each state. In that situation, a regulatory environment that differs from state-to-state can erode a provider's ability to offer cost-efficient service through uniform national service and pricing plans.[26] Similarly, if one state tries to force an industry to re-design multistate facilities or services solely to meet that single state's individual mandate, and if a firm cannot confine those state-imposed cost increases to the particular state, then the increased costs will have an effect across the industry and not simply in the state that established the regulation. One such example is the continued effort in California to enact a telecommunications "Bill of Rights" that would regulate such matters as font size in bills.[27] In sum, unless new costs imposed by one local or state authority can be contained to the local jurisdiction, those costs will tend to raise prices for consumers everywhere and possibly alter industry structure. Importantly, while the incremental impact of any one local regulation may be tiny, the presence of dozens of such changes can have a large cumulative impact and add significant costs for society.

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[25] *See, e.g., In the Matter of Truth-in-Billing and Billing Format,* 20 F.C.C.R. 6448 (2005) at ¶¶ 49-54 (available at: http://fjallfoss.fcc.gov/edocs_public/attachmatch/FCC-05-55A1.pdf) at ¶¶ 49-54.

[26] As noted by former FCC Chief Economist Thomas W. Hazlett, "[w]hen economic realities dictate that production of goods is efficiently done across jurisdictions (i.e., economies of scale stretch beyond state borders), decentralized regulations lack effective feedback." T.W. Hazlett, *Is Federal Preemption Efficient in Cellular Phone Regulation?,* 56 FED. COMM. L.J. 155, 176 (2003).

[27] *See* A. Rojas, *Phone 'Bill Of Rights' Battle Resumes,* SACRAMENTO BEE (May 6, 2007) (available at: http://www.consumercal.org/press/battleresumes).

VII. Conclusion

In sum, I think we can all agree that wireless service is a transformative technology that has benefited greatly from the "hands off" approach started back in 1992 in the Clinton/Gore Administration. The industry has grown in ways that would have been difficult to predict by regulators, and this growth has had substantial benefits. That said, there are still numerous policy relevant barriers to entry—i.e., eliminating piecemeal local regulation, streamlining the tower siting process, making more unencumbered spectrum available, improving the number porting process, facilitating an efficient secondary market for licensed spectrum, reducing onerous taxes on wireless services, etc.—that we can work together to remove in order to provide American consumers with better, faster and more ubiquitous wireless service. Equally as important, we need to make sure that we undertake a rigorous cost/benefit analysis before we decide to pass a new law or impose any new regulation on this complex and wonderful industry. Regulation is not always a bad thing, but it certainly can be if done improperly or under the wrong circumstances.

Mr. Chairman, thank you again for the invitation to testify today. I would welcome any questions the Subcommittee might have.