

John T. Scott, III
Vice President &
Deputy General Counsel
Regulatory Law



Verizon Wireless
1300 I Street, N.W.
Suite 400 West
Washington, DC 20005

Phone 202 589-3760
Fax 202 589-3750
john.scott@verizonwireless.com

October 25, 2005

Ms. Marlene H. Dortch
Secretary
Federal Communications Commission
445 Twelfth Street, SW
Washington, DC 20554

Re: WT Docket No. 05-194: CTIA Petition for Expedited Declaratory Ruling on Early Termination Fees: Ex Parte Written Presentation

Dear Ms. Dortch:

Verizon Wireless is filing the enclosed declaration of Dr. Jerry A. Hausman in the record in this proceeding. Dr. Hausman is MacDonal Professor of Economics at the Massachusetts Institute of Technology, and has studied the economics of the mobile phone industry for over 20 years. His qualifications for commenting on issues raised in this docket are detailed in the declaration.

CTIA has asked the Commission to confirm that early termination fees ("ETFs") in mobile telephone subscriber contracts constitute "rates charged" or components of "rates charged" within the meaning of Section 332(c)(3)(A) of the Communications Act. CTIA seeks this ruling because various courts are being asked to order carriers to return ETFs that have been paid and to ban ETFs prospectively, on the theory that states (and state courts) can regulate the amount or reasonableness of ETFs. As the Commission has found, however, Section 332(c)(3)(A) not only bans states from regulating wireless rates and fees, but also forbids states, including state courts, from assessing the reasonableness of such rates and fees. CTIA's petition should be granted.

Although the sole issue in this proceeding is a determination that ETFs constitute part of a CMRS provider's rates or rate structures, several groups filed reply comments raising other issues, relying in part on a US/MASSPIRG survey to argue that wireless post-pay price plans with term contracts containing ETF provisions are anti-competitive and detrimental to wireless phone subscribers.¹ Dr. Hausman's enclosed declaration responds to the claims of these groups and to the US/MASSPIRG survey.

¹ See August 16, 2005, Ex Parte Notice, U.S. Public Interest Research Group, attaching MASSPIRG Report, "Locked in a Cell: How Early Termination Fees Hurt Consumers" (August 2005). The MASSPIRG ETF report relies in turn on a previous MASSPIRG report, "Can You Hear Us Now? A Report on How the Cell Phone Industry Has Failed Consumers" (March 2005).

Dr. Hausman makes the following points, all of which support CTIA's petition:

1. As an economic matter, ETFs are part of a wireless carrier's pricing structure for recovering revenues to offset costs. Dr. Hausman explains that competitors in the "highly competitive" wireless industry incur substantial fixed network costs and high variable costs for acquiring and retaining subscribers, which must be recovered primarily through revenue received over the term of contracts. He details why "ETFs are a crucial component of post pay price plans." This analysis supports CTIA's argument that ETFs are an integral component of wireless phone price structures that allow carriers to lower upfront equipment prices as well as monthly access fees in post-pay plans. Like other types of charges and fees, term contracts with ETFs are conditional rate elements in service plans that allow carriers to lower other rate elements, while maintaining the overall value of the contract as a means of recovering costs.

2. "Wireless telephone consumers benefit substantially from the existence of post-pay price plans with term contracts that contain ETFs." ETFs in wireless contracts allow customers to enjoy lower up-front costs and lower per-month fees and are therefore economically beneficial to customers. As Dr. Hausman points out, economists have long recognized that consumers prefer to spread out costs over time, rather than pay larger amounts up front. Term contracts with ETFs thus provide a more attractive alternative for consumers than non-term phone plans, which generally require greater initial and overall payments. Consumers benefit from the availability of post-pay price plans with fixed term contracts that include ETFs because such plans allow carriers to offer service with lowered equipment prices and monthly service rates.

Dr. Hausman concludes that "ETFs, therefore, are an important part of the post-pay pricing system that has benefited consumers and increased subscribership to wireless services. Without ETFs, overall price would be higher, and the rate structures would tend to transfer costs to consumers." He notes that the success of post-pay price plans with fixed term contracts and ETFs has helped fuel the rapid growth of the wireless industry, in turn providing consumers with more choices in equipment and service plans. Moreover, "rate structures containing ETFs allow carriers to lower up-front consumer costs for the more expensive handsets that are necessary to take advantage of the new high-speed data transmission and other new services from a 3G network."

In support of this conclusion, Dr. Hausman notes that if the use of post-pay price plans with term contracts and ETFs were restricted or not available, wireless carriers would need to attempt to recover costs from subscribers who terminate contracts early as actual damages for breach of contract, or from new subscribers at service initiation by reducing or eliminating subsidies. In either case, mobile service would become more expensive to consumers.

3. Wireless subscribers have ample choices among plans that do not include ETFs, but overwhelmingly choose plans with ETFs to enjoy the benefits of lower up-front costs and lower ongoing fees. Dr. Hausman disputes the claim that wireless subscribers are “locked in” to ETFs, documenting that wireless competition provides consumers with a wide variety of choices among wireless plans, with and without ETFs. Moreover, the marketplace has demonstrated that consumers overwhelmingly prefer wireless calling plans with fixed contract terms and ETFs to pre-pay calling plans that have no minimum service term requirement and no ETF.

4. “The surveys relied upon by MASSPIRG and USPIRG are biased and unreliable according to standard statistical practice.” Neither the MASSPIRG report nor the comments based on it present any reason for the Commission to find that the use of wireless price plans with term contracts and ETFs hurt consumers or indicate a market failure in the current market for mobile phone services. To the contrary, Dr. Hausman explains that the surveys do not meet minimum, established scientific standards for a valid survey in multiple respects, including invalid sample size and biased questions. Even omitting what Dr. Hausman labels “the clear methodological flaws in these surveys,” he notes that consumers’ market choices of post-pay price plans with term contracts and ETFs over pre-pay price plans “directly contradict the survey results.” The responses to the MASSPIRG surveys in fact suggest that consumers are generally satisfied with their mobile phone service.²

The issue raised by CTIA’s petition is purely a legal question: whether ETFs are part of the rates or rate structures for wireless phone service plans. Granting CTIA’s request for this declaratory ruling will ensure that consumers can continue to choose from a variety of service plan options, including post-pay and pre-pay, fixed-term and no-term, pricing plans. Wireless carriers have developed a diverse array of service plans at a wide variety of price points to compete in the marketplace.³ ETFs are an integral component of certain of these service and rate plan options made available to consumers. By confirming that ETFs are “rates charged” or a component of “rates charged,” the Commission will in fact benefit consumers by preserving wireless service plan and rate options and protecting consumer choice.⁴

² A GAO-sponsored survey of cell phone users in 2002 reported similar results. Approximately 80% of respondents were satisfied with call quality, accuracy in billing and the value received for rates paid. See GAO, “Telecommunications: FCC Should Include Call Quality in its Annual Report on Competition in Mobile Phone Services,” Report 03-501, at 43-44 (April 2003).

³ See, e.g., *Implementation of Section 6002(b) of the Omnibus Budget Reconciliation Act of 1993*, Tenth Report, FCC 05-173, ¶ 3 (released Sept. 30, 2005) (“the record indicates that competitive pressure continues to compel carriers to introduce innovative pricing plans and service offerings, and to match the pricing and service innovations introduced by rival carriers”).

⁴ The restriction on consumer choice that would result from restricting ETFs as AARP and others advocate is illustrated by a recent action by AARP. As Verizon Wireless noted in its Reply Comments

Ms. Marlene H. Dortch
October 25, 2005
Page 4 of 4

For the reasons set forth in CTIA's petition and the comments in support from Verizon Wireless and other wireless carriers, the Commission should declare that: (1) ETFs are rates and rate structures within the meaning of Section 332(c)(3)(A); (2) state law claims, whether common law or statutory, currently raised against ETFs seek to regulate rates; and (3) such state law claims are preempted by Section 332(c)(3)(A).

Pursuant to Section 1.1206(b)(1) of the Commission's Rules, a copy of this letter and the enclosures have been filed in the Electronic Comment Filing System.

Sincerely,

A handwritten signature in black ink that reads "John T. Scott, III". The signature is written in a cursive style with a double underline under the name.

John T. Scott, III

Enclosures

(filed Aug. 25, 2005), AARP itself offered three wireless service plans to its members through Wirefly Wireless. Despite AARP's criticism of ETFs to the Commission, one of the AARP plans offered a one-year contract with an ETF and 5-10% discounts off monthly service. AARP has, however, evidently discontinued this plan, and it is no longer advertised on the AARP-Wirefly Wireless website. (See enclosed AARP website page.) By eliminating this service plan with a one-year contract and ETF, AARP and Wirefly Wireless have reduced the options available for AARP members; indeed, they have eliminated the Wirefly Wireless phone plan that had been touted as offering the best value.

Declaration of Professor Jerry A. Hausman

October 19, 2005

Qualifications

1. My name is Jerry A. Hausman. I am MacDonal Professor of Economics at the Massachusetts Institute of Technology (“MIT”) in Cambridge, Massachusetts. I received an A.B. degree from Brown University and a B.Phil. and D. Phil. (Ph.D.) in Economics from Oxford University, where I was a Marshall Scholar. My academic and research specialties are econometrics, the use of statistical models and techniques on economic data, and microeconomics, the study of consumer behavior and the behavior of firms. I teach a course in "Competition in Telecommunications" to graduate students in economics and business at MIT each year. Issues in mobile telecommunications, including competitive and technological developments in the industry, are among the primary topics covered in the course. I was a member of the editorial board of the Rand (formerly the Bell) Journal of Economics for the past 13 years. The Rand Journal is the leading economics journal of applied microeconomics and regulation. In December 1985, I received the John Bates Clark Award of the American Economic Association for the most “significant contributions to economics” by an economist under forty years of age. I have received numerous other academic and economic society awards. My curriculum vitae, including a listing of my articles and presentations in the last ten years, is attached as Exhibit A.
2. I have conducted significant academic research regarding the economics of the telecommunications industry. I have published a number of research papers in the area of mobile telecommunications. These papers include “Valuation and the Effect of Regulation on New Services in Telecommunications,” *Brookings Papers on Economic Activity: Microeconomics*, 1997; “Mobile Telephone, New Products and the CPI,” *Journal of Business and Economics Statistics*, 1999; “Efficiency Effects on the U.S. Economy from Wireless Taxation,” *National Tax Journal*, 2000; “Competition in U.S. Telecommunications Services Four Years After the 1996 Act,” (with R. Crandall), in S. Peltzman and C. Winston, eds., *Deregulation of Network Industries* (2000); and “From 2G to 3G: Wireless Competition for Internet-Related Services, R. Crandall and J. Alleman ed., Broadband, Brookings, 2002. I also wrote the chapter on “Mobile Telephone” for the *Handbook of Telecommunications*

Economics, 2002, edited by M. Cave et. al. In 2003, I gave the Shann Memorial Lecture at the University of Western Australia, "Mobile, 3G, Broadband and WiFi," published in R. Cooper and G. Madden (eds.) *Frontiers of Broadband, Electronic and Mobile Commerce* (2004).

3. I have studied the mobile telecommunications industry since 1984. I provided consulting advice to Pacific Telesis regarding its purchase of Communications Industries in 1985. Subsequently, I have provided declarations and testimony regarding mobile competition and regulation to state public utility commissions and to the US Federal Communications Commission ("FCC") on a number of occasions. I have testified before the FCC in *en banc* hearings where issues in mobile competition were discussed. I have consulted for many wireless service providers in the US. I have consulted for wireless service providers in the UK, France, Germany, Spain, Sweden, Hong Kong, New Zealand, and Australia. In addition, I have consulted for a number of wireless equipment manufacturers including Motorola, Lucent, Nortel, Ericsson, Samsung, and Nokia. I have been invited to give talks regarding the wireless industry on many occasions all over the world. I have also testified before the United States Congress and Administrative Agencies of the Federal Government on issues involving the mobile telecommunications industry. For example, in 1995, I testified on "Competition in Mobile Markets," Testimony before the US House of Representatives, Committee on Commerce, October 12, 1995. In 2001 I testified on "Competition in Mobile Markets in Australia," before the Australian Competition and Consumer Commission ("ACCC").
4. I have published numerous academic papers regarding survey design and its consequences for economic inferences. I gave an invited address to the International Statistical Institute on issues of sampling design. Another paper in this area was awarded the Frisch Medal for the best paper in *Econometrica* over a 5-year period. I served on the Committee of National Statistics that advises the US government on issues of sample design and questionnaire design for the numerous government statistical programs undertaken in the U.S. I have also served as an advisor to the U.S. Department of Energy, the Bureau of Labor Statistics, the Treasury Department, the Federal Trade Commission, and other government agencies regarding sampling

issues and sample design. I have also advised the governments of Canada, the United Kingdom, France, Germany, and the Netherlands on similar issues. Lastly, I have served as a consultant to numerous private companies on designing and analyzing survey information.

5. Verizon Wireless has asked me to review and assess the economic rationale for post-pay price plans with term contracts that contain Early Termination Fees (ETFs) in which customers pay for service at the conclusion of every month of service and commit to a minimum term of service. I also critique the validity of the findings from the recent surveys sponsored and reported by MASSPIRG and USPIRG, D. Cummings and K. Smith, "Can You Hear Us Now? A Report on How the Cell Phone Industry has Failed Consumers," released March 2005 ("MASSPIRG1 Survey"), and E. Mierzwinski, "Locked in a Cell: How Cell Phone Early Termination Fees Hurt Consumers," released August 2005 ("MASSPIRG2 Survey").

I. Summary of conclusions

6. A summary of my conclusions is as follows:
 - a. I find that wireless telephone consumers benefit substantially from the existence of post-pay price plans with term contracts that contain ETFs.
 - Consumers benefit from handset subsidies that substantially reduce the upfront costs of obtaining wireless telephone services. Term contracts with ETFs also allow consumers to pay lower monthly charges. In addition, handset subsidies and lower service rates have led to tremendous growth in wireless subscribership, which has tended to increase competition and lower prices for all consumers.
 - b. Wireless consumers have demonstrated their preference for term contracts with ETFs, and the lower initial costs and service charges supported by an ETF, by overwhelmingly choosing such term contracts over pre-pay price plans with no minimum contract term commitments.

- Pre-pay price plans are a long-standing option in the wireless services market. Despite the consistently widespread availability of pre-pay price plans in the marketplace, consumers have overwhelmingly (92%) chosen post-pay price plans with term contracts that contain ETFs over pre-pay price plans in order to obtain cheaper handset and service prices. Through their choices, consumers have demonstrated their willingness to trade off the flexibility offered in pre-pay price plans for lower prices.
- c. I find that the surveys relied upon by MASSPIRG and USPIRG are biased and unreliable according to standard statistical practice.
- Despite consumers' market actions, consumer groups claim customers prefer rate structures without ETFs based on opinion surveys by MASSPIRG and USPIRG. However, the surveys do not meet minimum scientific standards for a valid survey. Statisticians have agreed on these standards for more than 50 years. Therefore, these surveys do not show that "consumers do find ETFs objectionable."¹
- d. Even omitting the clear methodological flaws in these surveys, consumers' market choices of post-pay price plans with term contracts and ETFs over pre-pay price plans directly contradict the survey results, and to economists, consumer choice voiced through market actions is a much more reliable indication of consumer preferences compared to a scientifically unsound survey.

II. Term contracts with ETFs provide consumers with substantial economic benefits

7. In its recent report, "Locked in a Cell," MASSPIRG asserts that "Competition may be shrinking" in the wireless industry, and ETFs would not exist in "an efficient,

¹ "Reply Comments of Consumers Union, National Association of State PIRGs, National Consumer Law Center," p. 5, 10.

competitive, well-regulated, consumer-driven market.”² However, I find that by most relevant economic measures, the wireless industry is highly competitive.

Furthermore, due to high competition among wireless carriers in the United States (“US”), consumers have benefited greatly from the low prices, variety of choices, and high innovation in both service and handsets.

a. **The wireless industry is highly competitive**

8. My research and knowledge of the US mobile industry lead me to conclude that the sale of wireless telephone service and handsets in the US is highly competitive. My opinion that the wireless industry is competitive is supported by the number of competitors, the performance of the industry in terms of price and innovation, and the conclusions of expert agencies that have intensely and continually monitored the industry.
9. I surveyed the economics of the US mobile industry as of 2000 in my article: “Mobile Telephone” in the *Handbook of Telecommunications Economics*, 2002, edited by M. Cave et. al.³ I discussed a number of economic factors, which continue to be important in the US mobile industry and throughout the worldwide mobile industry. In particular, I found that the US mobile industry in 2000 was highly competitive, with no mobile provider able to exercise market power.⁴ In my opinion, the U.S. mobile industry continues to be highly competitive today, and has been competitive throughout the last decade.
10. The US government has allocated spectrum for up to eight competitors in each geographical area. The Federal Communications Commission (“FCC”) estimated that in 2004, 88% of the U.S. population had a choice of five or more mobile carriers, and 93% had a choice of four or more mobile carriers. Until the end of 2004, most consumers had a choice of six nationwide carriers: Verizon Wireless, Cingular, AT&T Wireless, Sprint, T-Mobile, and Nextel. With this number of carriers selling a

² Edmund Mierzwinski, Kerry Smith, Deirdre Cummings, “Locked In A Cell: How Cell Phone Early Termination Fees Hurt Consumers,” August 2005, p. 4. (“MASSPIRG2 survey”).

³ Hausman, Jerry, “Mobile Telephone,” *Handbook of Telecommunications Economics*, M. Cave, et. al., eds., 2002. (“Handbook”).

⁴ Handbook, pp. 579-82.

differentiated product, an outcome other than a highly competitive one would be unusual.⁵

11. In its 2004 report⁶ and earlier reports analyzing competition in the wireless industry, the FCC has found that “there is effective competition in the CMRS [wireless] marketplace.”⁷ The FCC also found that “competitive pressures continue to compel carriers to introduce innovative pricing plans and service offerings, and to match the pricing and service innovations introduced by rival carriers.”⁸ Furthermore, “Spectrum availability and other key determinants of entry conditions are favorable to continued competitive entry at the local level.”⁹
12. The US Department of Justice (“DOJ”) and the FCC found competition sufficiently high to permit the second and third largest US mobile companies to merge in November 2004, when Cingular acquired AT&T Wireless. Subsequently these expert agencies permitted Sprint and Nextel to merge. The DOJ and FCC would not permit a merger unless they believed that the mobile industry was currently competitive and would remain competitive after the merger. Indeed, the DOJ and FTC “Horizontal Merger Guidelines” (1992) specifically state that they will not permit a merger if the merged firm will have the ability to create or enhance market power.¹⁰ In its August 2005 ruling to approve the Sprint-Nextel merger the FCC found:

⁵ FCC, “Annual Report and Analysis of Competitive Market Conditions with Respect to Commercial Mobile Services.” (“FCC Report”) September 28, 2004, Table 5.

⁶ During the drafting of this affidavit, on September 30, 2005, the FCC released its 2005 Report on the competitive market conditions of the wireless industry. The findings in the 10th FCC Report are consistent with previous reports and with my opinions expressed in this affidavit. Pre-pay as a percent of subscribers has increased, but a large majority of customers, between 92% and 89%, still subscribe on a post-pay basis (see p. 40). These data are also consistent with the CTIA’s finding that about 92% of subscribers are post-pay.

⁷ FCC, “Annual Report and Analysis of Competitive Market Conditions with Respect to Commercial Mobile Services.” September 28, 2004, pp. 5, 15; see also FCC, “Annual Report and Analysis of Competitive Market Conditions with Respect to Commercial Mobile Services”: 1999 Report, pp. 3-6; 2000 Report, pp. 4, 6, 10, 11, 19; 2001 Report, pp. 4, 5; 2002 Report, pp. 4, 5; 2003 Report, pp 9, 95.

⁸ Ibid.

⁹ Ibid.

¹⁰ Department of Justice and Federal Trade Commission, Horizontal Merger Guidelines, 1992, ¶ 0.1. (“Horizontal Merger Guidelines”). The detailed merger inquiry includes assessments of (1) whether the merger would significantly increase concentration and result in a concentrated market, properly defined and measured; (2) whether the merger, in light of market concentration and other factors that characterize the market, raises concern about potential adverse competitive effects; (3) whether entry would be timely, likely and sufficient either to deter or to counteract the competitive effects of concern; (4) whether efficiency gains could reasonably be achieved by the parties through other means; and (5) whether, but for

“We recognize that this transaction will represent a second major step in consolidation of nationwide mobile operators in the U.S. within the past year, and that it will increase concentration in many markets based on the firms’ current shares of subscribers. Based on the record as a whole and our analysis, we conclude that the transaction is unlikely to result in public interest harm in mobile telephony markets. We make this finding primarily because we find that, in the post-merger environment, there will be a continuing presence of multiple other substantial carriers in each overlap market with the capacity to add subscribers and the ability to add capacity.”¹¹

“In conclusion, we find that this transaction does not pose a risk of harm from unilateral effects. We find on balance that there are several mobile telephony services that can serve as good substitutes for the services of Sprint and Nextel. Therefore, although we find that some consumers may view Sprint and Nextel to be good substitutes, the availability of several equally attractive options significantly reduces the risk of adverse unilateral effects.”¹²

Thus, the FCC and DOJ continue to find a high degree of competition in wireless markets, even after the completion of the AT&T-Cingular and Sprint-Nextel mergers.

13. Mobile service prices have declined significantly in the US over time, further confirming that the wireless industry is competitive.¹³ As Exhibit B illustrates, the Bureau of Labor Statistics (“BLS”) finds a 22% decrease since July 1999.
14. The 2004 FCC report on conditions in the wireless industry finds an even larger price decrease in the last six years, reporting a 46.7% decrease from \$0.30 per minute in 1999 to \$0.16 per minute in 2002.¹⁴ In another calculation, the FCC finds a 54.5% decrease in average revenue per minute from \$0.22 to \$0.10 per minute, from 1999 to 2003.¹⁵ (See Exhibit C). These price decreases in mobile telephone service are

the merger, either party to the transaction would be likely to fail, causing its assets to exit the market. (¶ 0.2)

¹¹ In the Matter of Applications of Nextel Communications, Inc. and Sprint Corporation For Consent to Transfer Control of Licenses and Authorizations, Docket 05-63, ¶ 3.

¹² Ibid., ¶ 116

¹³ Handbook, p. 580.

¹⁴ FCC Report, Table 6.

¹⁵ FCC Report, Table 9. Contrary to the BLS the FCC finds that prices decreased markedly in 2003 by 13%. In my previous academic writings I have discussed reasons why the BLS estimates of price changes are upwardly biased. See J. Hausman, “Sources of Bias and Solutions to Bias in the CPI”, Journal of Economic Perspectives, 2003.

considerably greater than in other countries with which I am familiar.¹⁶ As US prices have fallen, average usage has increased significantly, from 185 minutes per month in 1999 to 507 minutes per month in 2003.¹⁷ This increase of 174% has resulted in usage levels by consumers far higher in the US than in other nations. This rapid increase in usage demonstrates that most consumers find their mobile service to be adequate and find that their mobile service is increasingly valuable.

15. Innovations in pricing and rate structures are another characteristic of a competitive market, and such innovation has been substantial in the US mobile industry. For example, “bucket of minutes” plans, “national one rate” plans, rollover minutes plans, unlimited “on-net” calls, and “3 day weekend plans” all were first introduced in the US and have proven to be highly popular with consumers.¹⁸
16. Finally, the number of customers who switch from one carrier to another, or “churn,” supports the conclusion that the industry is intensely competitive. Churn (switching among carriers) remains in the range of 1.5% to 3.5% per month.¹⁹ This statistic means that between approximately 18% and 42% of cellular customers switch carriers each year. The FCC recognized the importance of these high churn rates in its 2004 report, stating “[c]onsumers continue to contribute to pressures for carriers to compete on price and other terms and conditions of service by freely switching providers in response to differences in the cost and quality of service.”²⁰ By signing a one or two year contract, customers can receive a new free or low cost mobile phone that is highly subsidized, additional data and voice features and lower up-front and monthly prices for service. They can also keep their current telephone number because of number portability regulations. Thus, competition for customers remains

¹⁶ For example, mobile prices increased in the UK from 2003 to 2004 by approximately 7%. See Ofcom, “The Communications Market” report; appendices for August and October 2004. Mobile prices in the US also are lower than in most other highly developed countries. Using 1999 data, I found that the US is among the four least expensive countries in which to purchase mobile service (out of 27) in the OECD data. (*Handbook*, p. 578) The OECD, an international economic agency, surveys the price of mobile service every two years. In each survey in 1999 (*Handbook*, p. 578), and in 2001 and 2003, included below (see Exhibits E and F), the OECD has found the US to have among the lowest mobile service prices. Thus, the two most recent OECD surveys continue to find the US among the lowest priced countries for mobile service.

¹⁷ FCC Report, Table 9.

¹⁸ Unlimited “on-net” or “In” calls mean, for example, that a Verizon Wireless mobile customer can make unlimited calls to other Verizon Wireless mobile customers at any time of day.

¹⁹ FCC Report, ¶ 4.

²⁰ *Ibid.*

very high. As any reader of a daily newspaper or viewer of prime time television can tell, wireless service providers spare no expense in advertising, and the numerous advertisements in print and on TV and radio also demonstrate the high degree of competition.

17. As I discussed above, churn is quite significant among the major carriers and the FCC has found this factor to signify a high degree of competition. The FCC has found the mobile industry to be “effectively competitive.” To an economist the term “effectively competitive” means that no market power is being exercised.
18. Thus, based on an economic analysis of the factors and the reasons discussed above, the US mobile industry is highly competitive.

b. Costs are and will remain high in the wireless industry

19. The wireless industry is characterized by high fixed costs. The US government controls the spectrum and mobile companies invest billions of dollars to gain the property rights to utilize this spectrum.²¹ For example, Verizon recently spent \$3.0 billion to purchase spectrum in 23 US markets.²² Additional spectrum is required to be able to provide high quality service so that mobile calls are not blocked (not able to connect) or dropped (call disconnects when a party moves from one cell to another).
20. Mobile providers have invested and must continue to invest billions of dollars in their networks to remain competitive.²³ Customers value high network quality because that reduces blocked or dropped calls. To keep up with the rapidly increasing usage discussed above, mobile providers are upgrading their networks from 2G to 3G.²⁴ For example, Verizon upgraded its CDMA network from 2G to 3G CDMA-1X and is now engaged in a further upgrade to CDMA-EVDO. The upgrade is expected to cost

²¹ Handbook, pp. 572-575.

²² “Verizon Wireless Signs Agreement to Purchase NextWave Spectrum Licenses in 23 Markets,” <http://news.vzw.com/news/2004/11/pr2004-11-04g.html>, November 4, 2004.

²³ Handbook, p. 602-3.

²⁴ These abbreviations stand for second and third generation. While 3G offers much superior data transmission speeds, it also offers between three to ten times more voice capacity, which is needed to keep up with the rapidly growing voice and data usage of mobile networks.

approximately \$1 billion.²⁵ Similarly, Cingular is upgrading its network from 2G TDMA to 2G GSM, which permits greater capacity. Cingular recently announced that it will further upgrade its network to 3G UMTS, which will cost approximately \$4 billion.²⁶ In the recent past, Sprint also upgraded its network from 2G to 3G CDMA. Moreover, Sprint recently announced it will invest \$3 billion to further enhance its network, including an upgrade to CDMA-EVDO.²⁷ Mobile providers must earn substantial profits (return to invested capital) to fund these billions of dollars of investments.

21. Carriers also have high variable costs, particularly subscriber acquisition costs (“SAC”) and retention costs. According to my research and experience in the telecommunications industry, typical SAC,²⁸ including the handset subsidy, agent commissions, and advertising, are in the range of hundreds of dollars per customer. Furthermore, retention costs, including customer service, are sometimes double the amount of SAC per customer. Carriers must recover these costs through the service plans they offer to subscribers. For many carriers and many price plans, the SAC are recovered over a period of time, which often exceeds the life of the initial contract term. Indeed, a necessary, but not sufficient, condition for profitability is that the SAC are recovered during the term of service.

c. Term Contracts with ETFs are economically efficient

22. Given the significant fixed and variable costs carriers face, post-pay price plans with term contracts are value-enhancing for both consumers and carriers. On the one hand, wireless carriers need to recover their substantial fixed costs, SAC and retention costs. On the other hand, wireless consumers want service and equipment at lower prices. An efficient solution is a term service contract in which carriers shoulder the high upfront costs of obtaining wireless service, and a customer agrees to pay for

²⁵ <http://news.vzw.com/news/2004/03/pr2004-03-22e.html>.

²⁶ Reuters, “Cingular to Upgrade Wireless Data Network,” November 30, 2004.

²⁷ Sprint, “Sprint Continues to Invest in High-Speed Wireless Future,” http://www2.sprint.com/mr/news_dtl.do?page=print&id=5043, December 7, 2004.

²⁸ It would be economically incorrect not to take account of the entire SAC—commissions, advertising and customer service costs are just as important as phone subsidies in the acquisition cost of a customer.

service during a fixed period of time, usually one or two years. The alternative, discussed more fully below, is for the subscriber to pay more money upfront to obtain service and to pay more for the service in exchange for the option to terminate service without paying additional fees.

23. However, I have found that consumers generally prefer to avoid significant upfront costs such as those for handsets. As I noted in my Handbook chapter:

“Handset subsidies are an important competitive factor since consumers place a great weight on the initial cost of cellular. Handset subsidies first became widely used in the late 1980s in the US and helped cause the rapid growth of cellular, after a rather slow start to consumer adoption. Empirical research has demonstrated repeatedly that consumers pay ‘too much’ attention to the initial cost compared to the operating cost of a durable good. In the mobile context, competition has led to large discounts and subsidies for mobile handsets, as demanded by consumers. This outcome has been observed in Australia, the U.S., Canada, and the U.K. Mobile consumers are more likely to buy the service if the up-front handset cost is below the full (standalone) competitive price. Mobile companies’ consumer research in the U.S. and Australia demonstrates that customers are most price sensitive to the up front costs of the price of handsets and monthly rental, which is consistent with market outcomes and my previous academic research.”²⁹

Thus, competition among mobile providers has caused carriers to offer significant mobile handset subsidies throughout the world.

24. Furthermore, handset subsidies are largely responsible for the phenomenal growth in wireless subscribers. From the beginning of 1998 until December 2004 (latest data available) the number of mobile subscribers in the U.S. grew from approximately 61 million to approximately 182 million.³⁰ Most of this 198% increase was from first time mobile subscribers who did not previously own a mobile telephone, and most of these new subscribers chose post-pay plans containing an ETF.
25. Moreover, rate structures containing ETFs allow carriers to lower up-front consumer costs for the more expensive handsets that are necessary to take advantage of the new high-speed data transmission and other new services from a 3G network. Elimination of ETFs would result in changes in rate structure that would slow the penetration of 3G services and could thereby reduce capital investment in upgrading wireless

²⁹ Handbook, p. 577, footnotes omitted.

³⁰ Source: “CTIA Semi-Annual Wireless Survey Results.”

networks to 3G capability.

26. ETFs are a crucial component of post pay price plans with fixed term contracts because they reduce costs to carriers and, therefore, prices to consumers. A fixed term contractual commitment provides carriers assurance that they will be able to recover most of their up front costs over the term of the contract through monthly payments. If the subscriber terminates early, carriers generally have the right to recover from the customer the actual damages suffered by the carrier as a result of the early termination. In addition to the difficulty of determining the actual damage suffered by the breach, there is a significant cost associated with performing an individualized calculation for each customer. Accordingly, it is more economically efficient to charge a single fee to subscribers who choose to terminate service prior to the expiration of their contract term. The substantial transaction costs to calculate individually are described below.³¹
27. The costs of computing actual damages would be substantial because the calculation requires an involved analysis of lost revenue and avoided costs for the remainder of the contract term. This calculation would differ for each individual.
28. Lost monthly revenues would depend on the customer's expected monthly bill, including the monthly fee, roaming fees, overage (use of minutes in excess of the amount contained in the bucket plan), and use of features such as text messaging and games. Lost roaming fees and overage would depend on the customer's actual usage patterns over time. Total lost revenues would also depend on the number of months remaining on the subscriber's contract, and might depend on *which* particular months are left on the contract due to seasonal usage patterns.
29. Avoidable costs also could vary from subscriber to subscriber. For example, payments to other carriers for calls that are carried in part on other carriers' networks could vary depending on how frequently the subscriber makes such calls, where and to whom they are made, and when they are made – off-peak calls generally entail less

³¹ The transaction costs might be so large relative to the amounts outstanding that Verizon Wireless might theoretically not attempt to collect lost contract revenues in certain instances. This outcome would reduce expected revenue per customer, and the reduction could lead to higher prices than current prices.

cost than on-peak calls.³² Customer service costs would vary to some extent based on how frequently the subscriber uses customer service.

30. Collection costs would be quite significant, particularly in relation to the amounts likely to be at issue. The ETF is a simple and single amount to which the customer unambiguously agrees in a contract. A calculation of actual damages, by contrast, is more complex and more likely to be contested. I understand that the subscriber can simply deny liability and thereby put the carrier to the burden of proving up the amount of actual damages
31. Therefore, post pay price plans with fixed term contracts and ETF provisions reduce carriers' variable costs that are reflected in lower prices to consumers. It is a fundamental principle of economics that, in a competitive market, prices will decrease when marginal costs decrease.³³ The ETF, and the lower priced longer term rate structure it supports, reduces carriers' overall costs of serving all customers by reducing transaction costs. Thus, the presence of the ETF and term contracts has allowed carriers to reduce their costs and prices for wireless services and/or equipment.³⁴
32. Conversely, the elimination of post pay price plans with ETFs would lead to increases in carriers' costs and to increases in prices for wireless services and/or equipment. The ETF is an integral part of the post-pay pricing structure that allows carriers to lessen the costs for those subscribers who terminate post-pay term contracts before the expiration of the contract term. As a result, it allows carriers to keep prices lower than they otherwise would be, and for some carriers, in all likelihood, to even offer post-pay price plans with fixed term contracts.
33. Therefore, contrary to MASSPIRG's contention that ETFs are "stifling consumer choice,"³⁵ ETFs provide for more choice by allowing carriers to offer post-pay price

³² On-net calls to another customer on the Verizon Wireless network cost less to supply than calls to a wireline customer or to another mobile network.

³³ Indeed, it is a well-known result in economics that even a monopolist will decrease price when marginal costs decrease. However, the amount of price decrease is typically higher the greater the amount of competition. See e.g. J. Hausman and G. Leonard, "Efficiencies from the Consumer Viewpoint," George Mason Law Review, 7, 1999.

³⁴ A correct economic analysis of wireless pricing must consider both service and equipment pricing, as consumers need both equipment and service.

³⁵ MASSPIRG2 Survey, p. 6

plans in the competitive wireless market. MASSPIRG2 goes on to argue that because ETFs reduce consumer choice, they result in reduced competition.³⁶ But MASSPIRG2's argument is backwards: because competition is very high in the wireless industry, if it were worthwhile for carriers to offer post-pay price plans without term contracts and ETF provisions, they would offer such plans. The fact that no carrier offers such a price plan and the AirTouch real world example below, in which such price plans were offered and less than 5% of customer chose the price plan, shows that they are not an economically viable plan to offer in the market.

34. The market place reveals that prices for no-term price plans without ETFs are significantly higher than for post-pay plans with ETFs. The price per minute of pre-pay service is higher and demonstrates the need for carriers to increase their prices in order to cover their costs in this highly competitive industry. As I discuss in the next section, wireless consumers' choice of lower priced post-pay price plans with term contracts that contain ETFs over more expensive pre-pay price plans shows that they prefer post-pay price plans with fixed terms and have therefore benefited from the presence of such plans in the market.

II. Consumers' Market Actions Demonstrate Preference for Post-Pay Price Plans with Fixed Term Contracts and ETFs

a. Consumers have overwhelmingly chosen post-pay price plans with term contracts over pre-pay calling plan options

35. Through their choices in the marketplace, customers have shown their preferences for post-pay price plans with fixed term contracts and ETFs over non-contract options without ETFs. Pre-pay price plans are and have been widely available. During the past six years, every major carrier, with the exception of Sprint, has offered pre-pay service with a number of similar features. Numerous other companies, e.g., Tracfone and Virgin Mobile, have also offered pre-pay price plans to consumers. First, the pre-pay price plans offer service with no minimum service term contracts and no ETFs.

³⁶ MASSPIRG2 Survey, p. 7.

Customers can stop service at any time. Second, there is little to no handset subsidy. Third, the customer is not required to go through a credit check or provide any identifying information including a name or address. Fourth, payment can be in cash as well as other means. Fifth, there is a low commitment in terms of initial money and minutes. For example, Verizon's "InPulse" package priced at \$119.99 includes a Nokia 6015ipp phone and \$50 of airtime.³⁷ T-Mobile's "T-mobile to go" package priced at \$49.99 after a mail-in rebate includes a Nokia 6010 phone and \$15 of airtime.³⁸ Cingular offers a free Nokia 6010 with no included airtime.³⁹ Thus there are a variety of rate structures available that offer low-cost start-up packages for pre-pay service.

36. In other words, pre-pay price plans provide a flexible alternative to post-pay price plans with term contracts and ETFs. In addition to pre-pay price plans offered by three of the four major carriers, numerous other companies offer pre-pay service by reselling minutes. Sprint/Nextel does not offer pre-pay price plans, but among its resellers offering pre-pay price plans are Boost (Nextel), Virgin Mobile (Sprint), Venture Mobile (Sprint and Verizon), and Liberty Wireless (Sprint).⁴⁰ Ztar Mobile is a reseller of Cingular and offers its pre-pay service at 7-11 stores throughout the U.S.⁴¹ Tracfone uses a number of different networks and claims to be the largest seller of pre-pay service in the US. Other companies, such as Cricket, are not resellers, but offer only pre-pay price plans on their networks.⁴²
37. Despite the wide availability of pre-pay price plans, consumers have overwhelmingly chosen post-pay service with term contracts and ETFs. Data from the CTIA show that nationwide pre-pay service comprised approximately 8% of total wireless

³⁷ Verizon Wireless, "Pay as you go solutions," http://www.verizonwireless.com/b2c/store/controller?item=prepayItem&action=viewPrepayOverview&cm_re=Home%20Page-_Personal%20Box-_Pay%20as%20you%20go, downloaded September 19, 2005.

³⁸ T-mobile, "T-mobile to go pre-pay phones," <http://www.t-mobile.com/prepaid/starterkits.asp>, downloaded September 19, 2005.

³⁹ Cingular, "Prepaid Phones," http://onlinestorez.cingular.com/cell-phone-service/cell-phones/cell-phones.jsp?_requestid=37593, downloaded September 19, 2005.

⁴⁰ See the companies' websites: <http://www.boostmobile.com/about/>, <http://www.virginmobileusa.com/greatrates/howitworks.do>, <http://venturemobile.com/coverage.asp#>, <http://www.libertywireless.com/nationwide.aspx>, downloaded September 19, 2005.

⁴¹ Ztar Mobile, "7-Eleven partners with Ztar mobile as the first retailer to launch its own pre-paid wireless service," http://www.ztarmobile.com/press_releases.cfm?form=27, downloaded September 19, 2005.

⁴² Leap Wireless, "Our Cricket Service," http://www.leapwireless.com/11_our_cricket_service.htm, downloaded September 19, 2005.

customer base in December 2004, meaning more than 92% of all customers chose to be on a post-pay price plan with a contract term and ETF. Furthermore, historical data shows that the number of subscribers choosing pre-pay price plans has fluctuated in a relatively narrow range of between about 6% and 8% of total subscribers in the last six years (Exhibit D).⁴³ The number of subscribers on pre-pay price plans initially fell between 1999 and 2002 before starting to rebound in 2003. Only in the past year and a half has there been a slight increase in the overall percentage of subscribers choosing pre-pay price plans.

38. Consumers have chosen post-pay price plans with term contracts and ETFs in order to obtain a number of upfront benefits. As I stated above, consumers receive handset subsidies that go a long way toward reducing the initial price of obtaining wireless service. For example, Verizon Wireless currently offers the Motorola T300p for \$29.99 with a two-year contract and for \$79.99 with a one-year contract, while the phone is available directly from Motorola for \$149.99.⁴⁴ Carriers, such as Verizon Wireless, also offer a number of other upfront promotions for term contracts such as unlimited night and weekend minutes, unlimited text and picture messaging with a \$5 charge, and a \$25 referral rebate.⁴⁵ In addition, Verizon Wireless incurs other upfront costs that benefit subscribers such as promotions that provide incentives for sales personnel to provide high-quality assistance and costs for advertising that provides valuable information to prospective subscribers.
39. These benefits come with a cost to Verizon Wireless, which it recovers over time in the form of a stream of service revenues. The subscriber's enforceable contract commitment is similar to an insurance policy in that it helps assure the carrier's

⁴³ As mentioned previously, the FCC's 10th Annual Report on the wireless market shows that pre-pay subscribership has increased from 6% to between 8% and 11%. These data continue to demonstrate that the vast majority of wireless services customers, between 92% and 89%, prefer post-pay contracts with ETFs.

⁴⁴ Motorola, "T300p,"

http://motorola.digitalriver.com/servlet/ControllerServlet?Action=DisplayPage&Locale=en_US&id=ProductDetailsPage&SiteID=motostor&productID=36068500&Env=BASE, downloaded September 19, 2005; Verizon Wireless, "Motorola T300p,"

<http://www.verizonwireless.com/b2c/store/controller?item=phoneFirst&action=viewPhoneDetail&selectedPhoneId=1578>, downloaded September 19, 2005.

⁴⁵ Verizon Wireless, "TXT & PIX are now in," www.verizonwireless.com, downloaded September 19, 2005; Verizon Wireless, "Verizon Wireless, "Are your friends and family in?"

<http://www.verizonwireless.com/b2c/LNPCControllerServlet?path=lnppromo1>, downloaded September 19, 2005.

recovery of up-front costs if a customer stops her service before the end of her contract term. It thus functions as part of the entire rate structure, including the risk taken by the carrier in collecting lower initial payments and monthly fees.

40. Without ETFs, it will become more difficult for a carrier to ensure recovery of its costs through enforcing the terms of its contracts, as explained above. As a result, carriers will face a greater risk that up-front costs of acquiring subscribers will not be recovered and will have an incentive to recover those costs sooner. Thus, it is likely that expenditures for handset subsidies, sales commissions, and other up-front costs described above would be transferred to the consumer in the form of higher equipment costs and higher service rates.
41. The ability to receive an up-front subsidy that is recovered over time is particularly valuable to consumers, because consumers consistently exhibit a high degree of concern over up-front costs relative to ongoing costs. This is a result that I first observed in the 1970's in connection with studying energy-efficient air conditioning units and that has been borne out in many contexts (see below), including the mobile industry, as I have explained above.⁴⁶
42. ETFs, therefore, are an important part of the post-pay pricing system that has benefited consumers and increased subscribership to wireless services. Without ETFs, overall price would be higher, and the rate structures would tend to transfer costs to consumers. This outcome would be negative for consumers since, as I have discussed above, consumers have benefited from the post-pay price plans with term contracts in various ways.

b. AirTouch real world example also supports customers' preferences for term contracts with ETFs

43. In 1996, in response to competitive pressures, Verizon Wireless's legacy company AirTouch introduced in its L.A. market non-contract post-pay price plans with lower

⁴⁶ See J. Hausman, "Individual Discount Rates and the Purchase and Utilization of Energy Using Durables," *Bell Journal of Economics*, Spring 1979.

handset subsidies, higher monthly recurring charges, and no ETF that were offered alongside price plans with term contract plans with free handsets, lower monthly charges, and an ETF. Attracted by the lower up-front handset costs and lower monthly service charges, customers overwhelmingly (approximately 95%) chose the term contract option, revealing their willingness to commit to a carrier for a fixed term in exchange for lower prices. In fact, given the low level of interest in the non-contract option, AirTouch eventually discontinued offering this no-contract option on its price plans. This outcome further supports my view that the large majority of customers will be made worse off without ETFs since they would be faced with higher prices for service and equipment without post pay price plans with term contracts and ETFs in direct contrast to their revealed preferences for lower prices with post-pay price plans with term contracts and ETFs.⁴⁷

c. Market outcomes in other industries also support customers' preferences for term contracts with ETFs

44. The types of upfront subsidies observed in the wireless industry are also found in many highly competitive industries. An example is the satellite television industry in which DirectTV provides a large subsidy for the initial purchase price of the satellite dish and requires consumers to sign an 18-month contract to receive the subsidy.⁴⁸ Similarly, in the home alarm market, companies give large subsidies on the original alarm equipment and installation so long as consumers sign a contract for monthly monitoring service, typically for three years.⁴⁹ The competitive outcomes in these other industries are similar to the competitive outcome in the mobile industry—consumers prefer subsidies on the necessary original equipment purchase to help them overcome the hurdle of the initial up-front cost of the equipment.

⁴⁷ Interview with Ross Bennett, Director of Marketing, Verizon Wireless, January 2005. Ross Bennett was Pricing Manager in 1996 for AirTouch.

⁴⁸ Sources are the websites, www.dishnetwork.com and www.directtv.com, downloaded on September 19, 2005, as well as a phone conversation with an EchoStar sales representative, on September 13, 2005.

⁴⁹ For example, Protect America is offering a current promotional of free equipment with a new three-year agreement. http://www.protectamerica2.com/compare_us.htm, downloaded September 19, 2005.

III. The MASSPIRG surveys are biased and unreliable

45. In their submissions to the FCC, consumer groups -- particularly the Consumers Union, National Association of State PIRGs, and the National Consumer Law Center -- uncritically rely upon the results of a recent survey written by USPIRG and MASSPIRG (“MASSPIRG2 survey”),⁵⁰ and this survey, in turn, relies upon the results of an earlier survey by MASSPIRG (“MASSPIRG1 survey”).⁵¹
46. I have reviewed the methodology and results of these surveys and have concluded that they are biased and unreliable. Neither MASSPIRG1 nor MASSPIRG2 provides standard disclosure about their surveys including, but not limited to, the sample design, the sample selection, the full questionnaire, including exact wording, and interviewer instructions.⁵² Thus my analysis is limited to the information provided in each of the two reports. The failure to meet basic minimum reporting standards that exist in any scientific survey procedure raises significant questions about the objectiveness of the MASSPIRG1 and MASSPIRG2 survey results.

a. Market actions are better indicators of consumer preferences

47. In its statement of best practices for surveys, one of the first items mentioned by the American Association of Public Opinion Research is “Consider alternatives to using a survey to collect information.”⁵³ In the case of term contracts with ETFs, there is an alternative to a survey that economists generally prefer: market outcomes. Rather than asking people what their preferences and intended actions are, economists prefer to rely upon “revealed preferences” through market actions. This approach began

⁵⁰ Edmund Mierzwinski, Kerry Smith, Deirdre Cummings, “Locked In A Cell: How Cell Phone Early Termination Fees Hurt Consumers,” August 2005. (“MASSPIRG2 survey”).

⁵¹ Deirdre Cummings and Kerry Smith, “Can You Hear Us Now? A Report on How the Cell Phone Industry has Failed Consumers,” March 2005. (“MASSPIRG1 survey”). See “Reply Comments of Consumers Union, National Association of State PIRGs, National Consumer Law Center,” August 25, 2005.

⁵² The American Association of Public Opinion Research (AAPOR) includes these factors in its outline on best practices for survey and public opinion researchers at http://www.aapor.org/default.asp?page=survey_methods/standards_and_best_practices/best_practices_for_survey_and_public_opinion_research, downloaded September 19, 2005.

⁵³ Ibid.

with Paul Samuelson in his Foundations of Economic Analysis for which he received the Nobel Prize.⁵⁴ As explained above, consumers have overwhelmingly shown their preferences for post-pay price plans with term contracts and ETFs over price plans with no term contracts and no ETFs.

b. The MASSPIRG1 survey uses an extremely biased sample

48. MASSPIRG states that they surveyed their members, presumably their entire membership of approximately 50,000 according to their website in 2003,⁵⁵ and they received 884 responses. The first problem with this sample is that it is from a biased population of MASSPIRG members. Rather than the standard practice of sampling randomly from the relevant population – which in this case would be all U.S. cell phone users – MASSPIRG began with only its own members who, by virtue of joining MASSPIRG, may already have certain views on the wireless industry. The error is identical to a famous example of erroneous sampling methodology taught in all introductory statistics courses in which the Literary Digest polled its members, who were largely Republican, about who would win the 1936 presidential election between Franklin Delano Roosevelt and Alfred Landon. With 2.4 million responses, the Digest declared that Landon, the Republican, would win by a margin of 57% to 43%. Instead, FDR won by a margin of 61% to 37%, and George Gallup, the founder of the Gallup Organization, made his name by making the right prediction using random sampling.
49. Statisticians have known for over 70 years that a probability sample (or statistical controls) is an essential part of valid scientific inference from a sample.⁵⁶ Manuals written for judges and lawyers also recognize this basic scientific fact.⁵⁷ MASSPIRG

⁵⁴ Paul A. Samuelson, Foundations of Economic Analysis, Cambridge: Harvard, 1947.

⁵⁵ MASSPIRG, “30 years of action in the public interest,”

<http://masspirg.org/MA.asp?id2=8613&id3=MA&>, downloaded September 19, 2005.

⁵⁶ I have written many academic papers on the issue of valid samples and statistical inference. I served on advisory board to the US government, including the Census Bureau and the Bureau of Labor Statistics, for approximately eight years, 1985-1992, giving advice on how to improve government survey procedures.

⁵⁷ See Federal Judicial Center, Reference Manual on Scientific Evidence, 2d ed. The chapter on statistics is by D. Kaye and D. Freedman, “Reference Guide to Statistics.” The MASSPIRG approach results in “selection bias” (p. 100), a well-known problem in statistics.

has given no description of the probability sampling procedure used to give a valid scientific sample. Based on this fundamental mistake, I conclude that no valid inferences can be drawn from the MASSPIRG1 survey.

50. The second problem with the sample is that it is based on voluntary responses. In this situation, it is highly likely that only those with the strongest opinions responded to the survey since surveys are costly for respondents in terms of the time required to fill them out. The response rate of less than 2% bears out the hypothesis that most members did not feel strongly enough to return the survey. In any case, a response rate of less than 2% is considered unacceptable by statistical analysis. Statisticians typically find that a minimum 50% response rate is required or survey non-response bias will create significant problems.⁵⁸ The response rate among MASSPIRG members is over 25 times lower than the minimum standard. This fundamental problem invalidates the MASSPIRG1 survey. Based on the two problems of a non-probability-based sample and an extremely low sample response rate, I conclude that the MASSPIRG1 survey will lead to biased and unreliable results.

c. Both the MASSPIRG1 and MASSPIRG2 surveys pose biased questions

51. The MASSPIRG1 survey asks a series of “leading questions” that prompt respondents to answer in certain ways. The MASSPIRG1 report’s appendix provides some of the questions posed in its survey, although it is not clear if the questions presented represent all of the questions from the survey.⁵⁹ The first three questions are informational and ask for the respondent’s service provider, type of price plan (pre or post-pay), and average monthly bill.⁶⁰ The next six (Questions 4 through 9)

⁵⁸ For example, the National Center for Education Statistics has a 70% minimum response rate standard; when the response rate is less than 50%, a consultation must be made with the Associate Commissioner, Chief Statistician, and Commissioner. NCES, “Planning and Design of Surveys,” http://nces.ed.gov/statprog/2002/std2_2.asp, downloaded September 19, 2005. See also, American Statistical Association (1996). *Judging the Quality of a Survey*. ASA: Section on Survey Research Methods.

⁵⁹ MASSPIRG1 Survey, Appendix B.

⁶⁰ MASSPIRG1 Survey, p. 39. The questions are:

1. Which cell phone service provider do you use?

ask for substantive opinions from the respondent, and five of the six are negatively posed. The first four (Questions 4 through 7) ask about “problems” with cell phone bills and providers.⁶¹ The fifth, Question 8, is more neutral and asks about satisfaction with service, but it follows the four negatively posed questions about “problems.” Furthermore, it is followed up by Question 9 that asks all respondents who are less than “very satisfied” – about 85% or nearly all the respondents – to explain why they have not yet switched.⁶² Such leading questions are well known to elicit biased answers in surveys, and in this case, they would have likely elicited responses that indicate problems with bills or service.

52. Both the MASSPIRG1 and MASSPIRG2 surveys also elicit biased answers by providing limited response options. In the MASSPIRG1 survey, in response to Question 5 regarding problems with cell phone bills, respondents were able to choose between seven categories and a catchall category of “Other.”⁶³ Similarly for Question 7 regarding problems with cell phone service/provider, there were eight categories and one “Other” category.⁶⁴ A common practice in surveys is to allow for open responses in order to gauge the range of possible answers. Instead, MASSPIRG pigeonholed respondents into particular answers, which tends to bias the given responses upwards, and then quoted the numbers of respondents in those categories.
53. The MASSPIRG2 survey used a similar technique. In answer to the question, “Why did you pay the early termination fee?” four answers were read out loud, and all of these answers were to improve upon the price or quality of service from the customer’s current service provider. Interestingly, MASSPIRG2 quotes six “NOT READ” options, four of which probably had nothing to do with either the price or quality of service including “Didn’t use/want service,” “Change in personal life,”

-
2. What type of billing plan is your cell phone service provided under?
 3. How much is your average monthly cell phone bill?

⁶¹ MASSPIRG1 Survey, pp.40-1. The questions are:

4. Have you ever had problems with your cell phone bill?
5. What kind(s) of problems have you had with your cell phone bill?
6. Have you had problems with your cell phone service/provider?
7. What kind(s) of problems have you had with your cell phone service/provider?

⁶² MASSPIRG1 Survey, p. 42. The questions are:

8. How satisfied are you with your cell phone service?
9. If you are less than “very satisfied” what prevents you from switching providers?

⁶³ MASSPIRG1 Survey, p. 40.

⁶⁴ MASSPIRG1 Survey, p. 41.

“Cancelled one of multiple cell phone lines,” and “Phone was stolen.”⁶⁵ Again, the limited read out loud options tend to bias upwards the number of answers in those categories.

54. MASSPIRG2’s methodology is particularly problematic for the question, “Please tell me how low the fee would have to have been to have made it worth it to you to switch cell phone companies.”⁶⁶ MASSPIRG2 uses the answers to this question in order to calculate the “average valuation of benefits, per phone, of switching companies” at \$49.66.⁶⁷ This positive valuation is not surprising given that the interviewer only read out loud options ranging from “more than \$25 but less than \$50” to \$125 per phone, leaving out lower value options.

55. MASSPIRG2’s penultimate question regarding ETFs is a classic textbook example of a leading question. The question reads:⁶⁸

Cell phone companies claim that an early termination fee is just another rate charged for your use of cell phones, similar to the monthly rates you pay for your calling plan. Do you agree with this claim or do you think that early termination fees are penalties designed to discourage customers from switching and bring in extra money from those customers who decide to switch anyway?

On the one hand, the first part of the question states that cell phone companies are pushing for a certain definition or action, but none of their reasons are provided. On the other hand, the second part of the question is a judgment about ETFs as penalties and the companies as attempting to “bring in extra money,” and asks respondents to agree with this judgment or to agree with the cell phone companies. In addition, the two parts are not necessarily incompatible with one another. The question does not represent the views of both sides, and it is not surprising that it elicits high responses for the penalty answer. Responses to such questions are inherently unreliable.

⁶⁵ MASSPIRG2 Survey, Question 4, p. 25.

⁶⁶ MASSPIRG2 Survey, Question 7, p. 26.

⁶⁷ MASSPIRG2 Survey, p. 19.

⁶⁸ MASSPIRG2 Survey, Question 10, p. 27.

d. Both surveys positively portray post-pay price plans with fixed term contracts that contain ETF provisions

56. Despite the biased nature of the questions, a number of the responses actually portray post-pay price plans with term contracts and ETFs in a positive light. First, the MASSPIRG1 survey shows that most respondents chose a post-pay price plan with term contracts and ETFs: 93% of respondents. Given that the respondents most likely live in Massachusetts where at least eight pre-pay price plans are available, the fact that only 7% of respondents chose these pre-pay price plans with higher cellular phone prices (because of a reduced subsidy) and a higher per-minute service cost than post-pay price plans with term contracts and ETFs demonstrates the high degree of preference among MASSPIRG members for post-pay price plans. No respondent to the MASSPIRG1 survey was required to choose a cellular service price plan with a term contract and ETF.
57. Second, the MASSPIRG1 survey demonstrates general satisfaction with cell phone service. A majority of respondents, 57.6% had no problems with their cell phone bill. A large majority of respondents, 85%, were satisfied with their cell phone service. In fact, the largest number of respondents was in the category, "Mostly satisfied," with 41.6%. Given that MASSPIRG itself is a "consumer advocacy" group, the results regarding customer satisfaction with wireless service among this likely biased pool of respondents is positive for the industry.
58. With regard to ETFs more specifically, the MASSPIRG1 points to ETFs as the main obstacle preventing customers from switching,⁶⁹ by pointing to the highest number of responses for "Early contract termination fees" as the main reason for not switching providers. But on closer examination, a widely used test, the t-test, shows that the percentage is not significantly different from that for the unspecified answer "Other."⁷⁰ Thus, a major conclusion from the MASSPIRG survey is unsupported by the most widely used statistical test of significance.

⁶⁹ MASSPIRG1 Survey, p. 19.

⁷⁰ A one-sided t-test yields a p-value of 0.11. For more on the t-test, see Federal Judicial Center, "Reference Guide on Statistics," *Reference Manual on Scientific Evidence*, Second Edition, 2000, pp. 175-76.

59. The MASSPIRG2 survey also has positive results for ETFs. First, 63% responded “No” to the question of whether ETFs were the reason for possibly switching providers.⁷¹ Second, 74% responded with a positive amount for an ETF, and 98% of those responding to the read amounts chose an amount higher than the lowest category of “more than \$25 but less than \$50.”⁷² These responses indicate that most respondents do not think the fee should be zero. Third, 51% responded that they would definitely stay with their provider even if ETFs were eliminated.⁷³ Thus these results show that even with biased questioning and faulty sampling techniques, consumers’ responses indicate general satisfaction with service and their preference for term contracts with ETFs.

e. USPIRG’s use of the survey is based on incorrect economic analysis

60. MASSPIRG2 claims to do an economics analysis of the cost of ETFs.⁷⁴ MASSPIRG2 estimates that ETFs cost US consumers \$4.6 billion. However, MASSPIRG2 makes an elementary mistake in its economic analysis. Since 92% of customers choose post-pay price plans with term contracts with ETF instead of more expensive pre-pay calling plans, their **market actions** demonstrate that they are at least as well off by choosing the post-pay plans, or they would have chosen the pre-pay price plan. This conclusion is based on the economic principle of revealed preference for which Prof. P.A. Samuelson won the Nobel Prize in economics.

61. To approximate the gain to consumers from having post-pay term contracts with ETFs I compare them to pre-pay calling plans. In 2004 the average cellular bill was \$50.64 per month.⁷⁵ Thus, the approximately 167 million post-pay customers paid \$102 billion in 2004 for cellular service. Now pre-pay price plans are approximately

⁷¹ MASSPIRG2 Survey, Question 5, p. 25.

⁷² MASSPIRG2 Survey, Question 7, p. 26.

⁷³ MASSPIRG2 Survey, Question 9, p. 26.

⁷⁴ MASSPIRG2 Survey, pp. 17 forward.

⁷⁵ Source CTIA: http://files.ctia.org/img/survey/2004_endyear/slides/SemiAnnual_1.jpg.

1.91 times more expensive than post-pay price plans.⁷⁶ Thus, if consumer users kept their usage approximately constant, they would pay approximately \$100 billion per year more in service charges.⁷⁷ Taking into account the reduced cell phone subsidy and spreading it over a 3 year period would lead to another \$5.6 billion in extra consumer payments. Thus, the total benefit to consumers from post-pay price plans with term contracts is approximately \$106 billion per year. However, even if cellular use decreased because of the high price of post-pay price plans, I estimate that the benefit from post-pay price plans with term contracts is still approximately \$68

⁷⁶ Pre-pay price plans are approximately 1.91 times more expensive than post-pay service based on information from SEC filings and price plan details from company websites. I assume a customer uses 450 minutes per month on a per minute plan and accesses the phone at least once a day during the month. I arrive at a similar ratio using monthly pre-pay price plans: 1.64. The sources are: Nextel Communications, Inc., SEC Form 10-K, for the fiscal year ended December 31, 2004, p. 1; Cingular Wireless LLC, SEC Form 10-K, for the fiscal year ended December 31, 2004, pp. 5, 7; Deutsche Telekom AG, SEC Form 20-F, for the fiscal year ended December 31, 2004, pp. 38-39; América Móvil, S.A. de C.V., SEC Form 20-F, for the fiscal year ended December 31, 2004, p. 41; Verizon Communications, Inc., SEC Form 10-K, for the fiscal year ended December 31, 2004, p. 101; Virgin Mobile, "Virgin Mobile USA Attracts 3 Million Customers in 2.5 Years", <http://www.virginmobileusa.com/corporate/media.do>, downloaded September 9, 2005.; Leap Wireless International, Inc., SEC Form 10-K, for the fiscal year ended December 31, 2004, p. 2; United States Cellular Corporation, SEC Form 10-K, for the fiscal year ended December 31, 2004, Exhibit 13 p. 2; Boost Mobile, "Plans and Services - Services & Rates - Cellular - Rate Plans," <http://www.boostmobile.com/plans/services/cellular/plans.html>, downloaded September 5, 2005.; Cingular Wireless, "Rate Plans," <http://onlinestorez.cingular.com/cell-phone-service/wireless-phone-plans/cell-phone-plans.jsp?catid=2206800016>, downloaded September 15, 2005.; T-mobile, "T-Mobile to Go prepaid rates," <http://www.t-mobile.com/prepaid/rates.asp>, downloaded September 15, 2005.; Tracfone, "Nokia and Motorola TracFone Prepaid Cell Phone Plans," <http://www.tracfone.com/rates.jsp?nextPage=rates.jsp&task=rates>, downloaded September 15, 2005.; Verizon Wireless, "Pay as you go solutions," http://www.verizonwireless.com/b2c/store/controller?item=prepayItem&action=viewPrepayOverview&cm_re=Home%20Page-_-Personal%20Box-_-Pay%20as%20you%20go, downloaded September 5, 2005.; Virgin Mobile, "Day2Day," <http://www.virginmobileusa.com/greatrates/day2day.do>, downloaded September 15, 2005; Cricket, <http://www.mycricket.com/jump/>, downloaded September 15, 2005; U.S. Cellular, http://www.uscc.com/uscellular/SilverStream/Pages/x_page.html?p=b_t_compare, downloaded September 15, 2005; Cingular Wireless, "Rate Plans," <http://onlinestorez.cingular.com/cell-phone-service/wireless-phone-plans/cell-phone-plans.jsp?catid=2206800016&subcatid=2251300004>, downloaded September 15, 2005.; In re Cellphone Early Termination Fee Cases, "Available Mobile Phone Calling Plans With No Long-Term Contract and no ETF," August 23, 2005; Virgin Mobile, "Month2Month," <http://www.virginmobileusa.com/greatrates/month2month.do>, downloaded September 15, 2005.; Boost Mobile, "Plans and Services - Services & Rates - Cellular - Rate Plans," <http://www.boostmobile.com/plans/services/cellular/plans.html>, downloaded September 15, 2005.; Cricket, <http://www.buy-cricket.com/direct/ck/planlist.jsp?bundleId=1&qty=1&phoneProdId=2511>, downloaded September 15, 2005.; U.S. Cellular, http://www.uscc.com/uscellular/SilverStream/Pages/x_page.html?p=b_t_compare, downloaded September 15, 2005.

⁷⁷ I would expect cellular usage to decrease given the higher prices. I account for this effect subsequently.

billion per year.⁷⁸ Thus, the benefit to cellular customers from the lower prices of post-pay price plans with term contracts is at a minimum 45 times greater than any harm MASSPIRG2 estimates from ETFs.⁷⁹ In terms of the consumers' surplus consumers are made better off by at least \$69 billion per year or approximately 45 times the MASSPIRG2 estimate.⁸⁰ These estimates demonstrate why cellular consumers predominantly choose post-pay price plans with term contracts and ETF provisions rather than more expensive pre-pay price plans.

IV. Conclusions

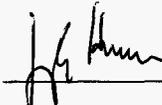
62. In my research and experience in the telecommunications industry, I have found the industry to be highly competitive. Competition has benefited consumers in the form of low upfront costs, low prices, and high innovation in both pricing plans and services. Through their choices in the market place, consumers have overwhelmingly shown their preferences for post-pay price plans with ETFs. When faced with an explicit choice between post-pay price plans with term contracts, ETFs, lower upfront costs, and lower monthly rates, and pre-pay price plans without term contracts, ETFs, higher upfront costs, and higher monthly rates, consumers have chosen in very high proportions the post-pay price plans with term contracts and ETFs. Given the highly competitive nature of cellular markets in the U.S., if consumers wanted a different type of cellular plan, the market would deliver it as companies attempted to increase their profits.
63. MASSPIRG1 and MASSPIRG2 provide no reason for the alleged market failure that causes companies to not offer post-pay price plans without ETFs if significant

⁷⁸ I use a price elasticity of -0.55 which I discuss in my Handbook chapter.

⁷⁹ For MASSPIRG2's per year ETF costs to cell phone users, I divided by three MASSPIRG2's total figure of \$4.6 billion during the 2002-2004 period. MASSPIRG2 Survey, p. 21.

⁸⁰ I use a lower bound approach to estimating consumers surplus. See J. Hausman, "Exact Consumer Surplus and Deadweight Loss," American Economic Review, 71, 1981 and J. Hausman, "Sources of Bias and Solutions to Bias in the CPI", Journal of Economic Perspectives, 2003.

consumer demand exists for these types of plans.⁸¹ Instead, MASSPIRG1 and MASSPIRG2 point to opinion surveys that purport to show that consumers “want” post-pay price plans without term contracts and ETFs. However, I find these surveys are biased and unreliable. Furthermore, consumer choice in the past decade makes it clear that consumers prefer post-pay price plans with term contracts and ETFs. In fact, AirTouch offered a post-pay price plan without a fixed term and ETFs in 1996 and eventually withdrew the plan due to lack of demand. Thus I find that post-pay price plans with term contracts and ETFs are the outcome of a competitive wireless market, and that such plans have benefited consumers.

 1900 2005

Jerry A. Hausman

⁸¹ MASSPIRG2 states that a high level of concentration can lead to “excessive market power” (p. 1 and p. 4), but this conclusion has been rejected by the FCC and the DOJ. MASSPIRG2 provides no economic analysis that “excessive market power” exists in the cellular industry in the U.S.

Exhibit A

September 2005

JERRY A. HAUSMAN
Massachusetts Institute of Technology
Department of Economics
Building E52-271A
Cambridge 02139
(617) 253-3644

EDUCATION:

OXFORD UNIVERSITY
D. Phil. 1973 (Ph.D)
B. Phil. 1972

BROWN UNIVERSITY
A.B. (Summa Cum Laude), 1968

THESIS: "A Theoretical and Empirical Study of Vintage Investment and Production in Great Britain,"
Oxford University, 1973.

FELLOWSHIPS, HONORS AND AWARDS:

Phi Beta Kappa
Marshall Scholar at Oxford, 1970-1972
Scholarship at Nuffield College, Oxford, 1971-1972
Fellow, Econometric Society, 1979.
Frisch Medal of the Econometric Society, 1980
Fisher-Schultz Lecture for the Econometric Society, 1982
John Bates Clark Award of the American Economic Association, 1985
Jacob Marschak Lecture for the Econometric Society, 1988
Fellow, National Academy of Social Insurance, 1990
American Academy of Arts and Sciences, 1991.
Fellow, Journal of Econometrics, 1998.
Shann Memorial Lecture for the Australian Economics Society, 2003
Cemmap International Fellow, University College London, 2004
Honorary Professor, Xiamen University, 2005

EMPLOYMENT:

1992- MASSACHUSETTS INSTITUTE OF TECHNOLOGY
1979- John and Jennie S. MacDonald Professor
1976-79 Professor, Department of Economics
1973-76 Associate Professor, Department of Economics
1972-73 Assistant Professor, Department of Economics
1972-73 Visiting Scholar, Department of Economics

VISITING APPOINTMENTS:
1986-87 Visiting Professor, Harvard Business School
1982-83 Visiting Professor, Harvard University Department of Economics
Visiting Positions: University of Washington, Brigham Young University, Australian National University, Mc Master University, Ecole Normale Supérieure, Oxford University, University of Sydney, Wuhan University, Beijing University, University of Western Australia, University College London, Uppsala University, Xiamen University

1968-70 U.S. ARMY, ANCHORAGE, ALASKA
Corps of Engineers

Exhibit A

2

PROFESSIONAL ACTIVITIES:

Associate Editor, Bell Journal of Economics, 1974-1983
Associate Editor, Rand Journal of Economics, 1984-1988
Associate Editor, Econometrica, 1978-1987
Reviewer, Mathematical Reviews, 1978-1980
American Editor, Review of Economic Studies, 1979-82
Associate Editor, Journal of Public Economics, 1982-1998
Associate Editor, Journal of Applied Econometrics, 1985-1993
Advisory Editor, Economics Research Network and Social Science Research , 1998-
Advisory Editor, Journal of Sports Economics, 1999-
Advisory Editor, Journal of Competition Law & Economics, 2004-
Member of MIT Center for Energy and Environmental Policy Research, 1973-1995
Research Associate, National Bureau of Economic Research, 1979-
Member, American Statistical Association Committee on Energy Statistics, 1981-1984
Special Witness (Master) for the Honorable John R. Bartels, U.S. District Court for the Eastern District of New York in Carter vs. Newsday, Inc., 1981-82
Member of Governor's Advisory Council (Massachusetts) for Revenue and Taxation, 1984-1992
Member, Committee on National Statistics, 1985-1990
Member, National Academy of Social Insurance, 1990-
Member, Committee to Revise U.S. Trade Statistics 1990-1992
Director, MIT Telecommunications Economics Research Program, 1988-
Board of Directors, Theseus Institute, France Telecom University, 1988-1995
Member, Conference on Income and Wealth, National Bureau of Economic Research, 1992-
Member, Committee on the Future of Boston, 1998
Member, GAO Expert Panel to advise USDA on Econometric Models of Cattle Prices, 2001-2
Advisor, China Ministry of Information on Telecommunications Regulation, 2002-
Member, FTC Panel on Merger Evaluation, 2005

PUBLICATIONS:

I. Econometrics

- "Minimum Mean Square Estimators and Robust Regression," Oxford Bulletin of Statistics, April 1974.
- "Minimum Distance and Maximum Likelihood Estimation of Structural Models in Econometrics," delivered at the European Econometric Congress, Grenoble: August 1974.
- "Full-Information Instrumental Variable Estimation of Simultaneous Equation Models," Annals of Economic and Social Measurement, October 1974.
- "Estimation and Inference in Nonlinear Structural Models," Annals of Economic and Social Measurement, with E. Berndt, R.E. Hall, and B.H. Hall, October 1974.
- "An Instrumental Variable Approach to Full-Information Estimators in Linear and Certain Nonlinear Econometric Models," Econometrica, 43, 1975.
- "Simultaneous Equations with Errors in Variables," Journal of Econometrics 5, 1977.
- "Social Experimentation, Truncated Distributions, and Efficient Estimation," with D. Wise, Econometrica, 45, 1977.
- "A Conditional Probit Model for Qualitative Choice," with D. Wise, Econometrica, 46, 1978.
- "Specification Tests in Econometrics," Econometrica, 46, 1978.
- "Non-Random Missing Data," with A.M. Spence, MIT Working Paper 200, May 1977.

Exhibit A

3

- "Attrition Bias in Experimental and Panel Data: The Gary Income Maintenance Experiment," with D. Wise, Econometrica, 47, 1979.
- "Missing Data and Self Selection in Large Panels," with Z. Griliches and B.H. Hall Annales de l'INSEE, April 1978.
- "Stratification on Endogenous Variables and Estimation," with D. Wise, in The Analysis of Discrete Economic Data, ed. C. Manski and D. McFadden, MIT Press, 1981.
- "Les models probit de choix qualitatifs," ("Alternative Conditional Probit Specifications for qualitative Choice.") (English Version), September 1977; EPRI report on discrete choice models, Cahiers du Seminar d'Econometrie, 1980.
- "The Econometrics of Labor Supply on Convex Budget Sets," Economic Letters, 1979.
- "Panel Data and Unobservable Individual Effects," with W. Taylor, Econometrica 49, 1981.
- "Comparing Specification Tests and Classical Tests," with W. Taylor, August 1980, Economic Letters, 1981.
- "The Effect of Time on Economic Experiments," invited paper at Fifth World Econometrics Conference, August 1980; in Advances in Econometrics, ed. W. Hildebrand, Cambridge University Press, 1982.
- "Sample Design Considerations for the Vermont TOD Use Survey," with John Trimble, Journal of Public Use Data, 9, 1981.
- "Identification in Simultaneous Equations Systems with Covariance Restrictions: An Instrumental Variable Interpretation," with W. Taylor, Econometrica, 51, 1983.
- "Stochastic Problems in the Simulation of Labor Supply," in Tax Simulation Models, ed. M. Feldstein, University of Chicago Press, 1983.
- "The Design and Analysis of Social and Economic Experiments," invited paper for 43rd International Statistical Institute Meeting, 1981; Review of the ISI.
- "Specification and Estimation of Simultaneous Equation Models," in Handbook of Econometrics, ed. Z. Griliches and M. Intriligator, vol. 1, 1983.
- "Full-Information Estimators," in Kotz-Johnson, Encyclopedia of Statistical Science, vol. 3, 1983
- "Instrumental Variable Estimation," in Kotz-Johnson, Encyclopedia of Statistical Science, vol. 4, 1984
- "Specification Tests for the Multinomial Logit Model," with D. McFadden, Econometrica, 52, 1984.
- "Econometric Models for Count Data with an Application to the Patents R&D Relationship," with Z. Griliches and B. Hall, Econometrica, 52, 1984.
- "The Econometrics of Nonlinear Budget Sets," Fisher-Shultz lecture for the Econometric Society, Dublin: 1982; Econometrica, 53, 1985.
- "The J-Test as a Hausman Specification Test," with H. Pesaran, Economic Letters, 1983.

Exhibit A

4

- "Seasonal Adjustment with Measurement Error Present," with M. Watson, Journal of the American Statistical Association, 1985.
- "Efficient Estimation and Identification of Simultaneous Equation Models with Covariance Restrictions," with W. Newey and W. Taylor, Econometrica, 55, 1987.
- "Technical Problems in Social Experimentation: Cost Versus Ease of Analysis," with D. Wise, in Social Experimentation, ed. J. Hausman and D. Wise, 1985.
- "Errors in Variables in Panel Data," with Z. Griliches, Journal of Econometrics, 1986.
- "Specifying and Testing Econometric Models for Rank-Ordered Data," with P. Ruud; Journal of Econometrics, 1987.
- "Semiparametric Identification and Estimation of Polynomial Errors in Variables Models," with W. Newey, J. Powell and H. Ichimura, Journal of Econometrics, 1991.
- "Flexible Parametric Estimation of Duration and Competing Risk Models," with A. Han, Journal of Applied Econometrics, 1990.
- "Consistent Estimation of Nonlinear Errors in Variables Models with Few Measurements," with W. Newey and J. Powell, 1987.
- "Optimal Revision and Seasonal Adjustment of Updated Data: Application to Housing Starts," with M. Watson, Journal of the American Statistical Association Proceedings, 1991.
- "Seasonal Adjustment of Trade Data," with R. Judson and M. Watson, ed. R. Baldwin, Behind the Numbers: U.S. Trade in the World Economy, 1992.
- "Nonlinear Errors in Variables: Estimation of Some Engel Curves," Jacob Marschak Lecture of the Econometric Society, Canberra 1988, Journal of Econometrics, 65, 1995.
- "Nonparametric Estimation of Exact Consumers Surplus and Deadweight Loss," with W. Newey, Econometrica, 63, 1995.
- "Misclassification of a Dependent Variable in Qualitative Response Models," with F. Scott-Morton and J. Abrevaya, Journal of Econometrics, 1998.
- "Semiparametric Estimation in the Presence of Mismeasured Dependent Variables," with J. Abrevaya, Annales D'Economie et de Statistique, 55-56, 1999.
- "A New Specification Test for the Validity of Instrumental Variables," with J. Hahn, Econometrica, 70, 2002.
- "Microeconometrics", Journal of Econometrics, 2000.
- "Instrumental Variables Estimation for Dynamic Panel Models with Fixed Effects", with J. Hahn and G. Kuersteiner, mimeo May 2001.
- "Mismeasured Variables in Econometric Analysis: Problems from the Right and Problems from the Left", Journal of Economic Perspectives, 2001.
- "Estimation with Weak Instruments: Accuracy of Higher Order Bias and MSE Approximations", with J. Hahn and G. Kuersteiner, mimeo 2002, Econometrics Journal 2004.
- "Notes on Bias in Estimators for Simultaneous Equation Models", with J. Hahn, Economic Letters, 2002

Exhibit A

5

"Triangular Structural Model Specification and Estimation with Application to Causality", Journal of Econometrics, 2003

"Weak Instruments: Diagnosis and Cures in Empirical Econometrics", with J. Hahn, American Economic Review, 2003.

"Instrumental Variable Estimation with Valid and Invalid Instruments", with J. Hahn, August 2003, forthcoming Annales d'Economie et Statistique, 2005.

"Difference in Difference Meets Generalized Least Squares: Higher Order Properties of Hypotheses Tests", with G. Kuersteiner, mimeo May 2003, revised September 2004

"Response Error in a Transformation Model: Estimation of Wage Equations," with Jason Abrevaya, Econometrics Journal 2004

"Asymptotic Properties of the Hahn-Hausman Test for Weak Instruments", with J. Stock and M. Yogo, Economic Letters, 2005.

"Many Weak Instruments and Microeconomic Practice," with C. Hansen and W. Newey, September 2004, revised July 2005.

"Instrumental Variable Estimation as a Projection: Inconsistency Results for LIML and a New Consistent Estimator," with T. Woutersen , August 2004

"A Semi-Parametric Duration Model with Heterogeneity that Does Not Need to be Estimated," with T. Woutersen, Nov 2004.

"Estimating the Derivative Function with Counterfactuals in Duration Models with Heterogeneity," with T. Woutersen, September 2005.

II. Public Finance and Regulation

"The Evaluation of Results from Truncated Samples," with D. Wise, Annals of Economic and Social Measurement, April 1976.

"Discontinuous Budget Constraints and Estimation: The Demand for Housing," with D. Wise, Review of Economic Studies, 1980.

"The Effect of Taxation on Labor Supply: Evaluating the Gary Negative Income Tax Experiment," with G. Burtless, Journal of Political Economy, 1978.

"AFDC Participation -- Permanent or Transitory?," in Papers from the European Econometrics Meetings, ed. E. Charatsis, North Holland: 1981.

"The Effect of Wages, Taxes, and Fixed Costs on Women's Labor Force Participation," Journal of Public Economics, October 1980.

"The Effect of Taxes on Labor Supply," in How Taxes Affect Economic Behavior, ed. H. Aaron and J. Pechman, Brookings: 1981.

"Income and Payroll Tax Policy and Labor Supply," in The Supply Side Effects of Economic Policy, ed. G. Burtless, St. Louis: 1981.

"Individual Retirement Decisions Under an Employer-Provided Pension Plan and Social Security," with G. Burtless, Journal of Public Economics, 1982.

Exhibit A

6

- "Individual Retirement and Savings Decisions," with P. Diamond, Journal of Public Economics, 1984.
- "Retirement and Unemployment Behavior of Older Men," in H. Aaron and G. Burtless, Retirement and Economic Behavior, Brookings: 1984.
- "Tax Policy and Unemployment Insurance Effects on Labor Supply," in Removing Obstacles to Economic Growth, ed. M. Wachter, 1984.
- "Family Labor Supply with Taxes," with P. Ruud, American Economic Review, 1984.
- "Social Security, Health Status and Retirement," with D. Wise, in Pensions, Labor, and Individual Choice, ed. D. Wise, 1985.
- "The Effect of Taxes on Labor Supply," in Handbook on Public Economics, ed. A. Auerbach and M. Feldstein, 1985.
- "Choice Under Uncertainty: The Decision to Apply for Disability Insurance," with J. Halpern, Journal of Public Economics, 1986.
- "Household Behavior and the Tax Reform Act of 1986," with J. Poterba, Journal of Economic Perspectives, 1987, also published in French in Annales D'Economie et de Statistique, 1988.
- "Involuntary Early Retirement and Consumption," with L. Paquette, ed. G. Burtless, Economics of Health and Aging, 1987.
- "Income Taxation and Social Insurance in China," in Sino-U.S. Scholars on Hot Issues in China's Economy, 1990.
- "On Contingent Valuation Measurement of Nonuse Values," with P. Diamond, in Contingent Valuation: A Critical Appraisal, ed. J. Hausman, 1993.
- "Does Contingent Valuation Measure Preferences? Experimental Evidence," with P. Diamond, G. Leonard, M. Denning, in Contingent Valuation: A Critical Appraisal, ed. J. Hausman, 1993.
- "Contingent Valuation: Is Some Number Better than No Number?" with P. Diamond, December 1993, Journal of Economic Perspectives, 8, 1994.
- "A Utility-Consistent Combined Discrete Choice and Count Data Model: Assessing Recreational Use Losses Due to Natural Resource Damage," with G. Leonard and D. McFadden, Journal of Public Economics, 56, 1995.
- "Contingent Valuation Measurement of Nonuse Values," with P. Diamond, ed. R.B. Stewart, Natural Resource Damages: A Legal, Economic, and Policy Analysis, 1995.
- "A Cost of Regulation: Delay in the Introduction of New Telecommunications Services," with T. Tardiff, 1995, ed. A. Dumort and J. Dryden, The Economics of the Information Society, 1997.
- "Valuation and the Effect of Regulation on New Services in Telecommunications," Brookings Papers on Economic Activity: Microeconomics, 1997.
- "Taxation By Telecommunications Regulation," Tax Policy and the Economy, 12, 1998.
- "Taxation by Telecommunications Regulation: The Economics of the E-Rate", AEI Press, 1998.
- "Economic Welfare and Telecommunications Welfare: The E-Rate Policy for Universal Service Subsidies," with H. Shelanski, Yale Journal on Regulation, 16, 1999.
- "Efficiency Effects on the U.S. Economy from Wireless Taxation", National Tax Journal, 2000.

Exhibit A

7

"Residential Demand for Broadband Telecommunications and Consumer Access to Unaffiliated Internet Content Providers", with H. Sider and J.G. Sidak, Yale Journal on Regulation, 18, 2001.

"Regulating the U.S. Railroads: The Effects of Sunk Costs and Asymmetric Risk," with S. Myers, Journal of Regulatory Economics, 2002.

"Regulated Costs and Prices in Telecommunications," in G. Madden ed. International Handbook of Telecommunications, 2003.

"Will New Regulation Derail the Railroads?," Competitive Enterprise Institute, October 2001

"Sources of Bias and Solutions to Bias in the CPI", NBER Discussion paper 9298, Oct. 2002, Journal of Economic Perspectives, 2003.

CPI Bias from Supercenters: Does the BLS Know that Wal-Mart Exists?, with E. Leibtag, presented at conference on Index Numbers, Vancouver, June 2004, NBER Discussion Paper w10712, August 2004.

"Did Mandatory Unbundling Achieve Its Purpose? Empirical Evidence from Five Countries," with G. Sidak, Journal of Competitive Law and Economics, 2005.

"Telecommunications Regulation: Current Approaches with the End in Sight," NBER conference on regulation, September 2005.

III. Applied Micro Models

"Project Independence Report: A Review of U.S. Energy Needs up to 1985," Bell Journal of Economics, Autumn 1975.

"Individual Discount Rates and the Purchase and Utilization of Energy Using Durables," Bell Journal of Economics, Spring 1979.

"Voluntary Participation in the Arizona Time of Day Electricity Experiment," with D. Aigner, in EPRI Report, Modeling and Analysis of Electricity Demand by Time of Day, 1979; Bell Journal of Economics, 1980.

"A Two-level Electricity Demand Model: Evaluation of the Connecticut Time-of-Day Pricing Test," in EPRI Report, Modeling and Analysis of Electricity Demand by Time of Day, 1979; Journal of Econometrics, 1979.

"Assessing the Potential Demand for Electric Cars," with S. Beggs and S. Cardell, Journal of Econometrics, 1981.

"Assessment and Validation of Energy Models," in Validation and Assessment of Energy Models, ed. S. Gass, Washington: Department of Commerce, 1981.

"Exact Consumer Surplus and Deadweight Loss," American Economic Review, 71, 1981.

"Appliance Purchase and Usage Adaptation to a Permanent Time of Day Electricity Rate Schedule," with J. Trimble, Journal of Econometrics, 1984.

"Evaluating the Costs and Benefits of Appliance Efficiency Standards," with P. Joskow, American Economic Review, 72, 1982.

"Information Costs, Competition and Collective Ratemaking in the Motor Carrier Industry," American University Law Review, 1983.

"An Overview of IFFS," in Intermediate Future Forecasting System, ed. S. Gass et al., Washington: 1983.

Exhibit A

8

- "Choice of Conservation Actions in the AHS," in Energy Simulation Models, ed. R. Crow, 1983.
- "Patents and R&D: Searching for a Lag Structure," with B. Hall and Z. Griliches, in Actes du Colloque Econometrie de la Recherche, Paris: 1983.
- "The Demand for Optional Local Measured Telephone Service," in H. Trebing ed., Adjusting to Regulatory, Pricing and Marketing Realities, East Lansing: 1983.
- "Patents and R&D: Is There a Lag?," with B. Hall and Z. Griliches, 1985; International Economic Review, 1986.
- "Price Discrimination and Patent Policy," with J. MacKie-Mason, Rand Journal of Economics, 1988.
- "Residential End-Use Load Shape Estimation from Whole-House Metered Data," with I. Schick, P. Vsoro, and M. Ruane, IEEE Transactions on Power Systems, 1988.
- "Competition in Telecommunications for Large Users in New York," with H. Ware and T. Tardiff, Telecommunications in a Competitive Environment, 1989.
- "Innovation and International Trade Policy," with J. MacKie-Mason, Oxford Review of Economic Policy, 1988.
- "The Evolution of the Central Office Switch Industry," with W. E. Kohlberg, in ed. S. Bradley and J. Hausman, Future Competition in Telecommunications, 1989.
- "Future Competition in Telecommunications," 1987; ed. S. Bradley and J. Hausman, Future Competition in Telecommunications, 1989.
- "Joint Ventures, Strategic Alliances and Collaboration in Telecommunications," Regulation, 1991.
- "An Ordered Probit Model of Intra-day Securities Trading," with A. Lo and C. MacKinlay, Journal of Financial Economics, 1992.
- "A Proposed Method for Analyzing Competition Among Differentiated Products," with G. Leonard and J.D. Zona, Antitrust Law Journal, 60, 1992.
- "Global Competition and Telecommunications," in Bradley, et al., ed., Globalization, Technology and Competition, 1993.
- "The Bell Operating Companies and AT&T Venture Abroad and British Telecom and Others Come to the US," in Bradley, et al., ed., Globalization, Technology and Competition, 1993.
- "The Effects of the Breakup of AT&T on Telephone Penetration in the US," with T. Tardiff and A. Belinfante, American Economic Review, 1993.
- "Competitive Analysis with Differentiated Products," with G. Leonard and D. Zona, Annales, D'Economie et de Statistique, 34, 1994.
- "Proliferation of Networks in Telecommunications," ed. D. Alexander and W. Sichel, Networks, Infrastructure, and the New Task for Regulation, University of Michigan Press, 1996.
- "Valuation of New Goods Under Perfect and Imperfect Competition," ed. T. Bresnahan and R. Gordon, The Economics of New Goods, University of Chicago Press, 1997.
- "Competition in Long Distance and Equipment Markets: Effects of the MFJ," Journal of Managerial and Decision Economics, 1995.
- "State Regulation of Cellular Prices," Wireless Communications Forum, Volume III, April 1995.
- "Efficient Local Exchange Competition," with T. Tardiff, Antitrust Bulletin, 1995.

Exhibit A

9

- "Superstars in the National Basketball Association: Economic Value and Policy," with G. Leonard, Journal of Labor Economics, 15, 4, 1997.
- "Valuation of New Services in Telecommunications," with T. Tardiff, The Economics of the Information Society, ed. A. Dumort and J. Dryden, Office for Official Publications of the European Communities, Luxembourg, 1997.
- "Market Definition Under Price Discrimination," with G. Leonard and C. Velturo, Antitrust Law Journal, Vol. 64, 1996.
- "Characteristics of Demand for Pharmaceutical Products: An Examination of Four Cephalosporins," with S. Fisher Ellison, I. Cockburn and Z. Griliches, Rand Journal of Economics, 28, 3, 1997.
- "Telecommunications: Building the Infrastructure for Value Creation," S. Bradley and R. Nolan, eds. Sense and Respond, 1998.
- "Achieving Competition: Antitrust Policy and Consumer Welfare," with G. Leonard, World Economic Affairs, Vol. 1, No. 2, 1997.
- "The CPI Commission and New Goods," The American Economic Review, May 1997.
- "Economic Analysis of Differentiated Products Mergers Using Real World Data," with G. Leonard, George Mason Law Review, 5, 3, 1997.
- "Cellular Telephone, New Products and the CPI," Journal of Business and Economics Statistics, 1999.
- "Regulation by TSLRIC: Economic Effects on Investment and Innovation," Multimedia Und Recht, 1999; also in J.G. Sidak, C. Engel, and G. Knieps eds., Competition and Regulation in Telecommunications, Boston: Kluwer Academic Publishers, 2000.
- "Efficiencies from the Consumer Viewpoint," with G. Leonard, George Mason Law Review, 7, 3, 1999.
- "The Effect of Sunk Costs in Telecommunication Regulation," in J. Alleman and E. Noam, eds, The New Investment Theory of Real Options and its Implications for Telecommunications Economics, 1999.
- "A Consumer-Welfare Approach to the Mandatory Unbundling of Telecommunications Networks," with J. Gregory Sidak, Yale Law Journal, 1999.
- "Competition in U.S. Telecommunications Services Four Years After the 1996 Act, with R. Crandall, in S. Peltzman and C. Winston, eds., Deregulation of Network Industries, 2000.
- "Cable Modems and DSL: Broadband Internet Access for Residential Customers," with J. Gregory Sidak, and Hal J. Singer, American Economic Review, 91, 2001
- "The Competitive Effects of a New Product Introduction: A Case Study," with G. Leonard, Journal of Industrial Economics, 50, 2002.
- "Mobile Telephone," in M. Cave et. al. eds, Handbook of Telecommunications Economics, North Holland, 2002.
- "Lessons from United States Telecommunications Policy for the New Millenium," with R. Crandall, mimeo May 2001
- "Competition and Regulation for Internet-related Services", in Korea Institute for Industrial Economics and Trade, Industrial Competitiveness and Competition Policy in the Era of Telecommunication Convergence. 2001. (also translated into Korean in a book)
- "From 2G to 3G: Wireless Competition for Internet-Related Services," presented at Brookings Conference, October 2001, R. Crandall and J. Alleman ed., Broadband, Brookings, 2002.

Exhibit A
10

“Competition and Regulation for Internet-related Services: Results of Asymmetric Regulation”, presented at Columbia Univ. conference, October 2001, R. Crandall and J. Alleman ed., Broadband, Brookings, 2002

“Does Bell Company Entry into Long-Distance Telecommunications Benefit Consumers?,” with G. Leonard and J.G. Sidak, Antitrust Law Journal, 70, 2002.

“On Exclusive Membership in Competing Joint Ventures,” with G. Leonard and J. Tirole, Rand Journal of Economics, 2003.

“Why do the Poor and the Less-Educated Pay More for Long-Distance Calls?,” with J.G. Sidak, Topics in Economics Analysis and Policy 2004.

“Estimation of Patent Licensing Value Using a Flexible Demand Specification”, with G. Leonard, forthcoming Journal of Econometrics.

“Cellular, 3G, Broadband and WiFi”, Shann Memorial Lecture, University of Western Australia, March 2003, published in R. Cooper R and G. Madden (eds.) (2004) Frontiers of Broadband, Electronic and Mobile Commerce, Physica-Verlag.

“Using Merger Simulation Models: Testing the Underlying Assumptions,” with G. Leonard, mimeo March 2004, forthcoming International Journal of Industrial Organization

“Competitive Analysis Using a Flexible Demand Specification,” with G. Leonard, Journal of Competitive Law and Economics, 2005.

“Consumer Benefits from Increased Competition in Shopping Outlets: Measuring the Effect of Wal-Mart,” with E. Leibtag, presented at EC2 conference, Marseille, Dec. 2004.

“Measurement of the Change in Economic Efficiency from New Product Introduction,” with E Berndt, P. Chwelos, and I. Cockburn, August 2005, MIT mimeo, presented At EARIE conference, Porto, September 2005

Exhibit A

11

JOINT REPORTS, TESTIMONY, AND BOOKS:

- "Project Independence: An Economic Analysis," Technology Review, May 1974.
- "The FEA's Project Independence Report: Testimony before Joint Economic Committee," U.S. Congress, March 18, 1975.
- "The FEA's Project Independence Report: An Analytical Assessment and Evaluation," NSF Report, June 1975.
- "Energy Demand in the ERDA Plan," with D. Wood, Energy Laboratory Report, August 1975.
- "A Note on Computational Simplifications and Extensions of the Conditional Probit Model," EPRI report on choice models, September 1977.
- "Labor Supply Response of Males to a Negative Income Tax," Testimony for U.S. Senate Finance Subcommittee on Public Assistance, November 22, 1978.
- "Appliance Choice with Time of Day Pricing," Energy Laboratory Report, January 1980.
- "Discrete Choice Models with Uncertain Attributes," Oak Ridge National Laboratories Report, January 1980.
- "Individual Savings Behavior," with P. Diamond, Report to the National Commission on Social Security, May 1980.
- "Wealth Accumulation and Retirement," with P. Diamond, Report to the Department of Labor, May 1982.
- "A Review of IFFS," Report to the Energy Information Agency, February 1982.
- "A Model of Heating System and Appliance Choice," with J. Berkovec and J. Rust, Report to the Department of Energy, December 1983.
- "Labor Force Behavior of Older Men After Involuntary Job Loss," with L. Paquette, Report to Department of Health and Human Services, December 1985.
- "Pollution and Work Days Lost," with D. Wise and B. Ostrow, NBER Working Paper, January 1984; Revised 1985.
- "Demand for Interstate Long Distance Telephone Service," with A. Jafee and T. Tardiff, November 1985.
- "Competition in the Information Market 1990", August 1990.
- "The Welfare Cost to the US Economy of Regulatory Restriction in Telecommunications," January 1995.
- "Benefits and Costs of Vertical Integration of Basic and Enhanced Telecommunications Services," April 1995.
- "Statement on the Natural Resource Damage Provisions of CERCLA," Testimony before the U.S. Senate Committee on Environment and Public Works, May 11, 1995; Testimony before the U.S. House of Representatives, Transportation & Infrastructure Committee, Water Resources & Environment Subcommittee, July 11, 1995.
- "Competition in Cellular Markets," Testimony before the U.S. House of Representatives, Committee on Commerce, October 12, 1995.
- "Merger Policy in Declining Demand Industries," Testimony before the U.S. Federal Trade Commission, November 14, 1995.
- "Expected Results from Early Auctions of Television Spectrum," Testimony before the U.S. Senate Budget Committee and the U.S. House of Representatives, Committee on Commerce, March 13, 1996.
- "Declaration and testimony to the Australian Consumer and Competition Commission (ACCC) regarding Cellular Telephone Competition," Feb. 2000

Exhibit A
12

“Estimation of Benchmark Interconnection Rates for China,” with Xinzhu Zhang, report to China Minister of Information, June 2003.

Declaration and testimony to the New Zealand Commerce Commission (NZCC) regarding unbundling of the local loop, November 2003.

The Choice and Utilization of Energy Using Durables, ed. J. Hausman, Palo Alto: EPRI, 1981.

Social Experimentation, ed. J. Hausman and D. Wise, Chicago: 1985.

Future Competition in Telecommunications, ed. S. Bradley and J. Hausman, Harvard: 1989.

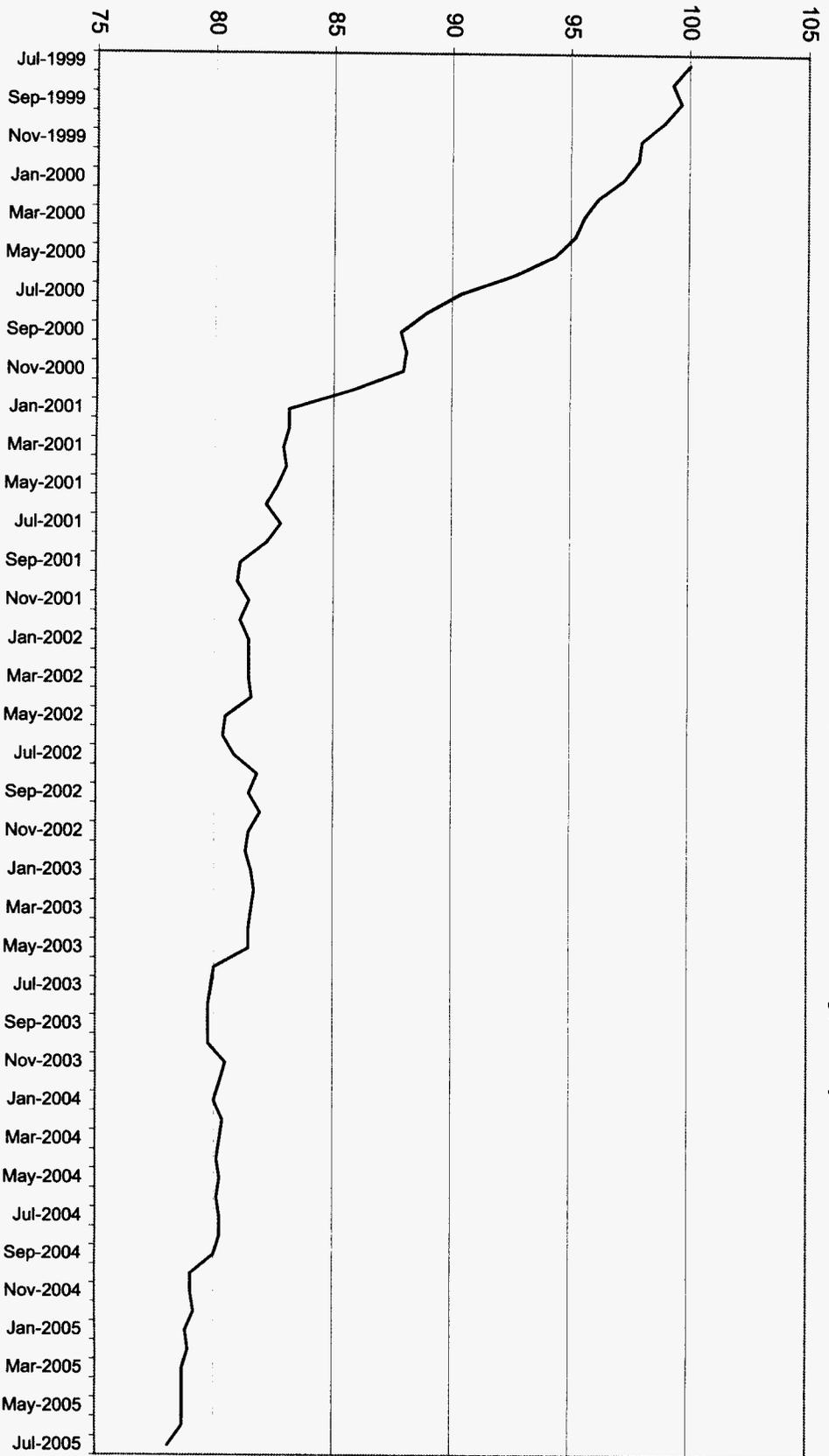
Contingent Valuation: A Critical Appraisal, ed. J. Hausman, North Holland, 1993.

Globalization, Technology and Competition, ed. S. Bradley, J. Hausman, R. Nolan, Harvard: 1993.

Economic Impact of Deregulating U.S. Communications Industries, The WEFA Group, Burlington, MA, February 1995.

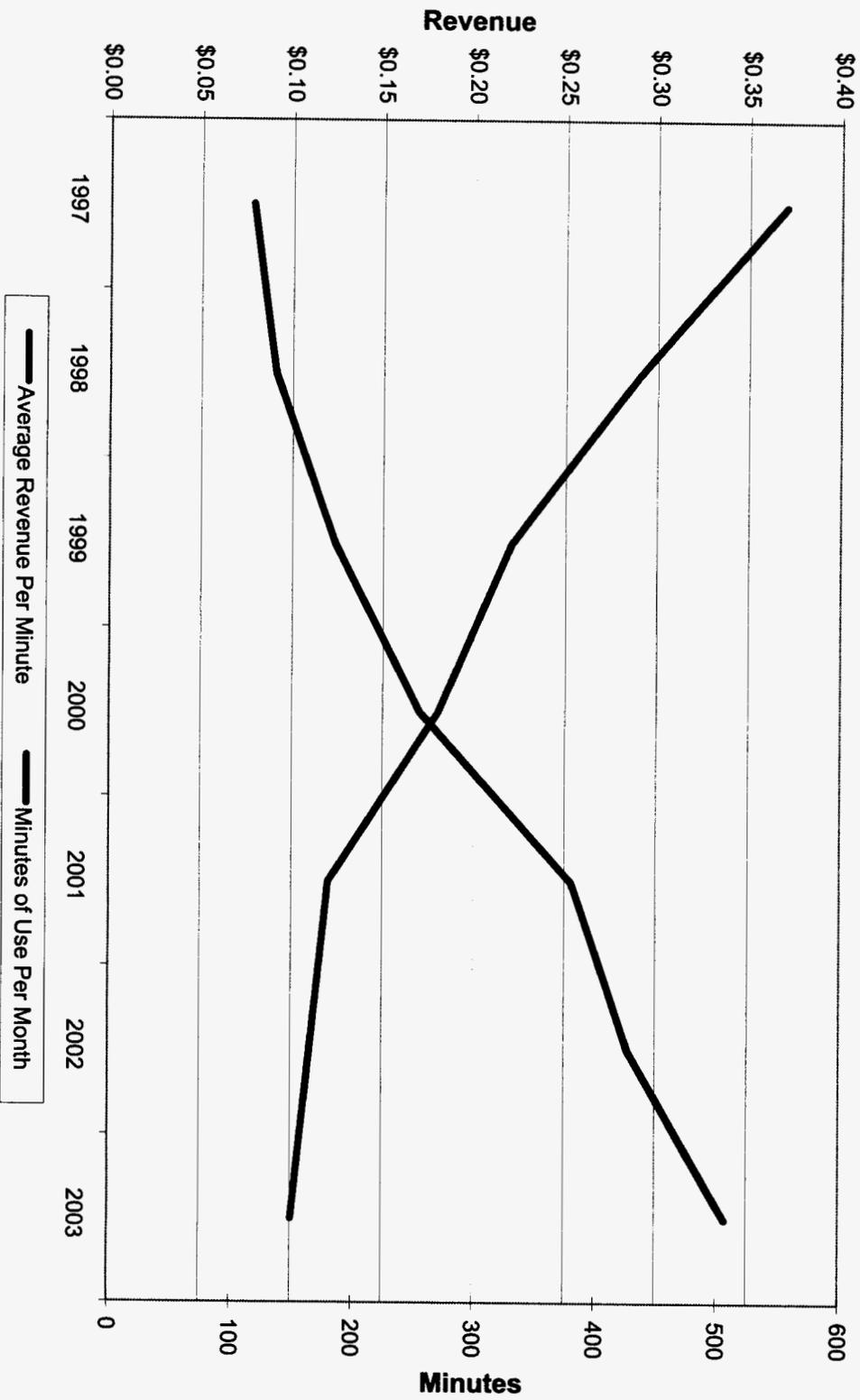
Exhibit B

**Consumer Price Index for Wireless Telephone Services
(Series ID: CUUR0000SEED03; Indexed to 100 in July, 1999)**



Source: Bureau of Labor Statistics

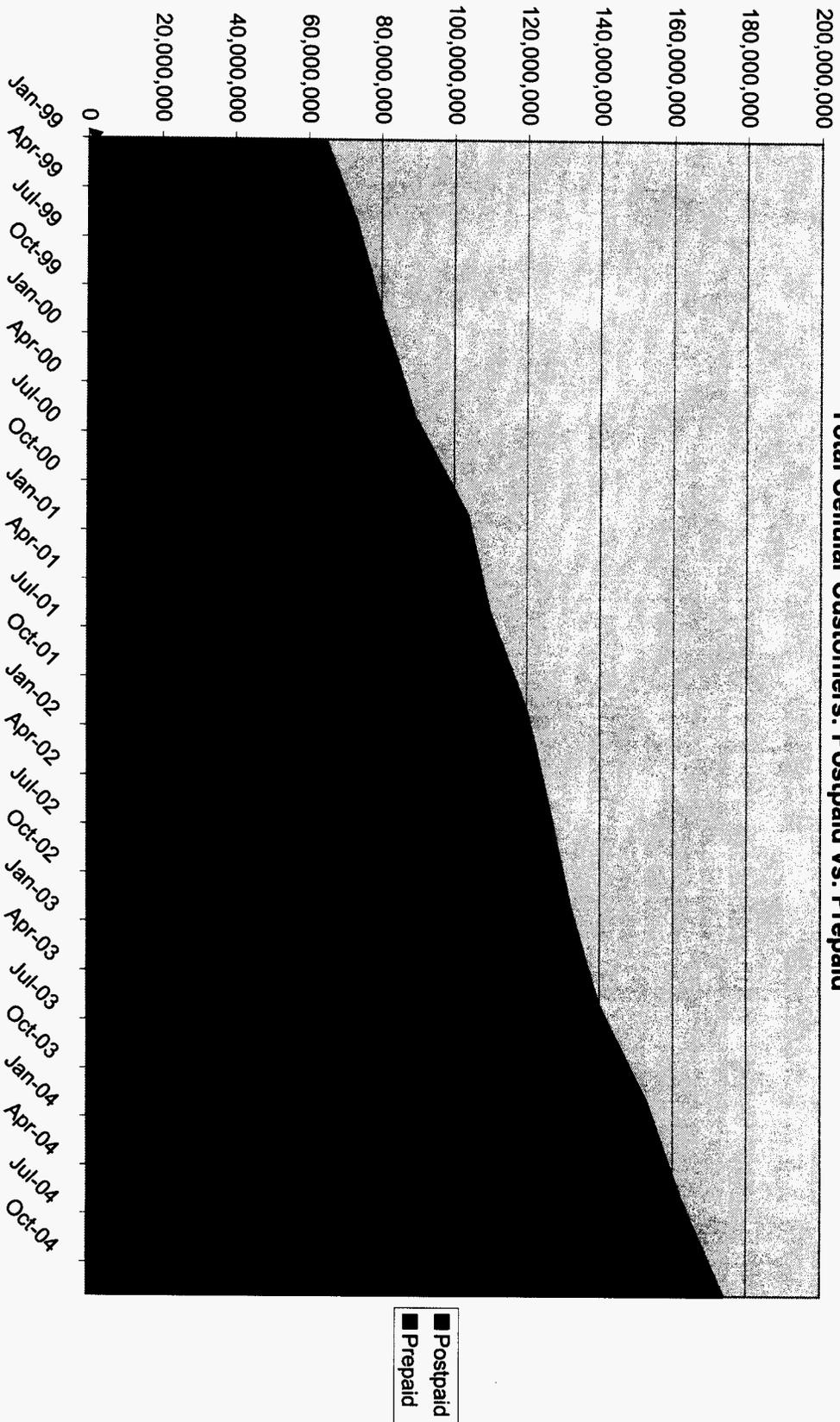
Exhibit C



Source: CMRS Report 2004, Table 9

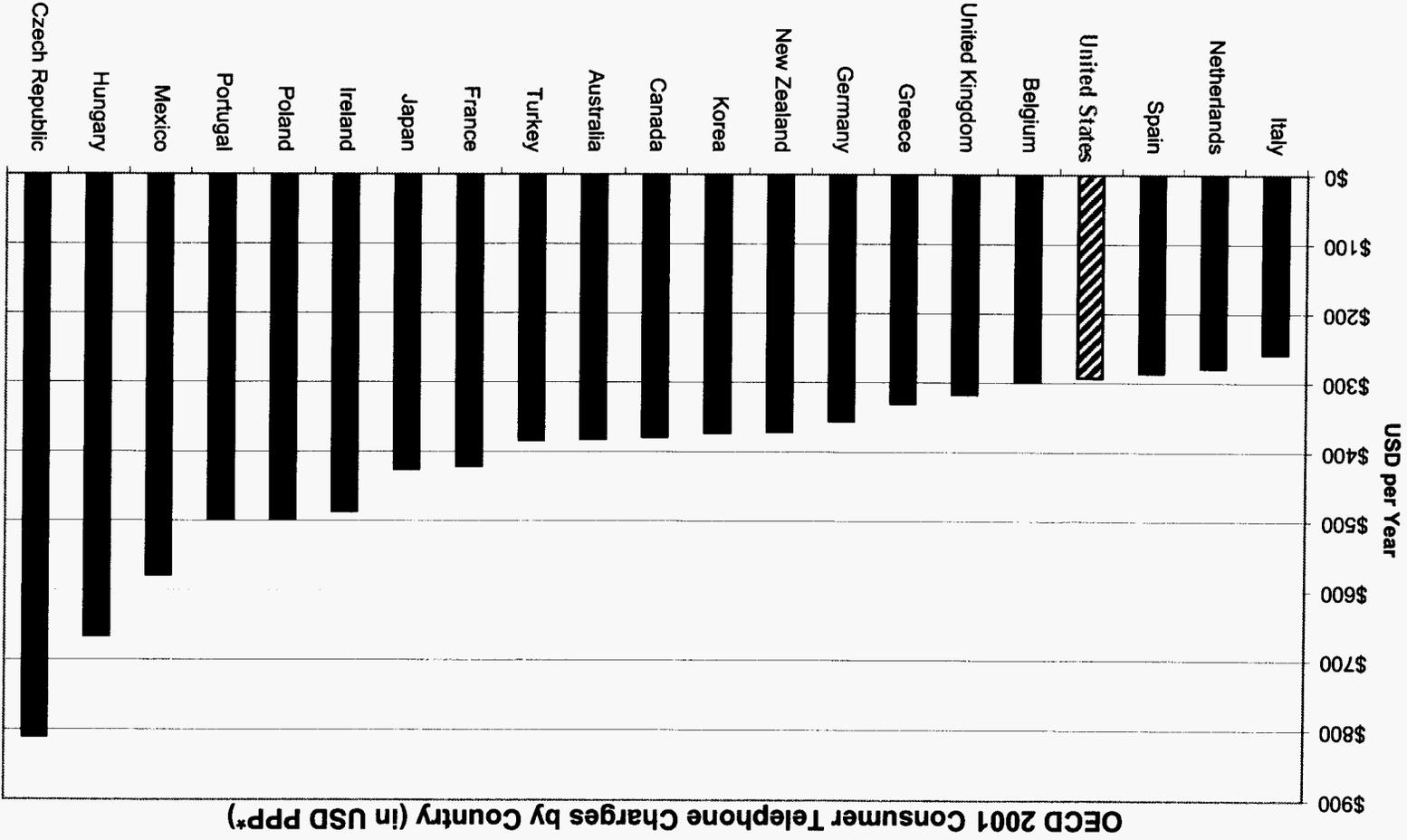
Exhibit D

Total Cellular Customers: Postpaid vs. Prepaid



Source: CTIA Wireless Industry Indices, December 2002 edition; updated data from CTIA

Exhibit E



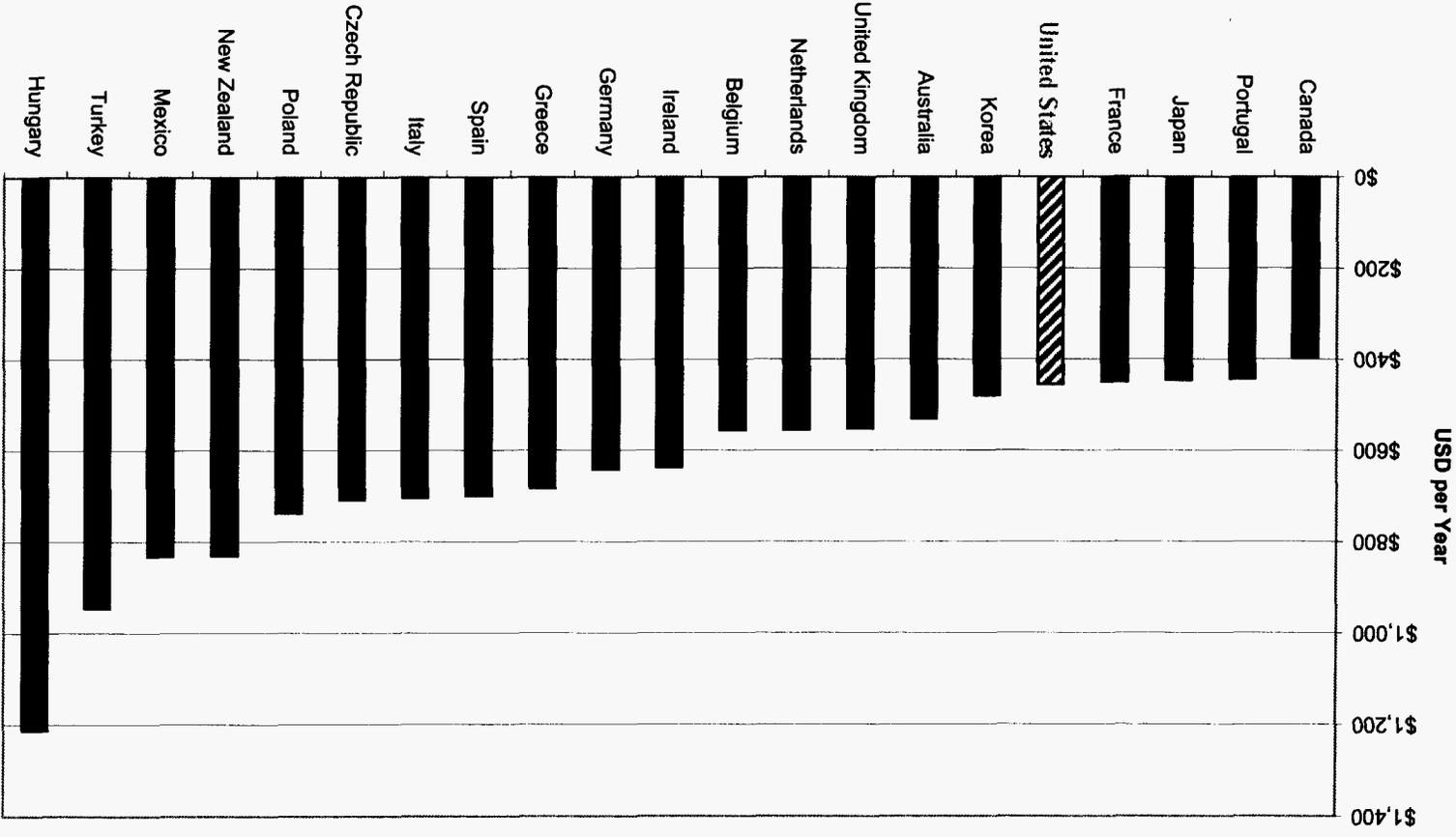
Source: OECD "Communications Outlook" 2001; Table 7.18.

Note: Price represents outgoing calls only. The charges include 50 minutes per month and exclude international calls (pg. 204, 2001 "Communications Outlook"). Included are countries that are English speaking or have populations of at least 10 million.

* PPP stands for purchasing power parity, an exchange rate benchmark based on the parity of consumers' power to purchase similar bundles of goods in the two countries for which the rate applies.

Exhibit F

OECD 2003 Medium User Telephone Charges by Country (in USD PPP*)



Source: OECD "Communications Outlook" 2003; Table 6.16.

Note: Price represents outgoing and national calls only. A medium user makes 75 calls per month (pg. 163, 2003 "Communications Outlook"). Included are countries that are English speaking or have populations of at least 10 million.

* PPP stands for purchasing power parity, an exchange rate benchmark based on the parity of consumers' power to purchase similar bundles of goods in the two countries for which the rate applies.

**AARP-WIREFLY WIRELESS MOBILE
PHONE SERVICE**



[«previous page](#)



Wirefly Wireless

URL: http://www.aarp.org/aarp_benefits/offer_phone/wirefly_wireless.html

Wirefly Wireless Powered by InPhonic NEW Member Benefit!

You asked, we listened: AARP members' **most requested benefit**, wireless phones and services, is now available!

Introducing **Wirefly Wireless** Powered by InPhonic, your online headquarters for wireless phones, plans and information with discounts available **exclusively to AARP members!**

Wirefly Wireless provides AARP members access to more than 300 wireless plans across more than 40 carriers nationwide. Wirefly Wireless includes exclusive offers on phones and accessories as well as discounts on cellular plans.

In addition, AARP provides education, information and advocacy on the wireless industry designed to help you navigate to complex world of cellular phones.

To simplify these challenges, AARP has developed a comprehensive wireless resource center:

- **First Time Buyers:** This “cell phone 101” lesson will tell you everything you need to know about wireless phones and plans from ringtones to roaming.
- **Why Buy Online?:** At AARP, we understand that selecting the right wireless phone and carrier can be challenging. That's why AARP selected Wirefly Wireless as our AARP Privileges wireless provider. Wirefly Wireless offers extensive choices in wireless services and equipment through their relationships with more than 40 different cell phone carriers. Learn about the advantages for AARP members here.
- **Wireless Number Portability:** Learn how you can purchase a phone and plan and keep the cell phone *number* you already have!

It is AARP's goal to provide you with the best value in cellular phones and plans—that's why in addition to our **special Introductory Offers**, as well as free handsets and headsets, we've also negotiated other features exclusively for AARP members.

Benefits of the Wirefly Wireless program include:

- Access to clear and accurate coverage maps
- Option to terminate your plan within 30 days of purchase provided you have used fewer than 100 minutes on your phone
- Access to wireless education information that will help you make an informed, smart decision about the wireless plan and phone for you
- Opportunity to select from hundreds of plans and dozens of wireless carriers

The Wirefly Wireless Introductory Offers exclusively for AARP are as follows:

Liberty Wireless Introductory Offers Exclusively for AARP Members* :

Liberty Wireless Safety & Security Plan

- No contract
- Free long distance
- Free nationwide roaming
- No binding arbitration
- \$30 activation fee waived
- Free car charger
- Free headset
- Easy-to-read bills
- [More information](#)

Liberty Wireless No Contract Plan

- No Contract
- 5% monthly discount off standard charges—annual savings of \$23.99!
- Free long distance
- Free nationwide roaming
- No binding arbitration
- Free car charger
- Free headset
- Easy-to-read bills
- [More information](#)

It's easy to sign up for Wirefly Wireless—just enter your ZIP code to find the ideal plan for you. To order, visit www.wirefly.com/aarp, or to speak with a representative, please call 1-800-523-4844.

The Wirefly Wireless program provides you with more than just discount cell phone service. In addition to great low prices, AARP has negotiated special features and benefits that are **available exclusively to AARP members**. The following table compares basic wireless programs to the exceptional benefits AARP has negotiated for you.

These benefits are available to you only when you purchase through Wirefly Wireless online at wirefly.com/aarp or by calling 1-800-523-4844.

AARP Wirefly Wireless	Other National Plans
FREE handsets available for selected Introductory Offers	Handsets aren't always free
FREE accessories if you are subscribing to any of the Introductory Offers	Accessories aren't always free
No roaming fees or in-network charges on any of the Liberty Introductory Offers	May incur roaming charges in addition to monthly service and usage fees
Free nationwide long distance if you subscribe to the Liberty Introductory Offers	Long distance charges may apply

AARP is working to improve consumer protections for wireless services for all customers. Sign up for AARP's network of citizen advocates and we'll keep you up-to-date on this and a host of key issues that affect people 50 and over.

*Offers available to new Liberty Wireless customers. Offers cannot be combined with any other offer.

[«previous page](#)

Copyright 1995-2005, AARP All rights reserved.