

**Before the
Federal Communications Commission
Washington, DC 20554**

In the Matter of)	
)	
International Comparison and Consumer Survey Requirements in the Broadband Data Improvement Act)	GN Docket No. 09-47
)	
A National Broadband Plan for Our Future)	GN Docket No. 09-51
)	
Inquiry Concerning the Deployment of Advanced Telecommunications Capability to All Americans in a Reasonable and Timely Fashion)	GN Docket No. 09-137
)	

COMMENTS – NBP PUBLIC NOTICE # 13

**COMMENTS OF VERIZON AND VERIZON WIRELESS ON
STUDY BY THE BERKMAN CENTER FOR INTERNET AND SOCIETY**

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TABLE OF CONTENTS

I.	INTRODUCTION AND SUMMARY	1
II.	THE BERKMAN PAPER IGNORES EXISTING LITERATURE AND STUDIES REGARDING BROADBAND THROUGHOUT THE WORLD	4
III.	THE BERKMAN PAPER’S ANALYSIS IS NOT COMPLETE, OBJECTIVE, OR ACCURATE, AND SHOULD BE ACCORDED NO WEIGHT	16
	A. The Berkman Paper’s Qualitative Analysis Is Unreliable	18
	B. The Berkman Paper’s Quantitative Analysis Is Unreliable	26
IV.	THE BERKMAN PAPER’S PREMISE THAT THE U.S. IS TRAILING BEHIND IN BROADBAND IS MISPLACED.....	33
	A. The U.S. Is a Broadband Leader in Key Respects	33
	B. The Berkman Paper’s Conclusions Are of Little Relevance to the U.S. and the Formation of the National Broadband Plan.....	39
V.	CONCLUSION.....	41
	APPENDIX.....	A-1

I. INTRODUCTION AND SUMMARY

Verizon¹ commends the Commission for seeking to compile literature and studies about broadband deployment and usage throughout the world to help inform its efforts in developing the National Broadband Plan. This literature reveals both steps the Commission could take further to extend the benefit of broadband services to all Americans, as well as pitfalls for the Commission to avoid as it works toward that goal.

Unfortunately, the Paper by the Berkman Center for Internet and Society does not accomplish the purpose that the Commission assigned it.² The Berkman Paper eschews the task of conducting “an independent and expert analysis of existing literature and studies,” and instead glosses over or ignores entirely numerous studies that are directly at odds with its core conclusions. Rather than perform a comprehensive review of the literature as it was tasked to do, the Berkman Paper reinvents its mission as conducting from scratch a review of the broadband practices of other countries. That alone reduces the utility of the study, but the problem is compounded by the fact that the Berkman Paper approaches its reinvented mission with a predisposition to showing its own extreme views that the unbundling and government-mandated access policies adopted in some other countries are preferable to the policies favoring facilities-based competition and investment that have been adopted here at home. At bottom, the Berkman Paper is

¹ In addition to Verizon Wireless, the Verizon companies participating in this filing (“Verizon”) are the regulated, wholly owned subsidiaries of Verizon Communications Inc.

² The Berkman Center for Internet & Society at Harvard University, *Next Generation Connectivity: A Review of Broadband Internet Transitions and Policy from Around the World* (Oct. 2009), http://www.fcc.gov/stage/pdf/Berkman_Center_Broadband_Study_13Oct09.pdf (“Berkman Paper”).

merely an advocacy piece for the previously expressed policy opinions of its principal author.

As such, the Berkman Paper rehashes the arguments of critics who claim that the United States is falling behind other countries in broadband based on certain baseball-style rankings and other cherry-picked data points. As Verizon has previously explained, however, the story is much more complex than that. Had the Berkman Paper reviewed the literature comprehensively, it would have found overwhelming confirmation that the U.S. broadband marketplace as a whole compares favorably to broadband marketplaces throughout the world. The U.S. is one of only a handful of countries in the world with at least two widely available wireline broadband platforms; the U.S. is one of the world leaders in privately funded fiber deployment; mobile wireless broadband is more widely deployed and used in the U.S. than most other countries; and the U.S. is perhaps the only country with a fourth platform – satellite – ubiquitously available. The U.S. also is a global leader in investment in innovation in broadband applications, services, and devices, which are key indicia of the overall health of any broadband marketplace.

In addition to adopting an overly narrow view of the U.S. broadband experience, the Berkman Paper overstates the significance of unbundling policies in achieving strong broadband performance abroad. Here, too, the literature as a whole and fairly read tells quite a different story. In particular, study after study has shown that government policies such as subsidizing the development of broadband infrastructure and a range of demand-side factors from population density to computer ownership – not the preference for unbundling over intermodal facilities-based competition – are the primary factors explaining the successes of some other countries. Numerous studies have also shown that

unbundling policies have not only failed to contribute significantly to broadband performance, but have tended to undermine such performance.

The Berkman Paper does little in the way of addressing, much less distinguishing, the numerous studies showing the negative consequences of unbundling. Instead, the Berkman Paper conducts its own so-called “qualitative” and “quantitative” analyses in an effort to support its contrary hypothesis. But each of these analyses contains critical flaws. The Berkman Paper misattributes the broadband success of some countries to unbundling policies, while seeking to exclude from the analysis countries, like Switzerland, that have achieved such success without unbundling. Thus, the Berkman Paper does not provide a reliable basis to conclude that adopting more stringent unbundling policies and open access policies will lead to stronger broadband performance. To the contrary, the Berkman Paper’s own analyses provide further confirmation that facilities-based competition contributes to strong performance, that government subsidies and demand-side factors play a critical role, and that unbundling has failed to achieve its goals in some cases.

Even on its own terms, moreover, the Berkman Paper concludes only that unbundling has played a role with respect to “the first generation transition to broadband”; it offers no evidence that unbundling has contributed to the transition to next-generation broadband, which is by far the more pressing issue facing the Commission and the country today. Nor does the study demonstrate that unbundling and government-mandated access will help in solving the vexing problem of delivering broadband to rural and low-density areas. The problem in these areas is that it has been

uneconomic for even a single provider to deploy broadband, which no degree of unbundling will solve.

Given its various shortcomings, the Commission should give the Berkman Paper no weight as it formulates the National Broadband Plan. There are useful lessons to be learned from the international broadband experience, but they are not the lessons found in the Berkman Paper. Rather, experience in the U.S. and abroad provides additional confirmation that in furtherance of the goals of increasing the reach, capabilities, and adoption of broadband services, the Commission should adopt the recommendations for increasing broadband availability and adoption that Verizon has set forth in its previous comments, including addressing issues such as computer ownership and literacy, promoting improved cybersecurity, addressing the deployment of middle-mile and second-mile broadband facilities in unserved areas, and maintaining a regulatory approach that encourages robust private investment and innovation in advanced, intelligent broadband networks.

II. THE BERKMAN PAPER IGNORES EXISTING LITERATURE AND STUDIES REGARDING BROADBAND THROUGHOUT THE WORLD

The Berkman Paper was commissioned to “conduct an independent expert review of existing literature and studies about broadband deployment and usage throughout the world.” FCC News Release.³ Chairman Genachowski stated that an “independent review of *existing* information will help lay the foundation for enlightened, data-driven decisionmaking.” *Id.* (emphasis added). The Executive Director of the Omnibus Broadband Initiative, Blair Levin, likewise emphasized that “[w]e don’t want to reinvent

³ FCC News Release, *Harvard’s Berkman Center To Conduct Independent Review of Broadband Studies To Assist FCC* (July 14, 2009) (“FCC News Release”).

the wheel. Knowing what has *already been learned* will improve our ability to deliver the best possible National Broadband Plan.” *Id.* (emphasis added). The Berkman Paper deviates from these assignments, and therefore fails to “accomplish its intended purpose,” as Question 1 of the Public Notice asks.⁴

From the outset, the Berkman Paper re-interprets its mission. In its first paragraph, it states that “[a]t the Commission’s request, this study reviews the current plans and practices pursued by other countries in the transition to the next generation of connectivity, as well as their past experience.” Berkman Paper at 9. By its own admission, therefore, the intent of the Berkman Paper is not to review the “existing” literature, but instead to “reinvent the wheel,” by independently “observing the experiences of a range of market-oriented democracies that pursued a similar goal over a similar time period . . . to learn from the successes and failures of others about what practices and policies best promote that goal.” *Id.* In the more than 200 pages that follow its revised mission statement, the Berkman Paper devotes no more than a handful of pages to the task it was actually assigned. *See id.* at 27-28, 115-117. Instead, it provides “independent analysis and testing of benchmarks,” “findings on competition and open access policy,” an “overview of practices and policies concerned with mobile and nomadic access,” a discussion of “government investment practices,” and “a series of select country overviews.” *Id.* at 14-15.

Moreover, and as discussed further below, the Berkman Paper does not approach these tasks with an “independent” or open mind, but rather seems determined to show

⁴ FCC, NBP Public Notice # 13, *Comments Sought on Broadband Study Conducted by The Berkman Center for Internet and Society*, GN Docket Nos. 09-47, 09-51, 09-137 (Oct. 14, 2009) (“Public Notice”).

“that ‘open access’ policies . . . are almost universally understood as having played a core role in the first generation transition to broadband . . . ; that they now play a core role in planning for the next generation transition; and that the positive impact of such policies is strongly supported by the evidence of the first generation broadband generation.” *Id.* at 11. But none of these conclusions is correct, much less “universally understood” as such. The Berkman Paper reaches a different conclusion only by focusing on analyses that share its view, and by ignoring or quickly dismissing an extensive body of literature and data that undermine or contradict its findings.

First, the Berkman Paper largely ignores the extensive literature demonstrating that unbundling and government-mandated open access policies have not only failed to improve broadband performance throughout the world, but have frequently had the opposite effect.

To the extent the Berkman Paper references studies that bear on the issues at hand, in all but a few cases it does nothing more than cite them in passing. Although some of these studies are directly at odds with the core conclusions of the Berkman Paper, it provides no explanation of their findings nor makes an attempt to distinguish them.⁵ In addition, the Berkman Paper ignores completely at least as many studies as it references, including a number of recent and prominent studies that undermine its key conclusions.

⁵ In discussing its econometric analysis, for example, the Berkman Paper refers to nine previous econometric studies, most of which undermine its conclusions in part or whole. *See* Berkman Paper at 115. The Berkman Paper makes no effort to explain or distinguish these contrary findings. Moreover, the Berkman Paper ignores numerous other econometric studies that likewise undermine its claims. *See* n.16 & § III.B, *infra*.

For example, a March 2009 study by Scott Wallsten, the current Economics Director for the FCC's National Broadband Task Force, examined data from 27 European countries from July 2002 through July 2007, and found that, while different types of unbundling can have different effects, in general "countries that rely more on unbundled lines to provide broadband see *less investment* by incumbents in fiber than countries that rely less on unbundled lines and more on facilities-based entry."⁶ Wallsten also conducted an empirical examination of "the effects of unbundling on investment in new fiber networks in Europe" and found "a significant *negative* correlation between the number of unbundled DSL connections per capita and the number of fiber connections."⁷ Wallsten also concluded in an earlier study that that local loop unbundling as a whole has no significant positive impact on broadband penetration,⁸ and that more extreme forms of

⁶ Scott Wallsten & Stephanie Hausladen, Technology Policy Institute, *Net Neutrality, Unbundling, and Their Effects on International Investment in Next-Generation Networks*, 8 Review of Network Economics 90, 102 (Mar. 2009), http://www.techpolicyinstitute.org/files/wallsten_unbundling_march_2009.pdf ("March 2009 Wallsten Study") (emphasis added). The Berkman Paper cites a 2006 report by Wallsten as contrary to its findings, but does not address the more recent 2009 Wallsten study. See Berkman Paper at 115.

⁷ March 2009 Wallsten Study at 90 (emphasis added). Wallsten also cites "a report commissioned by the Brussels Round Table, a consortium of European operators and telecom manufacturers," which "observe[s] that facilities-based competition yields positive results, while access-based competition, via unbundling regulations, does not," and concludes that "Competition based on bitstream access and/or resale cannot bring about all these benefits, and risks crowding out facilities-based benefits." March 2009 Wallsten Study at 102 (citing Dan Maldoom et al., *Competition in Broadband Provision and Its Implications for Regulatory Policy*, SSRN Working Paper, (2003)).

⁸ Scott Wallsten, *Broadband and Unbundling Regulations in OECD Countries*, AEI-Brookings Joint Center for Regulatory Studies Working Paper No. 06-16, at 16 (June 2006), <http://aei-brookings.org/admin/authorpdfs/redirect-safely.php?fname=../pdffiles/phpSV.pdf>.

unbundling – such as “subloop” unbundling or line sharing – is *negatively* correlated with broadband penetration.⁹

A study of various European regulatory regimes by economist Leonard Waverman similarly found that more intrusive access obligations had a demonstrated effect of *detering investment* in broadband infrastructure and undermining facilities-based competition.¹⁰ Unbundling, the study concludes, “ultimately results in substantially *lower investment* in these alternative access platforms. Our econometric analysis shows that, all else equal, a reduction of 10 percent in LLU price causes an 18 percent fall in the subscriber share of alternative infrastructure.”¹¹

Another study by economists Jerry Hausman and J. Gregory Sidak found that the major rationales for mandatory unbundling were not supported by an empirical review of the unbundling experience in the U.S., U.K., New Zealand, Canada, and Germany.¹² And a study by Dr. Raul Katz of the Columbia Business School found that countries that rely primarily on unbundling – including France, Germany, and Denmark – have been unsuccessful at promoting significant levels of fiber investment.¹³ A recent study by

⁹ *Id.* at 1 (emphasis added).

¹⁰ Leonard Waverman, Meloria Meschi, Benoit Reiller & Kalyan Dasgupta, LECG, *Access Regulation and Infrastructure Investment in the Telecommunications Sector: An Empirical Investigation* (Sept. 2007), http://www.etno.be/Portals/34/ETNO%20Documents/LECG_Final%20Report.pdf (“Waverman et al., *Access Regulation and Infrastructure Investment in the Telecommunications Sector*”) (emphasis added).

¹¹ *Id.* at 3 (emphasis added).

¹² Jerry Hausman & J. Gregory Sidak, *Did Mandatory Unbundling Achieve Its Purpose? Empirical Evidence from Five Countries*, M.I.T. Department of Economics Working Paper Series (Nov. 2004), available at <http://ssrn.com/abstract=623221>. The Berkman Paper (at 115 n.84) praises, but fails to distinguish, the Hausman and Sidak study.

¹³ Raúl Katz, Columbia Business School, *Some Lessons from International Experience*, Presentation at the FCC International Workshop (Aug. 18, 2009),

Cisco shows that the United Kingdom – which the Berkman Paper and others have held up as a shining example of the success of unbundling – is “lagging its Asian and European neighbours in terms of the quality of [its] broadband infrastructure” and, in contrast to the U.S., is “not among the 25 countries who are ‘comfortable for today’ or ‘ready for tomorrow’” in terms of being positioned to meet rising network demands.¹⁴

Another study by Michal Grajek and Lars-Hendrik Röller of the European School of Management specifically analyzed the effects of unbundling and open access regulation on investment incentives based on data from 70 fixed-line operators in 20 countries over 10 years; it found that such regulation negatively affects investment incentives for incumbents and also discourages competitive entry.¹⁵ Numerous other studies reach a similar conclusion, yet receive little if any attention in the Berkman Paper.¹⁶

http://broadband.gov/docs/ws_int_lessons/ws_int_lessons_katz.pdf (“Katz, *Some Lessons from International Experience*”).

¹⁴ Simplify Digital, *Britain’s Broadband Infrastructure Performs Poorly in International Broadband Rankings* (Oct. 1, 2009), <http://www.simplifydigital.co.uk/news/britains-broadband-infrastructure-performs-poorly-in-international-broadband-rankings.html>. See Saïd Business School, University of Oxford & Universidad de Oviedo, *Broadband Quality Score: A Global Study of Broadband Quality*, Sponsored by Cisco (Sept. 2009), [http://www.sbs.ox.ac.uk/newsandevents/Documents/Broadband%20Quality%20Study%202009%20Press%20Presentation%20\(final\).pdf](http://www.sbs.ox.ac.uk/newsandevents/Documents/Broadband%20Quality%20Study%202009%20Press%20Presentation%20(final).pdf) (broadband quality score by countries, 2009).

¹⁵ Michal Grajek & Lars-Hendrik Röller, *Regulation and Investment in Network Industries: Evidence from European Telecoms*, ESMT, at 5, 18 (June 15, 2009).

¹⁶ See, e.g., William Zarakas, Glenn Woroch, Lisa Wood, Daniel McFadden, Nauman Ilias & Paul Liu, *Structural Simulation of Facility Sharing: Unbundling Policies and Investment in Local Exchange Markets*, at ii (2005) (mandatory sharing of the incumbent’s facilities “blunts incentives to make durable investments, diminish[es] aggregate investment in local exchange infrastructure in general, and in critical broadband facilities in particular.”); Carlo Cambini & Yanyan Jiang, *Broadband Investment and Regulation: A Literature Review*, 33 *Telecommunications Policy* 559, 569 (2009) (“[A]lthough few empirical findings support the non-negative effect of access regulation on investment, most of the evidence shows that local loop unbundling based on forward-looking cost methodology discourages both ILECs and CLECs from

Second, in addition to ignoring the literature disputing the importance of unbundling in achieving strong broadband performance, the Berkman Paper also fails to account for the numerous studies that attribute the relative success of different countries to a range of supply-side and demand-side factors that have nothing to do with the regulatory preference of unbundling over intermodal competition.

Consistent with numerous other studies, the Berkman Paper acknowledges that various demand-side factors, such as “poverty, percent in urban areas, and log median income are all significant predictors of broadband penetration.” Berkman Paper at 69.¹⁷

investing in networks.”); Robert Atkinson, *The Role of Competition in a National Broadband Policy*, 7 J. on Telecomm. & High Tech. L. 1, 16-17 (2009) (“On the negative side . . . unbundling reduces incentives of incumbents to invest in larger pipes. If the incumbent has to resell the pipe, particularly at very low prices, there is less incentive to invest a large amount of capital in a better pipe (e.g., fiber). Indeed, there is a risk that Europe could be in a ‘DSL-cul-de-sac’ with robust competition on copper lines, but little investment in next generation lines. . . . In addition, the unbundling model (at the least the continental European model) requires regulators to be much more interventionist, including setting prices. But if they price access to the network too low, they limit investment. If they set the price too high, they limit competition.”); Debra Aron & Robert Crandall, *Investment in Next Generation Networks and Wholesale Telecommunications Regulation*, at 2 (Nov. 3, 2008), available at <http://ssrn.com/abstract=1294910> (Aron & Crandall, *Investment in Next Generation Networks and Wholesale Telecommunications Regulation*) (“Empirical analyses and case studies document the damaging effects of unbundling regulations on investment in the U.S., Europe, and elsewhere. The research also documents the beneficial effects of intermodal (investment-based) competition on broadband penetration, and the insignificance of intramodal (unbundling-based) competition on broadband penetration.”); *id.* at 35 (“This aggressive attitude toward regulation of ILEC broadband facilities is undoubtedly partly responsible for the lack of investment in new facilities in Europe. The European ILECs have lagged substantially behind their North American counterparts in fixed-wire network investment. More important, none has begun a widespread deployment of fiber to the premises. Virtually all of the deployment of FTTH in Europe has been undertaken by a few new entrants or by government entities. As a result, there is very little progress towards the widespread deployment of fiber to the mass market in Europe.”).

¹⁷ See also Katz, *Some Lessons from International Experience* at 3 (“Density: high urban concentration.” is one of four key factors); Martha Garcia-Murillo, *International Broadband Deployment: The Impact of Unbundling: Unbundling Facing New Challenges*, 57 Comm. & Strategies 83 (2005) (GDP per capita, population size, price,

But the Berkman Paper fails to consider the literature identifying other demand-side factors that also influence broadband adoption. For example, studies and surveys show that most people in the U.S. who do not subscribe to broadband cite “relevance” or “usability” – not availability or price – as their reasons for not doing so.¹⁸ The Berkman Paper also fails to consider the importance of computer ownership, which the literature has likewise identified as a key factor for explaining why subscribers do not subscribe to broadband.¹⁹ In a presentation to the Commission in August 2009, Dr. Robert Atkinson

competition, the percentage of dial-up Internet users, and hosts all have positive effects on the number of broadband subscribers); Christos Bouras, Eri Giannaka & Thrasyvoulos Tsiatsos, *Identifying Best Practices for Supporting Broadband Growth: Methodology and Analysis*, 32 J. of Network and Computer Applications 795, 798 (2009) (some of the “main factors that affect broadband growth” include “The users’ need for fast content access . . . The affordability . . . [and] E (electronic)-readiness and in general the technological level of a country”); Kenneth Flamm, *The Role of Economics, Demographics, and State Policy in Broadband Availability* at 32-35 (2005) (geographic terrain, income and population density are important determinants of broadband penetration).

¹⁸ See, e.g., John Horrigan, *Obama’s Online Opportunities II*, Pew Internet & American Life Project, at 2 (2009), http://www.pewinternet.org/~media/Files/Reports/2009/PIP_Broadband%20Barriers.pdf (“Pew Study”) (68% of respondents pointed either to “relevance” – such as “not interested” or “too busy” – or to “usability” – such as difficulty, waste of time, or physical inability – as the reasons for not subscribing.); T. Randolph Beard et al., *The Broadband Adoption Index Improving Measurements and Comparisons of Broadband Deployment and Adoption* at 56-57 & n. 64, Phoenix Center Policy Paper Number 36 (July 2009) (“In the United States, for example, recent evidence suggests that nearly 70% of adults not using broadband today (about 22% of all adults) have no interest at all in broadband service or lack the requisite skills for it, irrespective of price.”) (citing Pew Study); Katz, *Some Lessons from International Experience* at 6 (main reason consumers do not use the Internet is lack of interest, not price or service availability).

¹⁹ Pew Study at 2 (4% of non-Internet users stated that the main reason for not using the Internet or e-mail is that they don’t have a computer); Robert Atkinson, Daniel Correa & Julie Hedlund, ITIF, *Explaining International Broadband Leadership*, at 37 (May 2008) (“Atkinson, *Explaining International Broadband Leadership*”) (“there is a very strong relationship between computer use at home and a nations’ broadband ranking.”); The Advanced Communications Law & Policy Institute, New York Law School, *Barriers to Broadband Adoption: A Report to the Federal Communications Commission*, at 13 (Oct. 2009), <http://fjallfoss.fcc.gov/ecfs2/document/view?id=7020142497> (“[A] recent study of

of ITIF showed that “[i]f the U.S. had the level of computer ownership as the average of the top 5 nations, it would rank 5th in broadband adoption.”²⁰

With respect to supply-side factors, the Berkman Paper acknowledges that “some countries, most prominently South Korea, Japan, and Sweden, have had long-standing investments in rolling out infrastructure both to urban centers and to wider populations.” Berkman Paper at 162. In its analysis of the factors that influence broadband penetration, however, the Berkman Paper inexplicably excludes this key factor. *See id.* at 29-38. But numerous studies have acknowledged that direct government subsidies – and not other regulatory policies – best explain high levels of broadband penetration. Dr. Atkinson has explained, for example, that “[o]ther nations have been much more active in facilitating the deployment and adoption of broadband through robust public-private partnerships.”²¹ Dr. Katz likewise found that “subsidies to underserved areas” are one of four key factors that drive the pace of next-generation broadband deployment.²²

Third, in addition to ignoring much of the literature focusing on the development of broadband abroad, the Berkman Paper also disregards the literature focusing on the broadband experience in the United States.

homes in Tennessee found that 36 percent of residents with no home broadband connection attributed their non-adoption to the lack of a home computer. Lack of a computer outweighed both price and availability as a major deterrent to broadband adoption.”).

²⁰ Robert Atkinson, ITIF, *International Lessons for Broadband Policy*, Presentation at the FCC Broadband Policy Workshop (Aug. 18, 2009), http://www.broadband.gov/docs/ws_int_lessons/ws_int_lessons_atkinson.pdf (“Atkinson, *International Lessons for Broadband Policy*”); *see also* Christopher Larsen et al., Credit Suisse, *Downgrading Telecom Services to Market Weight*, at 3 (Feb. 19, 2008) (A report by analyst Credit Suisse has found that that broadband penetration in the U.S. among those owning computers is already around 80 percent).

²¹ Atkinson, *International Lessons for Broadband Policy* at 12.

²² Katz, *Some Lessons from International Experience* at 3.

The Berkman Paper describes unbundling in the U.S. as “largely stillborn” from the time of the 1996 Act, but in fact competitors since that time, and continuing through today, can obtain unbundled access at below-cost TELRIC rates to copper loops that can be used to provide DSL services.²³ Although the U.S. did eliminate the ability of competitors to obtain access to only the high-frequency portion of the loop (four years after such policies were initially adopted), that was based on an extensive record finding such unbundling anathema to promoting broadband investment.²⁴ Subsequent studies have shown that this “theory,” as the Berkman Paper calls it, concerning the effect of mandated unbundling on infrastructure investment, is borne out by empirical fact.

A December 2008 study by Professor Thomas Hazlett, for example, demonstrates that broadband deployment and adoption increased following the removal of line sharing mandates, and that a pro-growth regulatory approach to cable modem and DSL services in the U.S. has resulted in greater broadband deployment and adoption.²⁵ Economist

²³ See 47 C.F.R. §§ 51.319(a)(1), 51.503.

²⁴ See *United States Telecom Ass’n v. FCC*, 290 F.3d 415 (D.C. Cir. 2002); *Review of the Section 251 Unbundling Obligations of Incumbent Local Exchange Carriers*, Report and Order and Order on Remand and Further Notice of Proposed Rulemaking, 18 FCC Rcd 16978, ¶ 255 & App. B (2003).

²⁵ Thomas Hazlett & Anil Caliskan, *Natural Experiments in U.S. Broadband Regulation*, 7 *Review of Network Economics* 460 (Dec. 2008). See also Bret Swanson, *Entropy Capital, Preparing to Pounce: D.C. Angles for Another Industry* (Oct. 19, 2009), <http://www.bretswanson.com/index.php/tag/internet/> (“The gaping, jaw-dropping irony of the [Berkman Paper] was its failure even to mention the chief outcome of America’s previous open-access regime: the telecom/tech crash of 2000-02. We tried this before. And it didn’t work! The Great Telecom Crash of 2000-02 was the equivalent for that industry what the Great Panic of 2008 was to the financial industry. A deeply painful and historic plunge. In the case of the Great Telecom Crash, U.S. tech and telecom companies lost some \$3 trillion in market value and one million jobs. The harsh open access policies (mandated network sharing, price controls) that Benkler lauds in his new report were a main culprit. But in Benkler’s 231-page report on open access policies, there is no mention of the Great Crash.”).

Jeffrey Eisenach likewise finds that “[s]ince 2003, when the U.S. Federal Communications Commission (FCC) began jettisoning mandated unbundling and chose instead to rely on infrastructure competition, the results have been extraordinary. U.S. broadband providers are investing tens of billions annually to build out what is rapidly becoming – and in many respects already is – the most capable and competitive broadband infrastructure in the world.”²⁶

Studies also show that the pro-growth regulatory approach adopted in the United States has resulted in more robust investment in next-generation broadband technologies.²⁷ The superior ability of facilities-based competition to promote investment is, of course, particularly critical today where the issue is not only making current-generation broadband technologies available to all Americans, but also ensuring that next-generation wireline and wireless technologies such as fiber-to-the-premises, DOCSIS 3.0, Long Term Evolution (“LTE”), and WiMAX are deployed. The March 2009 Wallsten Study found that:

controlling for income, country fixed effects, and time fixed effects, countries with more broadband connections per capita provided through local loop or bitstream unbundling have fewer fiber connections and WLL [wireless local loop] per capita provided by the incumbent and entrants. Conversely, in countries where entrants provide broadband over their own DSL or cable infrastructure, incumbents provide more fiber. In other words, countries that rely more on unbundled lines to provide broadband see *less investment* by incumbents in fiber

²⁶ Jeffrey Eisenach, The Progress & Freedom Foundation, *Broadband Policy: Does the U.S. Have It Right After All?*, at 1 (Sept. 2008), <http://www.pff.org/issues-pubs/pops/2008/pop15.14USbroadbandpolicy.pdf>.

²⁷ See, e.g., Carlo Cambini & Yanyan Jiang, *Broadband Investment and Regulation: A Literature Review*, 33 *Telecommunications Policy* 559, 560 (2009) (“Investment in broadband infrastructure – and specifically in the so-called *Next Generation Networks* (NGNs) that will provide high-speed connection and broadband and ultra broadband services in the next future – is also believed to be a significant contributor to economic growth since long ago and it is confirmed by empirical studies.”).

than countries that rely less on unbundled lines and more on facilities-based entry.²⁸

As it further notes, its conclusion is by no means unique, but instead “[t]he cross-country literature on the effects of unbundling largely concludes that inter-platform competition is more effective in stimulating new investment than is intra-platform competition.”²⁹

The Waverman study likewise found that “[i]nter-platform competition offers the best prospects for maximizing product differentiation and service innovation.”³⁰ The Katz study found that facilities-based competition is one of four factors (together with direct government subsidies, a decision *not* to unbundle next-generation technology, and highly urban population) that “drive the pace of broadband NGAN [next-generation access network] deployment.”³¹ It concludes that “[c]ompetition between two network operators (cable TV and telcos) is sufficient to guarantee a strong push toward investment and innovation based on two alternative technologies. When the incumbent telco enters the FTTH/C arena, competitive dynamics push for a healthy rate of investment and product innovation on the part of the cable competitor.”³² Numerous other academic and economic studies have reached similar conclusions.³³

²⁸ March 2009 Wallsten Study at 102 (emphasis added).

²⁹ *Id.*

³⁰ Waverman et al., *Access Regulation and Infrastructure Investment in the Telecommunications Sector* (“By showing that intense access regulation weakens inter-platform competition, we show that this intense regulation jeopardizes the wider economic benefits resulting from the product differentiation and service innovation that inter-platform competition engenders.”).

³¹ Katz, *Some Lessons from International Experience* at 3.

³² *Id.* at 18.

³³ See, e.g., J. Scott Marcus, *The Cost of Fiber-Based Next Generation Access (NGA): A Partial Response to the FCC’s NOI on ‘A National Broadband Plan for Our Future,’* GN Docket No. 09-51, at 2 (FCC filed June 8, 2009) (“The migration to fiber-based access

III. THE BERKMAN PAPER'S ANALYSIS IS NOT COMPLETE, OBJECTIVE, OR ACCURATE, AND SHOULD BE ACCORDED NO WEIGHT

In addition to failing to accomplish its intended purpose of providing a comprehensive review of the existing broadband literature, the Berkman Paper also falls short with respect to the other criteria in the Public Notice. The Notice asks whether the study provides “a complete and objective survey of the subject matter” (Question 2); whether it “accurately and comprehensively . . . summarize[s] the broadband experiences of other countries” (Question 3); and “[h]ow much weight . . . the Commission [should]

poses substantial challenges to the maintenance of procompetitive remedies that seek to enable wholesale competitive access to last mile facilities.”); Martha Garcia-Murillo & David Gabel, *International Broadband Deployment: The Impact of Unbundling*, paper presented at the 31st Telecommunications Policy Research Conference, Arlington, VA (Sept. 2003) (finding in a 2001 cross-section of countries no effect of unbundling but positive effects of facilities-based competition); Jan Bouckaert, Theon Van Dijk & Frank Verboven, *Regulation and Broadband Penetration – What Is Required To Regain Speed in Belgium?* (2008) (finding that inter-platform competition has been a main driver of broadband penetration; that intra-platform competition, on the contrary, is found to have an insignificant or even negative impact on broadband penetration; that extensive unbundling mandates on the incumbent’s DSL network may have adverse investment incentives; and that promoting inter-platform competition is believed to be the key policy driver to spur broadband investment.); Sangwon Lee & Justin Brown, *Examining Broadband Adoption Factors: An Empirical Analysis Between Countries*, 10 Info: the J. of Policy, Regulation, and Strategy for Telecommunication, Information, and Media 25, 26 (2008) (“It is also widely held that platform, inter-modal competition (facilities-based competition among several different broadband platforms) is crucial for reducing prices, improving quality of service, increasing customers and promoting investment and innovation.”); Jeffrey Eisenach, The Progress & Freedom Foundation, *Broadband Policy: Does the U.S. Have It Right After All?*, at 12 (Sept. 2008), <http://www.pff.org/issues-pubs/pops/2008/pop15.14USbroadbandpolicy.pdf> (“[A]cademic studies leave little doubt that infrastructure competition leads to higher penetration (e.g., Distaso et al 2005), a fact recognized even by pro-unbundling policymakers. For example, European Union Commissioner Vivian Reding, a staunch advocate of unbundling for next generation networks, recently conceded that ‘effective infrastructure competition has been one of the main factors contributing to broadband rollout. . . . (Reding January 2008).’”); Christos Bouras, Eri Giannaka & Thrasyvoulos Tsiatsos, *Identifying Best Practices for Supporting Broadband Growth: Methodology and Analysis*, 32 J. of Network and Computer Applications 795, 799-800 (2009).

give to this study” (Question 4). The Berkman Paper is neither complete and objective, nor comprehensive and accurate, and the Commission should give it no weight in forming its broadband policies.

A gating concern with the Berkman Paper is its lack of objectivity. The approach, substance, and tone of the report reveal a clear preference for the pro-unbundling regulatory approach followed in some other countries, rather than the pro-facilities-based-competition approach followed by the U.S. It labels facilities-based competition as “not an unreasonable” “theory”; the Supreme Court’s decision upholding the pro-growth regulatory approach as “silly,” and other court decisions striking down excessive unbundling rules as “exhibiting little deference to the judgment of the FCC”; and incumbent carriers as “recalcitrant.” Berkman Paper at 82, 83, 78, 74. By contrast, it unequivocally praises unbundling policies as being “universally understood as having played a core role in the first generation transition to broadband in most of the high performing countries,” further claiming – incorrectly – that there is “wide consensus outside the United States that open access policies played an important role in creating competitive broadband markets in those countries that adopted and enforced them.” *Id.* at 11, 79-80.

The Berkman Paper characterizes its extreme opinion as to the benefits of unbundling as its “most surprising and significant finding.” *Id.* at 11. It *is* surprising given the extensive literature – most of which the Berkman Paper ignores – that reaches a much different conclusion. But it is by no means a surprise given the study’s obvious bias in favor of unbundling policies and its narrow and skewed methodological approach that favors pro-unbundling countries in international comparisons. It also is no surprise

given the prior legal scholarship of the study’s “Principal Investigator,” Yochai Benkler, who long has openly endorsed and advocated open access policies, while criticizing contrary policies as “limit[ing] the imagination in terms of thinking of solutions for issues of control over infrastructure.”³⁴

Beyond its lack of objectivity, the Berkman Paper’s analysis also fails on its own terms. It sets out to “to understand how to distinguish countries whose broadband outcomes are more successful from those whose outcomes are less desirable,” but its analysis is flawed in numerous key respects and does not provide support for the pro-unbundling thesis that the Berkman Paper seeks to advance. Berkman Paper at 9.

A. The Berkman Paper’s Qualitative Analysis Is Unreliable

The Berkman Paper’s conclusions are based in significant part on a so-called “qualitative” analysis “of the effects of open access and the political economy of

³⁴ Yochai Benkler, *Symposium Overview: Part IV: How (If at All) To Regulate the Internet: Net Regulation: Taking Stock and Looking Forward*, 71 U. Colo. L. Rev. 1203, 1234 (Fall 2000) (“The general acceptance of the assumption that infrastructure will be privately deployed and owned limits the imagination in terms of thinking of solutions for issues of control over infrastructure.”). See also Yochai Benkler, *The Wealth of Networks: How Social Production Transforms Markets and Freedom*, at 401-402 (Yale University Press, 2006), http://www.benkler.org/Benkler_Wealth_Of_Networks.pdf (“Benkler, *Wealth of Networks*”) (“Even if successful, the drive to network neutrality would keep the physical infrastructure a technical bottleneck, owned by a small number of firms facing very limited competition, with wide legal latitude for using that control to affect the flow of information over their networks.”); *id.* at 23 (the “central question is whether there will, or will not, be a core common infrastructure that is governed as a commons and therefore available to anyone who wishes to participate in the networked information environment outside of the market-based, proprietary framework.”); Letter from Yochai Benkler et al., to Dr. Kamil Idris, Director General, World Intellectual Property Organization (July 7, 2003), <http://www.cptech.org/ip/wipo/kamil-idris-7july2003.pdf> (advocating open and collaborative projects to create public goods, as they “provide evidence that one can achieve a high level of innovation in some areas of the modern economy without intellectual property protection, and indeed excessive, unbalanced, or poorly designed intellectual property protections may be counter-productive”).

regulation on broadband performance.” *Id.* at 12. Based on a qualitative review of 14 countries, the Berkman Paper finds that “there is extensive evidence to support the position, adopted almost universally by other advanced economies, that open access policies, where undertaken with serious regulatory engagement, contributed to broadband penetration, capacity, and affordability in the first generation of broadband.” *Id.* at 75. In fact, the Berkman Paper’s analysis is unreliable in numerous important respects.

First, even on its own terms, the Berkman Paper’s principal conclusion is merely that unbundling and government-mandated open access policies have played a role with respect to “*first generation*” broadband. *Id.* at 11, 75 (emphasis added). It does not and cannot show that unbundling has also promoted the deployment of *next-generation* broadband, which is one of the core issues now facing the Commission and the country (as well as most other countries). In point of fact, the evidence shows that the U.S. is outperforming most of the world in deploying next-generation wireline broadband infrastructure such as FTTP and DOCSIS 3.0 as well as wireless broadband such as LTE and WiMAX, and that countries who have chosen unbundling to catch up or get ahead on first-generation broadband are now falling behind in the deployment of next-generation technology.³⁵ This experience bears out the conclusion of this Commission,³⁶ the

³⁵ See, e.g., Aron & Crandall, *Investment in Next Generation Networks and Wholesale Telecommunications Regulation* (“There is little evidence at this point that European ILECs will build advanced fiber networks to deliver high-speed services throughout their franchise areas. There may be some limited deployment by them or by other firms of fiber in major cities, but given the regulatory environment it is unlikely that incumbents will deploy fiber as extensively as carriers in the U.S., Japan, or Korea have already done.”); Roland Montagne, IDATE, *FTTH European Panorama*, at 23 (Feb. 11, 2009), http://www.ftthcouncil.eu/documents/studies/Market_Data-December_2008.pdf (“With nearly 1.7 million FTTH/B subscribers as of December 2008, Europe is still lagging behind the US and Japan”).

courts,³⁷ and scores of noted economists,³⁸ that unbundling deters investment and therefore risks longer-term objectives for short-term gains. Thus, even taking the Berkman Paper at face value, its conclusions have little bearing on the steps the Commission should take to foster the deployment of next-generation broadband services, which is the focus of the National Broadband Plan.

Second, even as to the effect of unbundling on first-generation broadband, the Berkman Paper does not adequately distinguish between correlation and causation.

³⁶ See, e.g., *Review of the Section 251 Unbundling Obligations of Incumbent Local Exchange Carriers*, Report and Order and Order on Remand and Further Notice of Proposed Rulemaking, 18 FCC Rcd 16978, ¶ 272 (2003) (“[W]ith the certainty that their fiber optic and packet-based networks will remain free of unbundling requirements, incumbent LECs will have the opportunity to expand their deployment of these networks. . . . [W]e conclude that relieving incumbent LECs from unbundling requirements for these networks will promote investment in, and deployment of, next-generation networks.”).

³⁷ See, e.g., *Verizon Communications Inc. v. Law Offices of Curtis V. Trinko, LLP*, 540 U.S. 398, 407-08 (2004) (forced sharing “may lessen the incentive for the monopolist, the rival, or both to invest in . . . economically beneficial activities”); *AT&T v. Iowa Utils. Bd.*, 525 U.S. 366, 429 (1999) (Breyer, J., concurring in part and dissenting in part) (“Increased sharing by itself does not automatically mean increased competition. It is in the *unshared*, not in the *shared*, portions of the enterprise that meaningful competition would likely emerge. Rules that force firms to share *every* resource or element of a business would create, not competition, but pervasive regulation, for the regulators, not the marketplace, would set the relevant terms.”).

³⁸ See, e.g., Thomas Hazlett & Anil Caliksan, *Natural Experiments in U.S. Broadband Regulation*, 7 *Rev. of Network Economics* 460, 461 (2008) (“Simply stated, incentives for network investment decline when network owners lose a set of valuable property rights, as in the case where regulation is imposed to block certain pricing or bundling models.”); Thomas Jorde, J. Gregory Sidak & David Teece, *Innovation, Investment, and Unbundling*, 17 *Yale J. on Reg.* 1, 8 (2000), http://www.criterioneconomics.com/pdfs/gsidak_pdfs/Innovation_Investment_and_Unbundling.pdf (“It makes no economic sense for the ILEC to invest in technologies that lower its own marginal costs, so long as competitors can achieve the identical cost savings by regulatory fiat.”); see also 3B Phillip Areeda & Herbert Hovenkamp, *Antitrust Law* ¶ 771(b), at 196 (2008) (When a company is to “provide [a] facility and regulat[es] the price to competitive levels, then the [prospective entrant’s] incentive to build an alternative facility is largely destroyed.”).

Although the study cites examples of strong broadband-performing countries that have adopted aggressive unbundling policies, many if not most of these countries also have other qualities that contribute to the results. The Berkman Paper concedes as much. It states, for example, that “many factors other than government action predict broadband penetration,” such as “income, geography, and poverty.” Berkman Paper at 74. It also acknowledges that “[l]arge, long term investments have played a role in some of the highest performing countries,” as have government actions and investment “to support broadband demand, including extensive skill training, both in schools and for adults.” *Id.* at 13, 14. And it notes that “[t]he experience of other countries is complex, nuanced, and detailed,” and that “[n]ot all of it lines up exactly with a single storyline, and not all of it unambiguously supports one conclusion.” *Id.* at 83. The limitation of a qualitative analysis, of course, is that it does not provide a way to control for the ways in which these (and many other) variables affect broadband performance. At most, such an analysis may show a correlation between high broadband performers and unbundling; it is not capable of demonstrating causation between the two.

The Berkman Paper attempts to gloss over this issue, claiming that “it is unnecessary to show that policy is primarily responsible for a country’s performance; it is sufficient to show that a policy can contribute positively and appreciably, at the margin, to a country’s performance relative to that country’s performance without that policy.” *Id.* at 74. But that puts the cart before the horse: the problem with the Berkman Paper’s qualitative analysis is not merely that it fails to show that unbundling is “primarily responsible” for strong performance, but that it does not reliably show that it contributes

at all.³⁹ And given the weight of economic literature finding opposite effects, the Berkman Paper faces a particularly high hurdle to support its thesis. Moreover, the supposed “marginal gains” to which the Berkman Paper refers are short-term effects; the Berkman Paper fails to consider that policies that focus on achieving such short-term gains can have long-term effects on investment and innovation, thereby negating any such gains.

Third, the Berkman Paper mischaracterizes the significance of unbundling and open access in its discussion of several countries. Out of the 14 countries in its analysis besides the U.S., the Berkman Paper acknowledges that the experience of at least five (Korea, Switzerland, Canada, Finland, Italy) is either “ambiguous” or directly contrary to its central hypothesis.⁴⁰ The fact that at least a third of the countries provides at best ambiguous results – and, as discussed below, the number is likely considerably higher – is in itself a basis to question the confidence with which the Berkman Paper states its results. But it is worse than that: as further shown in the Appendix, many of the

³⁹ See generally Atkinson, *International Lessons for Broadband Policy* at 5 (“Drawing policy lessons is not straightforward because nations differ in very significant ways, including industry structure, demographics, economic position, and geography. One size doesn’t fit all.”); see also T. Randolph Beard et al., *The Broadband Adoption Index Improving Measurements and Comparisons of Broadband Deployment and Adoption* at 4, Phoenix Center Policy Paper Number 36 (July 2009) (“Demographic and economic differences between countries make cross-country comparisons of raw, Internet penetration rates of little policy relevance, even if a penetration rate is properly constructed. Indeed, 91% of the differences in fixed broadband adoption rates in the 30 OECD member countries can be explained by reference solely to differences in income, education, population age, and other demographic factors that bear little relationship to broadband or telecommunications policy.”).

⁴⁰ See Berkman Paper at 80 (“most of the ambiguity about the effect of unbundling comes from the experience of Switzerland”), 83 (“The South Korean experience is more ambiguous on access”), 105 (“Italy represents an ambiguous case”), 109 (Canada represents an “ambiguous case”).

countries that the Berkman Paper counts as firm evidence of its pro-unbundling thesis likewise present at best ambiguous support.

For example, the Berkman Paper counts Japan as a country where open access was “a critical part” of the early introduction of broadband, but in reality many other factors – including government-subsidized fiber deployment and a very high population density (ten times that of the U.S.) – played a major role. Berkman Paper at 85, 87. The Berkman Paper also counts three of the five Nordic countries (Norway, Denmark, and Sweden) in its camp, conceding that the fourth (Finland) is an “outlier” and the fifth (Iceland) “has a very small population which is extremely concentrated and urban.” *Id.* at 90, 89. But even the three remaining countries are ambiguous evidence at best – each not only has extensive facilities-based competition between DSL and cable, but also many other attributes (such as considerable wealth, early technology adopters, and developed high-technology industries) that help explain their broadband performance. The same is true of the Netherlands, where there is “substantial facilities-based competition,” *Id.* at 94; in fact, unbundling accounts for fewer than 12 percent of broadband subscribers in the Netherlands,⁴¹ and there are many other factors such as favorable demographics and active government involvement in deploying broadband networks, that instead could explain its strong broadband performance.⁴²

The Berkman Paper fares little better looking to the “larger European economies,” France, Germany, Italy, and the U.K., for support of its thesis. Berkman Paper at 95.

The Berkman Paper acknowledges that Italy is an “ambiguous case,” because despite

⁴¹ See Chris Fonteijn, IRG Boardmember, Chairman of the Commission of OPTA, *Convergence: Challenges in Regulation, Networks* 2008, at 8 (Sept. 30, 2008) http://www.networks2008.hu/data/upload/file/Plenary/P1_2_Fonteijn.pdf.

⁴² See Atkinson, *Explaining International Broadband Leadership* at App. E.

unbundling it “has among the lowest penetration rate per 100 inhabitants in fixed lines and even lower standings in terms of per household penetration.” *Id.* at 105. Although France, Germany, and the U.K., have fared somewhat better, none has achieved materially higher levels of broadband penetration per 100 inhabitants – the rate is 26.7% for the U.S. compared to 27.4% in Germany, 28% in France, and 28.5% in the U.K., and when the adjustment is made for relative household sizes (using correct household data), the U.S. ranks ahead of all three. *See* A-6, A-7, *infra*. Moreover, each of these countries is well behind the U.S. in deploying fiber. The Berkman Paper’s discussion of the larger European Countries also is interesting for what it excludes – Spain, Europe’s fifth largest country, and the world’s tenth largest economy.⁴³ The exclusion is particularly notable because it further undermines the study’s thesis, given that Spain, like Italy, is a weak broadband performer despite the same basic unbundling rules that have been adopted elsewhere in Europe.⁴⁴

Finally, just as the Berkman Paper gives unbundling unwarranted credit for the relative success of many countries, it fails to give proper due to examples where broadband success has been achieved largely without unbundling or where unbundling has had negative effects. Even a single example showing that unbundling is either unnecessary or unhelpful is enough to call the Berkman Paper’s entire thesis into question, particularly given the small number of observations. Here, there are at least

⁴³ *See* World Bank, *Quick Query Selected from World Development Indicators Database*, <http://ddp-ext.worldbank.org/ext/DDPQQ/member.do?method=getMembers&userid=1&queryId=135> (2008 population data for European Union countries & GDP data).

⁴⁴ *See* Berkman Paper at 46 (ranking Spain behind the U.S. at 18th overall, and 20th in broadband penetration according to OECD data); *id.* at 106 (noting Spain’s “pattern of low fixed, high mobile, broadband penetration.”).

five examples – Korea, Switzerland, Finland, Canada, and the United States– where the study openly acknowledges that facilities-based competition and other factors have driven broadband performance. The Berkman Paper downplays these examples as not wholly inconsistent with its thesis, but these attempts serve only to underscore the report’s predisposition to demonstrating the benefits of unbundling, and in any case are unavailing.

The Berkman Paper claims Korea is an “ambiguous” case, but this is based entirely on its unfounded assumption that the decision of the government-owned power company to lease cable facilities that it was not itself using to a single entity is akin to unbundling.⁴⁵ It also attempts to inject ambiguity into the Swiss case, arguing that in addition to facilities-based competition there was the “threat” of unbundling. Berkman Paper at 111. But there is no evidence to support the notion that the mere threat of unbundling has a positive effect on broadband performance (and good reason to believe that it has a negative one). The Berkman Paper also labels Canada as an “ambiguous” case, even though it “has the highest level of penetration of all the G7 countries” and is ranked 10th in the OECD. *Id.* at 109, 110. The Berkman Paper argues that Canada’s rank has dropped, its prices are high, and its speeds are low. But the fact that Canada’s penetration ranking has fallen to a level that is still above the level of most pro-unbundling countries (and is still ranked first among the G-7) hardly makes its success

⁴⁵ *Id.* at 199 (“Thrunet used cable plant leased from Kepco, the government-owned power company that owned cable facilities but did not provide broadband.”).

“ambiguous.” And as for the claims that Canada’s prices and speeds rank poorly, a recent Canadian study demonstrates that these claims rest on mistaken facts.⁴⁶

B. The Berkman Paper’s Quantitative Analysis Is Unreliable

The Berkman Paper’s so-called “quantitative” approach fares no better than its “qualitative” one and does not provide a sound basis for drawing any meaningful conclusions about the factors that affect broadband performance. Indeed, according to one recent study, the Berkman Paper misinterprets its own econometric results, which instead show that “unbundling reduces broadband consumption.”⁴⁷

Quantitative Analysis of Broadband Speed and Price. The Berkman Paper’s first “quantitative” analysis compares “objective measures of price and speed offered,” based on “the highest-end speeds offered by the 59 firms in the countries we studied.” Berkman Paper at 112. The Berkman Paper does not perform a regression analysis seeking to control for the various factors that might influence these offerings – such as the obvious fact that unbundling at extremely low rates will lead to lower priced competitive offerings, regardless of whether such offerings are sustainable over a long period. The analysis instead simply plots different offerings along the axes of speed and

⁴⁶ See Mark H. Goldberg & Associates, Inc. & Giganomics Consulting, Inc., *Lagging or Leading? – The State of Canada’s Broadband Infrastructure*, at 35-38, 81-91 (Oct. 7, 2009) (noting that “Canada’s ranking in terms of the most cost-effective service would similarly have improved if the OECD had included in its analysis a broader range of ultra high-speed services offered in Canada,” and that “[i]t would have been more accurate for the OECD to apply subscription-based weights to the offers to derive the average prices, speeds and price per Mbps. . . . The OECD does not apply a rigorous and consistent methodology for sampling each country’s advertised offers. As a result, there is significant variation among the countries in terms of the number and diversity of offers considered.”).

⁴⁷ George S. Ford, Phoenix Center for Advanced Legal & Economic Public Policy Studies, *Whoops! Berkman Study Shows ‘Open Access’ Reduces Broadband Consumption*, at 10 (Nov. 12, 2009).

price, and then concludes that “[a]lmost all the companies that offer the highest prices for the lowest speeds in our dataset operate in countries that rely on inter-modal competition: the United States and Canada.” *Id.* at 113. Putting aside the lack of statistical rigor in the analysis, the conclusion is also highly misleading. Several of the countries that offer the lowest prices for the highest speeds also operate in countries that rely primarily on intermodal competition, such as South Korea and Finland. Even more fundamentally, however, it is not clear why comparing the highest-end offerings in different countries is a relevant proxy for broadband success, any more than comparing the prices of luxury cars in different countries provides an accurate assessment of what the average citizen drives.

In examining speed and price the Berkman Paper also fails to address several key criticisms in the literature of using these measures as a proxy for broadband success. First, while the Berkman Paper suggests that speed is a proxy for what consumers “‘have’ when they have broadband,” it ignores the fact that U.S. consumers are in fact the biggest users of the applications that higher-speed connections make possible, which suggests they “‘have” more than consumers elsewhere. *Id.* at 27. A study by Ofcom found that Americans are the biggest consumers of online music and video in the world.⁴⁸ As Scott Wallsten points out, “if the speed situation in the U.S. were as dire as critics claim then the U.S. would be unlikely to lead the world so strongly in the use of online media.”⁴⁹

Second, although the Berkman Paper claims that the supposedly greater broadband speeds in some other countries is due in large part to the DSL unbundling

⁴⁸ U.K. Office of Communications (Ofcom), *The International Communications Market 2008*, at 99-101, Figure 3.6 & 3.7 (Nov. 20, 2008).

⁴⁹ Scott Wallsten, Technology Policy Institute, *Understanding International Broadband Comparisons: 2009 Update*, at 8-10 (June 2009) (“June 2009 Wallsten Study”).

policies in those countries,⁵⁰ this ignores the fact that there are many factors that affect broadband speeds. For example, broadband speed is affected by the quality of inside wiring at the customer's premise, the computer and networking equipment used by the consumer, the software and applications currently being run by the consumer, general Internet congestion, and the responsiveness of the particular servers and networks the customer seeks to access, as well as other technological factors. With respect to DSL in particular, speed is highly dependent on loop lengths,⁵¹ and the U.S. – as Dr. Atkinson of ITIF has shown – “has the longest copper loop lengths among 13 OECD nations where data are available.”⁵² As a result, average broadband speeds in the U.S. would be expected to be lower for reasons having nothing to do with whether those loops were unbundled.

Third, while the Berkman Paper provides a range of pricing data, it looks only at stand-alone broadband prices, even though broadband services, at least in the U.S., are

⁵⁰ See Berkman Paper at 12 (“Our pricing study . . . shows that prices and speeds at the highest tiers of service follow a clear pattern. . . . The lowest prices and highest speeds are almost all offered by firms in markets where, in addition to an incumbent telephone company and a cable company, there are also competitors who entered the market, and built their presence, through use of open access facilities.”).

⁵¹ See, e.g., Angele Gilroy & Lennard Kruger, *CRS Report for Congress: Broadband Internet Regulation and Access: Background and Issues*, Congressional Research Service (May 29, 2007), https://www.policyarchive.org/bitstream/handle/10207/2915/RL33542_20070529.pdf?sequence=5 (DSL “[s]peeds can depend on the condition of the telephone wire and the distance between the home and the telephone company’s central office”); Saul Hansell, *The Broadband Gap: Your Take on the Issue*, N.Y. Times (Mar. 16, 2009), <http://bits.blogs.nytimes.com/2009/03/16/the-broadband-gap-your-take-on-the-issue/> (“Speed of DSL service depends on the length of the loop of copper wire that goes from the phone company’s central office to the home. And for historical reasons, the average length of the local loop is higher in the United States than in other countries.”); OECD, *IPTV: Market Developments and Regulatory Treatment*, DSTI/ICCP/CISP(2006)5/FINAL, at 12 (Dec. 19, 2007) (when “copper loop length exceeds 1.5km, VDSL2 does no better than ADSL2+”).

⁵² Atkinson, *International Lessons for Broadband Policy* at 7.

increasingly offered and purchased as part of a bundle together with other services (such as voice and/or video) or a varying mix of applications (including everything from e-mail to spam blockers) and equipment (including, *e.g.*, wireless routers). As the June 2009 Wallsten Study notes, “[p]rices are inherently difficult to compare due to the differing characteristics of the broadband products consumers buy and the tendency to purchase services in bundles.”⁵³ Because the Berkman Paper fails to address this concern, its pricing data are not reliable for cross-country comparisons.

Quantitative Analysis of Broadband Penetration. The Berkman Paper next performs an “econometric analysis of the OECD data, generally trying to test whether one of a small number of variables – urban concentration, GDP per capita, education, age, etc., as well as the existence of facilities based competition and unbundling regulations – can explain variation in a given measure of outcomes – penetration per 100 inhabitants.” Berkman Paper at 115. At the outset, however, the Berkman Paper acknowledges that it is “cautious about the results . . . because of the small number of countries, the small number of observations, the thin specification of the variables, and the potential interaction effects among these variables, as well as other unobserved variables.” *Id.* Despite such concerns, the Berkman Paper does not hesitate in stating its “conclusion . . . that unbundling had a positive and significant effect on levels of penetration; that this effect was somewhat larger, more statistically significant, and more robust than previously thought; and that some of the ambiguity in prior studies can be attributed to the large influence that Switzerland’s experience had in dampening the observed effect of unbundling.” *Id.*

⁵³ June 2009 Wallsten Study at 9.

The Berkman Paper does not generate its own econometric analysis, but instead attempts to replicate the analysis used in a study “by John de Ridder from the OECD, using data from 2005 and a comparison of changes between 2002 and 2005.” Berkman Paper at 115. As the Berkman Paper notes, based on four-year old data that study found that unbundling had only a “modest effect” on broadband penetration, whereas “competition between platforms (DSL and cable) . . . had significant effects.” *Id.* A subsequent study by Boyle, Howell, and Zhang “re-analyzed de Ridder’s data using a particularly robustness-seeking mixed-effects technique, and found that unbundling had no statistically significant effect.” *Id.*⁵⁴ The Berkman Paper re-ran both of these studies to ensure it could replicate their results, and then modified them in various ways it deemed appropriate.

The Berkman Paper did not update the dataset from the De Ridder study, and thus its conclusions rest on data that are now more than four years old, and cover only a limited portion of the unbundling experience. Consistent with these prior studies, the Berkman Paper acknowledges that various demand-side factors, such as “poverty, percent in urban areas, and log median income are all significant predictors of broadband penetration.” Berkman Paper at 69; *see* n.18, *supra* (citing studies regarding the relevance of demand-side factors). Significantly, however, when the Berkman Paper re-runs the analysis it finds that the price of broadband service “does *not* change the

⁵⁴ *See* Glenn Boyle, Bronwyn Howell & Wei Zhang, New Zealand Institute for the Study of Competition and Regulation Inc., *Catching Up in Broadband Regressions: Does Local Loop Unbundling Really Lead to Material Increases in OECD Broadband Uptake?* (July 28, 2008) (“Whilst empirical evidence on this issue is sparse, once recent study commissioned and published by the OECD (OECD, 2007). On closer examination, however, the economic magnitude of this effect is trivial. Moreover, once the error structure of the data is properly accounted for, the statistical significance disappears.”).

substantive results of the model” – in other words, lower broadband prices do not lead to higher rates of broadband subscription. Berkman Paper at 69 (emphasis added). The Berkman Paper does not attempt to explain this result, however, even though it strongly undermines its core thesis. The theory of unbundling, as the Berkman Paper notes, is that “the more competitive consumer broadband markets that emerge from this more competitive environment will deliver higher capacity, at lower prices, to more of the population.” *Id.* at 12. The fact that the Berkman Paper’s own analysis shows that lower prices do not lead to greater penetration therefore provides strong evidence that *other* factors besides unbundling are responsible for driving broadband penetration.⁵⁵

Even more problematic, however, are the several modifications the Berkman Paper makes to the De Ridder study in order to achieve its results. The Berkman Paper first removes the price of DSL from the analysis, even though the effect of DSL unbundling is the principal thing the study is purporting to measure. The rationale for this approach appears to be that it is not possible to distinguish the effect of low DSL prices on penetration as compared to the effect of the rule establishing unbundled DSL offerings. *Id.* at 116. But the complicated interaction between these two variables is not a legitimate basis to exclude one entirely, but instead suggests that the model itself is not well designed to account for the nuanced effects of different variables. Moreover,

⁵⁵ See *Applicability of Phoenix Center Research to the FCC’s National Broadband Plan Notice of Inquiry*, at 2 (June 2, 2009), <http://www.phoenix-center.org/BroadbandNOIFinal.pdf>; see also George Ford, Thomas Koutsky & Lawrence Spiwak, *The Broadband Performance Index: A Policy-Relevant Method of Comparing Broadband Adoption Among Countries*, Phoenix Center Policy Paper No. 29 (July 2007), <http://www.phoenix-center.org/pcpp/PCPP29Final.pdf> (Most differences in broadband adoption rates can be explained by differences in income, education, population age, and other demographic factors that bear little relationship to broadband or telecommunications policy).

removing DSL prices on this basis ignores the fact that in many cases facilities-based competition from cable, and not regulation, is responsible for low prices.

The next modification that the Berkman Paper applies to achieve its results is the removal of one of the countries in the analysis, Switzerland. The study notes that “Switzerland is a significant example of successful broadband deployment without the passage of unbundling rules,” so that “[r]emoving Switzerland from the data set substantially increases both the significance and the effect size of unbundling.” *Id.* But it is not a valid statistical method to remove a data point simply because it is contrary to the hypothesis being tested, and doing so is even more problematic where, as here, there are a limited number of observations to begin with. As noted above, Switzerland is an important (but not the only) example of a country that disproves the Berkman Paper’s principal thesis, and Berkman’s attempt to exclude it as such raises further questions about the objectivity of its approach.

The next “transformation” the Berkman Paper implements is to “replace the variables describing the introduction of unbundling with variables that mark the time of introduction of effective unbundling,” based on the study’s own subjective view of what is “effective.” *Id.* Thus, the U.S. is “reduced to having no unbundling by 2005,” even though copper loop unbundling at below-cost prices has been available in the country both before and since that time. *Id.* The date for Korea is changed from 2002 to 1997, to reflect “the earlier availability of access to cable on which Thrunet and Hanaro built their entry.” *Id.* at 117. This “access to cable” is nothing like unbundling, however, but instead was a case where the government-owned power company leased cable facilities that it was not itself using to a single entity. *See id.* at 199. The effect is thus to more

strongly attribute Korea's success to early unbundling policies, rather than to the facilities-based competition and other factors that more accurately explain it.

Finally, the Berkman Paper's conclusion conflicts with the conclusions that numerous other econometric analyses have reached, including those using the same data set. The Berkman Paper acknowledges a handful of these studies, but ignores others without explanation. Regardless of which of these studies offers the most valid results, the fact that there is such wide disagreement among the results provides further confirmation of the limitations of this type of analysis and the difficulty of drawing any firm conclusions from it.

IV. THE BERKMAN PAPER'S PREMISE THAT THE U.S. IS TRAILING BEHIND IN BROADBAND IS MISPLACED

A. The U.S. Is a Broadband Leader in Key Respects

The Berkman Paper repeats the familiar criticism that the United States is a "middle-of-the-pack performer," though it is careful to note that the characterization applies only to "first generation broadband measures." Berkman Paper at 10. The Berkman Paper largely avoids telling the story about next-generation broadband deployment, where the evidence unambiguously shows that the U.S. is a world leader. As Verizon has previously demonstrated, the U.S. is one of only a handful of countries in the world – and the only large country – where private companies are investing to deploy next-generation fiber broadband networks on a large scale. Verizon alone has deployed more fiber to mass-market premises than all carriers in Europe combined.⁵⁶ Of the 14

⁵⁶ *Compare Verizon, Verizon FiOS – Fact Sheet*, <http://newscenter.verizon.com/kit/fios-symmetrical-internet-service/all-about-fios.html> (As of September 30, 2009, Verizon's FiOS network passed 14.5 million premises), *with* Roland Montagne, IDATE, *FTTH European Panorama*, at 8, 10 (Feb. 11, 2009),

countries that the OECD ranks ahead of the U.S., only a handful have comparable (or greater) penetration of fiber deployment, and, as discussed further below, those are countries in which governments have generally subsidized fiber deployment and/or in which demographic differences have facilitated fiber deployment.⁵⁷ A study by Stephen J. Ezell of ITIF found that the U.S. is in fact the only OECD country in which FTTH is being widely deployed in non-urban areas such as suburbs.⁵⁸

Even with respect to first-generation broadband, the Berkman Paper's premise that the U.S. is trailing is unavailing. The Berkman Paper relies principally on its interpretation of the OECD data on broadband subscribers per 100 inhabitants. *See, e.g.*, Berkman Paper at 10, 27, 29-33, 46. But the Berkman Paper ignores another key component of these same data, which show that in at least one critical respect – the level of facilities-based competition for broadband services – the U.S. is at the top of the pack. As Verizon has previously explained, the United States is one of only a handful of countries in the world – and, with Canada, one of only two G-8 countries – where at least *two* wireline broadband platforms are available to the vast majority of households.⁵⁹ In

http://www.ftthcouncil.eu/documents/studies/Market_Data-December_2008.pdf (11.2 million homes passed by FTTH/B in 31 European countries).

⁵⁷ *See* OECD, *OECD Broadband Statistics: 1d. OECD Broadband Subscribers per 100 Inhabitants, by Technology, December 2008*, <http://www.oecd.org/dataoecd/21/35/39574709.xls> (“OECD December 2008 Broadband Statistics”); OECD, *Broadband Growth and Policies in OECD Countries*, at 35, Figure 1.11, 71 (2008); Atkinson, *Explaining International Broadband Leadership* at 19-20, 28; Bob Whitman, Corning, *FTTH Expands Fast Around the World*, *Broadband Properties*, at 42-44 (Sept. 2005), <http://www.corning.com/WorkArea/downloadasset.aspx?id=7957>.

⁵⁸ *See* Stephen Ezell et al., *The Need for Speed: the Importance of Next Generation Broadband Networks*, at 4, <http://www.itif.org/files/2009-needforspeed.pdf>.

⁵⁹ Comments of Verizon and Verizon Wireless on a National Broadband Plan at 22, *A National Broadband Plan for Our Future*, GN Docket No. 09-51 (FCC filed June 8, 2009).

most of the rest of the world, including most of the countries that supposedly rank ahead of the U.S. according to the OECD, broadband is provided predominantly via DSL over the incumbent telephone company network.⁶⁰ Numerous studies that have analyzed the OECD data and other sources have emphasized this important aspect of the broadband marketplace in the United States.⁶¹

The United States also is a leader with respect to wireless broadband. Although the use of mobile wireless connections for broadband is growing rapidly in importance, the Berkman Paper devotes relatively scant attention (8 of 231 pages) to the subject, and its discussion does not reference even a single study on the subject.⁶² Relying on proprietary data from TeleGeography's GlobalComms database, the Berkman Paper claims that the "[t]he United States is in the fourth quintile of OECD countries in terms of

⁶⁰ See OECD December 2008 Broadband Statistics.

⁶¹ See, e.g., Atkinson, *Explaining International Broadband Leadership* at 33 ("the United States and Canada have more intermodal broadband competition than any other OECD nation."); see also Atkinson, *International Lessons for Broadband Policy* ("The U.S. has among the Highest amount of intermodal competition" in the world."); Carlo Cambini & Yanyan Jiang, *Broadband Investment and Regulation: A Literature Review*, 33 *Telecommunications Policy* 559, 561 (2009) ("A notable feature of the US broadband market is strong platform competition between cable television systems and telephone systems."); March 2009 Wallsten Study at 92 (finding a "greater extent of platform competition in the U.S. than in Europe, where it is nearly nonexistent in some countries."); Johannes M. Bauer & Barbara A. Cherry, *Transatlantic Conundrums: Lessons for Europe?*, Quello Center Working Paper 06-01, prepared for presentation at the EuroCPR, Seville, Spain, at 22 (Mar. 31, 2006), <http://quello.msu.edu/images/uploads/wp-06-01.pdf> ("the effective number of competitors in most U.S. broadband access markets is 2.5 (DSL, cable, some presence of satellite, and terrestrial) while it is closer to 1.5 in most EU member states, reflecting the presence of DSL and some fringe competitors (exceptions are the three [Benelux] countries that had historically high cable penetration."); Jeffrey Eisenach, Empiris LLC, *Broadband Policy: Learning from International Experience*, Presentation to the FCC Workshop on International Lessons (Aug. 18, 2009), http://www.broadband.gov/docs/ws_int_lessons/ws_int_lessons_eisenach.pdf.

⁶² The Berkman Paper's discussion of wireless contains a single footnote, to a European Regulator's Group June 2009 report that focuses on spectrum policy.

3G penetration.” Berkman Paper at 152. It also concedes that its limited review “leads us to identify no definitive driver of high 3G penetration” and its “primary conclusion is therefore that there is substantial need for additional study of mobile wireless policies and business models.” *Id.* at 153.

But there have in fact already been numerous other studies of wireless broadband, and they paint a very different picture from the one in the Berkman Paper, showing that the U.S. is excelling with respect to all elements of wireless broadband. For example, studies by the OECD and this Commission have found that mobile wireless broadband is more widely deployed in the United States than most other countries, including most that the OECD ranks ahead in broadband penetration, and that the U.S. ranks highest in wireless Internet penetration.⁶³ Studies have further found that the U.S. also has the most competitive mobile wireless sector of any OECD country, with the top four carriers accounting for a lower percentage of subscribers in the U.S. than in any other OECD country.⁶⁴

⁶³ See OECD, *Broadband Growth and Policies in OECD Countries*, at 36 (2008) (“Third-generation mobile data coverage is very high in a number of countries including Sweden, Korea, Luxembourg, Italy, the United Kingdom and the United States. It is important to note that 3G subscribers are not necessarily using their phones to access the Internet and that generally mobile access to the Internet and the use of mobile applications is lagging in all but a few countries”); *Implementation of Section 6002(b) of the Omnibus Budget Reconciliation Act of 1993*, Thirteenth Report, 24 FCC Rcd 6185, ¶ 227 (2009) (“Nielson Mobile finds that the United States leads among 16 countries in mobile Internet penetration with 15.6 percent of wireless subscribers, followed by, among others, the United Kingdom (12.9%), Italy (11.9%), Spain (10.8%), France (9.6%), and Germany (7.4%).”).

⁶⁴ CTIA, *The United States and World Wireless Markets: Competition and Innovation are Driving Wireless Value in the U.S.*, at 6-8 (May 2009), attached to Ex Parte of CTIA – The Wireless Association, *A National Broadband Plan*, GN Docket No. 09-51 (FCC filed May 12, 2009) (the United States wireless marketplace is the least concentrated of the 26 OECD countries tracked by Merrill Lynch, citing Merrill Lynch, *Global Wireless*

Finally, while the Berkman Paper focuses on three factors – penetration, speed, and price – to measure broadband success, several recent studies have taken a more holistic approach to analyzing broadband, and following this approach have found that the United States is a world leader.⁶⁵ The Connectivity Scorecard developed by several prominent economists ranks the U.S. as the world leader (followed by Sweden and Japan) using a composite metric that measures not only broadband infrastructure and hardware, but also complementary assets and skills that determine how productively the hardware and infrastructure are used.⁶⁶ The World Economic Forum (“WEF”) Global Information Technology Report ranks the United States second in the world in overall “global competitiveness” and “second to none” in terms of “the level of innovation” using a metric that measures broadband penetration in the context of myriad economic, political, and regulatory factors.⁶⁷ The e-Readiness index compiled by the Economist Intelligence Unit, which uses “over 100 separate criteria, both qualitative and quantitative” to “measure the quality of a country’s information and communications technology infrastructure and the ability of its consumers, businesses and governments to use ICT to

Matrix 4Q08; the four OECD countries not tracked by Merrill Lynch are Iceland, Ireland, Luxembourg, and the Slovak Republic).

⁶⁵ See generally June 2009 Wallsten Study at 15 (“Broadband is but one component in the makeup of a country’s information and communications technology (ICT) landscape. Rather than focus on a single variable (broadband in this case), it is useful to examine a range of ICT indicators. These indicators tend to put the United States at or near the top.”).

⁶⁶ See Leonard Waverman & Kalya Dasgupta, *Connectivity Scorecard 2009*, <http://www.connectivityscorecard.org/images/uploads/media/TheConnectivityReport2009.pdf>.

⁶⁷ Xavier Sala-i-Martin, World Economic Forum, *The Global Competitiveness Report 2009-2010* at 22 (2009); Soumitra Dutta & Irene Mia, eds., INSEAD & World Economic Forum, *The Global Information Technology Report 2008-2009*, Sponsored by Cisco (2009), <http://www.weforum.org/pdf/gitr/2009/gitr09fullreport.pdf>.

their benefit” – ranks the United States fifth in the world, with only a small margin separating it from each of the top four countries (Denmark, Sweden, Netherlands, and Norway).⁶⁸ The Phoenix Center develops a Broadband Performance Index that “quantifies the relationship between a country’s broadband subscriptions per capita and that country’s economic and demographic endowments.”⁶⁹ Applying that index, it finds “that the United States generally meets expectations in its conversion of its national endowments into broadband subscriptions,” whereas “many countries that rank higher than the United States according to the OECD, like Denmark and Norway, are in fact underperforming the United States when one considers demographic and economic factors.”⁷⁰

The Berkman Paper addresses only two of these reports, and seeks to discount both on the grounds that they are focused on “business use and availability” of broadband. Berkman Paper at 28. But even putting aside the lack of validity of that criticism, it misses the point that one of the reasons that some U.S. consumers may be choosing not to obtain broadband at home is because they have such access at work.⁷¹

⁶⁸ Economist Intelligence Unit, *E-readiness Rankings 2009; The Usage Imperative*, at 1 (June 2009); see also Economist Intelligence Unit, *Resilience Amid Turmoil Benchmarking IT Industry Competitiveness 2009* at 2, 4 (Sept. 2009) (sponsored by Business Software Alliance) (“Broadband networks are becoming increasingly essential to IT firms’ competitiveness.” The United States received the highest score of any country in this year’s IT industry competitiveness index.).

⁶⁹ George Ford, Thomas Koutsky & Lawrence Spiwak, Phoenix Center, *The Broadband Performance Index: A Policy-Relevant Method of Comparing Broadband Adoption Among Countries*, at 3 (July 2007).

⁷⁰ *Id.*

⁷¹ Other studies have noted this connection. See, e.g., Nicole Klein, Yankee Group, *As Broadband Moves into the Mass Market BSPs Will Be Challenged by Late Adopters*, at 1, Exhibit 1 (Jan. 2007) (7.5 percent of Yankee Group survey respondents without broadband service stated there was no need for broadband, due to high-speed availability

The Berkman Paper acknowledges that this may be the case, but notes that it “do[es] not have data about the United States” to assess the extent to which consumers find their workplace broadband connections adequate for their needs. *Id.* at 38. Thus, measures of broadband connections at work must be factored into any analysis of whether consumers are able to obtain the services that they demand.

B. The Berkman Paper’s Conclusions Are of Little Relevance to the U.S. and the Formation of the National Broadband Plan

Even if the Commission were to conclude, contrary to the weight of evidence, that unbundling policies did have a positive effect, on balance, on the deployment of first-generation broadband abroad, that is not a basis for adopting such policies in the United States. As explained above, regardless of the conclusions one may draw about the deployment of first-generation broadband, they are of questionable relevance in the debate about how best to promote the deployment of next-generation broadband networks, which is the primary issue before the Commission.

Moreover, the U.S. broadband marketplace differs in fundamental respects from most countries abroad that rely chiefly on unbundling, and these differences make it impossible to conclude that importing unbundling policies here would achieve success. Unbundling was adopted abroad principally because there was no facilities-based competition, but instead a single incumbent telephone company.⁷² Here, by contrast,

at office/school); John Horrigan, Pew Internet & American Life Project, *Home Broadband Adoption 2009*, at 45 (June 2009), <http://www.pewinternet.org/~media/Files/Reports/2009/Home-Broadband-Adoption-2009.pdf> (“72% of adults have internet access at home, with another 7% having online access from elsewhere, mostly work only (4%) or some other place that is neither home nor work (3%).”).

⁷² See, e.g., Martha Garcia-Murillo, *International Broadband Deployment: The Impact of Unbundling*, 57 *Comm. & Strategies* 83, 86 (2005) (“Outside of North America, most

intermodal competition from cable is not only ubiquitously available, but is the most widely adopted broadband technology. Imposing unbundling in this competitive environment is obviously a completely different proposition than using unbundling to create competition where none exists.⁷³ Indeed, as the Berkman Paper concedes, in other countries with strong intermodal competition from the outset – such as Korea, Switzerland, and Canada – unbundling policies have been implemented but have played no meaningful role in achieving strong broadband performance.

Finally, regardless of its merits, unbundling obviously cannot solve what is the most vexing broadband problem facing the Commission as it formulates its National Broadband Plan – delivering broadband to rural and low-density areas where it is uneconomic to deploy facilities. Here, too, there are intrinsic features of the U.S.

telephone companies have traditionally been owned by the State. Over a period of two decades starting in the late 1970s many governments began to privatize their state-owned enterprises.”); Robert D. Atkinson, *The Role of Competition in a National Broadband Policy*, 7 J. on Telecomm. & High Tech. L. 1, 11 (2009) (“The situation in the United States is in marked contrast to that in many other parts of the world, including Japan and much of Europe, where the cable plant is less built out and where intermodal competition is more limited.”).

⁷³ See Atkinson, *Explaining International Broadband Leadership*, at VIII (“[I]ntermodal competition between separate physical networks (e.g. between digital subscriber line (DSL) services and cable modem services) [] spurs broadband success. . . . intramodal competition is not a panacea. . . . [M]ost EU nations adopted unbundling regulations because they had almost no intermodal broadband competition – in part because their cable regulations significantly limited investment in cable modem service.”); March 2009 Wallsten Study at 91-92 (“European countries, and the EU in particular, tend to focus on competition between Internet Service Providers (ISPs) providing DSL service over an infrastructure operator’s (generally the incumbent’s) wires – or intra-platform competition. . . . By contrast, the U.S. now generally emphasizes competition as between several facilities-based platforms providing broadband service, such as DSL, cable, and wireless – or *inter-platform* competition.”); Mark H. Goldberg & Associates & Giganomics Consulting, Inc., *Lagging or Leading? – The State of Canada’s Broadband Infrastructure* at 55 (Oct. 7, 2009) (“The complexion of each domestic market is different and notably, the UK and Australia lack strong cable-based competition. In North American markets, such intervention could distort the existing facilities-based competition and lead to unintended economic consequences.”).

broadband marketplace that distinguish it from most countries abroad and make it more difficult to deploy broadband, such as the vast swaths of rural territory and the fact that the United States has the longest copper loop lengths among the OECD nations.⁷⁴ As Verizon has previously explained, the problem in these rural and low-density areas is that they have been unable to attract even a single entrant. Imposing unbundling will not only fail to solve this problem, but will only make things worse: if the economics do not currently support a single provider, they are even less likely to support multiple (and potentially an unlimited number of) providers. The solution, as Verizon has explained, is to target subsidies where needed for the deployment of broadband facilities in these areas directly. That is what other countries have done to deliver broadband to all of their citizens, and it is one of the steps the Commission should take as well.

V. CONCLUSION

For the foregoing reasons, the Commission should give the Berkman Paper no weight as it formulates its National Broadband Plan.

⁷⁴ Atkinson, *International Lessons for Broadband Policy* at 7.

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APPENDIX

This appendix provides additional detailed responses to the country-specific discussions in the Berkman Paper. It further demonstrates that the international broadband experience does not support the study's thesis that unbundling has played a core role in the broadband performance of so-called high-performing countries.

Japan. The Berkman Paper heralds Japan, together with South Korea, as “outliers as high performers.” Berkman Paper at 83. It is useful to observe at the outset, however, that Japan ranks *below* the U.S. in terms of overall broadband penetration according to the same OECD data on which the Berkman Paper heavily relies. In Japan, broadband penetration per 100 inhabitants is 23.6 percent, compared to 25.8 percent in the U.S.⁷⁵ Moreover, the significance of unbundling to Japan's success is at best ambiguous. The Berkman Paper proclaims that “[a]ccess to incumbent networks, at regulated rates, was a critical part of the most visible early introduction of broadband into Japan,” but also concede that “[t]he Japanese story is . . . nuanced. It does not suggest a single cause, but rather that a combination of government-subsidized loans, open access policies on the DSL side, and facilities-based competition, created both supply and demand for very high speed Internet access early on.” Berkman Paper at 87, 85.

⁷⁵ See OECD, *OECD Broadband Statistics: 1d. OECD Broadband Subscribers per 100 Inhabitants, by Technology, December 2008*, <http://www.oecd.org/dataoecd/21/35/39574709.xls> (“*OECD December 2008 Broadband Statistics*”). See also Thomas Hazlett, *The Broadband Numbers Racket*, FT.com (Sept. 17, 2009) (“Taking broadband subscriptions from international consultancy Point Topic for the first quarter of 2009 (the most recent reported), population from the CIA Factbook, and household size from United Nations statistics (all accessed via my US high-speed mobile data connection), the five wealthiest large economies rank as follows [in terms of broadband subscribers per 100 households]: USA (71.1 per cent), France (70.3 per cent), UK (69.3 per cent), Japan (67.4 per cent), and Germany (64.5 per cent).”).

There is in fact a long list of factors that have positively affected broadband deployment in Japan, and that taken either individually or collectively do not permit it to be placed on the pro-unbundling side of the scales. For example, most of the fiber to the home in Japan was deployed by NTT,⁷⁶ the country's largest telecom provider by far.⁷⁷ NTT is more than 40 percent owned by the Japanese government,⁷⁸ which helped finance NTT's fiber deployment through tax incentives and government-backed zero-interest financing.⁷⁹ Favorable demographics such as a dense and MDU-heavy population have also aided fiber deployment in Japan.⁸⁰ Japan's population density is ten-times higher than in the U.S.,⁸¹ and nearly 40% of Japan's current FTTH subscribers reside in apartment buildings.⁸² While it is true that NTT's fiber is subject to unbundling rules, it is misleading to suggest that those rules "do not seem to have stymied investment in fiber

⁷⁶ NTT has been the prime driver of deployment to the 14.5 million subscribers and 46 million FTTH homes passed (accounting for 90% of the population) in Japan by the close of 2008. See Roland Montagne, IDATE, *FTTH European Panorama*, at 18-19 (Feb. 11, 2009), http://www.ftthcouncil.eu/documents/studies/Market_Data-December_2008.pdf. NTT's broadband market share in Japan is currently 49.2% (of which it owns and operates 73.7% of Japan's FTTH/B and 36% of its DSL subscriptions, respectively). Ministry of Internal Affairs and Communications (MIC) Press Release, *Disclosure of Quarterly Data Concerning Competition Review in the Telecom Business Field*, at 2-5 (Mar. 25, 2009).

⁷⁷ NTT has an 85.1 percent share of the fixed-line market. See, e.g., Ovum, *Japan (Country Regulation Overview)*, at 1-2 (2009).

⁷⁸ See, e.g., *Japan Telecommunications Report Q2 2009*, Business Monitor International Ltd., at 79-80 (ISSN 1748-4634) (May 13, 2009).

⁷⁹ See, e.g., *id.*

⁸⁰ See, e.g., Ovum, *Broadband Overview: Asia-Pacific*, at 4-5 (Apr. 21, 2009) (noting that, in contrast, deploying infrastructure to serve rural Vietnam – for instance – would be far more difficult).

⁸¹ See Atkinson, *Explaining International Broadband Leadership* at App. D.

⁸² See Roland Montagne, IDATE, *FTTH European Panorama*, at 18 (Feb. 11, 2009), http://www.ftthcouncil.eu/documents/studies/Market_Data-December_2008.pdf.

by NTT.” Berkman Paper at 87. One of the reasons that NTT invested in fiber in the first instance was to avoid the low-cost unbundling that had been adopted for DSL; rates for fiber unbundling have only recently been established, and are considerably higher.⁸³ Moreover, the evidence suggests that the use of unbundled fiber thus far is minimal.⁸⁴

Korea. The Berkman Paper labels Korea – a world leader in measures of broadband penetration, price, and speed – an “ambiguous” case, but no such euphemism applies. Berkman Paper at 80. As the Berkman Paper later concedes, “[t]he South Korean experience speaks more to government investment than to access regulation.” *Id.* at 87. In addition to heavy government investment, South Korea is characterized by “substantial facilities-based competition from cable and electricity,” and also benefits from the fact that “large portions of the population live in huge apartment blocks, covering hundreds or even thousands of families.” *Id.* at 89, 88. Thus, the evidence is unambiguous that, whatever factors contributed to Korea’s success, unbundling was not

⁸³ See Atkinson, *Explaining International Broadband Leadership* at App. D2 (“[B]ecause NTT was required to unbundle its copper loops at relatively low prices to allow competitors to provide digital subscriber line (DSL) services, NTT invested in fiber as a way to gain customers that it was more likely to be able to keep. . . . While NTT is also required to unbundle the fiber loop, the price that competitors pay is quite high, enabling NTT to obtain an adequate return on its fiber investment.”). Indeed, only recently was the regulated basis for wholesale charges for NTT’s optical fiber established. See Ovum, *Japan (Country Regulation Overview)*, at 16 (2009) (noting that MIC passed on NTT’s wholesale charging estimations on 24 June 2008).

⁸⁴ See, e.g., J. Scott Marcus & Dieter Elixmann, *Regulatory Approaches to NGNs: An International Comparison*, 69 *Communications & Strategies* 19, 36 (1st Quarter 2008). (“In Japan, FTTB/H deployments are fully subject to unbundling requirements; however, it is unclear how effective the obligations have been in practice. . . . FTTH, however, is often being rolled out by competitors in areas with high teledensity using the competitive operator’s own dedicated facilities.”); Aron & Crandall, *Investment in Next Generation Networks and Wholesale Telecommunications Regulation* (“Unbundling obligations have not led to significant competition in providing fiber-based broadband services in Japan.”).

one of them, and instead facilities-based competition has delivered that country's world-leading broadband infrastructure.⁸⁵

Nordic Countries (Norway, Iceland, Sweden, Denmark, and Finland). The Berkman Paper characterizes the Nordic countries as “the highest performers in Europe,” occupying “five of the top 8 positions in penetration per 100 inhabitants.” Berkman Paper at 89. The Berkman Paper acknowledges that Finland is an “ambiguous case[,]” which suggests that in at least one of the five cases unbundling cannot be given credit. *Id.* at 80. In addition, a second example – Iceland – is excluded because it “has a very small population which is extremely concentrated and urban.” *Id.* at 89. (In addition, while Iceland has implemented DSL unbundling, it has only two main DSL providers, a level of competition inconsistent with the Berkman Paper's thesis of the level necessary to promote strong broadband performance.)⁸⁶

⁸⁵ See Scott Wallsten, Technology Policy Institute, *Whence Competition in Network Industries? Broadband and Unbundling Regulations in OECD Countries*, at 12 (Dec. 2007), <http://www.techpolicyinstitute.org/files/s8.pdf> (“Korea is also known as a broadband success story, and some attribute that success to unbundling policies. . . . [S]uch attribution may not be warranted for Korea. Notably, Korea did not require local loop unbundling until 2002, when Korea was already the world's leader in broadband connections per capita. In some ways, the lack of forced local loop unbundling spurred broadband investment.”); McKinsey & Company, *Broadband Regulation – International Perspectives*, PIU – Electronic Networks Seminar, at 9 (Jan. 18, 2002), http://www.cabinetoffice.gov.uk/media/cabinetoffice/strategy/assets/en_enriquez.pdf (describing Korea: “Competition: licensed multiple carriers on multiple platforms; did not unbundle local loop in early investment stage enabling incumbent to quickly gain customers; encouraged broadband take up through competition on IP telephony service.”).

⁸⁶ See, e.g., “Iceland's Telecom Revenues Increase to ISK 21.27 Bln in H1,” DmEurope (Nov. 9, 2009) (Síminn and Vodafone have 54.5 and 27.9 percent shares of xDSL subscribers, respectively); *New Report Just Published: Iceland – Telecoms, IP Networks, Digital Media and Forecasts – 2009 Edition*, ReportLinker (Oct. 23, 2009) (“The two leading operators, Síminn and Vodafone Iceland, essentially operated a duopoly until 2008 when the new entrants Nova and Tal launched fixed-line services.”).

With respect to the three remaining Nordic examples, the Berkman Paper claims that “unbundling and open access worked exactly as they ‘should’ have” and “appear to represent the case that a well functioning unbundling and open access regulatory regime, combined with well functioning markets and facilities-based competition, create a competitive market and deliver high levels of penetration and quality at, mostly, reasonable prices.” Berkman Paper at 90. By this very characterization, however, the Nordic countries represent an ambiguous case, because each of these countries has extensive facilities-based competition between DSL and cable, thus making it difficult to determine what additional positive effects, if any, unbundling has had in those countries. In addition, there are other factors about the Nordic countries that help explain high broadband performance, including the fact that they have among the highest GDP per capita in the world,⁸⁷ are noted early adopters of technology (and in fact had higher Internet penetration pre-broadband than anywhere else⁸⁸), have well developed high-technology industries, and other factors.⁸⁹

⁸⁷ Ranked in terms of GDP per capita, Norway is second, Denmark is fifth, Iceland is sixth, Sweden is eighth, and Finland is ninth. See The World Bank Group, *Quick Query Selected from World Development Indicators Database*, <http://ddp-ext.worldbank.org/ext/DDPQQ/member.do?method=getMembers&userid=1&queryId=135> (2008 GDP and population data).

⁸⁸ McKinsey & Company, *Broadband Regulation – International Perspectives*, PIU – Electronic Networks Seminar, at 2 (Jan. 18, 2002), http://www.cabinetoffice.gov.uk/media/cabinetoffice/strategy/assets/en_enriquez.pdf (Scandinavian countries had higher Internet penetration at time of broadband launch than other countries, which helps explain why they remain higher today).

⁸⁹ See, e.g., Soumitra Dutta & Irene Mia, eds., INSEAD & World Economic Forum, *The Global Information Technology Report 2008-2009*, Sponsored by Cisco, at 14 (Mar. 2009), <http://www.weforum.org/pdf/gitr/2009/gitr09fullreport.pdf> (“[N]otable competitive advantages helping [Denmark] to fully leverage technology have to do with more general aspects, such as the well-functioning and developed internal market – which provided the national high-tech industry with a large domestic demand in its early stage – and the excellent educational system (6th) coupled with a close collaboration

Netherlands. The Berkman Paper counts the Netherlands as another example that “combines substantial facilities-based competition with relatively early availability of unbundled access to drive competition.” Berkman Paper at 94. Thus, as with the case of the Nordic countries, the Netherlands at most presents ambiguous evidence with respect to the effects of unbundling. And a closer look reveals that unbundling in the Netherlands is relatively minor compared to facilities-based competition, and therefore does not credibly explain that country’s strong performance. Unbundling accounts for fewer than 12 percent of broadband subscribers in the Netherlands.⁹⁰ Moreover, like the Nordic countries, there are factors, such as favorable demographics and active government funding of broadband networks, together with very extensive facilities-based competition from cable, that better explain its strong broadband performance.⁹¹

Larger European Economies (France, Germany, Italy, U.K.). The Berkman Paper next looks at the four largest economies in Europe.

As for France, Germany, and the U.K., it should be noted at the outset that none has achieved materially higher levels of broadband penetration per 100 inhabitants than the U.S. – the rate is 26.7 % for the U.S. compared to 27.4% in Germany, 28% in France, and 28.5% in the U.K., and when the adjustment is made for relative household sizes, the

between academia and industry (7th), and the Danish people’s taste and talent for developing, pioneering, and using new technologies and applications. The other Nordic countries continue to feature prominently in the [Networked Readiness Index] 2008-2009 rankings The strong education fundamentals and high levels of technological readiness and innovation shared by these countries represent bases for their overall competitiveness”).

⁹⁰ See Chris Fonteijn, IRG Boardmember, Chairman of the Commission of OPTA, *Convergence: Challenges in Regulation, Networks* 2008, at 8 (Sept. 30, 2008), http://www.networks2008.hu/data/upload/file/Plenary/P1_2_Fonteijn.pdf.

⁹¹ See Atkinson, *Explaining International Broadband Leadership* at App. E.

U.S. ranks ahead of all three.⁹² In addition, it is significant that Germany and France have ended up in relatively the same place, even though they present, according to the Berkman Paper, “opposing stories on the role of regulatory engagement and open access obligations.” Berkman Paper at 101. What is similar about these two countries, however, is that neither has significant levels of facilities-based competition from cable, and that neither is experiencing any significant level of fiber deployment. For example, France Telecom, the largest broadband provider in the country by far, “now passes over 574,000 homes in France with its fibre-to-the-home network (many of which are inside apartment blocks).”⁹³ Even adjusting for its smaller size, this is a small fraction of the amount of fiber that the U.S., or even Verizon alone, has deployed. And Germany is also far behind.⁹⁴ Thus, France and Germany also present at best ambiguous evidence of the benefits of unbundling, and are more persuasive as evidence of the failure of unbundling to promote investment in the next-generation networks needed for the future.

The U.K. experience tells a similar story, though one even further inconsistent with the Berkman Paper’s theory. Broadband penetration in the U.K. has recently caught

⁹² See June 2009 Wallsten Study at 2-3 & Figure 1 (comparing 2007 household penetration levels).

⁹³ *France Telecom: Domestic TV and Broadband Results Strong, International Mixed*, Screendigest (Mar. 5, 2009); see also Berkman Paper at 97 (noting that France’s second largest provider, Iliad (Free) has announced plans to invest 1 billion Euros to connect 4 million French households with FTTH by 2012).

⁹⁴ See Roland Montagne, IDATE, *FTTH European Panorama*, at 10 (Feb. 11, 2009), http://www.ftthcouncil.eu/documents/studies/Market_Data-December_2008.pdf (281,800 homes passed by FTTH/B in Germany as of December 2008). Instead, the incumbent provider, Deutsche Telekom, is deploying FTTN+VDSL, where “[f]ibre goes to the street cabinet, copper cables from the street cabinet to the end user”). See IDATE, *Broadband Coverage in Europe*, at 91 (Dec. 2008), http://ec.europa.eu/information_society/eeurope/i2010/docs/benchmarking/broadband_coverage_2008.pdf; IDATE, “FTTx Watch: 2008 DB1,” (Nov. 2008), at Europe cells 142-49 (160,000 subscribers and 8,300,000 homes passed with VDSL in Germany).

up to roughly the same levels that the U.S. and other large European economies have achieved, following (though not necessarily as a result of) the structural separation of its incumbent telco, BT, into separate wholesale and retail components.⁹⁵ But, as the Berkman Paper notes, “the UK does not have fiber or really high speed DSL service to speak of,” and the “sole source of very high speed service is its sole major cable provider, Virgin Media, at 50 Mbps.” Berkman Paper at 102. The Berkman Paper notes that BT has recently “announced new investments of 1.5 billion GBP [Great Britain pounds] in upgrading its network to next generation access services to deliver 40 Mbps service to 40% of British homes by 2012,” using a combination of FTTH and FTTN. *Id.* at 104. But even assuming this investment proceeds ahead, it is small relative to the U.S., even adjusted for the size of the two countries, and promises far lower speeds than what are found on U.S. fiber and cable networks. Moreover, the U.K. experience indicates that unbundling appears to have deterred not only fiber investment by the incumbent, but also investment from cable. Although the U.K. has a fairly extensive cable infrastructure, only a portion of it has been upgraded for broadband, and plans to extend the network to unserved areas have been shelved. *See id.* at 104.⁹⁶

Italy presents a different kind of “ambiguous” case for the Berkman Paper – one where facilities-based competition does not exist (due to the absence of cable), but where

⁹⁵ This growth cannot be attributed entirely to unbundling policies, but is also due at least in part to the fact that BT removed limits on the length over which it would provide DSL service. *See* Ovum, *International Broadband Market Comparisons, Update March 2006, A Report for the Department of Trade and Industry*, at 4 (2006) (“We have seen significant improvements due to BT removing any limit on the length of copper between exchange and end user that is viable for broadband provision.”).

⁹⁶ *See* IDATE, *Broadband Coverage in Europe*, at 195 (Dec. 2008), http://ec.europa.eu/information_society/eeurope/i2010/docs/benchmarking/broadband_coverage_2008.pdf (showing 48 percent cable modem coverage since 2004).

unbundling has failed to deliver putative benefits. The Berkman Paper acknowledges that Italy “has among the lowest penetration rate per 100 inhabitants in fixed lines, and even lower standings in terms of per household penetration,” despite adopting unbundling regulations similar to those throughout Europe. Berkman Paper at 105. This one example is problematic enough for the Berkman Paper’s thesis, but in fact there are many others, including, as noted, Spain, as well as various other European and other countries in which broadband growth has been slow to develop despite the embrace of unbundling.⁹⁷ The Berkman Paper never discusses these other examples. It also never explains how or why its thesis survives the case of Italy, except to say that “one might speculate” it has to do with “Italian culture of urban street life.” *Id.* at 106.

Switzerland, Finland, and Canada. The Berkman Paper concedes that Switzerland is a “story of success without unbundling,” that Finland is an “outlier” where “unbundling has played little role in its development” of broadband, and that Canada “has the highest level of penetration of all the G7 countries” even though it is “largely typified by facilities-based competition, not by unbundled access.” *Id.* at 107, 90, 110. The Berkman Paper nonetheless classifies these examples as “ambiguous,” rather than directly contrary to its thesis. But such wordplay serves only to underscore the Berkman Paper’s predisposition to demonstrating the benefits of unbundling. In any case, the supposed “wrinkles” it raises are of no consequence.

The broadband marketplace in Switzerland, which according to OECD data “has the fourth highest level of penetration per 100 inhabitants,” is quite similar to that in the

⁹⁷ See, e.g., *id.* at 149-150, Table 4.8 & 68, Table 3.6 (five years after unbundling was adopted, Austria ranks nineteenth in penetration based on weighted averages; four years after unbundling was adopted, Hungary ranks twenty-fifth; three years after unbundling was adopted, Portugal ranks twenty-third).

U.S. – there is extensive competition between cable and telcos, which are upgrading their infrastructures to fiber and DOCSIS 3.0, respectively. *Id.* at 106, 107. Given these similarities, the Switzerland experience provides further confirmation that the U.S. regulatory structure is one of the factors propelling, rather than impeding, its broadband performance. Indeed, the Berkman Paper labels “the Swiss case the best evidence in support of the argument that competition between cable and telephone incumbents is sufficient to drive investment, penetration, and a modicum of price competition.” *Id.* at 107. In an attempt to water down this evidence, the Berkman Paper adds that the incumbent telco “operated under steady efforts to impose unbundling for several years before unbundling was actually introduced.” *Id.* But there is no evidence to support the notion that the mere threat of unbundling has a positive effect. In addition, since unbundling has been introduced in Switzerland, its impact has been minimal.⁹⁸

The case of Finland permits no such equivocating, and the Berkman Paper does not make an attempt. It notes that, although “Finland was the first Nordic country to introduce unbundling, in 1996,” “[u]nbundling seems to have had little or no effect in the Finnish market.” Berkman Paper at 93. Facilities-based competition has instead delivered “a high level of penetration, at some of the highest speeds available in the world, at prices that are among the fives best prices, in every single speed range, in the OECD.” *Id.* Thus, Finland provides an unambiguous case of the ability of two facilities

⁹⁸ See, e.g., Swiss Federal Communications Commission, *ComCom’s Annual Report 2008*, at 13 (June 19, 2009), <http://www.comcom.admin.ch/org/00452/index.html?lang=en&download=M3wBPgDB/8ull6Du36WenojQ1NTTjaXZnqWfVp3Uhmfnapmmc7Zi6rZnqCkkIN0hHiAbKbXrZ6lhuDZz8mMps2gpKfo>; Federal Office of Communications, *The Swiss Telecommunications Market – An International Comparison*, at 10-11 (July 2009), http://www.bakom.admin.ch/dokumentation/zahlen/00545/00722/00887/index.html?lang=en&download=NHZLpZeg7t,lnp6I0NTU0421Z61n1ad1IZn4Z2qZpnO2Yuq2Z6gpJCDeX9,hGym162epYbg2c_JjKbNoKSn6A--.

based competitors to deliver strong broadband performance and directly undermines the Berkman Paper's thesis.

The Berkman Paper reverts to its euphemistic "ambiguous" label to describe Canada. *Id.* at 109. The Berkman Paper acknowledges that Canada relies on facilities-based competition between cable and telcos, that it "has the highest level of penetration of all the G7 countries," and that it is ranked 10th in the OECD. *Id.* at 110. It nonetheless claims that Canada ranks relatively poorly in terms of speed and price, and that even its broadband penetration ranking has fallen over the past several years. The Berkman Paper concludes that reliance on facilities-based competition "may be insufficient to sustain high penetration or achieve high capacity and low competitive prices in the long term." *Id.* at 111-112. But the fact that Canada's penetration ranking has fallen to a level that is still above the level of most pro-unbundling countries (and is still ranked first among the G-7) hardly warrants such a finding. And as for the claims that Canada's prices and speeds rank poorly, a recent Canadian study demonstrates that these claims rest on mistaken facts.⁹⁹

New Zealand. The Berkman Paper groups New Zealand together with Switzerland and Canada as examples of countries who decided to "abstain" from unbundling policies, but nonetheless achieved considerable broadband success relative to

⁹⁹ See Mark H. Goldberg & Associates, Inc. & Giganomics Consulting, Inc., *Lagging or Leading? – The State of Canada's Broadband Infrastructure*, at 35-38, 81-91 (Oct. 7, 2009) (noting that "Canada's ranking in terms of the most cost-effective service would similarly have improved if the OECD had included in its analysis a broader range of ultra high-speed services offered in Canada," and that "[i]t would have been more accurate for the OECD to apply subscription-based weights to the offers to derive the average prices, speeds and price per Mbps. . . . The OECD does not apply a rigorous and consistent methodology for sampling each country's advertised offers. As a result, there is significant variation among the countries in terms of the number and diversity of offers considered.").

other countries. *Id.* at 106. The difference with New Zealand, according to the study, is that regulatory abstention “was considered a failure there, and was reversed 180 degrees in 2006. Early results of the reversal seem to have been quick and positive.” *Id.* at 111. Perhaps, but they are by no means convincing: the study notes that between 2006 and 2008 New Zealand’s “ranking in penetration per 100 had jumped from 22nd to 18th, surpassing that of Austria, Italy, Spain, and Portugal,” but that “[p]rices, on the other hand, dropped only very slightly.” *Id.* at 109.¹⁰⁰ In a footnote, the Berkman Paper further reveals that “[o]n our more diverse set of measures, New Zealand does not show up as a particularly strong performer.” Berkman Paper at 109 n.80. New Zealand also does not have any fiber to speak of.¹⁰¹ Thus, there is little evidence that unbundling has had any significant positive effect in New Zealand, and stronger evidence suggesting the opposite is the case.

¹⁰⁰ See also *International Capacity Key to Broadband Performance Gains*, Computerworld (July 3, 2009), <http://computerworld.co.nz/news.nsf/netw/E11A04319F5FA498CC2575E7007749C6> (total of only 30,000 unbundled lines in New Zealand).

¹⁰¹ The New Zealand government is investing up to NZ \$1.5 billion to build an FTTH network reaching 75 percent of the population over 10 years. The government issued its final proposal for the ultra-fast broadband initiative on September 16, 2009, and on October 21, 2009, the government announced its process for selecting private sector co-investment partners. See New Zealand Ministry of Economic Development, *Ultra-fast Broadband Investment Initiative*, http://www.med.govt.nz/templates/ContentTopicSummary____41902.aspx.