

## Internet Use and Labor Market Participation: Additional Insights from New and Old Data

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### Introduction

The U.S. economy is in a prolonged slump, and for many persons the ugliest symptom is a disturbingly persistent and high level of unemployment. Government statistics indicate the unemployment rate has hovered around 9% since early 2009, after nearly doubling in only about twelve months.<sup>1</sup> Long-term unemployment is at a record high.<sup>2</sup> A recent survey of economists offers little hope, with many assigning high probabilities to a double-dip recession.<sup>3</sup>

One consequence of persistent unemployment is that some persons choose to give up the search, abandoning the labor market altogether as discouragement sets in. In fact, *discouragement* is a formal government label for some jobless persons; a discouraged worker is someone that wants a job, but has stopped searching for work due to unfavorable beliefs about employment prospects. The number of discouraged workers has been steadily increasing over the past few years, nearly tripling in number since the end of 2007, reaching nearly 1.5 million persons at the end of 2010.<sup>4</sup> Once a worker becomes inactive in job search, the prospects for finding employment are poor. Thus, maintaining active search is important, and facilitating search activity may be a sensible role for public policy.

In POLICY PAPER NO. 39 and POLICY PERSPECTIVE NO.10-01, my co-authors and I presented evidence indicating that Internet use reduces

discouragement in the labor market, thereby keeping the jobless active in their search.<sup>5</sup> Broadband Internet use was found to reduce the probability of becoming “discouraged” by about 50% on average. Dial-up Internet use also had a large effect, reducing the probability of becoming discouraged by about one-third. Significantly, our results also demonstrated that the promotion of shared connections, such as at schools and libraries, in unserved and underserved areas may, in fact, produce substantial societal benefits.

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In this PERSPECTIVE, I revisit the issue and search for confirmatory evidence of two types. First, I consider whether or not our findings can be confirmed using more recent data. In our earlier studies, we relied on 2007 data from the *Computer and Internet Use Supplement* of the *Current Population Survey*.<sup>6</sup> Here, I estimate

essentially the same econometric models as before but use the 2009 update of the *Supplement*. Our previous findings are confirmed, though with some slight differences.

Second, I go back in time to the 2003 *Supplement*, a dataset that, while dated, permits a more focused view of Internet use and labor market discouragement. Unlike the more recent data, the 2003 *Supplement* contained a question about whether or not the Internet was used for the specific purpose of job search. With this data, I am able to separate the effect on discouragement of Internet use generally, and Internet use specifically related to job search. This data also may be used to lend support to a causal interpretation to our findings. Since the goal of our research is to advise policymakers, we are always interested in causal effects. In this regard, the 2003 data is helpful.

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*... Internet use, by reducing discouragement, can facilitate favorable labor market outcomes.*

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Our findings, detailed below, can be summarized as follows. First, I find a large and statistically significant effect of Internet use on labor market discouragement using the 2009 data. These results are confirmatory and, thus, encouraging. Second, I find using the 2003 data that the activity of job search on the Internet is the dominant factor underlying the observed effect on discouragement. I believe these findings should increase confidence in the causal nature of our estimates. Given these new results, our research again reveals that a healthy commercial Internet ecosystem, supported by policies that encourage efficient investment in expanded availability, remains an important tool for helping the United States return to economic health.

### Summary of Earlier Research

For comparison purposes, a review of our previous findings may be useful, so I start there. In our earlier research on this issue, we used the 2007 *Computer and Internet Use Supplement* of the Census Bureau's *Current Population Survey* to estimate the effect of Internet use on labor market discouragement. The goal of our analysis was to exploit the distinction between the unemployed and the discouraged to measure the influence of Internet use on continued job search.

Jobless persons that have not searched for work in the past four weeks, but have done so in the past year, are grouped into two categories by the Bureau of Labor Statistics ("BLS"): (1) the discouraged and (2) the marginally attached. The discouraged class includes persons not actively looking for work for reasons such as "thinks no work available," "could not find work," "lacks schooling or training," and "employer thinks too young or old".<sup>7</sup> Those that are "marginally attached" are not so much discouraged by their employment prospects, but have stopped searching for work for such reasons as school or family responsibilities, ill health, and transportation problems.

In our earlier papers, we defined discouragement in two ways. First, we adhered to the definition used by the BLS. Second, we created our own measure which combined reasons for ending job search that, in our opinion, most plausibly could be related to Internet use (i.e., by the acquisition of better and low cost information and communication). The details of our definitions are provided in POLICY PAPER NO. 39 at Table 2.

Our prior research applied a variety of empirical techniques to the problem, all of which supported similar conclusions. In an effort to condense the review, I limit our attention to the Multinomial Logit ("ML") models. The conditional average treatment effects ("CATE")

were estimated using ML on two samples: (1) the full sample; and (2) a sample created using Propensity Score trimming (labeled A). As detailed in our earlier papers, this empirical approach was based largely on the work of Lechner (2002) and Crump et al. (2009), as detailed in Imbens and Wooldridge (2009) and Angrist and Pischke (2009).<sup>8</sup> I do not repeat the details of the analysis here but direct the reader to these works and our earlier papers for a more complete description of the empirical methods.

**Table 1. Summary of Results  
(2007 Data)**

|                                    | CATE   | CATE-A |
|------------------------------------|--------|--------|
| BLS Discouraged                    |        |        |
| Dial-up                            | -33%*  | -30%*  |
| Broadband                          | -54%*  | -52%*  |
| Public                             | -60%*  | -68%*  |
| Information-Related Discouragement |        |        |
| Dial-up                            | -28%** | -30%*  |
| Broadband                          | -47%*  | -40%*  |
| Public                             | -58%*  | -57%*  |
| Significance (* 5%, ** 10%)        |        |        |

As summarized in Table 1, we found using the 2007 data that broadband use at home or at public locations reduces labor market discouragement by large amounts. Public use, such as in libraries, reduced the probability of labor market discouragement by about 60% using BLS definitions and our own reformulation of what constitutes discouragement. Broadband also has a large effect, with a 50% reduction in BLS discouragement and a 40% reduction for our definition. Finally, dial-up Internet use also has a large and statistically significant effect, reducing the probability of labor market discouragement by about 30 percent. A variety of other empirical methods confirmed the magnitude and statistical significance of these findings.

The policy implications of our findings are significant. First, Internet use, by reducing discouragement, can facilitate favorable labor market outcomes. Second, while broadband

adoption by households is the focus of much policy attention, both dial-up and public Internet use are found to have sizeable effects on labor market outcomes. Encouraging interest in Internet use of all types may be good public policy. Finally, and perhaps most obviously, government should seek to promote policies that incentivize, rather than deter, additional private broadband investment in expanded availability and higher quality.

### Update: The 2009 Supplement

The *Computer and Internet Use Supplement* is appended to the *Current Population Survey* about every two years. Subsequent to the initiation of research for POLICY PAPER NO. 39, which used the 2007 *Supplement*, the Census Bureau released an updated *Supplement* dated October 2009. As these data sets are generally comparable over time, I can repeat the tests on discouragement with this new data. It must be kept in mind, however, that the unemployment rate in 2007 was below 5%.<sup>9</sup> For most of the year 2009, the unemployment rate hovered over 9%.<sup>10</sup> Thus, these two samples were gathered under dramatically different economic settings. As such, some differences in the results are to be expected.

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Here, I limit my attention to the ML models, and again consider the effects of Dial-up, Broadband, and Public Internet use on labor market discouragement. Covariates in the Propensity

Score model include: a dummy variable equal to 1 if there are children 18 or younger in the home; a dummy variable equal to 1 if the respondent is male; a dummy variable equal to 1 if the respondent has a college education; a dummy variable equal to 1 if the respondent does not have a high school degree; a dummy variable equal to 1 if the respondent is Caucasian; a dummy variable equal to 1 if the respondent is an immigrant; a dummy variable equal to 1 if the respondent lives in a metro area; a dummy variable equal to 1 if the respondent is a veteran; a dummy variable equal to 1 if the respondent is currently a full time student; a set of five income dummy variables indicating incomes  $\leq$  \$10,000, \$10,000 to \$20,000, \$20,000 to \$35,000, \$35,000 to \$50,000, and \$50,000 to \$100,000 (with a “> \$100,000” dummy omitted); set of dummy age variables indicating persons 20 years or younger, between 20 and 40 years, and between 40 and 60 years (with a “> 60 years” dummy left out to avoid the dummy trap).

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For the Internet use equations, which must be estimated for Propensity Score trimming, I add to these variables a dummy variable equal to 1 if the respondent is married; a variable measuring household size, and three regional dummy variables (with the fourth excluded to avoid the dummy trap). In all, there are 21 covariates and a constant term in the Internet use equations, and 16 covariates and a constant term in the joblessness equations.

As before, the dependent variable of the ML has three outcomes: (1) discouraged; (2) marginal but not discouraged; and (3) unemployed. Implementation of the Propensity Score trimming requires us first to estimate an Internet use equations, which has four outcomes: (1) no service; (2) dial-up at home; (3) broadband at home; and (4) public use only. Following Crump et al. (2009), I then trim the sample so that all the predicted probabilities of Internet use,  $p(X)$ , fall between  $0.05 \leq p(X) \leq 0.95$ . In our earlier papers, we trimmed the sample based on the rule  $0.10 \leq p(X) \leq 0.90$ , but with the 2009 data, I am able to achieve covariate balance with only a 5% trim rule, which greatly expands the size of the trimmed sample.<sup>11</sup> While the full sample exhibited imbalance for some covariates, the trimmed sample had no standardized differences exceeding the threshold.

**Table 2. Summary of Results (2009 Data)**

|                                    | CATE  | CATE-A |
|------------------------------------|-------|--------|
| Observations                       | 6,478 | 3,895  |
| BLS Discouraged                    |       |        |
| Dial-up                            | -56%* | -54%*  |
| Broadband                          | -32%* | -36%*  |
| Public                             | -55%* | -55%*  |
| Information-Related Discouragement |       |        |
| Dial-up                            | -57%* | -54%*  |
| Broadband                          | -37%* | -39%*  |
| Public                             | -47%* | -50%*  |
| Significance (* 5%, ** 10%)        |       |        |

Table 2 summarizes the estimates on discouragement based on the 2009 sample. The figures in the table represent the percent change in the probability of being discouraged based on the type of Internet use (relative to no Internet use). As revealed in the table, the estimated effects remain large and are all statistically different from zero. The point estimates for dial-up and public use are nominally larger than that for broadband, and generally statistically so for the BLS definitions. However, I cannot reject the null hypothesis that the effect of broadband is as large as the others for our own definition of discouragement. As shown in the

table, sample trimming has little effect on the estimates.

It appears that all forms of Internet use, including dial-up and public shared use, are important tools for job search, reducing discouragement by a sizable and statistically significant amount.

### The 2003 Supplement

While the 2003 *Computer and Internet Use Supplement* is now a bit dated, it has one significant advantage over the more recent *Supplements*. In the 2003 survey, the questionnaire asked directly about whether or not the Internet was used for job search in the past year.<sup>12</sup> With this data, I am able to separate the effect on discouragement of Internet use generally, and use targeted specifically at job search.

My empirical approach using this data is as follows. First, a dummy variable is created that equals 1 when the respondent has used the Internet for job search in the past year. Label this variable  $S$ , and let an Internet use variable be labeled  $U$ . Let  $Y$  be the outcome of interest and  $X$  a covariate representing other determinants of  $Y$ . The regression model is

$$Y = \beta_1 U + \beta_1 U \cdot S + \alpha X + \varepsilon, \quad (1)$$

where  $\varepsilon$  is the econometric disturbance term. If the Internet is used, but not used for job search, then the effect of Internet use on  $Y$  is just  $\beta_1$  (or the marginal effect computed there from). For those using the Internet for job search, the effect of Internet use on  $Y$  is  $\beta_1 + \beta_2$ . Therefore, using the 2003 data, it is possible to distinguish between the effects on discouragement of Internet use generally and Internet job search, with the difference being  $\beta_2$ .

I proceed in an identical manner as before, using the same dependent variable, Internet use variables, and covariates, except these data are

taken from the 2003 *Supplement*. Three additional variables are added to the model that are created by interacting the job search dummy variable with the dial-up, broadband and public use dummy variables. To improve covariate overlap, I trim the 10% tails of the Internet use predictions.<sup>13</sup>

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*... using the Internet specifically for job search explains much of the reduction in labor market discouragement ...*

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Table 3 summarizes the key findings, which are very interesting. First consider the results for the BLS definition of discouragement. For both samples I find that using the Internet specifically for job search explains much of the reduction in labor market discouragement, particularly for dial-up service. Dial-up service used for purposes other than job search has a relatively small and statistically insignificant effect on discouragement. Yet, when dial-up is used for job search, the reduction in discouragement is large (about 40 to 50 percent) across the samples.

Likewise, the point estimates of general public shared use are large (a reduction of about 40%), but only marginally statistically significant for CATE and not significant for CATE-A. The effect on discouragement is nearly doubled when Internet use is employed for the purpose of job search, with reductions of a whopping 80 percent. Broadband at home not only reduces discouragement when used for non job-search purposes (by 36%), but when combined with job search, the effect is enhanced to about 60 percent.

The results are very interesting when I switch to our definition of discouragement. General Internet use by all modalities has no effect on discouragement. However, the interaction terms are all statistically different from zero.

When job search is part of Internet use, reductions in discouragement are very large for all modalities (in both samples); when job search is not part of Internet use, the effect on labor market outcomes is de minimis. Note also that while the point estimates differ and are largest for public use, for the most part the null hypothesis of equal effects across modalities cannot be rejected.

**Table 3. Summary of Results  
(2003 Data)**

|                                    | CATE   | CATE-A |
|------------------------------------|--------|--------|
| Observations                       | 5,152  | 2,534  |
| BLS Discouraged                    |        |        |
| Dial-up                            | -13%   | -12%   |
| Broadband                          | -38%*  | -46%*  |
| Public                             | -36%** | -36%   |
| Dial-up × Job Search               | -41%*  | -51%*  |
| Broadband × Job Search             | -67%*  | -59%*  |
| Public × Job Search                | -81%*  | -79%*  |
| Information-Related Discouragement |        |        |
| Dial-up                            | -4%    | 10%    |
| Broadband                          | -20%   | -13%   |
| Public                             | -14%   | 4%     |
| Dial-up × Job Search               | -40%*  | -41%*  |
| Broadband × Job Search             | -54%*  | -40%*  |
| Public × Job Search                | -77%*  | -73%*  |

Significance (\* 5%, \*\* 10%)

There are few plausible conclusions that may be drawn from these results. First, these results suggest that the estimated effects measured using the 2007 and 2009 data may be biased toward zero. In these more recent samples, Internet use is measured generally, without any indication as to whether the use includes job search. In Table 3, however, I see that job search is a key driver in the reduction of discouragement. A dummy variable capturing all types of Internet use will dilute the effect of job search. To demonstrate this effect, I ignore the job search variable in the 2003 data, then the percent reductions for Information-related Discouragement using the full sample (CATE) are estimated to be 19%, 36%, and 47% for dial-up, broadband and public use, all of which are much smaller than the effects listed in Table 3 (40%, 54%, and 77%).

Second, these results also mitigate concerns that our earlier estimates (those using the 2007 data, and the 2009 data as well) are spurious. For the moment, assume that there is some unobserved factor that promotes Internet use and reduces discouragement. In models like those estimated here, it would be possible to attribute the effect of this unobserved factor on discouragement to Internet use. If I were to promote Internet use to reduce discouragement, then I would be disappointed in the results since I have confounded one effect for another. I find here, however, that Internet use operates on discouragement largely from job search using the Internet, which suggests that selection of Internet use in general is independent of the labor market outcomes of interest.<sup>14</sup> I believe this finding supports a causal interpretation to our findings (though others may disagree).

*While mobile broadband is widely available, there are meaningful shortfalls in coverage, particularly in rural markets. Facilitating private investment in expanded mobile broadband coverage could improve the efficiency of labor markets, particularly for persons living in lower-income households or rural markets.*

**Policy Recommendations**

If it is important for the economy and its participants to keep jobless persons actively searching for work, then the Internet is a powerful tool for doing so. Econometric analysis of Census Bureau data indicates that searching for jobs on the Internet greatly reduces labor market discouragement, thereby keeping the jobless active in their search. As such, expanded Internet adoption and availability are

two ways to improve the functioning of labor markets. Importantly, our findings indicate that the effectiveness of the Internet for job search is not restricted to home subscriptions; public access to the Internet, such as schools and public libraries, is also an effective option. Policymakers should not disregard such alternatives in favor of a rigid requirement that broadband be built to everyone's home—a prohibitively expensive undertaking.<sup>15</sup>

Also, mobile broadband is rapidly becoming the connection modality of choice for many Americans.<sup>16</sup> Evidence also suggests that lower-income households, where labor market troubles are particularly acute, are more prone to be mobile-only customers.<sup>17</sup> While mobile broadband is widely available, there are meaningful shortfalls in coverage, particularly in rural markets.<sup>18</sup> Facilitating private investment in expanded mobile broadband coverage could improve the efficiency of labor markets, particularly for persons living in lower-income households or rural markets. For example, as part of its merger with T-Mobile, AT&T has pledged to expand LTE coverage to 97% of the country, greatly expanding availability of mobile broadband to rural areas.<sup>19</sup> Obviously, policymakers should consider the value of such voluntary commitments when reviewing the merger.<sup>20</sup>

Finally, policymakers should continue their efforts to fix the horribly broken current system of intercarrier compensation and universal service. As demonstrated in prior research, moving towards a lower and more uniform national interconnection rate will make a significant contribution towards eliminating arbitrage opportunities and incenting additional broadband deployment.<sup>21</sup> Fortunately, the Federal Communications Commission has recognized this problem in its *National Broadband Plan* and has opened a formal docket that will, hopefully, move in this direction.<sup>22</sup>

## Conclusion

Following up on POLICY PAPER NO. 39 and PERSPECTIVE NO. 10-01, I conduct additional empirical tests on Internet use and labor market discouragement using data from 2009 and 2003. The 2009 data allows us to update our analysis with more recent data, and our prior findings are largely confirmed. With the 2003 data, I am able to separate the effect on discouragement of Internet use generally, and use targeted at job search. I find there is a difference, with job search explaining much of the observed effect on discouragement, particularly for dial-up and public use.

Plainly, the Internet is useful for finding employment, finding employees, expanding markets, and reducing the difficulty of other job-related tasks. It follows, therefore, that policymakers should continue to attract capital and promote efficient investment in broadband infrastructure to maximize deployment. After all, there are unfortunately a lot of people looking for work.

## NOTES:

\* Dr. George Ford is Chief Economist of the Phoenix Center for Advanced Legal and Economic Public Policy Studies. The views expressed in this PERSPECTIVE do not represent the views of the Phoenix Center, its Adjunct Fellows, or any of its individual Editorial Advisory Board Members.

<sup>1</sup> <http://data.bls.gov/timeseries/LNS14000000>.

<sup>2</sup> E. Theodossiou and S. Hipple, *Unemployment Remains High in 2010*, MONTHLY LABOR REVIEW, Bureau of Labor Statistics (March 2011) (available at: <http://www.bls.gov/opub/mlr/2011/03/art1full.pdf>).

<sup>3</sup> P. Davidson and B. Hansen, *Economists' Outlook Darkens: See 30% Change of Recession*, USA TODAY (August 15, 2011) (available at: [http://www.usatoday.com/money/economy/2011-08-14-economists-survey\\_n.htm](http://www.usatoday.com/money/economy/2011-08-14-economists-survey_n.htm)) ("The 39 economists polled Aug. 3-11 put the chance of another downturn at 30% – twice as high as three months ago, according to their median estimates").

<sup>4</sup> MONTHLY LABOR REVIEW (March 2011), *supra* n. 2, at 11. See also *The Employment Situation – July 2011*, Bureau of Labor Statistics (August 5, 2011) (available at: <http://www.bls.gov/news.release/pdf/empsit.pdf>).

<sup>5</sup> T. R. Beard, G. S. Ford and R. P. Saba, *Internet Use and Job Search*, PHOENIX CENTER POLICY PAPER NO. 39 (January 2010) (available at: <http://www.phoenix-center.org/pcpp/PCPP39Final.pdf>); G.S. Ford, *Internet Use and Job Search: More Evidence*, PHOENIX CENTER POLICY PERSPECTIVE NO. 10-01 (January 26, 2010) (available at: <http://www.phoenix-center.org/perspectives/Perspective10-01Final.pdf>).

<sup>6</sup> <http://www.census.gov/cps>. The data can be downloaded using DataFerrett (<http://dataferrett.census.gov/>).

<sup>7</sup> MONTHLY LABOR REVIEW (March 2011), *supra* n. 2, at 11.

<sup>8</sup> M. Lechner, *Program Heterogeneity and Propensity Score Matching: An Application to the Evaluation of Active Labor Market Policies*, 84 REVIEW OF ECONOMICS AND STATISTICS 205-220 (2002); R. Crump, V. Hotz, G. Imbens and O. Mitnick, *Dealing with Limited Overlap in Estimation of Average Treatment Effects*, 96 BIOMETRIKA 187-199 (2009); see also M. Lechner, *Identification and Estimation of Causal Effects of Multiple Treatments under the Conditional Independence Assumption*, in ECONOMETRIC EVALUATION OF LABOR MARKET POLICIES (M. Lechner and F. Pfeiffer eds. 2001) at 43-58; G. Imbens and J. Wooldridge, *Recent Developments in the Econometrics of Program Evaluation*, 47 JOURNAL OF ECONOMIC LITERATURE 5-86 (2009); Angrist and J. Pischke, *MOSTLY HARMLESS ECONOMETRICS* (2009).

<sup>9</sup> *Supra* n. 1.

<sup>10</sup> *Id.*

<sup>11</sup> Covariate balance is based on the rule proffered by Imbens and Wooldridge (2009), *supra* n. 8 at 43, which equals the absolute difference in the means of two samples divided by the square root of their summed variances. This value should not exceed about 0.25.

<sup>12</sup> The question asks: "This year, [have you] used the Internet to search for a job?" Internet job search alone does not qualify as search for BLS classifications of unemployment; search must be active and not simply reading about job openings. See, e.g., *How the Government Measures Unemployment*, Bureau of Labor Statistics (February 2009) (available at: [http://www.bls.gov/cps/cps\\_htgm.pdf](http://www.bls.gov/cps/cps_htgm.pdf)).

<sup>13</sup> A few standardized differences exceed the limit of 0.25, but typically not by much. The full-time student dummy has a difference of 0.40 in one case. Since this dummy is in the ML models, it is less of a problem than in a pure matching scheme.

<sup>14</sup> Matching algorithms allow the researcher to balance treatment and control groups on *observables*. However, it is possible to have two individuals with identical pre-treatment covariate values, with one of those individuals selecting internet use for some unobserved reason, and not violate the unconfoundedness assumption if the unobserved reason for selection is independent of labor market outcomes. In this scenario, unconfoundedness would fail only if individuals condition their decision to select the Internet on their labor market status. See, e.g., J. Heckman, R. LaLonde, R. & J. Smith, *The Economics and Econometrics of Active Labor Market Programs* in A. Ashenfelter, & D. Card, *HANDBOOK OF LABOR ECONOMICS*, Vol. 3 (2000).



## NOTES CONTINUED:

<sup>15</sup> See, e.g., *The Broadband Availability Gap*, OBI TECHNICAL PAPER NO. 1, Federal Communications Commission (March 2010) (available at: <http://download.broadband.gov/plan/the-broadband-availability-gap-obi-technical-paper-no-1.pdf>).

<sup>16</sup> S. Blumberg et al., *Wireless Substitution: State-level Estimates From the National Health Interview Survey*, January 2007–June 2010, NATIONAL HEALTH STATISTICS REPORTS, NUMBER 39 (April 20, 2011) (available at: <http://www.cdc.gov/nchs/data/nhsr/nhsr039.pdf>). See also, R. Cheng, *Study: Tablets Powering Mobile Broadband Growth*, CNET NEWS (July 29, 2011) (available at: <http://www.zdnetasia.com/study-tablets-powering-mobile-broadband-growth-62301443.htm>); J. Yap, *Study: Mobile Access Lifts Emerging Markets*, ZDNET ASIA (June 13, 2011) (available at: <http://www.zdnetasia.com/study-mobile-access-lifts-emerging-markets-62300721.htm>); O. Malik, *Downturn or Not, Mobile Broadband Is Growing Fast*, GIGAOM (March 17, 2009) (available at: <http://gigaom.com/2009/03/17/downturn-or-not-mobile-broadband-is-growing-fast>).

<sup>17</sup> S. Blumberg and J. Luke, *Wireless Substitution: Early Release of Estimates From the National Health Interview Survey*, Center for Disease Control (December 16, 2009) at p. 3 (available at: <http://www.cdc.gov/nchs/data/nhis/earlyrelease/wireless200912.pdf>) (“Adults living in poverty (33.0%) and adults living near poverty (26.5%) were more likely than higher income adults (18.9%) to be living in households with only wireless telephones”).

<sup>18</sup> *In re Implementation of Section 6002(b) of the Omnibus Budget Reconciliation Act of 1993 Annual Report and Analysis of Competitive Market Conditions With Respect to Mobile Wireless, Including Commercial Mobile Services*, FCC 11-103, 25 FCC Rcd 11407 (rel. June 27, 2011) at pp. 21-22 (available at: [http://transition.fcc.gov/Daily\\_Releases/Daily\\_Business/2011/db0630/FCC-11-103A1.pdf](http://transition.fcc.gov/Daily_Releases/Daily_Business/2011/db0630/FCC-11-103A1.pdf)).

<sup>19</sup> See AT&T Description of Transaction, Public Interest Showing and Related Demonstrations Filed with the Federal Communications Commission on April 21, 2011 at p. 54.

<sup>20</sup> See, e.g., Senator G. Jeffress and Representative J. Brown (Arkansas), *Universal Broadband Coverage Holds Tremendous Promise for Rural Arkansas*, THE GURDON TIMES (July 27, 2001) (available at: <http://www.thegurdontimes.com/topstories/x1054485140/Universal-broadband-coverage-holds-tremendous-promise-for-rural-Arkansas>).

<sup>21</sup> T.R. Beard and G.S. Ford, *Do High Call Termination Rates Deter Broadband Deployment?* PHOENIX CENTER POLICY BULLETIN NO. 22 (October 2008) (available at: <http://www.phoenix-center.org/PolicyBulletin/PCPB22Final.pdf>).

<sup>22</sup> CONNECTING AMERICA: THE NATIONAL BROADBAND PLAN, Federal Communications Commission (March 16, 2010) (available at: [http://hraunfoss.fcc.gov/edocs\\_public/attachmatch/DOC-296935A1.pdf](http://hraunfoss.fcc.gov/edocs_public/attachmatch/DOC-296935A1.pdf)) (hereinafter the *National Broadband Plan*) at 136; *In the Matter of Connect America Fund; A National Broadband Plan for Our Future; Establishing Just and Reasonable Rates for Local Exchange Carriers; High-Cost Universal Service Support, Developing an Unified Intercarrier Compensation Regime; Federal-State Joint Board on Universal Service Lifeline and Link-Up*, WC Docket No. 10-90, GN Docket No. 09-51, WC Docket No. 07-135, WC Docket No. 05-337, CC Docket No. 01-92, CC Docket No. 96-45, WC Docket No. 03-109, FCC 11-13, \_\_ FCC Rcd \_\_, NOTICE OF PROPOSED RULEMAKING AND FURTHER NOTICE OF PROPOSED RULEMAKING (rel. February 9, 2011).