



Federal Communications Commission
Washington, D.C. 20554

December 13, 2010

Ms. Marlene Dortch
Secretary
Federal Communications Commission
445 12th Street, SW
Washington, DC 20554

Re: Preserving the Open Internet, GN Docket No. 09-191; Broadband Industry Practices, WC Docket No. 07-52

Dear Ms. Dortch:

Please enter the attached documents into the official record for the above-referenced proceedings. These are (1) the Commission working paper "Broadband Decisions: What drives consumers to switch—or stick with—their broadband Internet provider," which was released and posted on the Commission's web site on December 6, 2010; (2) peer reviews of this working paper, which have been posted to the Commission's web site; and (3) the working paper authors' responses to the peer reviews, which have also been posted to the Commission's web site. All of these documents can be found at <http://www.fcc.gov/omd/dataquality/peer-reviews/broadband-decisions/>. Electronic copies of this material are to be posted to the Commission's Electronic Comment Filing System database.

These documents are being made a part of the record pursuant to the Office of Management and Budget Final Information Quality Bulletin for Peer Review, 70 Fed. Reg. 2664 (2005). The findings and conclusions of the research studies, peer reviews, and responses to peer reviews are those of the authors and do not necessarily represent the views of the Commission.

Sincerely,

A handwritten signature in blue ink that reads "Carol Simpson".

Carol Simpson
Deputy Chief, Competition Policy Division
Wireline Competition Bureau

Attachments

**Broadband decisions:
What drives consumers to switch – or stick with – their broadband
Internet provider**

**FCC Working Paper
December 2010**

SUMMARY OF FINDINGS

Summary of Findings

The Federal Communications Commission's April 2010 survey sought to understand the context surrounding people's decisions about their home broadband service. Specifically, the survey explored the considerations people have in mind when contemplating or making a change in broadband service. This involved asking people who have not switched service providers whether they considered doing so and what influenced their decision to stick with their provider. For those who have switched service, the survey inquired about why they did so and how the process of changing service went for them.

The survey found that, at least in the prior three years, a minority of home broadband subscribers switched service providers. The survey also found that there are things that inhibit users from switching service, such as the need to pay set-up fees for new service and the basic hassle of making a switch. Those who have switched broadband providers are typically looking for better price or performance, and very few switched because they want additional features from their providers such as more email accounts or online storage.

Here are the survey's main findings:

Just over one-third of Internet users changed their service provider in the prior three years.

- When asked whether they had switched service in the prior three years, 36% of Internet users had done so, while 62% had not.
 - 23% of online users switched once in this time frame.
 - 13% switched more than once.
- Of those who had switched, 43% also moved residences within the prior three years.

Among those who have not switched Internet service providers (ISPs) in the prior three years, few have considered making a change in ISP service.

- 30% of those who have not switched ISPs have considered switching, 13% *very seriously* and 17% *somewhat seriously*.
- 69% of those who have not switched ISPs say they have not considered it; 54% have *not at all seriously* considered changing ISPs and 15% have *not too seriously* considered it.

Among broadband users who say they have a choice of Internet service providers, a minority would seriously consider switching to a provider in their area and a majority thought it would be at least somewhat easy to do.

- Just 21% of broadband adopters with a choice of more than one provider say they would seriously consider presently changing their ISP.
- 63% of broadband adopters with a choice of multiple providers said it would be easy to switch providers, with 33% saying it would be *very easy* and 30% saying it would be *somewhat easy*.

Financial and non-financial factors, such as installation fees or the hassle of getting new service, can inhibit consumers from changing service.

When asked about things that might keep them from switching service, broadband users with the choice of more than one provider said the following:

- 50% said paying set-up or installation fees were *major* factors in keeping service.
- 43% said dealing with the hassle of getting new service installed was a *major* reason they have kept service.
- 40% said putting down a deposit for new service was a *major* reason for keeping their service.
- 39% said that having to change their current bundle of Internet, TV, and phone service was a *major* reason for keeping service.
- 34% said having to give up their current email address from their ISP was a *major* reason for not changing service.
- 32% said paying termination fees to their current ISP was a *major* reason for keeping service.

Internet users who have switched service in the past three years cite a desire for better service or price as a reason for their change. Very few of those who changed service said it was because they wanted more features from their provider, such as more email accounts or online storage.

Among the 36% of Internet users who have switched service in the past three years, here is what they say when asked to identify the *major reason* for the change:

- 49% said the desire for a faster or higher-performance Internet connection was a *major* reason for the switch.
- 47% said getting a better price on service was the *major* reason behind the change.
- 39% said getting a bundle of Internet, TV, and phone services from a single company was the *major* reason for the switch.
- 28% said poor customer service from their old ISP was the *major* reason for the change.
- 9% said getting more features such as more email accounts or online storage was the *major* reason for the switch.

Introduction

The Federal Communications Commission's April 2010 survey sought to explore the context in which consumers make decisions about broadband service at home.¹ In doing so, the survey asked home broadband users what factors are important to them in choosing a provider; whether they have considered switching their home broadband providers; and whether, in the past three years, they have in fact changed their home Internet service provider.

The National Broadband Plan (NBP) suggests the reasons why undertaking such a survey is important. Although the analysis underpinning the NBP went to great lengths to explain why some one-third of adult Americans do not have broadband at home, the NBP also emphasized the need for policymakers to understand better what shapes adoption choices. The NBP observes that many fixed broadband users "have little information about the actual speed and performance of the service they purchase" and goes on to note research gaps in understanding "price and service terms and conditions."²

The survey results reported here, in conjunction with earlier reports on users' perspectives on broadband speed and on bill shock and early termination fees for cell phones, fulfill the NBP's promise that the FCC would field a survey on these issues and produce a report analyzing results.³

Overview of adoption

The April 2010 survey contained standard questions that seek to determine whether the respondent is an Internet user, whether he or she uses the Internet at home and, if so, whether the home connection type is broadband.⁴ The survey found that 69% of adult Americans are Internet users, with 57% of adults having a high-speed Internet connection at home and just 5% having a dial-up connection. Some 6% of adults are online users but do not access the Internet from home.

These figures differ from those contained in the FCC's October-November 2009 survey, which found that 78% of adults were Internet users, with 65% of adults having home high-speed connections. This drop in home broadband connections is puzzling, though not inconsistent with other research. The Pew Research Center's Internet & American Life Project's December 2009 survey found that 60% of Americans had broadband at home, a slight decline from the 63% figure registered in April 2009. Pew had also found in April 2009 that some Americans (7%) had cut back on home Internet service costs in

¹ The FCC survey was conducted between April 19 and May 2, 2010 and interviewed 3,005 adults in English or, if the respondent chose, Spanish. The margin of error is plus or minus 2 percentage points for the entire sample.

² *Connecting America: The National Broadband Plan*. Chapter 4, p.44.

³ *Ibid.*, p. 64, footnote 53.

⁴ See John B. Horrigan, *Broadband Adoption and Use in America*. OBI Working Paper Series No. 1. See page 14 for discussion of how connection type at home was determined in the survey.

the prior year. The persistence of the economic recession may have heightened that phenomenon and is, perhaps, reflected in the FCC's latest survey.

More recently, the Pew Internet Project found that broadband adoption changed little from 2009 to 2010, with 66% of adults reporting that they had broadband at home in an April 2010 survey.⁵ The different findings for broadband adoption from the FCC in April 2010 (57%) and the Pew Internet Project at the same time (66%) are significant. The FCC and Pew frame questions differently to determine broadband adoption and it is possible some of the difference is attributable to that fact. The Pew sample also did not conduct interviews in Spanish; because Hispanics who opt to take a survey in Spanish have lower broadband adoption rates than those who do not, the results from the Pew survey are likely to be several percentage points higher than would be the case with a Spanish-language option.⁶ Whatever the reasons for the differences – the economy, question wording, or sample – it seems clear that the days of rapid broadband adoption growth are, for now at least, past.

Frequency of switching home Internet service

The survey asked adults whether they have switched Internet service providers (ISPs) in the past three years and, if they have not switched, whether they have considered switching. Overall, 62% of home Internet users have *not* switched ISPs in the past three years, while 36% have done so one or more times.⁷ Among home broadband users, these figures are essentially the same, with 62% having not switched and 37% having done so in the past three years.⁸ Specifically:

- 23% of home Internet users have switched ISPs once in the past three years;
- 10% have switched twice; and
- 3% have switched more than twice.

The survey also inquired about whether the respondent had changed residences in the past three years, which would indicate whether the switch was prompted by moving to a new home or some other reason. Some 29% of respondents said they had changed residences in the past three years and, of those who moved, 50% also changed their Internet service provider. This means that those who moved and switched service account for 43% of all those who switched their ISP in the past three years.

Assuming an even distribution of switching in the three-year time horizon respondents thought about when asked the question, this means roughly 17% switch ISPs in a given

⁵ Aaron Smith, *Home Broadband Adoption 2010*. Pew Internet & American Life Project, August 2010. Available online at: <http://www.pewInternet.org/Reports/2010/Home-Broadband-2010.aspx>

⁶ In the October-November 2009 survey conducted for the National Broadband Plan, which did include a Spanish-language option, 65% of the entire sample had broadband at home. For English-speakers, 67% had broadband at home, while 20% of those who took the survey in Spanish had broadband at home.

⁷ Roughly 2 percent of home Internet users did not know or refused to answer the question.

⁸ The discrepancies between findings for broadband users and all users are small because the overwhelming majority of home Internet users (90%) have broadband connections.

year, with roughly 7% have switched and changed their residence at the same time.⁹ A later section of this report discusses the reasons why users switch ISPs.

To put this rate of service churn in context, 19% of cell phone users have changed service in the prior three years according to this survey. However, the FCC's *Mobile Competition Report* notes that monthly churn rates run between 1.5% and 3.3% per month, indicating annual churn could run between 18% and approximately 40%.¹⁰

Thinking about switching service

This section focuses on the 62% of respondents who have not switched ISPs in the past three years. For this group, the survey sought to understand the context for that answer – how seriously the respondent considered switching, whether the respondent believes there was a choice of provider in his or her area, and what factors were important in a choice not to switch.

As to how seriously home online users considered switching service, some two-thirds (69%) of those who have not switched ISPs in the past three years said they had not seriously considered switching. That breaks down to 54% who “not at all seriously” considered switching and 15% who “not too seriously” considered switching. That leaves, among those who have not switched ISPs in the prior three years, nearly one-third (30%) who did consider switching. In this group, 13% “very seriously” considered switching and 17% “somewhat seriously” considered switching. The figures for the narrower set of home broadband users do not differ from the ones for all home Internet users.

Shifting from the past to the present, the survey asked respondents whether they might *now* seriously consider switching to another ISP. To get at this question, the survey walked respondents through questions that sought to determine whether more than one broadband provider serves their area.

Those who said they had *more* than one provider where they lived were then asked if there was a broadband provider in their service area to which they would presently *seriously* consider switching. Among broadband adopters who believed they had more than one provider available – and that came to 71% of all home broadband subscribers – 21% said they would consider switching ISPs, while 75% said they would not.

The past switching behavior of those who say they would today consider a switch in ISP (again, among those who say they have more than one provider) is in line with that of the overall population of broadband users. Among the 21% of broadband users with multiple service providers in their area who would presently seriously consider switching, 35% said they switched their ISP in the past three years. That compares with the 36% average for all home Internet users.

⁹ This roughly takes into account those users who report switching ISPs multiple times over the three-year time horizon.

¹⁰ FCC 10-81, available online at: http://hraunfoss.fcc.gov/edocs_public/attachmatch/FCC-10-81A1.pdf, paragraph 245.

Approximately one-third of broadband users with a choice of service providers thought it would be difficult or impossible to switch, while approximately two-thirds thought it would be somewhat or very easy to switch. Specifically:

- 33% said it would be *very easy* to switch ISPs;
- 30% said it would be *somewhat easy*;
- 21% said it would be *somewhat difficult*;
- 6% said it would be *very difficult*; and
- 4% said they *could not do it or it would be impossible*.

There are differences among broadband users in response to this question depending on how seriously they might consider switching. Those who say they would consider switching are somewhat less likely to say it would be easy to switch. The following table shows the comparison.

Table 1. Anticipated ease of switching broadband provider

	Would consider switching broadband provider	Would <i>not</i> consider switching broadband provider
Very Easy	25%	36%
Somewhat Easy	33	30
Somewhat Difficult	27	19
Very Difficult	7	6
Could not do it/impossible	3	5

On its face, it may seem paradoxical that those who would consider switching providers are more likely to find switching difficult. However, it is possible that those who have considered switching have looked into it more closely than those who have not – and as a result have found it to be a more involved process than those with less information.

Overall, broadband users do not exhibit a high rate of churn (about 17% per year), nor do non-switchers indicate that they are likely switchers. About one-third (30%) say they have considered switching in the past three years. Among those with a choice of broadband service providers, 21% say they would seriously consider switching today.

Any number of factors could be behind respondents' reasons for sticking with their provider. The survey probed this further by asking about financial factors that might inhibit switching and non-monetary costs associated with switching. The following table shows the responses to the question among broadband users with the choice of more than one provider:

Table 2. Factors in the decision to stay with current provider among broadband users with a choice of provider

	<u>Major</u>	<u>Minor</u>	<u>Not</u>	<u>DK</u>	<u>Ref.</u>
Paying set-up or installation fees to get new service	50	25	24	1	*
Dealing with the hassle of getting a new service installed	43	28	28	1	*
Putting down a deposit to get a new service	40	29	29	2	*
Having to change your current bundle of Internet, TV and phone services	39	22	35	3	*
Having to give up your current email address from your Internet provider	34	19	46	1	*
Paying termination fees to your current Internet company	32	26	38	3	*

The typical broadband user who has a choice of more than one provider cites two of the reasons listed above as major factors in sticking with their current provider; 28% cite four or more reasons.

There are some differences in responses depending on whether broadband users say they have seriously considered switching providers or not.

Table 3. Factors in the decision to stay with current provider among broadband users with a choice of provider, by consumer type (% citing issue as “major” reason)

	Would consider switching broadband provider	Would <i>not</i> consider switching broadband provider
	% citing issue as “major” reason	
Paying set-up or installation fees to get new service	53	48
Dealing with the hassle of getting a new service installed	47	41
Putting down a deposit to get a new service	43	39
Having to change your current bundle of Internet, TV and phone services	44	38
Having to give up your current email address from your Internet provider	33	34
Paying termination fees to your current Internet company	40	30

As Table 3 shows, people who have considered switching, but have not switched, are generally more likely to perceive barriers to switching. For them, financial reasons loom large, as they are more likely than other respondents to worry about paying a termination fee and set-up or installation costs. Non-monetary factors also come into play, the hassles of dealing with installation and changing bundles are greater issues for them.

People who have switched service

As noted, 36% of broadband users have switched service in the past three years, with 43% of these switchers having done so in conjunction with a change in residence. When asked to think about the reasons for their last ISP switch, here is what all respondents said:

Table 4. Reasons why people switched ISPs (among those who have switched in the past three years)

	<u>Major</u>	<u>Minor</u>	<u>Not</u>	<u>DK</u>	<u>Ref.</u>
Getting a faster or higher performance Internet connection	49	20	29	3	0
Getting a better price for Internet service	47	16	34	3	0
Getting a bundle of Internet, TV and phone services from a single company	39	15	44	2	*
Any other MAJOR reason that I have not mentioned	15	0	14	65	6
Poor customer service from your old Internet provider	28	12	57	3	0
Getting more features such as added email accounts or online storage	9	18	71	2	*

Price and speed are the most prominent reasons switchers cite for changing their service, with nearly half saying this. In fact, two-thirds (67%) of switchers cite either price or speed as a major reason behind their decision to change ISPs. Many (39%) say getting a bundle is a motivation for changing ISPs. Few switchers – just 9% – say that getting added features from their ISP prompted the change. Poor customer service is a major reason for 28% of switchers, with another 12% saying it was a minor one.

Reasons given differ significantly depending on whether the respondent's service switch was accompanied by a change in residence or not.

Table 5. Reasons why people switched ISPs, among those who have switched in the past three years (% citing issue as "major" reason)

	Change in ISP <u>did not</u> involve change in residence	Change in ISP <u>did</u> involve change in residence
Getting a faster or higher performance Internet connection	55%	40%
Getting a better price for Internet service	54	39
Getting a bundle of Internet, TV and phone services from a single company	44	31
Any other MAJOR reason that I have not mentioned	15	17
Poor customer service from your old Internet provider	31	24
Getting more features such as added email accounts or online storage	9	8

Performance and price are also leading reasons for switching for cell phone users. Among cell phone users who have changed providers in the past three years:

- 49% said they wanted to get a better signal in places they use their cell phone;
- 47% wanted to pay less per month for service;
- 39% wanted to get a new cell phone;
- 32% said they received poor customer service from their old provider; and
- 10% switched so they could add Internet access to their cell phone.

It is worth noting that the reasons for switching match up reasonably well with the reasons all broadband users (*i.e.*, not just those who have switched) cite for their choice of provider. When home broadband users were asked about the reasons they chose their current ISP:

- 50% said the monthly quoted price was the *major* reason for the choice.
- 43% said the advertised connection speed was the *major* reason behind the choice.
- 42% said the bundle of Internet, TV, and phone service was the *major* reason for the choice.

For the most part, switchers found doing so easy, with 56% saying it was “very easy” and 30% saying it was “somewhat easy,” with 10% finding it “somewhat difficult” and 3% “very difficult”. These figures are very much in line with figures for those who have switched cell phone providers in the past three years; among that group, 56% said switching was “very easy” and 28% said it was “somewhat easy.”

When asked about the process of changing service providers, those who have switched in the past three years said the following:

- 49% said they had to pay a set-up, installation, or equipment fee to their new company;
- 37% said that they or someone else had to spend considerable time waiting at home for the installation;
- 29% said they had to wait more than a week before new service was installed;
- 9% said they had to put down a deposit to qualify for service from the new company; and
- 9% said they had to pay a termination fee to the old company.

Among broadband users who had to pay a termination fee, only two-thirds could identify the fee’s amount. The picture is a bit different for set-up or installation fees. Many (43%) either were not subject to a fee or, if they were, did not know its level; 25% fell into that category. For those who switched ISPs in the past three years:

- 12% said their set-up fee was between \$1 and \$49;
- 11% said it was between \$50 and \$99;
- 6% said it was between \$100 and \$149;

- 1% said it was between \$150 and \$199; and
- 2% said it was in excess of \$200.



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COLLEGE OF ARTS & SCIENCES
DEPARTMENT OF ECONOMICS, Hickory Hall #254

November 19, 2010

Dr. Eric Ralph
Deputy Chief Economist, WCB
Federal Communications Commission
445 12th Street SW
Washington, DC 20554

Subject: Peer Review of November 2010 FCC Working Paper titled "Broadband Decisions: What drives consumers to switch – or stick with – their broadband Internet provider."

Dear Dr. Ralph,

In response to your request, I have reviewed the FCC Working Paper, "Broadband Decisions: What drives consumers to switch – or stick with – their broadband Internet provider." The paper summarizes the results of a FCC survey conducted in April and May 2010, designed to focus on consumers' choices related to home broadband Internet adoption. The survey and resultant analysis directly follow the desire put forward in the National Broadband Plan to understand why some consumers choose not to adopt broadband at home.

The paper focuses on consumers' satisfaction with the Internet provider they have, and the perceived costs and benefits of providers they may have an opportunity to use. Following, I provide comments on the survey methodology, the survey itself, and finally the resultant working paper. The first two topics are useful to address in order to further an adequate understanding my general comments on the paper.

Survey Methodology

The survey methodology as reported seems sound. The survey was conducted by calling both landline and cellular phones, and surveyors obtained an appropriate sample size to draw significant conclusions from the resultant data. The sample is balanced to match usage as well as national demographic data. An appropriate weighting procedure was used; however, the methodology might have shed light on some of the survey results had it been more clear about the robustness of the weights used. For example, in general the weighted sample distribution developed resulted in apparently reasonable corrections. However, some demographic variables have seemingly significant changes from the unweighted: the unweighted sample of college graduates is 36.6%; the weighted is 27.8%. Similarly, cell phone only respondents were 12.4% unweighted, and 22.2% weighted to coincide with the parameter of 23.6%. Some explanation as to the possible ramifications of such weights might serve to support the validity of the methodology. The survey does indicate that surveys generally suffer from possible errors of selection bias and reporting inaccuracies of respondents. In general, I find that the survey methodology as reported is consistent with standard survey practices used in analyses of similar types of questions of landline and cellular phone users.

Wired and Wireless Internet Survey FINAL Questionnaire, 3/19/2010

The survey itself is thorough. Contacting landline respondents and cellular respondents, the survey asks questions regarding home computer use and Internet access, speeds, providers, and satisfaction (generally). It also includes questions regarding the monthly bill, installation fees, and actual and perceived switching costs. Missing (and potentially useful in answering the primary questions of the paper) are questions regarding the usage in terms of time as well as function: understanding what people do once online is important to understanding what drives consumers to switch (or remain with) a provider. My comments on the working paper should be viewed in light of the fact that potentially valuable questions were not included in the survey and therefore data is not available for analysis.

November 2010 Working Paper

The paper puts forward an appropriate introduction that emphasizes the importance of this topic of inquiry. The first section in which the author provides an overview of home Internet adoption in the US considers other recent surveys that also captured broadband use at home. Some statistics in terms of percentages are provided both here and in a section reporting the frequency of switching home Internet service. An emphasis is on an analysis of those questions in the survey that relate to consumers' consideration of switching providers. Information is presented in terms of percentages of respondents choosing varying degrees of perception of how easy it might be to switch providers. Based on the information provided, I find nothing statistically incorrect or economically misstated in the paper. I do believe, however, that there are a number of considerations that should be included in the paper that currently are not. Following I outline these points.

* Surveys and the treatment of outliers

It is important to note at the outset of the paper that some of the data represents subjective opinions and impressions of the respondents, including statements about what they intend to do or have considered doing. Survey respondents' answers to such questions can be imprecise. Cummings *et al.* (1995) found that when survey respondents are asked whether a product is worth a particular price, more respondents will say "yes" if they are told they have no obligation to buy the product at the stated price than if there is an obligation to purchase at that price. Respondents' statements concerning their satisfaction and intent to switch providers might be imprecise. If the errors in respondents' answers are random, then the effect on any statistical research is to decrease the confidence that can be placed in statistical results. If the errors are systematic, in other words, if respondents consistently overstate a desire to switch providers, then the effect on any statistical analysis is to bias results. Since it is not possible to know whether respondents made errors in their answers and, if they did, the direction of those errors, one should report results with this caveat.

Similarly in terms of the validity of data used, it is important to understand outliers and state how such outliers are handled. The source of outliers could be an error by the surveyor in recording a legitimate response; an error by the respondent due to a misunderstanding of the question; and/or an error by the respondent due to intent to exaggerate or refusal to report an accurate response. It is not possible to determine in all cases whether an outlier falls into one or more of the categories or whether a response was in fact a truthful response, and hence, a true outlier. Further, it is not possible to determine in all cases whether a non-outlier response could be an incorrect response. It is important to know how the researcher handled any manual corrections of 'incorrect' responses. As such, summary statistics

identifying the means, medians, standard deviations and extreme percentiles would be helpful in understanding the statistical information provided.

* Substitutability of methods of connection

While many Internet adoption studies are limited with respect to determining demand elasticities, the April – May 2010 survey appears to have obtained price data as well as speed data; this might allow consideration of demand elasticities which might be comparable across landline, cellular, and smart phone users (for example). A number of studies do provide estimates of demand elasticities, although each has difficulties. For example, in two complementary studies of the price elasticity of demand for broadband in the United States, Rappoport *et al.* (2001) found that demand for broadband via cable modems was price inelastic, but that demand for DSL was price elastic. The study also found that DSL and cable modems were substitutes; the authors then attributed the differences in own-price elasticities to differences in penetration. Crandall, Sidak, and Singer (2002) updated the Rappoport *et al.* study and found that the elasticities had not changed substantially, but in their own follow-up study, Rappoport *et al.* found that demand for the services was becoming more price inelastic, perhaps indicating either increasing penetration or that the services were becoming more essential. At about this same time, Varian (2002) examined consumers' willingness to pay for additional bandwidth for an Internet access service offered by the University of California at Berkeley and found that demand was price inelastic. While Varian's study cannot be compared directly with the Rappoport *et al.* studies because Varian considered only users of the Berkeley service, Varian's findings at least are consistent with the latter Rappoport *et al.* study. While determining demand elasticities clearly is beyond the scope of the working paper, it might warrant mention given that the paper focuses on switching, where substitutes consumers may have in their homes would serve to impact their consumption choices.

* Bundles

A consumer with Internet bundled with other services has a lower predisposition to switch providers, and may be tied to fixed rather than mobile broadband due to the nature of bundled options offered (see Hauge *et al.* 2009); therefore, bundles represent an important factor to include in any formal analysis. It is possible that reports of switching being extremely difficult are due to bundles. This is not clear from the results presented in the paper; however, summary statistics of relevant data might shed light on this possibility.

* Consideration of more advanced statistical methods to support the paper's goal

Analysis of adhesion is important. A tendency for customers to change providers implies that customers perceive that the possible benefits of changing providers are greater than the cost and risk of changing providers. The survey captures this information by asking respondents about the perceived costs to them for switching. The possible benefit of changing is the difference between what the customer experiences as his or her net consumer surplus with the current provider and the expected net consumer surplus with a new provider, where net consumer surplus is the difference between value that the customer believes the operator provides and the price the customer pays. If the benefit provided by the current provider is close to what the customer thinks might be provided by alternative operators, then customers are less likely to change providers. This might happen, for example, if customers perceive that operators provide nearly homogeneous services and similar prices. A customer might perceive significant differences in provider benefits if the customer has recently had a negative experience with a provider such as a significant service outage or impolite customer service

representative; service quality has declined and the consumer believes that the decline is unique to the current provider; fresh advertising by alternative providers extol value that the customer does not receive from the current provider; or acquaintances have strong recommendations for alternative providers. The survey captures this by asking about speed and satisfaction with service, among other questions. Worth noting is that a perception of nearly equal benefits does not mean that quality and satisfaction are high; the perception simply means that the current experience is thought to be equivalent to the alternatives.

Consumers also consider the costs of change and the risks when assessing whether a switch in service providers might be beneficial. There are at least two types of costs referenced in the paper: service termination fees, costs of establishing new payment systems, and any new equipment that might be required, for example, in the case of switching from DSL to cable modem; and search costs, namely the cost a customer would incur to learn about service alternatives. Both of these factors can be included in an analysis as questions about them were included in the survey. (Termination fees and related costs are included directly; search costs can be included because respondents were asked the names of companies of which they were aware.)

In analyzing consumers' propensity to switch providers, it seems important to first consider factors that influence a customer's decision to subscribe to home Internet access, and then address the decision to subsequently consider switching methods of access, and/or switching providers. Among those preferences for broadband access is the degree to which the respondent is satisfied with using Internet access elsewhere, for example at work, school, or a library. Many respondents asked in other surveys reported they simply had no reason to switch (Hauge *et al.* 2009). Others may be satisfied with their home Internet access because they have alternate access elsewhere (primarily work and school) and presumably therefore do not have as great a need for broadband at home. Such information would be useful to include (the survey does touch on such issues).

The paper lists percentages of respondents who report they would consider switching providers, and how easy each believed it would be to switch. This is tangentially related to the intensity of the desire to switch, which may be relevant. The intensity to switch can be viewed as a binary choice of likely to switch and unlikely to switch, or as ordinal in which a consumer might indicate greater satisfaction with the current provider and therefore a lower desire to switch. Each of these factors can be considered in more detail using the data collected.

Modeling the decision to switch providers could be carried out using consumer characteristics and a logit regression model representing the choice between mutually exclusive options. One could consider the intention to switch providers, and then could utilize an ordered logit model to focus on the intensity with which a respondent intends to switch providers or the easy with which a respondent believes he could switch. Because we do not have complete summary statistics, it is not clear whether there are enough respondents in each category to allow such an empirical analysis; however, it is worth consideration.

Additionally, it might be possible to econometrically link the intention to switch with reported speed (again depending on the nature of the data collected in the survey, which asks respondents about their connection speed). Hauge *et al.* (2009) found an average customer who is very satisfied with speed is about 50 percent less likely to want to switch providers than is a customer who is merely satisfied with speed. Having filed a complaint also makes one more likely to switch. Finally, bill clarity was found to affect the intensity of the desire to switch, but not the basic intent. Because the April – May 2010 survey

asks respondents about similar issues, formal econometric analysis might be pursued to provide a more robust result.

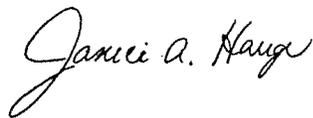
* Consideration of usage objectives and patterns.

The title of the paper, "Broadband Decisions: What drives consumers to switch – or stick with – their broadband Internet provider" implies a more inclusive analysis of options. To examine this question more fully, it is appropriate to consider usage patterns (in terms of time) and online activities (for example do respondents use home Internet primarily for social functions such as e-mail, for entertainment functions, or for business functions such as banking). The ways in which respondents use home Internet seem critical to their willingness to switch or not switch providers. This information was not asked about in the survey and therefore cannot be included in the paper. It might be worth mentioning in the paper, however, that these activities are expected to influence consumption choices.

In summary, the importance of the question is clear, and the clarity with which the presented results are given is excellent. I found no incorrect economic analysis in the paper. My primary criticism is that it is possible to err in believing the study encompasses sufficient information to fully justify the title of the paper. Without more robust econometric analysis using the available survey data, the impact of the findings (even in percentage terms) is unclear. Additional data captured by the survey might be used to shed more light on the general findings presented. Perhaps such econometric analysis is beyond the scope of this paper, or the limitations of the survey questions provide a significant barrier to more detailed analysis. Regardless, mention of the above details is warranted to ensure the paper and its findings do not misrepresent the state of home Internet access in the U.S. and consumers' choices and reported perceptions of such access.

I appreciate the opportunity to review this paper, and am happy to clarify any comments made above.

Respectfully submitted,



Janice A. Hauge
Associate Professor
Department of Economics
University of North Texas
1417 West Hickory Street
Denton, TX 76203
jhauge@unt.edu
940-565-4544

Papers Referenced Above

Crandall, Robert, J. Gregory Sidak, (2002). The empirical case against symmetric regulation of broadband Internet access. *Berkeley Law and Technology Journal*, 17(1): 953-987.

Cummings, Ronald G., Glenn W. Harrison, and E. Elisabet Rutström. (1995). Homegrown Values and Hypothetical Surveys: Is the Dichotomous Choice Approach Incentive Compatible? *American Economic Review* 85(1): 260-266.

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***Peer Review of FCC Working Paper, November 2010
Broadband Decisions: What drives consumers to switch – or stick with – their
broadband Internet provider***

Reviewed by:

Nicol Turner-Lee, P.h.D.

Vice President and Director, Media and Technology Institute

Joint Center for Political and Economic Studies

At your request, I have reviewed the FCC Working Paper (November 2010), *Broadband Decisions: What drives consumers to switch – or stick with – their broadband Internet provider*. This paper addresses two findings that were identified in the FCC's working paper, *Broadband Adoption and Use in America* (Horrigan, April 2010) that the affordability and availability of broadband service impact an individual's decision to subscribe, and retain that subscription over a reasonable period of time. Leveraging the findings from April 2010 report, the current study concludes that Internet users tend to be loyal customers of their Internet service provider (ISP), and among the few that do switch ISPs within a three year period, moving from a prior residence is the primary reason for an individual's willingness to terminate and/or switch. The study also concludes that financial and non-financial factors that include ISP installation fees, customer service, service deposits, and changes in their subscription are the primary reasons why individuals choose to simply stick with their existing ISP.

The purpose of this peer review is to determine: (i) whether the study's methods are reasonable and technically correct; (ii) whether they are consistent with accepted practice; (iii) whether the data used are reasonable and of sufficient quality for purposes of the analysis; and (iv) whether the conclusions follow from the analysis. In accordance with these terms, I offer feedback in these areas, and additional suggestions that would improve the study's argument.

Research Question, Analysis and Conclusions

The questions of affordability and availability have been significant barriers to broadband adoption and use, especially for low-income, elderly and minority populations. While the paper primarily addresses subscription behavior, heavy emphasis is placed on switching behaviors among broadband customers. Although the report shares some data about why people change or terminate their high-speed broadband services, the analysis is somewhat thin on data, and makes causal inferences that might not be substantiated. For example, the authors suggest that moving one's residence is a primary driver for why consumers switch ISPs. While this conclusion is very logical, it's not clear if these consumers are renters or homeowners. Presenting this information in the paper would strengthen this conclusion and compare how these groups differ in their subscription rates. Moreover, additional analyses on the relationship between certain demographic factors such as income, education, age, location, and possibly race would enhance the report. Readers of this work would be interested in knowing similarities and differences between older and

younger subscribers, and rural and urban subscribers. The findings and analyses of these correlations would have broadened the argument and substantiated many of the conclusions in the paper.

Running these same correlations around the financial and non-financial reasons for why people switch would also improve the analyses. It is unclear in the paper the type of demographic that is more likely to be impacted by these costs. Presenting a case that perhaps certain sub-groups (e.g., low-income, minorities, the elderly, etc.) are more affected by these factors would make these areas more compelling.

The paper also makes 3 statements that are not clarified through citations or supported by any of the primary data.

- a. In the early sections, the paper offers a *“three year time horizon”* as a benchmark for switching behavior. The assumption is that people will change their services within this time frame. It is not clear why this time frame was selected, and in my view, it would have been more interesting to shorten the window. The authors need to cite work that supports this time horizon, especially since it was asked in the survey questionnaire.
- b. In the section about the overall view of adoption, the statement *“The persistence of the economic recession may have heightened that phenomenon and us, perhaps, reflected in the FCC’s latest survey.”* This statement needs to be supported.
- c. In the section about consumers’ choice to switch services, the statement *“On its face, it may seem paradoxical that those who would consider switching providers are more likely to find switching difficult. However, it is possible that those who have considered switching have looked into it more closely than those who have not – and as a result have found it to be a more involved process than those with less information.”* The data analysis as presented does not present a strong argument for this. Adding an additional cross tabulation that analyzes *“the level of difficulty to switch”* with *“the consideration to switch”* could possibly support this finding.

Finally, the paper requires a stronger conclusion. Currently, the concluding remarks just summarize the final table.

Methodology

The literature review in the paper is very short. The authors mention that the study is based on a series of FCC reports, and I assume notices on issues related to bill shock, broadband speed and early termination fees. The section entitled an *“Overview of adoption”* could be strengthened by adding in findings from these other areas. While a study better understanding how consumers engage with their ISP is important, the paper as it is written does not present a strong argument for how switching is a strong indicator of consumers’ response to these issues. The survey questionnaire is also rich in data on consumer subscription behaviors. As mentioned, I would suggest more robust data analysis and cross tabulations that strengthen the points made in the paper.

My final comments offer some other ways to enhance the proposed research question. In addition to the customer service indicators (as evidenced through the indicators around financial and non-financial factors), variables related to consumer choice and satisfaction could have been added to this analysis. It would have been interesting to understand how consumers select ISPs (i.e., price, availability of service, brand, etc.) and their level of satisfaction with their provider (i.e., speed, uninterrupted service, etc.). The survey instrument is rich in questions focused on these points. Outlining them as precursor to the switching or termination discussion would have been valuable and offered a more logical foundation for understanding consumers' adoption choices.

TO: Eric Ralph, Economist, FCC WCB
FROM: John B. Horrigan, VP Policy Research, TechNet
DATE: November 23, 2010

RE: **Reviewer Comments on FCC “Broadband Decisions” White paper**

I have reviewed the comments of Dr. Janice Hauge and Dr. Nicol Turner-Lee on the draft of the FCC’s white paper entitled “Broadband Decisions.” Each reviewer makes a number of helpful comments about the paper, specifically regarding ideas for additional analysis and thoughts about additional questions that might have been pursued in the survey.

Dr. Hauge suggests that multivariate analysis might be undertaken a number of instances to more deeply analyze relationships among the variables. Although those suggestions are worthwhile, the purpose of this paper is to publish basic survey results (i.e., topline responses to questions and some cross-tabulations). Her comments do not undercut the validity of such findings reported in the paper.

Dr. Hauge also asked for additional explanation of the weighting approach used on the raw survey data. The survey firm who conducted the survey for the FCC, Princeton Survey Research Associates International (PSRAI), provided the following information in response to Dr. Hauge’s comments.

Overlapping dual-frame surveys combining landline and cell phone samples pose complex choices in terms of methodology and weighting. While the survey industry has been executing dual-frame designs for more than three years, there is not an industry consensus on the balance between the two samples or the weighting approach to be used. Weighting overlapping dual-frame designs inherently involves more choices and the use of more parameters than simpler designs. For this sample design, PSRAI chose to include all interviews completed on cell phones, and not just cell phone-only adults (i.e., an overlapping design). This choice was grounded in PSRAI’s experience that those who are cell phone-mostly have internet adoption and usage patterns that differ both from landline-only interviews and cell-phone-only interviews.

Weights were necessary to account for the overlapping sample design and to bring the sample demographics in line with known population parameters. Dr. Hauge points out two groups in particular whose proportions change significantly from the unweighted to weighted results (college graduates are weighted down while cell-phone only users are weighted up). This is very typical of dual-frame samples of the general public. The reason that college graduates are typically weighted down is because that group is the easiest to reach by telephone and therefore they end up being over-represented in both landline and cell phone samples. The cell phone-only group typically is under-represented in dual-frame samples because cell phone interviewing is significantly more expensive than land line interviewing. Therefore, most researchers do fewer than the optimal number of cell interviews simply for economic

reasons. The weighted versus unweighted percentages for college graduates and cell phone-only adults are in line with industry experience on dual-frame designs.

With respect to Dr. Turner-Lee's comments, she also suggested paths for additional analysis, such as reporting how responses to some questions varied by income. Again, the purpose of this paper is to report basic results, and nothing in these comments undercut the validity of the data reported in the current draft. Dr. Turner-Lee also made several comments about conclusions drawn in the paper, pertaining to the impact of the recession on broadband adoption and people's perceptions about the difficulty of switching. In both cases, the text appropriately is qualified. In the latter case, the paper presents the cross-tab analysis suggested.

As to the three year time horizon for asking about switching: That time-horizon is admittedly arbitrary and it was chosen in order to elicit a reasonable incidence of switching in the general population without taxing the respondents' memory too much (e.g., by asking the respondent to call a switching event that was, say, 4 or 5 years in the past).

To address the reviewers' suggestion that more analysis be conducted, the FCC will post to its website the survey data (in SPSS format, i.e., a format compatible with a popular statistical software) and questionnaire. With that done, interested members of the public will be able to conduct additional analysis if they so choose.

memorandum

DATE: December 6, 2010

TO: Janice Hauge

FROM: Jonathan B. Baker, Chief Economist, Federal Communications Commission

SUBJECT: Peer Review of Influential Scientific Information

The Commission is currently considering the best means to achieve the goal of preserving and promoting the open Internet in a manner that will protect the legitimate needs of consumers, broadband service providers, entrepreneurs, investors, and businesses of all sizes that make use of the Internet. In a pending Notice of Proposed Rulemaking and associated Public Notice in GN Docket No. 09-191 and WC Docket No. 07-52, the Commission is considering whether to adopt rules codifying its existing Internet policy principles, adopted in 2005, as well as additional principles of nondiscrimination and transparency. The Commission is also considering whether these principles should apply to all forms of broadband Internet access, and whether and if so, how, any rules should apply to “managed” or “specialized” services. In connection with its consideration of these matters, the Commission is evaluating research studies that may further its understanding of the relevant market forces.

OMB requires that influential scientific information¹ on which a Federal Agency relies in a rule-making proceeding be subject to peer review to enhance the quality and credibility of the government’s scientific information. Accordingly, I ask that you perform a peer review of the following FCC study: John B. Horrigan and Ellen Satterwhite, “Broadband Decisions: What drives consumers to switch – or stick with – their broadband Internet provider,” FCC Working Paper (November 2010) (unpublished). This study has not yet been released and is therefore nonpublic. A copy of the study is enclosed.

OMB further requires Federal Agencies to provide peer reviewers with “instructions regarding the objective of the peer review and the specific advice sought.”² We are interested in using the data generated by this study to inform the Commission’s evaluation of issues presented in the above-referenced proceeding. In performing this peer review, we ask that you evaluate and comment on the theoretical and empirical merit of the information. You should consider, among other things: (1) whether the methodology and assumptions employed are reasonable and technically correct; (2) whether the methodology and assumptions are consistent with accepted practices in the field; (3) whether the conclusions, if any, follow from the analysis and are supported by the data. Please note that the standards for evaluation are not necessarily the same as those one might apply in evaluating studies for publication in a professional journal. For example, it is not necessary that the study present new or novel theoretical results or empirical techniques. Consistent with the requirements of the OMB Bulletin, we are not asking you to “provide advice on policy” or to evaluate the policy implications of the study.³

¹ See OMB Peer Review Bulletin, 70 Fed. Reg. 2664 (2005).

² OMB Bulletin, 70 Fed. Reg. at 2668.

³ The OMB Bulletin states in relevant part: “Peer reviewers can make an important contribution by distinguishing scientific facts from professional judgments. Furthermore, where appropriate, reviewers should be asked to provide

Finally, you should be aware of two other aspects of the peer review process. First, the peer review will not be anonymous. Rather, you will be identified and your review will be placed in the public record. Past peer reviews can be found at <http://www.fcc.gov/omd/dataquality/peer-agenda.html>.

Second, the OMB Bulletin requires us to assess whether potential peer reviewers have any potential conflicts of interest.⁴ To assist you in determining whether there are any potential conflicts, I can send you a list of parties who have participated in the proceeding.

I ask that you provide a written report of your review, findings, and recommendations with regard to this influential scientific information by **November 19, 2010**.

Thank you very much for your assistance in this matter.

Enclosure

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⁴ OMB Bulletin, 70 Fed. Reg. at 2670.

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