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Broadband un-adopters

Brian Whitacre [a,*], Colin Rhinesmith [b,1]

[a] Oklahoma State University, 504 Ag Hall, Stillwater, OK 74078, USA
[b] University of Oklahoma, 401W. Brooks Street, Norman, OK 73019, USA

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ABSTRACT

An important but understudied aspect of the current broadband adoption situation is households that once had Internet connectivity but no longer do. These households, termed "un-adopters," comprised 12% of all non-adopting households as of 2013. In comparison with their "never-adopter" counterparts, un-adopters are significantly more likely to cite cost, the potential to use the Internet elsewhere, and the inadequacy of their computer as reasons for their discontinued use. Using national data from the 2013 Current Population Survey, a multinomial logit model assesses the reasons that these households no longer maintain a broadband connection. The findings suggest that to reach un-adopters, subsidized access may be warranted for households with incomes up to $40,000, and that programs on broadband awareness may be most effectively targeted towards retirees. These results are reinforced with recent data from the FCC's Low-Income Broadband Pilot Projects, where approximately 22% of those signing up for the program were previous un-adopters. Understanding and engaging un-adopters will be crucial as the FCC Low-income Broadband program and other adoption-oriented policies move forward.

1. Introduction

Internet connectivity through a broadband, or high-speed, connection has soared for U.S. households since 2000, with adoption rates increasing from 3% to approximately 70% as of 2013 (Fig. 1).[2] As the percentage of non-adopters has shrunk, however, there are more opportunities for households to join a small but relevant group of those who have had their Internet connections discontinued. These households, termed "un-adopters," comprised 12% of all non-adopters in both 2011 and 2013 – about 3–4% of all U.S. households. This group is in the unique position of having experienced the Internet at home but ultimately failing to maintain that connection. For these households, from an economic perspective, the relevant costs of a residential broadband connection outweighed the benefits. Although clearly relevant to the overall broadband picture, un-adopters have not been featured in many mainstream studies related to broadband adoption. Several recent broadband studies have suggested that future policy efforts should be more focused on encouraging demand, as opposed to past policies more geared towards pushing out infrastructure (Hauge & Prieger, 2010; Katz, Matsaganis, & Ball-Rokeach,

* Corresponding author. Tel.: +1 405 744 9825.
E-mail addresses: brian.whitacre@okstate.edu (B. Whitacre), crhinesmith@ou.edu (C. Rhinesmith).
[1] Tel.: +1 405 325 3921.

[2] As of 2015, broadband access is defined by the Federal Communications Commission (FCC) as connections with download speeds of at least 25 megabits per second (mbps) and upload speeds of at least 3 mbps. This definition has changed over time. More generally, broadband connections are viewed as those significantly faster than dial-up modems which provide service at 56 kilobits per second (kbps).

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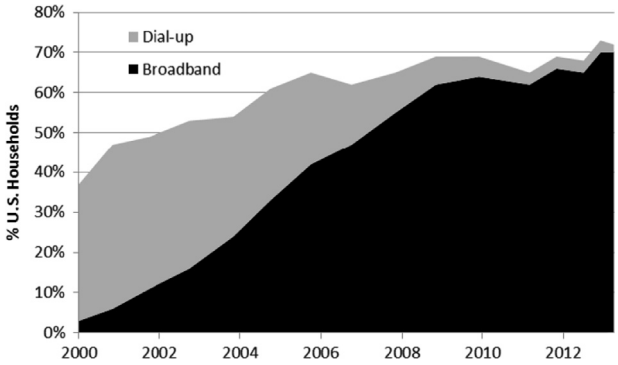

Fig. 1. Residential broadband and dial-up adoption in the U.S., 2000–2014. *Source*: PEW Internet and American Life Surveys 2000–2014.

2012; Whitacre, Strover, & Gallardo, 2015). As policy efforts (including the restructuring of the federal Lifeline phone program to include broadband, and the Obama administration's recent 'ConnectHome' initiative) move towards digital inclusion for all, understanding and engaging un-adopters will be particularly important given their previous interactions with the technology.

The term "un-adoption" was perhaps first introduced in a broadband context by Dailey, Bryne, Powell, Karaganis, and Chung (2010) in their study of broadband adoption in low-income communities. Their qualitative work included a relatively small survey of 92 low-income non-adopters, and showed that 24% fit the un-adoption classification. Their work also highlighted that income fluctuations among the respondents were a significant driver of the change in broadband status. A more comprehensive look at un-adopters, including how common this practice is among higher-income households, and the underlying reasons for stopping their connection, is generally lacking from the literature. This paper takes a deeper look at broadband un-adopters by using nationally representative Current Population Survey (CPS) data to assess the general characteristics of un-adopters and to explore the reasons for discontinuing their Internet connections. The findings suggest that in terms of un-adopters, cost is a driving factor for households with incomes up to $40,000, that providing adequate computers should be a focal point for metropolitan areas, and that digital literacy programs should be effectively targeted at retirees and seniors.

The CPS data is supplemented with newly available data from the Federal Communication Commission's Broadband Lifeline pilot program, which subsidized broadband access for low-income households in 14 projects across the country during 2012–2013 (FCC, 2015). At an aggregate level, roughly 22% of all participants were previously broadband un-adopters (making them significantly over-represented), but this number varied dramatically across the 14 projects. The design and marketing of the various projects provides additional insight into how un-adopters might respond to incentives to re-connect their households.

2. Literature review

2.1. Broadband adoption

Broadband adoption has been widely defined as an individual's ability to subscribe to high-speed Internet services at home (Gant, Turner-Lee, Li, & Miller, 2010; Horrigan, 2005). A significant amount of research has gone into determining the factors that influence broadband adoption, and generally accepted determinants include income, education, race, and geographic location (Dwivedi and Lal, 2007; Flamm & Chaudhuri, 2007; Prieger & Hu, 2008; Whitacre & Mills, 2007). In particular, many of these studies focused on "digital divides" or why rates of broadband Internet adoption diffused differently across multiple sectors of society. Alternatively, a large portion of the diffusion literature has used deductive approaches, including social cognitive theory and user acceptance models, to explain and predict the factors leading to technology adoption at home (Brown & Vankatesh, 2005; Brown & Vankatesh, 2008; Choudrie & Dwivedi, 2006; Dwivedi & Irani, 2009; Irani, Dwivedi, & Williams, 2009; Tsai & LaRose, 2015). Much of this literature can be traced to the work of Everett Rogers and his classic book on the Diffusion of Innovation (2003) (Rogers, 2003). In these seminal pieces, Rogers explained the five stages of the adoption process (awareness, interest, evaluation, trial, and adoption) with the goal of being able to predict how individuals and organizations in a range of industries and contexts adopt and use innovations to achieve social and economic outcomes.

More recent studies have focused on the economic impacts of broadband, and have also generally found positive results (Holt & Jamison, 2009; Kolko, 2012; Koutroumpis, 2009; Whitacre, Gallardo, & Strover, 2014a, 2014b). Others have argued that there are societal benefits to broadband adoption, including the building of social capital (Pigg & Crank, 2004; Stern & Adams, 2010). Thus, there is wide agreement that attempting to increase broadband adoption rates is a beneficial policy goal.