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Research Brief Series #1: Ensuring Coverage of the Non-Internet Population in Probability-Based Panels

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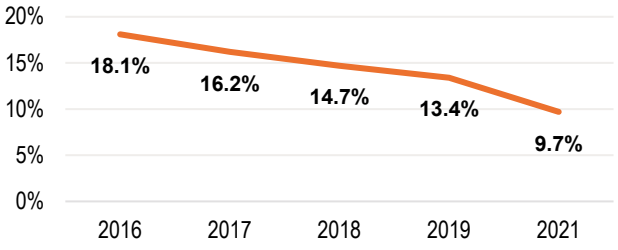
Americans who do not use the Internet or are reluctant to use the Internet create coverage problems for online probability-based panels. A mixed mode approach, in which respondents are offered an “offline” way to participate, provides the best way to include the non-Internet population and reduce bias.

As the digital divide continues to narrow, driven largely by the growth of smartphones and cellular data plans, a sizeable group of Americans remain offline (Figure 1). Estimates of the U.S. non-Internet population vary, as survey questions used to measure this group vary in their wording and focus. The American Community Survey (2021), for example finds that 9.7% of U.S. households are without any Internet subscription. Pew Research Center (2021) asks respondents whether they personally use the Internet, finding that 7% of U.S. adults do not. The true size of the non-Internet population is difficult to pinpoint, but likely falls somewhere between these estimates.

Figure 1. U.S. Households Without Internet Subscriptions[1]



Comparing the Internet & Non-Internet Population

Excluding the non-Internet population from probability-based panels is problematic as this population is markedly different from those who use the Internet. Many studies have highlighted clear differences related to age, income, education, metropolitan status, and race (Antoun 2015; Dever, Rafferty, and Valliant 2008; Dutwin and Buskirk 2022; Norris 2001; Robinson, Neustadtl, and Kestnbaum 2002; Robinson & Martin 2005; Zhang, Callegaro, and Thomas 2008; MacDonald and Hülür 2021; Bosnjak et al. 2013; Blom et al. 2017). Perhaps more importantly, the literature also shows that the non-Internet and Internet populations differ in their attitudes and behaviors. Dutwin and Buskirk (2022) reviewed publicly available data in fifteen large studies and found hundreds of metrics in which Internet households differed substantially from non-Internet households. Non-Internet households are less trusting of politicians, less politically engaged, and they score lower on basic political knowledge questions. They are also more skeptical of science, more religious, and

[1] Source: American Community Survey (ACS) 1-Year Estimates 2016-2019 and 2021. Data was collected by asking respondents to select "Yes" or "No" to each type of Internet subscription: Broadband, such as cable, fiber optic or DSL; dial up; cellular data plan; satellite Internet service. Respondents were able to select more than one type of Internet subscription. "Without any Internet subscription" includes those who accessed the Internet without a subscription and also those with no Internet access at all. Due to the impact of the COVID-19 pandemic, the 2020 ACS release provided experimental estimates from the 1-year data instead of the standard 1-year data products. These 2020 experimental estimates have been left out as the Census Bureau does not recommend comparing them with standard ACS estimates.

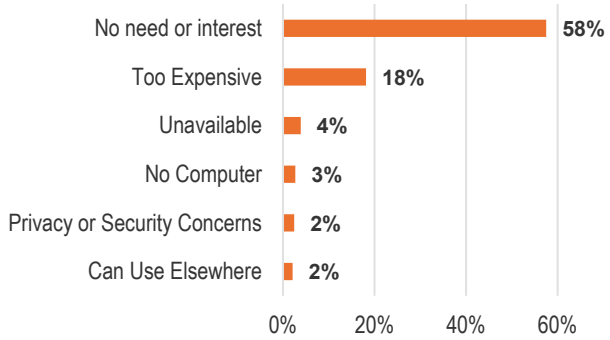
have lower overall health metrics, and health insurance coverage, than the Internet population. They are more isolated than Internet households, participate less in community events, talk to fewer people daily, and are less willing to date outside their racial group, to name but a few. These are not minor differences, but percent differences that range from 20 to even 40 percent (for example: owning stocks: 71% for Internet users and 28% for non-Internet users). Dutwin and Buskirk built upon prior research that noted gaps in cultural attitudes (Norris 2001, Robinson et al. 2002, Robinson and Martin 2005), economic attitudes (Norris 2001), environmental attitudes (Zhang, Callegaro, and Thomas 2008), and group participation (Zhang, Callegaro, and Thomas 2008).

Strategies to Include the Non-Internet Population

Given that the non-Internet population differs so much from the Internet population, it is important to include them to improve sample accuracy and reduce bias. Including the non-Internet households can improve the results in a way that is not possible by post-stratification weighting (Rookey, Hanway, and Dillman 2008). Two main strategies are used to include the non-Internet population in online probability-based panels. The first involves providing Internet access to sampled households that lack it through a device and/or an Internet connection. The second strategy, and the one preferred for both methodological and operational reasons, is to offer an "offline" mode of participation.

Providing Internet access and/or equipment to those who do not use the Internet does not solve the non-response problem. Studies in Europe have found that non-Internet units join panels less often than Internet units, even when provided free equipment (Leenheer & Scherpenzeel 2013, Hoogendoorn and Daalmans 2009, Reveilla et al. 2016, Cornesse 2021). Additionally, studies in the U.S. and Europe have shown that non-Internet panelists who accept offers of access and/or equipment take fewer surveys than Internet panelists (Reveilla et al. 2016, Bertoni 2019). Reasons for this may be related to these respondents' identity as tech-averse individuals. Agreeing to receive new technology, to keep it charged, and to keep it nearby can be substantial hurdles for those that do not use the Internet. Some non-Internet households do not want to use the Internet. According to 2021 Current Population Survey Internet Use Module, 58% of offline households do not use the Internet at home because they have no need or interest in going online. This group is significantly larger than those who do not use the Internet because of concerns about affordability (18%) and all other cited reasons (Figure 2). Regardless of the device or connection offered, individuals who do not need or want to use the Internet will not participate in online surveys because they are online. A mixed mode approach, by contrast, offers an opportunity to include these individuals through an "offline" mode of participation.

Figure 2. Main Reasons for Not Using the Internet at Home[2]



In addition to the methodological drawbacks of providing Internet access and/or equipment, there are also operational challenges. Identifying who needs Internet access is often the first challenge. With the growth of mobile devices and free WiFi, taking online surveys does not necessarily require a home Internet subscription. Researchers must make decisions about who qualifies to receive an Internet subscription and/or devices. Once determinations are made about eligibility, researchers must select the type of device, negotiate the price, and deliver the device. After the devices are dropped, researchers must train panelists on how to take online surveys using their new devices, a process that can be time consuming for individuals who may be completely unfamiliar with the Internet or mobile devices. Researchers must also provide ongoing technical support if devices break, are stolen, or are lost. A mixed mode approach avoids these steps, but presents its own operational challenge. Researchers must manage multiple modes of administration, which can be cumbersome and time consuming if an integrated sample management and data collection system is not used.

[2] Source: Current Population Survey Internet Use Supplement 2021. Data was collected by asking respondents "What are the reasons why (you/members of your household) do not use the Internet at home?" Responses included: Don't need it or not interested; Can't afford it; Not worth the cost; Can use it elsewhere; Not available in area; No computing device, or device inadequate or broken; Online privacy or cybersecurity concerns; Personal safety concerns; Household moved or is in the process of moving; and Other. Respondents who gave more than one reason were asked "Of the reasons you just listed for not going online at home, which (do you/does your household) consider to be the most important?"

A common solution is to field surveys in multiple modes, allowing non-Internet panelists to complete surveys via telephone. Certainly, this generates a mixed-mode design and may introduce some level of mode measurement effects, whereby the same respondent might answer a question differently if it were administered via telephone versus online. There is a vast literature on mixed-mode effects (see Dillman et al. 2009), finding, generally, low bias, and generally concentrated on questions that might incur a socially desirable response (example.g., "do you use illegal narcotics?") or that may have differential "don't know" options (stating a don't know option on the phone but not offering it online). Overall, however, a total survey error perspective generally finds that any bias from mode measurement effects is small in comparison to the bias of not fully covering the non-Internet population.

The Center's Perspective

Covering the non-Internet population continues to be an important feature of panels that wish to create low-bias samples. There are a range of potential approaches, but the data suggest that offering an alternative mode is an optimal solution. As one example, NORC's AmeriSpeak® uses a mixed mode strategy to effectively cover the non-Internet population. During the panel recruitment phase (when randomly selected households are invited to join the panel), NORC uses multiple contacting modes -- face-to-face, mail, and telephone -- to invite non-Internet households into our panel. Furthermore, AmeriSpeak provides mixed data collection modes for registering for the panel: panel member web portal, inbound telephone on a dedicated toll-free line, and outbound telephone interviews. Once they join, panelists are offered the ability to select their preferred mode of participation —web or phone—for AmeriSpeak surveys. Telephone interviewers administer telephone surveys using a data collection system that supports both the phone and web modes, providing an integrated sample management and data collection platform. For panelists using smartphones for web-mode surveys, the survey system renders an optimized presentation of the survey questions. These processes work. A full 16% of the recruited households in the AmeriSpeak panel are non-Internet[3], exceeding the percentage of non-Internet households in the United States. And, there is robust participation among both Internet and non-Internet panelists to AmeriSpeak surveys.

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[3] AmeriSpeak's non-Internet households are those that do not select "High-speed, broadband Internet at home (such as cable or DSL)" or "Dial-up Internet at home" response options when they are asked "What kind of Internet access do you have? Please select all that apply" item in the recruitment survey. The non-Internet households include those that only use Internet on a cell connection or mobile phone.

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