ARF DASH

UNIVERSE STUDY OF DEVICE AND ACCOUNT SHARING

ARF | RESEARCH INITIATIVES

The DASH Report

Background

We developed this study because several media and ecommerce measurement companies approached the ARF, suggesting that there was an industry need for a standard baseline of signals used to model big data that could be shared among study participants. As each service presented to clients, each found itself trying to defend their unique approach to model co-viewing, viewer assignment, identity, householding, attributing online purchase to individual household members and many other parameters of the digital ecosystem.

DASH addresses this lack of standard because it is a syndicated study supported by multiple clients, enabling a much higher quality project than if done individually by each measurement company. It is a highly granular study which mimics the signals that measurement companies collect electronically. This permits modeling of the data, such as demographics, that is not contained in the electronic big data sets they have.

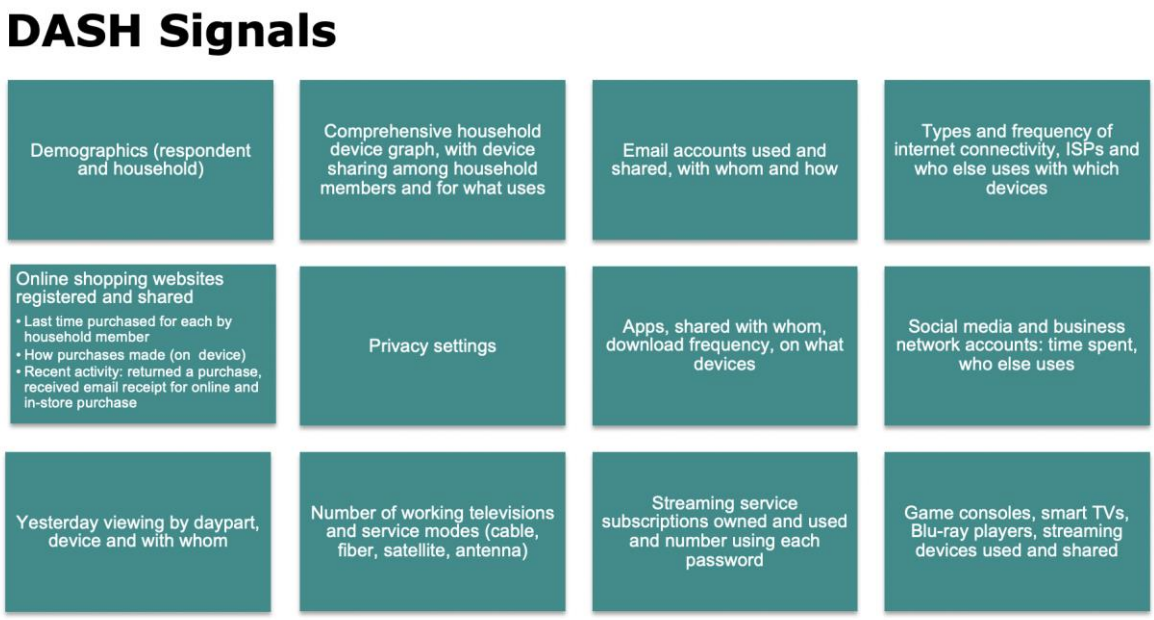
Methodology

The study is based on a national probability sample of 10,400 persons, ages 18 and over. There were four modes of data collection to allow for an analysis of biases associated with each different mode: online panel, online survey (not panel), face-to-face and a limited sample of phone interviews for non-internet households. A complete description of methods as well as sample composition and response rate analysis is available Methods.pdf .

Study Contents

The display below illustrates the broad content of the study. Its granularity makes it unique as a source of signals for modelers. For example, the study asks, for each television and device in the household, *who owns them, who uses them, for what uses and what yesterday's usage was.*

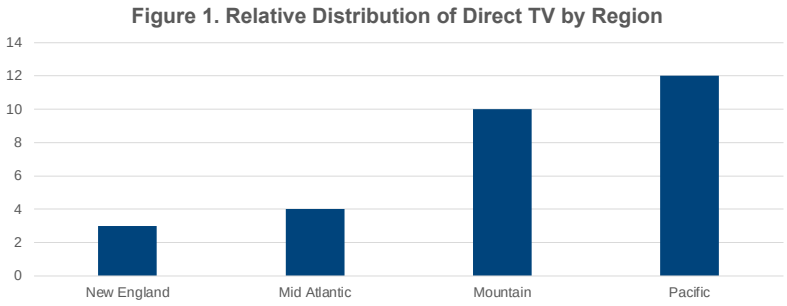
Many companies have access to a limited number of data, such as Vizio + one MVPD for media or ecommerce sites. These often do not include companies like Amazon. The study is a source to understand the differences in behavior across these channels and make some level of correction for the limited coverage. Importantly, the measure of coverage bias will be standardized across the industry.



The Study Findings

Devices[1] – Sources of Television Data

Many of the media measurement services have access to ACR television tuning data, from MVPDs like Direct TV or from

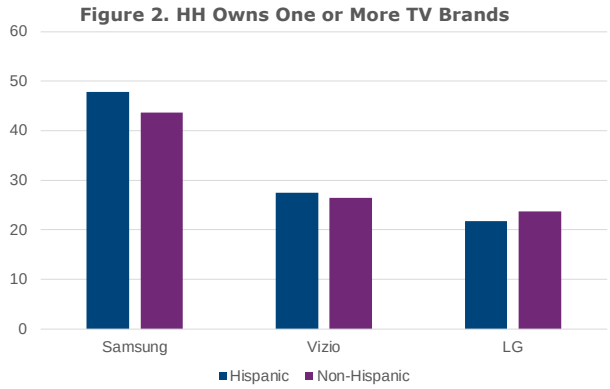


[1] * By devices, we mean screens other than television through which video or e-commerce transactions can occur: desktop, laptop, tablet, smartphone, game console, Blu-ray or smart speaker.

OEM partners, such as Vizio. Each has its own limitations. MVPD data has limited or skewed geographic coverage as illustrated in Figure 1.

Smaller regional pay cable MVPDs often have no coverage in several regions.

TV brands have distinct demographic profiles. Figure 2 illustrates Hispanic ownership of Vizio televisions is close to non-Hispanic ownership of Vizio TVs. Vizio data is widely used among television measurement companies. However, Hispanic households index higher on Samsung ownership and lower on LG ownership. The study provides signals by which to estimate these biases of limited coverage.

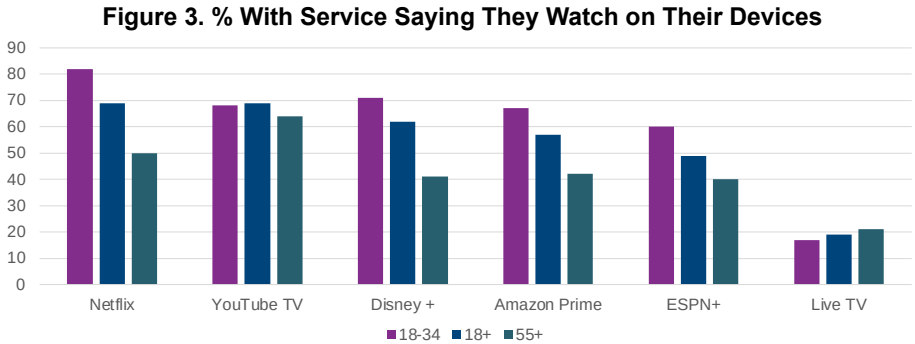


These are just some of the many demographic, geographic and behavioral differences we see among the different sources of television data used by media measurement companies.

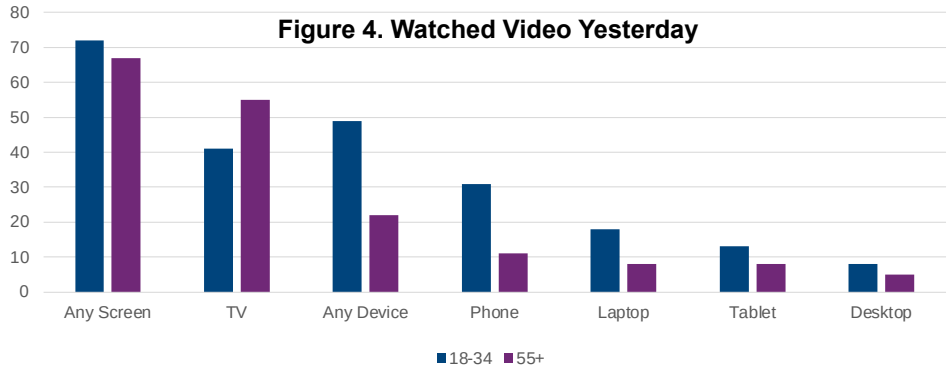
Devices - Usage

We used to say that people watch TV on the largest available screen. Now, you could say, *Devices are for streaming and televisions are for live TV.* Figure 3 suggests that might overstate it a bit, but there is much truth to it. There may be several reasons for this: Streaming video is selected in contrast to scheduled live programming, the vast amount of video content leads to extreme fragmentation or the appeal of one's own personal screen or the quality of today's mobile screens.

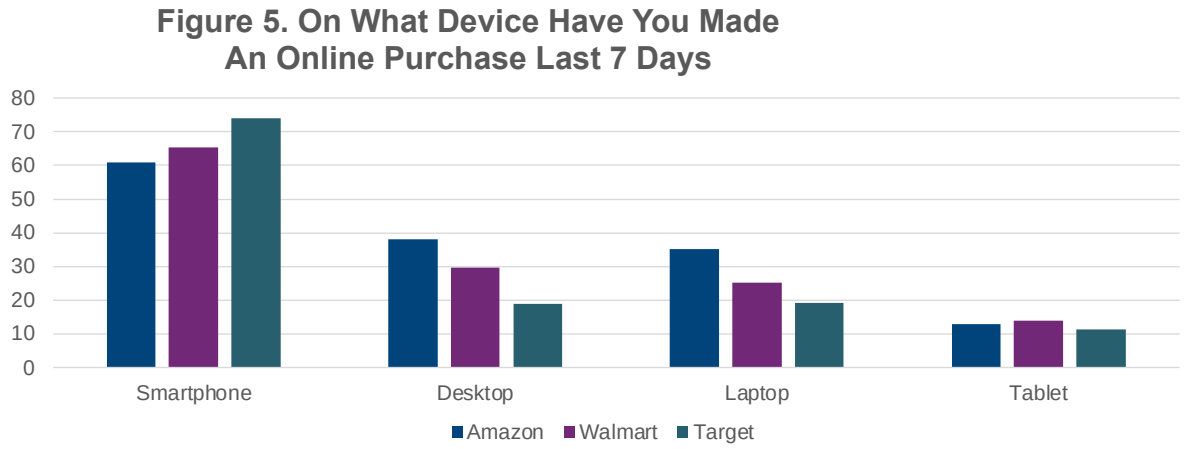
It is not surprising that young adults are more likely to use their devices for streaming, but what is interesting about Figure 3 is the difference, regardless of age in the use of devices for live TV.



Media researchers have always considered yesterday's behavior as the most accurate approach if a survey is used to measure media behavior. Figure 4 confirms the impact of age on device usage. The most heavily used device is the smartphone though this skew is much more heavily observed among young adults.



And while we see similar age differences in the use of devices for online purchases, perhaps the most interesting story is the fact that some online accounts are more likely to be used on large-screened devices than other accounts.



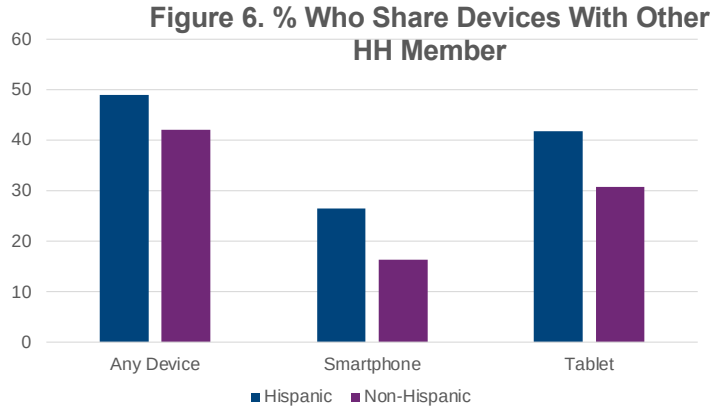
Do larger purchases require larger screens? Is it a function of which screen you have downloaded the app? The granularity of the DASH study allows users to drill down deep to answer these questions.

Devices – Sharing

Householding is the practice of identity companies and others, trying to place different device IDs into the same household. This is often done by assuming all devices that connect through the same IP address must belong to the same

household. While this may be a reasonable practice, it cannot address who and how many in the household are using the same device.

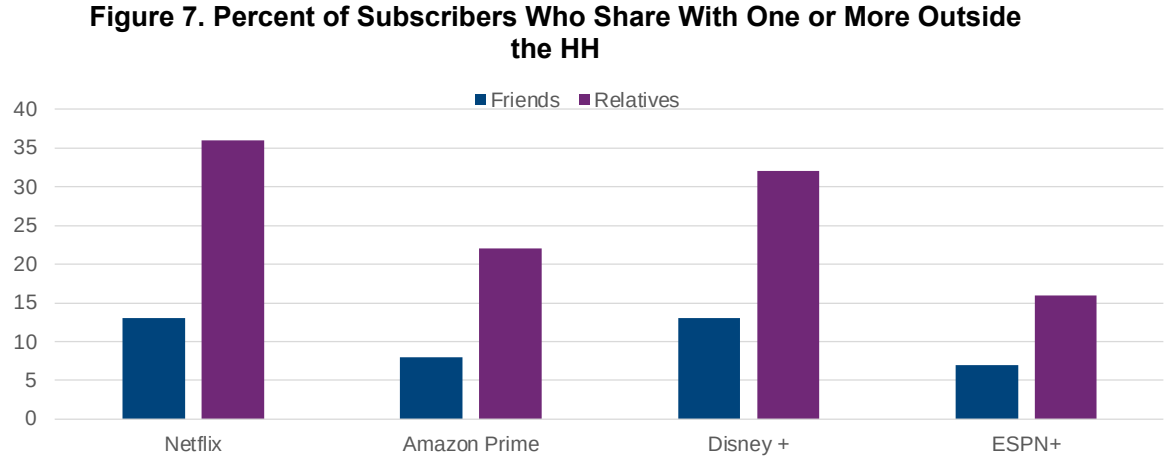
There is no doubt that the device sharing illustrated in Figure 6 is a function of household size. But if you think you know who owns that device, think again. Whether watching video or making online purchases, all deterministic is in part, probabilistic.



Accounts – Sharing

Both media and e-commerce measurement companies that access big data often assign demographics to a *householded* set of devices by matching hashed emails or the IP address to one of the major identity companies. Media measurement companies may have metadata that allows them to profile an IP address (household) with respect to the SVOD services they use. This does not provide content identification, but it may help to identify or validate the demographics of the household, thus improving the accuracy of their demographic assignments. A recent Truthset report suggests that among the latest big datasets they have scrubbed, the accuracy of education level was only 33% while pet ownership was 92%, no doubt because of pet owners' online activity related to their pet.

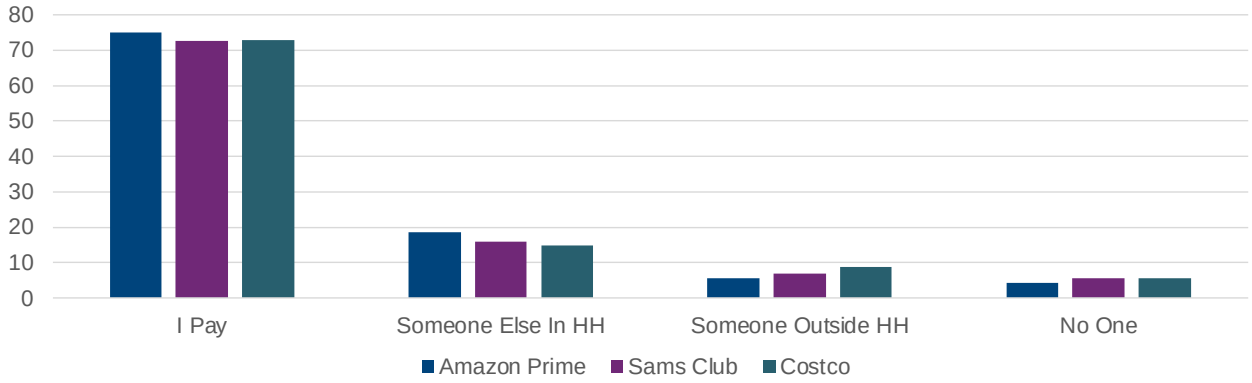
But are accounts used personally or shared with other household members or with friends and family outside the household? Do the number and type of accounts tell us something about the household? Yes.



While Figure 7 suggests that some of the major SVOD services are frequently shared with relatives outside the household, and to a lesser extent with friends, accounts are shared at very different rates. The pricing schemes of these services are interesting to note, in that Netflix offers a plan that allows up to five screens to be used simultaneously.

But Figure 8 suggests that SVOD is very different from e-commerce. The sharing that does exist, is largely driven by young adults 18-24, often but not always living in the same household as the subscriber.

Figure 8. Who Pays For Subscription Among Those Who Have Used Last 6 Months?

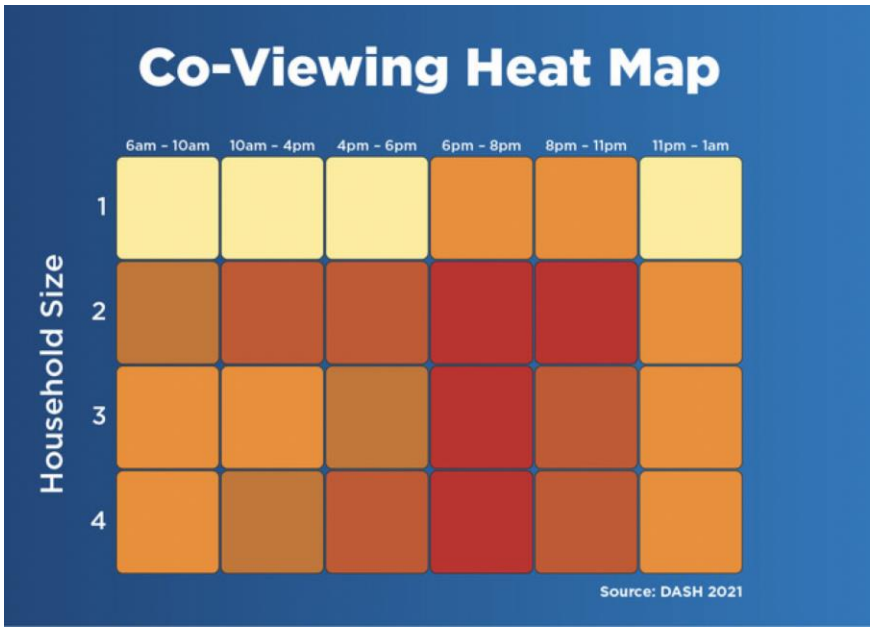


Co-Viewing

One common need among media measurement companies is to understand how many people are viewing the tuning signals they received. The DASH study asked about yesterday's viewing by daypart, on which device and with whom. Figure 9 paints a very interesting picture of co-viewing by daypart.

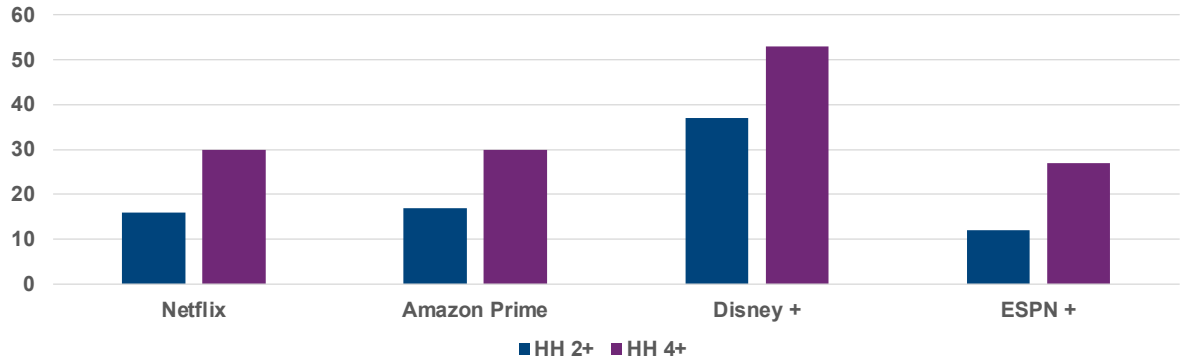
It is no surprise that in general, larger households would have more co-viewing. What is interesting is that the heaviest co-viewing occurs at dinner time and prime among two person households. This suggests that even in larger households, children and their parents may tend to go to their own televisions or devices after dinner.

Figure 9.



Further, it should not surprise anyone that among the SVOD services, Disney + is the most co-viewed (Figure 10).

Figure 10. 2+ Co-Viewers Among Those Watching Yesterday (HH Size 2+ vs. 4+)

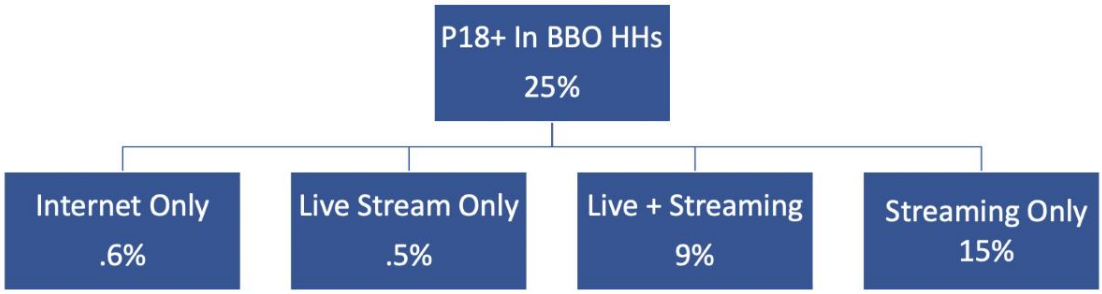


Broadband Only

While we collect data on all modes of television reception, one of the more interesting and controversial modes is broadband only (BBO). The controversy is based on the likelihood that people in BBO homes are less likely to engage with

traditional network television, but it also brings into question of what a traditional television household is. If it is a household with a working television set, in this study 94.2%, we are missing the video behavior of those, especially young adults, who view video only on devices through broadband.

Figure 11. Video Available Among P18+ In BBO Households



Among the persons 18+ in BBO homes[2] in the study, over half stream only and do not receive live broadcast or cable television signals. That said, many of the network's digital channels such as *NBC News Now* and *ABC News Live* are available through streaming channels like the Samsung channel. Suffice to say, it is time to drop the term "television household" and replace it with "video-enabled household".

Emails – Accounts

Emails, hashed or otherwise, are an essential component for identity, match keys, e-commerce attribution and many other applications in the digital ecosystem. But how unique are they?

[2] Note this is Persons 18+ among all homes, not just television homes.

Figure 12. Number of Emails Have and Used Among Those With at Least One Email

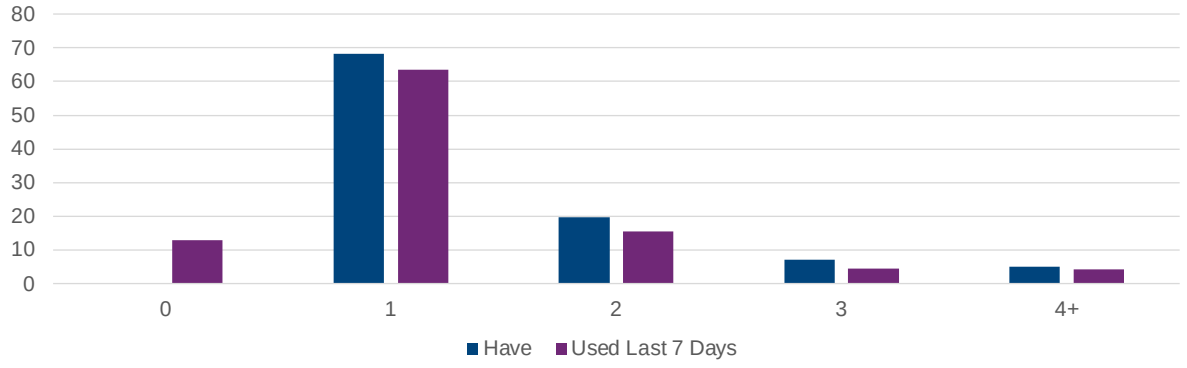
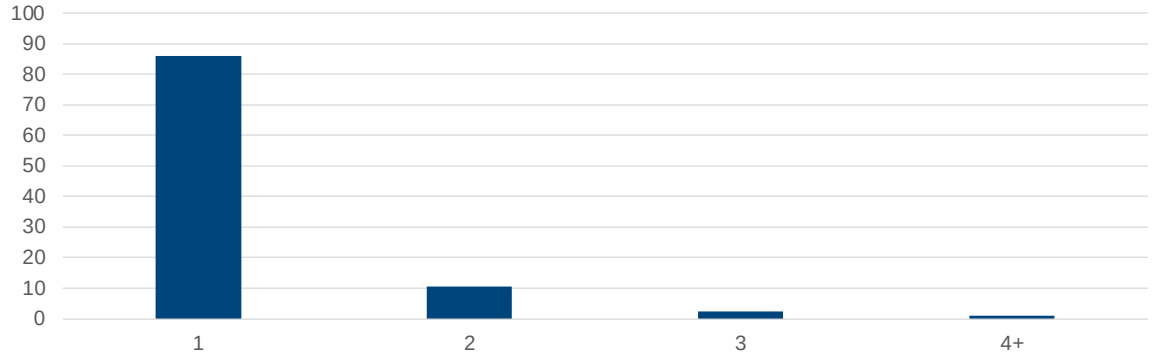


Figure 12 illustrates that one-third of all respondents with emails have more than one, and, in fact they tend to use all the emails that they have. This complicates the use of hashed emails alone as a match key. However, combining email with IP address complicates things further because now you must interpret multiple emails among multiple household members.

Social Media

Walled gardens are thought to have reasonably good control on duplication and frequency caps at least within their own platform. This assumes that most people have a limited number of accounts on that same platform. Figure 13 suggests this is true, as the study found that Instagram was the platform that had the greatest number of duplicate accounts.

Figure 13. The Number of Instagram Accounts Among Those Who Have At Least One



Apps, Receipts, Audio, Privacy and More…

There is much more in the DASH study:

- The Apps people have and use on which devices.
- Their audio streaming services and with whom they share them.
- Data on privacy settings.
- Data to support e-commerce tracking and more.

Full study access is available through Tableau and Python-based dashboards, as well as an SPSS Sav file and as a CSV file. Respondent-level data are available as well.

If you are interested in learning more about the DASH study, please contact Pdonato@thearf.org or Jmeyer@thearf.org