WE ARE **HAWTHORNE | ADVERTISING**

# DVR USAGE, TRENDS OVER TIME AND IMPLICATIONS FOR ADVERTISERS USING LINEAR TV

by Steve D'Amico, Vice President of Business Intelligence
with research assistance from Wale Oredola, Business Intelligence Analyst

January 2020

## EXECUTIVE SUMMARY

Using Nielsen nPower® data from October 2006 (the first month with DVR viewing data), the authors found dramatic differences in the growth trends of non-live viewing amongst different categories of the linear TV landscape, with national broadcast prime showing the fastest increase (currently in the 30-40% range for persons 18-49). While experts have weighed in over the years on the effects of DVR-induced ad avoidance, analysis of the data offers reasons to remain bullish on the linear TV space, while also being cognizant of the need to include in many media plans some exposure in streaming platforms and other video mediums, both established and nascent. Some key reasons why linear remains an important channel:

1. In spite of the plethora of non-linear options available, **linear TV still delivers huge, impactful, and fast reach to advertisers**. In October 2006, prime time national broadcast and cable TV (live + 7 days + VOD) combined to deliver an average of 65.6 million impressions across P18-49 (the coveted demo of advertisers) and the older audience of P55+ combined. In October 2018, that number had gone down by only 4.8 percent, **even with the advent of streaming platforms** and other distractions.
2. Non-prime impressions across the same two demos went down by only 3.4 percent over the same time period.
3. For national cable, the vast majority of viewings are still live in 2019.
4. Finally, more rigorous analytical techniques, in use at Hawthorne and elsewhere in our industry, are available now which enable more careful study and quantification of TV ROI. With some P18-49-targeted buys seeing 40 percent or more impressions post-live (and thus, subject to ad avoidance), the analytical techniques are critical to ensure these buys are delivering ROI.

That said, Hawthorne and its clients recognize a) the downward trend in live viewing and likely increase in ad avoidance (more pronounced among P18-49 with high double-digit reductions in live viewing); b) the ageing of the linear TV audience; 3) and thus, the need to consider using platforms (that reduce ad avoidance) such as connected TV and other channels in campaigns where video advertising content is critical.

## METHODOLOGY

The authors pulled average ratings and impressions across these parameters:

1. TV media categories: National broadcast and national cable
2. Networks:
   - National broadcast: ABC, CBS, FOX, NBC
   - National cable: 119 networks. The authors removed from the data set dozens of networks where average primetime ratings tended to be less than 30,000 for the P18-49 demographic. Thus, close to 100 percent of Nielsen-tracked impressions are included in the study.

3. Time period: Nielsen's nPower tool includes DVR audience delivery data from October 2006 to July 2019. To streamline analyses, the authors chose to pull the first four weeks of each broadcast quarter from October 2006 to present. This enables a clear view into four key months of each TV season: October, when networks premiere new shows and restart their more popular ones; January when TV usage goes up; April when TV usage goes down, but a key period for many seasonal advertisers; July, the first month of the last quarter of the TV season and a time when TV usage trends low relative to the rest of the year. By using the first month of the quarter approach, we also eliminated months with inherent biases—namely the November and December holiday seasons.
4. Playback periods in this study were defined as:
   - Live TV viewing
   - Non-Live viewing; DVR and VOD viewing up to 7 days following the live airing
5. Dayparts:
   - "M-Su prime" = Monday through Sunday 8:00pm to 10:59 pm
   - "M-F no-prime" = Monday through Friday 6am to midnight (but not including the prime hours stated above)
6. Demos: persons 18 to 49, persons 25 to 54, persons 55+ with male/female pulls as well. Rationale: P18-49 is the most coveted demo for advertisers, while P55+ represents a demographic that has, as we will see, very different viewing habits. P25-54 was used sparingly in the analysis.
7. Household income break: We compared viewers with household income above and below $60,000, close to the current US median income of around $62,000 as reported by the U.S. Census Bureau.[1]

## RESEARCH BACKGROUND

### *Quantifying ad avoidance during DVR viewing*

Earlier studies on DVR ad avoidance showed that viewers watching content in their DVRs fast-forwarded about 70 percent of ads (Bronnenberg et al, 2010; Steinberg 2007). Research published earlier this year (Kent, Mosley, Schweidel, 2018) showed that normal speed (not fast-forwarded) ad viewing occurred in about 29 percent of DVR viewings of a set of scripted drama shows studied. Thus, both studies corroborate each other's findings. The Kent et al study also isolated a set of performance reality shows (e.g. The Voice, American Idol), with the same measure of normal speed ad viewing at 21 percent of DVR views. For live sports such as PGA Golf, MLB, NBA and NFL, the same measure was 6 percent. Live sports also had the lowest amount of DVR viewing at only 8 percent average. Thus, by genre, live sports viewers tend to fast-forward through ads much more than performance reality, with scripted dramas experiencing the least amount of fast-forwarding.

### *Reasons why DVR viewers watch ads*

Eighty-five percent of DVR viewers reported in a survey that they sometimes forget to fast-forward through ads (Thomas, 2012). Secondly, some research indicates DVR viewers play commercials to avoid the manual task issues of fast-forwarding through ads (Holmes, 2016). Related to the manual task issues, the studies note that networks sometimes insert quick programming breaks that are difficult

to distinguish from ad breaks. And lastly, many DVR viewers, who otherwise fast-forward through ads, will sometimes watch ads for products/categories where they have a current shopping interest (Wilbur, 2008a) or that have high relevancy (Thomas, 2012).

## KEY FINDINGS OF THE STUDY:

*Prime time vs. non-prime time on national cable and broadcast network*

Not surprisingly, **broadcast network prime time** has seen the most dramatic increase in non-live TV viewing, as pictured in *Figure 1*. Broadcast prime programs averaged **six percent non-live viewing** in Nielsen's earliest available DVR data set from October 2006; the same month of 2018 showed **36 percent non-live viewing**.

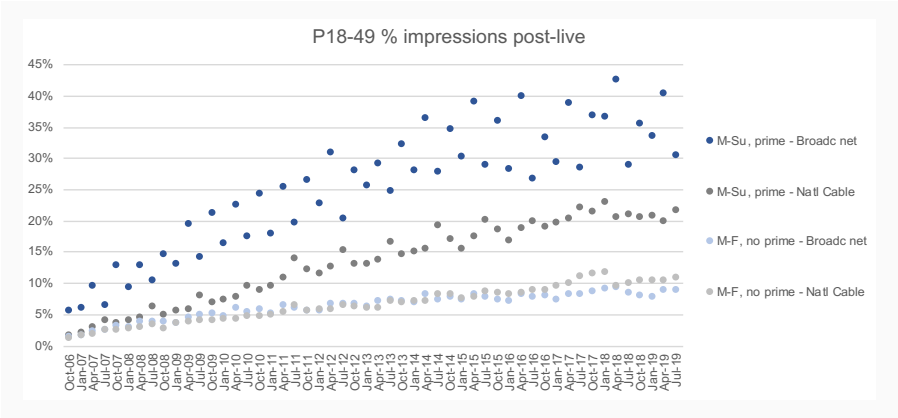


**Figure 1. Broadcast network & national cable, average non-live viewing by quarter, October 2006 to July 2019*

However, broadcast prime's **fast-rising trend from 2006 flattened out since 2015**. As you can see in the graph above (and we will see more clearly later in this write-up), broadcast prime also has high variances of non-live viewing depending upon the quarter.

**National cable prime time** has had a steadier, less meteoric increase in non-live viewing in the time period studied, topping out in recent years at around 20 percent, significantly lower than broadcast network's percentages, and also leveling off.

Non-prime viewing, on the other hand, seems relatively unaffected by the invention of the DVR; the authors found much slower growth with more than 90 percent of national cable viewings LIVE; for broadcast, percentage of LIVE viewing is just under 90 percent.

*Prime time DVR usage more prevalent in younger demo*

In recent years since fall 2016, national broadcast networks' prime time programs have the highest averages of non-live viewing, ranging from 29 to 43 percent, amongst the prized age range of P18-49. As shown in *Figure 2*, the older 55+ demo's post-live viewing grew more slowly over time and in recent years shows non-live viewing of 19 to 32 percent in broadcast prime. Still, "appointment viewing" is still a preference for a large majority of older TV viewers in America, and a smaller majority of P18-49.

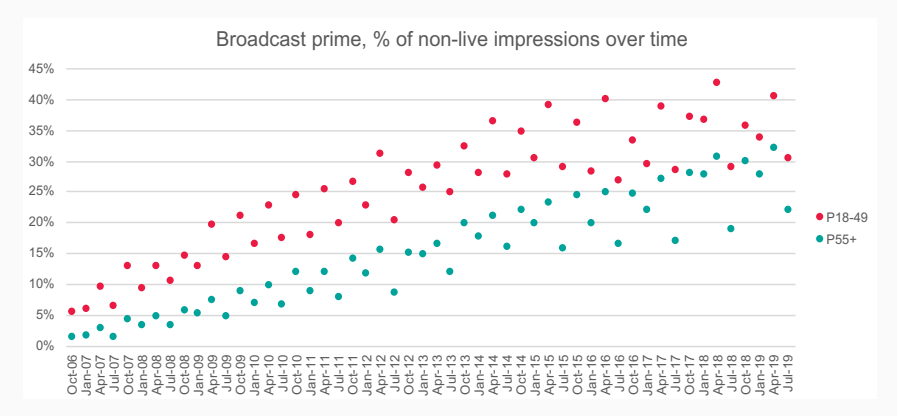


*Figure 2. % of non-live impressions over time across two demos*

For non-prime broadcast and across both dayparts studied for national cable, non-live viewing grew slower over time with the 55+ demo growing even more slowly than among those within the18-49 age range (three charts below). Although media planners and clients must remain cognizant that the younger cohort will "age into" the 55+ demo and likely retain their DVR viewing, and ad avoidance habits.

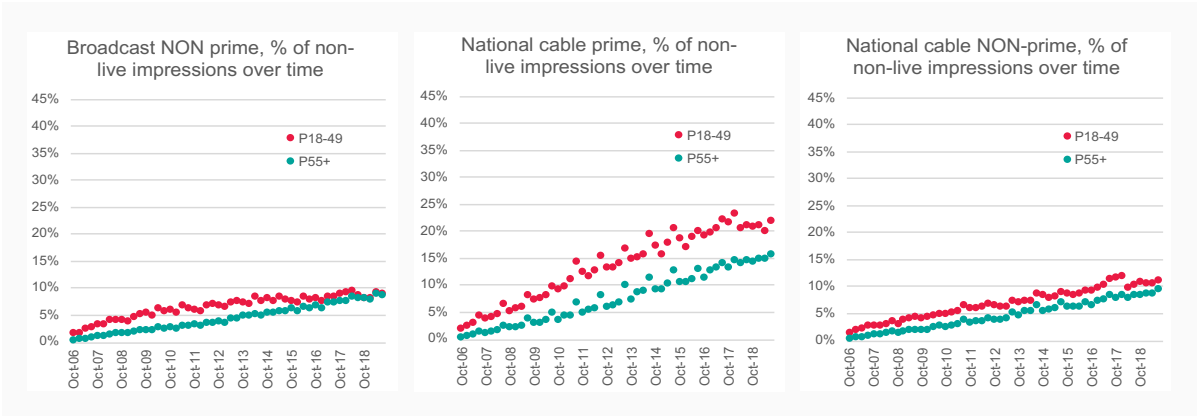


*Figure 3. Comparison of non-live impressions over time, three TV sectors*

This "ageing in" is evident in the trend curves in *Figure 3*, where one can see the disparity in the trends for the younger and older demo have completely converged (in the case of Broadcast NON prime) or trending toward converging (National cable prime).

### *Delivering impressions now requires both cable and broadcast*

As shown in *Figure 4* below, while total prime time impressions across the two demos studied are down only 4.8% October 2018 vs. October 2006, this modest decrease is the result of gains in persons 55+ making up almost entirely for the large losses in the 18-49 demo. **The implication for planners** is that reaching P18-49 now at levels back in 2006 [and mitigating ad avoidance] requires a mix of cable, broadcast, streaming platforms and digital.

Conversely, linear **TV has become even better at reaching persons 55+**. On any given day in October 2018, prime time programs in the studied stations reached, on average 29 million persons

55+ or about 43 percent of that demo. Indeed, Hawthorne, as an agency, has developed expertise in reaching older demos targeted by many of our clients. We routinely see 3+, four-week reach hit in the 30s and 40s, even with modest spend. Nevertheless, even these elderly-targeted buys, which have linear TV as their primary focii, have benefited from placing ads in streaming platforms as well as digital video.

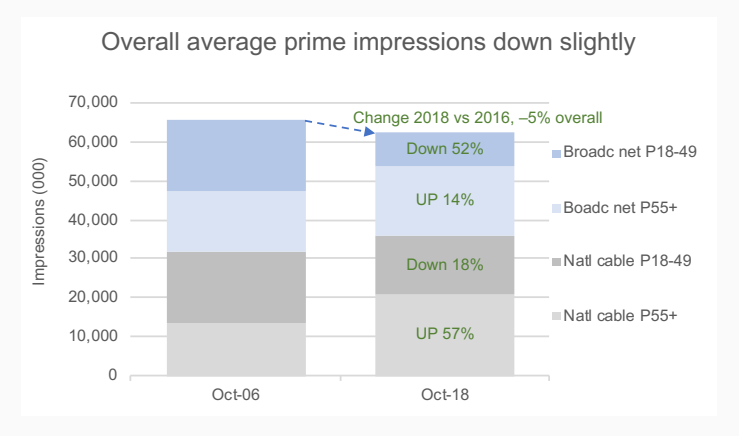


*Figure 4. Live + 7 days DVR + VOD impressions by TV type and two demos, October 2006 and 2018*

### *Seasonal phenomenon: Broadcast prime non-live viewing variances*

Non-live viewing in broadcast prime has high variances, depending on the season in any given TV year. As shown below in *Figure 5*, **non-live viewing is heaviest in the spring, lightest in the summer**, with variances at 10 percent or more since the middle of the current decade. The wide variance pattern pictured in *Figure 5* existed for all four networks studied (ABC, CBS, FOX, NBC).

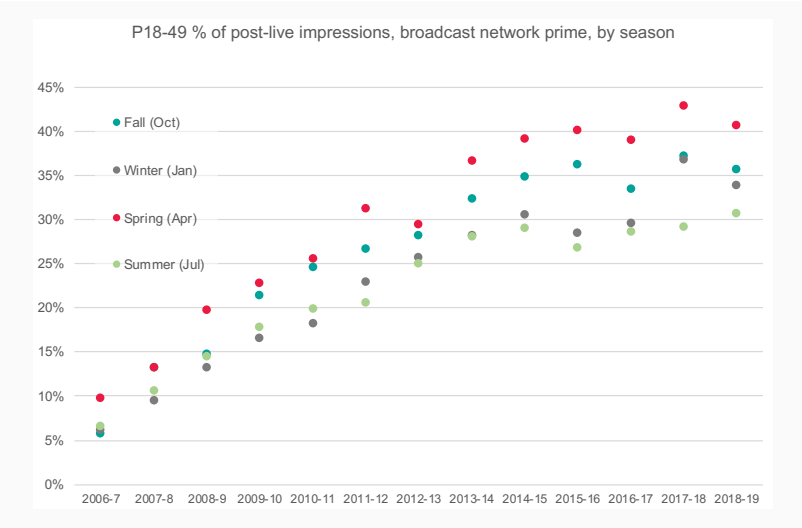


*Figure 5. % of post-live impressions over time, by season and TV year, P18-49*

On the other hand, the authors found there is **little seasonal variance**—5% or less (usually much less)—in the other three major TV categories studied: **broadcast non-prime, national cable prime and non-prime**.

Finally, amongst the **55+ demo, the same broadcast prime time trend**—highest amount of non-live viewing in spring, lowest in summer, with fall and winter somewhere in between—is repeated over the last several TV years.

The reasons behind the spring vs. summer non-live-viewing disparity in broadcast prime are beyond the scope of this study. However, intuitively, the disparity might exist due to programming options across the two seasons. In the spring, many of the networks' prime time shows are in their final episodes, often with "cliffhanger" type plotlines; in other words, "must-see TV" that might encourage increased DVR usage.

### *Broadcast networks show variances in P18-49 DVR viewing trends*

Digging a little deeper into the four major broadcast networks, we found that on their own each **network's percentage of non-live P18-49 viewing has leveled off recently**. Or in the case of **Fox, there is actually a slight downward trend**, as noted in *Figure 6* below, suggesting more live viewing (and thus, less ad avoidance). Note that the data points for Fox indicate that since 2015, the lowest percentage of non-live viewing occurred mostly in Q3 (July), one exception being January 2016 at 23% non-live viewing. A media planner's more detailed analysis of Fox's programming choices—beyond the scope of this study—would reveal which parts of the network's offerings have higher live viewing.

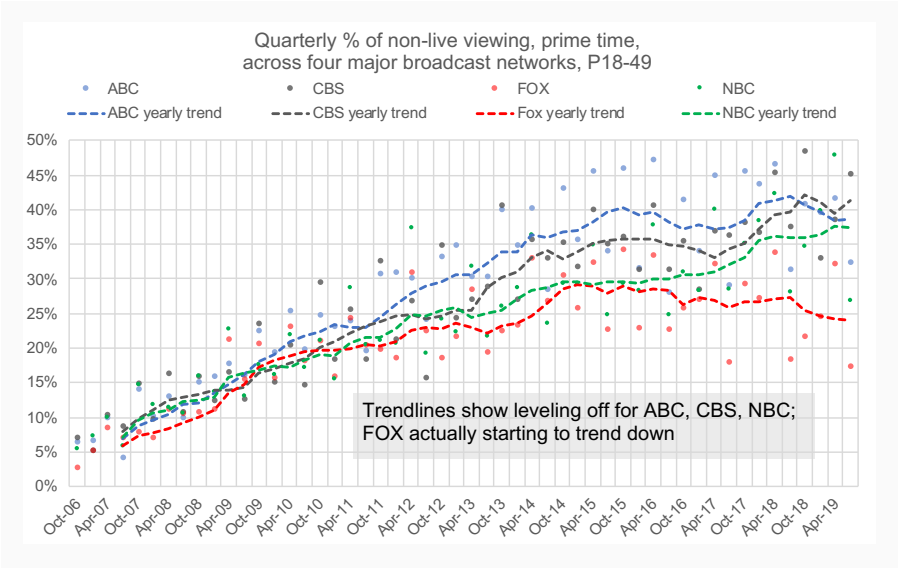


**Figure 6. Quarterly over time, % of non-live viewing in prime time, four major broadcast networks, P18-49*

### *Above median income skew in DVR viewing*

Because the DVR is a piece of equipment that may require a purchase or at minimum a monthly fee, it's no surprise we see in *Figure 7* below that **households above median income over time have 30 percent or more higher percentage of non-live TV viewing or DVR usage**. For instance, in April 2019, on average 47 percent of the higher income cohort in *Figure 7* watched broadcast prime content after the live viewing; by comparison, only 29 percent of the lower income cohort watched after the live viewing, a delta of 38 percent. In comparison with *Figure 1* where we saw broadcast prime topping out at 43 percent non-live viewing in April 2018, the higher income skew tops out at 50% in *Figure 7* below in the same month.

Note that when the same analysis is done for the 55+ demo, we observe the same disparity in percentage of non-live viewing, above and below the $60,000 median income marker.

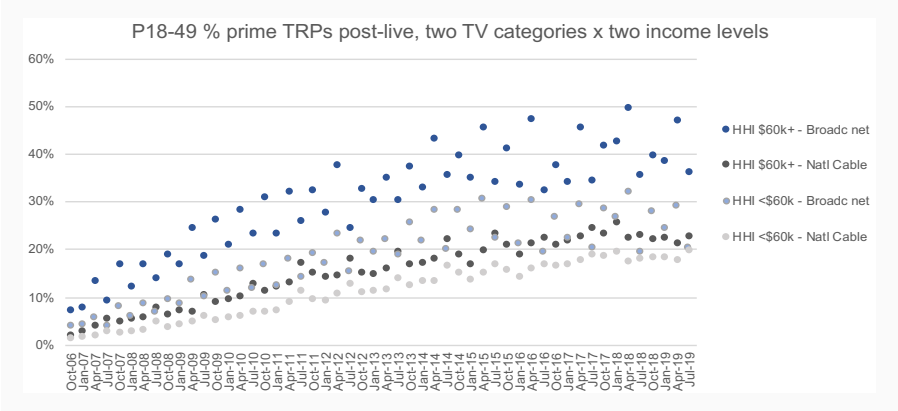


*Figure 7. Quarterly % of prime TRPs post live, P18-49, across two TV categories, above/below US median income. Note the larger y-axis scale (compared to other charts) to accommodate the above median income skew.

Finally, the non-prime daypart showed very slight income skews (disparities in the range of five percent or less and growth pattern over time similar to prime).

### *Women, slightly more likely to have post-live viewing*

The data indicates that women tend to have slightly more post-live viewing versus men across the two main demos studied: P18-49 and 55+. The difference is more dramatic in the younger demo, although even that disparity has yet to touch 10 percent. In addition, we observe in *Figure 8* that the disparity in 55+ skewed slightly male before 2011; but women 55+ percentage skew has trended up in recent years.

The reason for this disparity is beyond the scope of this study. However, this might be an artifact of men watching more live sports, which previous studies have shown have minimal post-live viewing versus scripted dramas and performance reality shows that skew female. (Kent, Mosley, Schweidel, 2018)

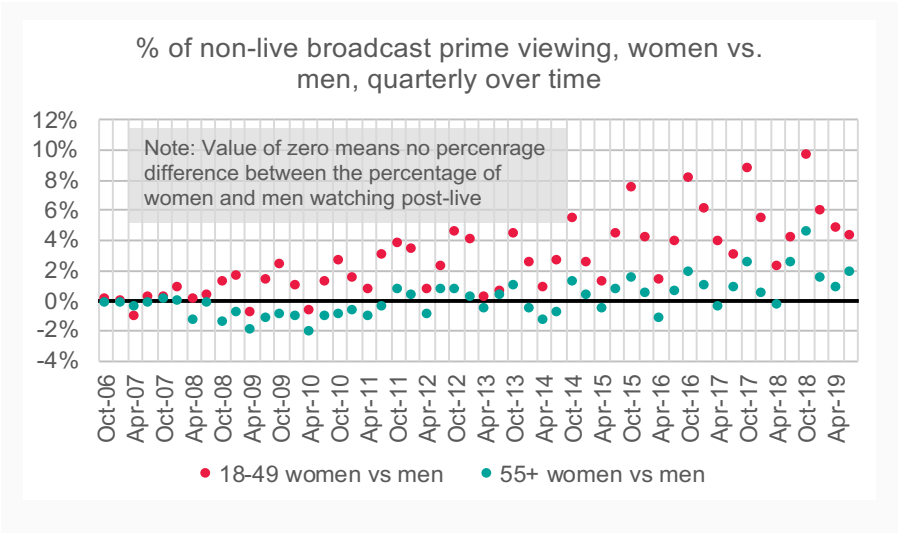


*Figure 8. Percentage difference between the percentage of non-live TV viewing, women versus men. Thus, a value of zero indicates no difference between the percentage of women and men watching post live.

Note that in the three other TV categories studied—broadcast non-prime, national cable prime and non-prime—the female/male disparities were very small, hitting five percent in only two quarters studied across the 13 TV seasons studied, and typically well below.

## THE TV PLAN IN A DVR WORLD

The implications for planners using broadcast prime linear TV, and especially Q2 linear when ad avoidance is likely high, is to **use these techniques to increase ad relevancy and, thus, chances that post-live viewers watch your commercials at normal speed**:

1. **Targeting is critical**. Do your homework and find programs that have the highest concentrations of your desired target audience who are less likely to fast-forward your ads in DVR viewing if they find your content relevant or timely for their lifestyle needs.

2. **Create an ad that grabs attention**. We have a saying here at Hawthorne: "If it's not making you nervous, it's not making you progress." Make sure the creative brief has powerful insights, the execution of the brief results in great work with moments of visual tension, attention-grabbing elements, and clear branding so that your linear TV ads are irresistible, recognized as belonging to your brand/product so that prospective buyers take their fingers off the fast-forward button.

**Secondly, exploit variances in DVR usage**. As noted in this study, outside of broadcast prime, other TV categories have modest DVR levels. A few noted areas that planners/buyers can explore as they make their media choices:

1. **Add national cable to the mix**. It does require more work. As noted below in *Figure 9*, in order to match the combined P18-49 live impressions on four broadcast networks, one would need to buy at least 17 cable networks with all of the research and negotiations such a transaction entails. [Not surprisingly, two of the four highest-rated live options in cable are sports—ESPN and Nielsen's compiled index of regional sports networks.]

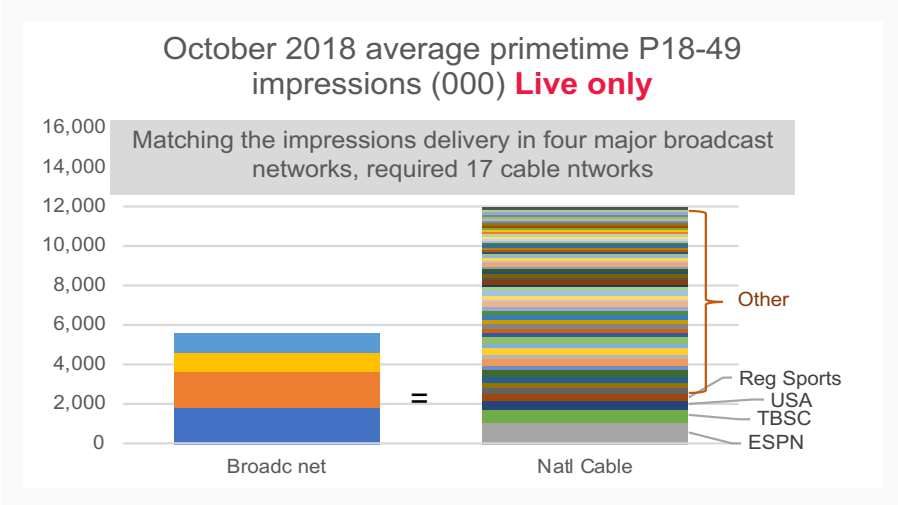


**Figure 9. Comparison of October 2018 average P18-49 impressions delivery, across broadcast network and national cable*

2. **Think non-prime** to extend live viewing impressions. While non-prime collectively averages about half the live impressions of prime (on both broadcast and national cable platforms), sufficient insertion of TV commercials outside of prime can add reach and incremental frequency required to prompt viewers to react, especially for older audiences.

3. **Remember the seasonality** as spring linear TV historically has more DVR views, especially in broadcast prime for younger and older audiences. Summer, on the other hand, offers significantly higher live viewing (and less ad avoidance).

*Analyze, analyze, analyze*

Finally, and perhaps most importantly, use **rigorous pre- and post-buy analyses** across all your linear TV buys—heavily-DVR'd categories and not—to estimate the return on your advertising investments. Sure, maybe 30 percent of the audience misses your ad; but 70 percent often yields strong ROI.

So how exactly does one move beyond the "How did you hear about us?" pull-down menu approach[2] of ascertaining TV ROI? Hawthorne clients in heavily-DVR'd TV programming still see strong ROI in such buys. How? The agency has capabilities across and uses several techniques and tools, not just one, to predict and evaluate ROI across the linear TV landscape:

- **Signal detection models** such as our proprietary baseline and "PureSTAT®" tools, which use statistics to estimate client KPIs (typically, digital engagement but also phone calls) within a few minutes after TV airings. The use of smart phones to react to linear TV content is well-documented (in countless articles since the invention of the iPhone), and we regularly see strong "signals" from viewers which enable us to triangulate the advertising ROI, combining signal detection with other techniques listed here.

- **Smart TV panels** can provide digital-like tagging of linear TV ads and follow viewers' purchase actions. One of the current panels, available via iSpot and Inscape, follows about 1 1-12 million TV households (as of this writing), and provides cross-device tracking (with personal information stripped out of the data set) of consumer digital actions on desktop and mobile devices. Hawthorne has built data systems that enable automated download of the panel data, so that our clients can see in a customized dashboard, within one business day of airings, the ROI across their entire TV buys, including high-priced (and heavily DVR'd) network prime shows.

- **Statistical techniques** such as multivariate regression and simple correlation can help tell the story. These studies typically are a good checkpoint after a few months of a campaign being on air so that sufficient data points become available to yield statistically stable analyses. For instance, in our quarterly wrap-ups for clients, we include at the very least statistical analyses to confirm that clients' branded search, organic and direct type-in traffic increases when TV is on air. The regression models actually help quantify the ROI of TV and how it works in conjunction with other campaigns (e.g., social, direct mail), and can help forecast future results.

- **Don't forget reach**. Another saying here at Hawthorne is "All TRPs are not created equal." Various studies we have conducted across client buys tell a similar story which usually comes to the same conclusion: A high-reach broadcast network prime show may show negative ROI in the signal detection techniques (which, after all, look at only a few minutes after such an airing); but such high-reach media are positively correlated with longer-term consumer engagement and purchase, brand awareness, consumer sentiment, and top-of-mind recall for clients in competitive verticals.

- **Media Test Scoring Model (MTSM™)** is a Hawthorne-created system that enables gathering of historic results data from client digital properties, call centers, retail sales, etc. tied to specific linear TV options across all dayparts, stations/networks; even down to the level of how different spot lengths vary in their ROI delivery. MTSM executions for our clients enable careful consideration of media options, providing a clear "heat map" of media opportunities, and flexible enough to rate those opportunities on pure branding or pure direct response attributes (or gradations between the two).

## FINAL THOUGHTS

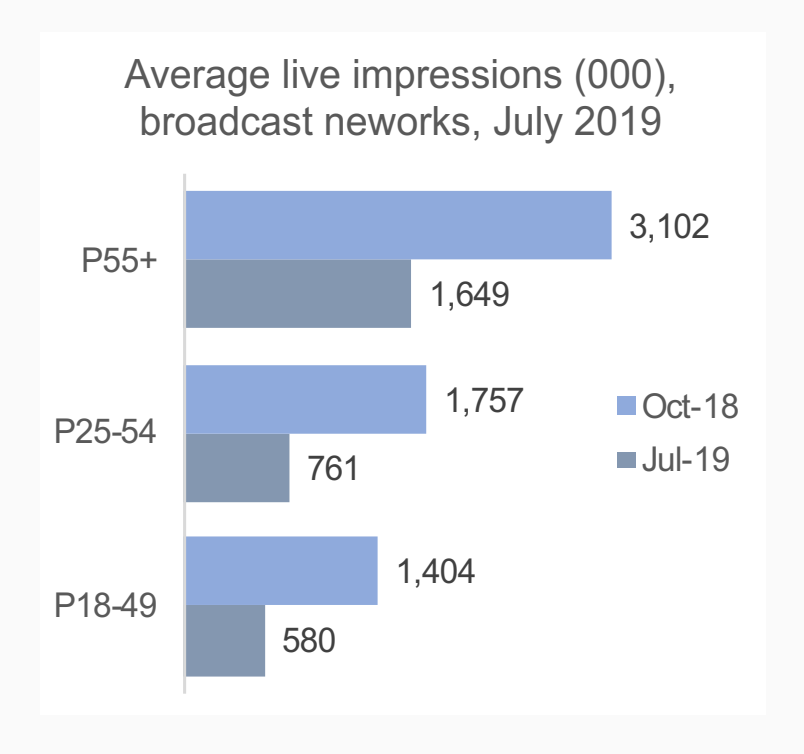


*Figure 10. Average live impressions, four major broadcast networks*

In the next few years, our age of high DVR usage and ad avoidance requires deft planning and analysis **in order to maintain linear TV success (and positive ROI)**. Smart marketers have analyzed TV advertising ROI from the medium's inception, and the good news is that there are different, easily accessible (although not necessarily easy to execute) techniques and tools available

for agencies and clients to evaluate ROI in linear TV buys. While broadcast prime delivers the largest audiences and predictable, quality content (brand safety being a major concern for all), this TV category also delivers audiences who avoid watching ads.

Still, **LIVE ratings for broadcast prime offer, by far, the largest and quickest reach**. *Figure 10* above shows on average a LIVE airing in a broadcast prime show can reach millions of people. Even in the middle of summer 2019, the season when households using television is always the lowest in a year and broadcast networks' content is not as strong, average live ratings were 580,000 persons in the difficult-to-reach (and ad-avoiding) P18-49 demo. Streaming platforms that allow ads, on the other hand, would need, in most instances, much more time to achieve even that relatively low, July 2019 level of impressions.

# APPENDIX

## *Endnotes*

1 US Census Bureau reports current median income at around $62,000 which is very close to the ~$60,000 real median income (adjusted for inflation) that existed in 2006, the oldest available data used in this study. Note that real median income dropped in the post-Great-Recession years 2009 to 2015 (to as low as $55,000). Thus, for this study, the authors felt that due to the relatively flat growth in real median income from 2006-2019, $60,000 household income (nPower rounds income to $5,000 levels) was a fair division point to study median income as a factor throughout the time period of this study (again, 2006-19).

2 By the way, a perfectly acceptable technique, but one that shouldn't be used as the only technique for measuring ROI.

## *Bibliography*


1. Bronnenberg, B. J., J.-P. Dubé, and C. F. Mela. "Do Digital Video Recorders Influ- ence Sales?" Journal of Marketing Research 47, 6 (2010): 998–1010.
2. Holmes, G. (2016, December 6). "You Watch More Ads than You Think." MediaPost website: http://www.mediapost. com/publications/article/290465/you-watch- more-ads-than-you-think.html
3. Kent, B., and Mosley, B., and Schweidel, D. "Advertisements in DVR Time: The Shelf Life of Recorded Television Commercials in Drama, Reality, and Sports Programs." Journal of Advertising Research, 58, 4 (2018).
4. Steinberg, B. (2007, May 31). "DVR ad Skip- ping Happens, But Not Always." Advertising Age website: http://adage. com/article/media/dvr-ad-skipping/117023/
5. Thomas, E. A. (2012). "DVR Pilot Study: Mea- suring the Use of Digital Video Recorders in Modern Television Viewing." Retrieved from Murray State University Explorations website: https://sites.google.com/a/murraystate.edu/ graduate-journal/past-issues/dvr-pilot-study
6. Wilbur, K. C. "How the Digital Video Recorder (DVR) Changes Traditional Televi- sion Advertising." Journal of Advertising 37, 1 (2008a): 143–149.


## *Cable stations*

List of cable stations studies available upon request.