FOX NETWORKS GROUP

Interrupting Disruption

Objective Proof That TV Still Works Best

EXCLUSIVE STUDY

FOX NETWORKS GROUP

SMI | STANDARD MEDIA INDEX™

BH BILL HARVEY CONSULTING

Why Conduct This Study?

IN THE LAST FEW YEARS there have been several published industry studies produced by various media mix model research firms at the behest of major media companies. Most take anonymized advertiser spend and marketing data and perform regression analyses to assign responsibility for sales effects to different media platforms and tactics. These studies take a macro, aggregated view of a process that scores of advertisers conduct individually to direct and evaluate their own media spending strategies. And almost invariably, in considering and quantifying the impact of the multitude of marketplace factors, electronic media effects and interrelationships between campaign elements, they reinforce the value proposition of television content and platforms. So why do another?

Because in the current attribution-obsessed environment, pure play digital media companies have perfected the proof of performance game, providing "black box" results data in isolation with limited context, sense of proportion or contemplation of the many factors that influence the media in the purchase funnel that ultimately drive a sale. In the vast majority of multi-touch attribution cases, television is left out of the analysis, and thereby its effects are credited to digital. The low cost of entry and willingness of these media platforms to provide real-time dashboards demonstrating sales lift makes them an easy sell to many. But with no visibility into their methodology or process, it's necessary to create the counterbalance of a continuous, time honored, econometric evaluation using the most transparent and replicable methods to reinforce how media work holistically and in what proportion they contribute. Although advertisers have this kind of data for their individual brands, having an independent, ongoing market-level view that assesses the evolution of consumers' response to ad media contexts is required to reset the detrimental over-rotation of spend towards low-attention, inflated-attribution digital and social media. This is our latest input to that ongoing body of work.

Although one might question our objectivity, we are fully objective in our approach because our results, generated by SMI and Bill Harvey Consulting, speak for themselves. Our methodology is 100% transparent and can be easily replicated by anyone with Excel spreadsheet statistical extension capability. Without selectivity, all advertisers were included in the study who had invested a minimum dollar amount of $250 million over the span of 3.5 years. All statistically significant results at 95% or higher confidence level are reported, and all other results of 90% confidence or higher are included and footnoted. Common marginal utility analytics, which focus on predicting the effects of the next dollar spent in each medium, were used to evaluate media according to the observable fact that over-allocated platforms deprive underspent, still-productive media platforms so that the next dollar spent fails to cause brand gains.

Brands were studied in the automotive, CPG, and QSR verticals, aggregating all brands above our spending threshold. In each vertical, only those brands that are in the SMI database as actual (not modeled) data were included.

Two sub-goals in this study were to drill down on the effects of two of TV/TV-based video's fastest-growing, highest profile advertising environments, sports programming (especially NFL) and branded integrations and these details are found herein.

This Executive Summary Report contains only the findings of greatest significance to readers. We invite our advertisers to also request access to the complete study.

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How Is This Study Different?

We believe this study is an industry first, and a standard to build upon in the future by all practitioners.

The study is the largest and most current macroeconomic study of the effects of advertising that is focused on the advertiser point of view. It covers three of the largest verticals comprising the top 100 advertisers in the U.S. over a 3.5 year period. While the U.S. government has conducted large studies that focused on the effect of advertising on the U.S. economy in the 1950s, and subsequent scholarly papers reviewed those older studies as recently as the 1980s, those studies were not directly from the point of view of benefit to the advertiser.

It is the first study of its kind to utilize accurate media cost and spend data. All earlier studies were plagued with knowing that there were large percentages of error in both directions due to the lack of accurate advertising cost and spend data, and the volatility of those errors could not be adjusted out.

This study is 100% transparent. The data and formulas are available for anyone to replicate the results and further develop the research. This unprecedented level of transparency is intended to set a trend that ultimately corrects the excessive use of black box models in studying advertising ROAS.

Further, the formulas used in the study are the most widely used statistical standard tools, used by science, technology, engineering, academia, the military, and industry. One of these tools specific to our industry is the Adstock Model, Simon Broadbent's hallmark contribution to the detection of lasting advertising effects.

MAIN TAKEAWAYS

- Spending in television is positively correlated with increases in sales/market share in 98% of cases.
- Over the 3.5 years of the study, television content contributed 75.8%, approximately $142B, of sales effect across the three verticals studied (Automotive, QSR and CPG).
- Brands that shifted dollars from television to digital lost market share.
- Optimally, TV should receive two-thirds or more of ad spend, depending on vertical.
- When TV is included in multiplatform plans, its synergistic effects significantly increased ROI for all digital media types in almost all cases.
- Sports programming, specifically the NFL, delivered strong ROI across all three verticals.
- Custom sponsorships/TV brand integration was shown to have positive sales effects lasting up to 4 months for CPG and 8 months in automotive.

Key Findings

1. TV IS POSITIVELY CORRELATED TO SALES IN 98% OF CASES

Spending in television and premium TV-based digital video are positively correlated with an increase in sales/market share in 98% of cases, while Facebook/social and YouTube/non-premium video are negatively correlated with sales/market share increases in nearly 80% of cases. While we could not guarantee causation from those correlation results, albeit extremely strong, the multiple regression analysis shown in figure 2 quantifies the effect of ad spend for each subtype.

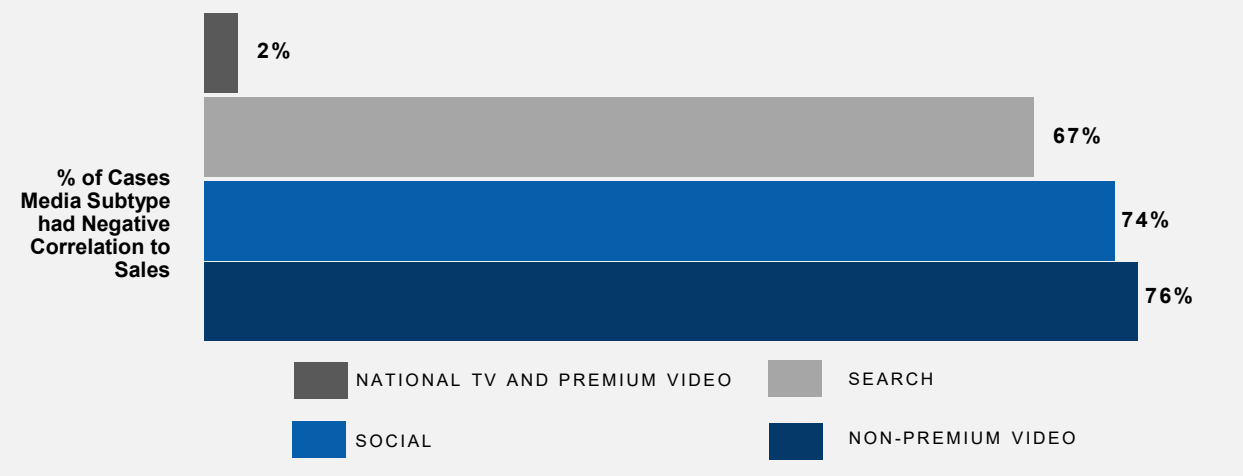

FIGURE 1: Spend in TV and premium video are correlated with sales market share losses in only 2% of cases, whereas search, Facebook/social and YouTube/non-premium digital cause losses in 67% to 76% of cases.

The bars below represent the correlation between increased spend in a media type and its sales results. Upward bars indicate media types that are positive drivers of sales and downward pointing bars represent negative correlations between sales increases and increased spend. Based on this analysis, $10MM ad spend on National TV and Premium video (while holding spending on all other media types constant) would lead to market share gains of 0.044%. While this may seem small, 0.044% market share is equivalent to over $80M in quarterly sales in QSR and over $130M in Auto.

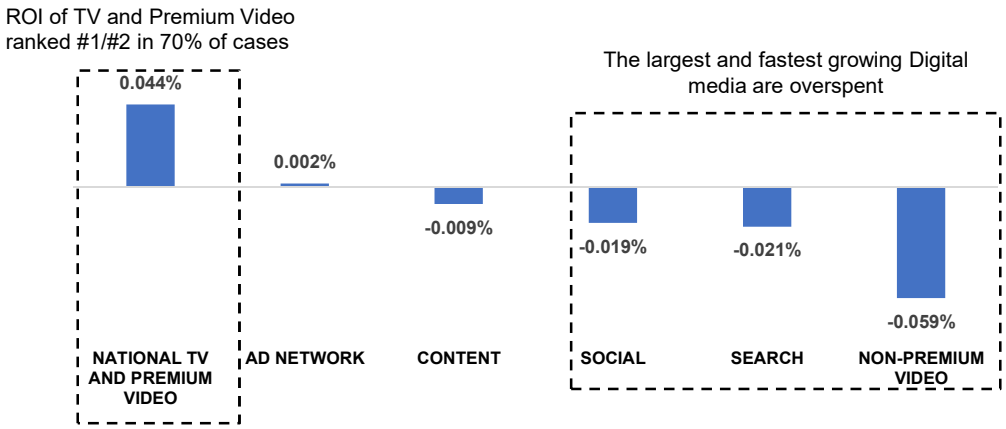

FIGURE 2: Overall media type correlations to market share

*Represents percent market share increase per $10M ad spend

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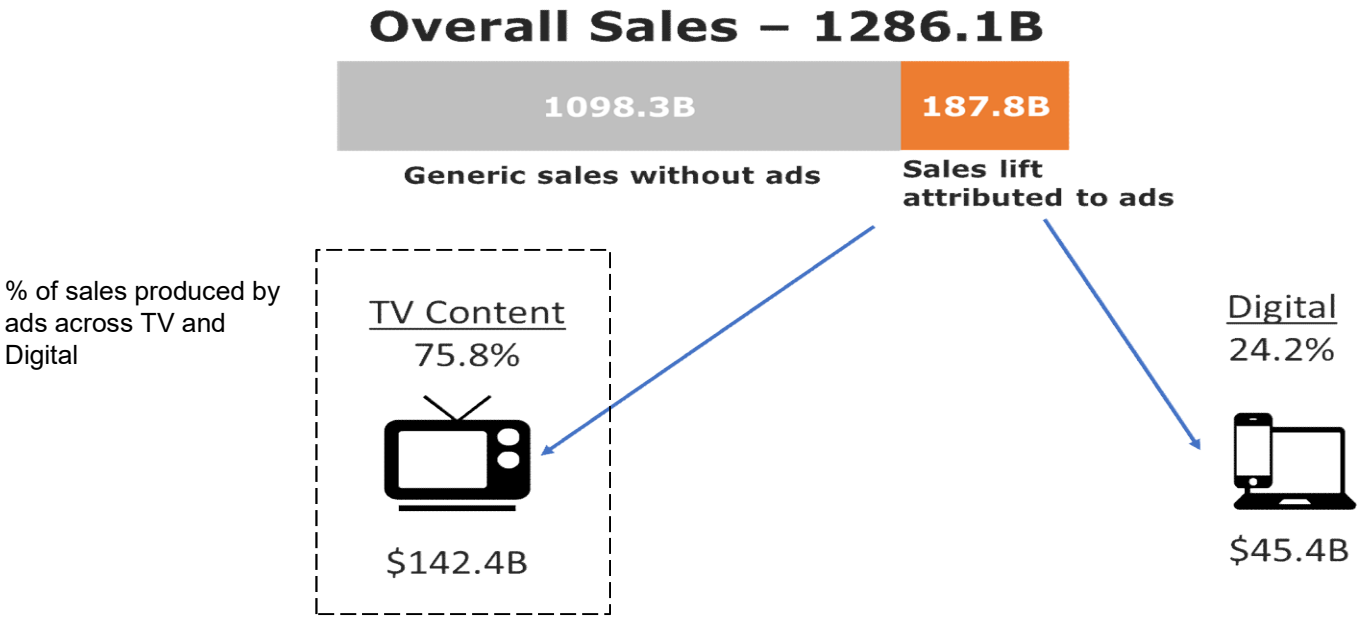
Key Findings

2. TV CONTRIBUTED OVER 75% OF AD-PRODUCED SALES

Over the 3.5 years of the study, television/premium video content contributed 75.8% of sales effects across multiplatform ad campaigns and verticals. In terms of absolute dollars, out of the $187.8 Billion of U.S sales produced by advertising television/premium video content was responsible for $142.2 Billion while digital contributed $45.4 Billion.

FIGURE 3: Overall Sales Were $1, 286 Billion Over 3.5 Years



The remaining $1098.3 Billion are sales not derived from current advertising; rather these are sales based on brand equity/habitual behavior which reflects the long-term effects of previous advertising, plus sales generated by price/promotion, in-store display, in-store personnel, word of mouth, out-of-stock preferred brand, etc.

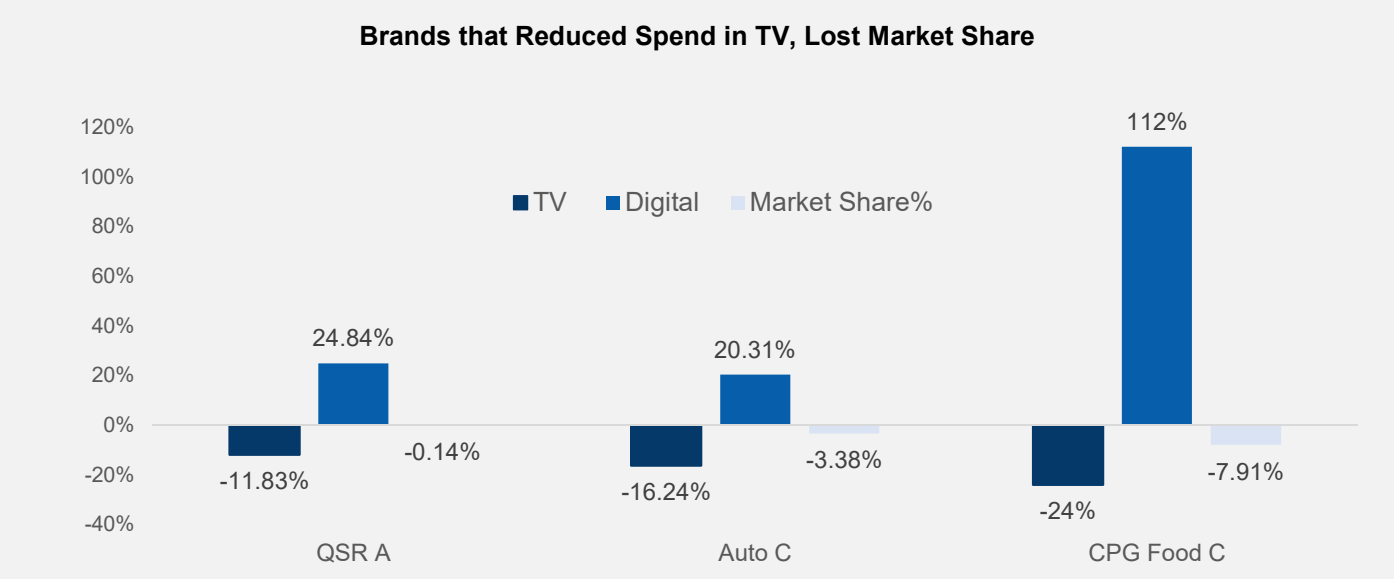
Key Findings

3. BRANDS THAT REDUCED SPEND IN TV LOST MARKET SHARE

All media exhibit a saturation effect, however TV's saturation level is so high that it is rarely reached. This is partly a result of TV's massive reach. TV's almost unreachable saturation point is also connected to its lean-back, relaxed and communal experience (vs. the lean-forward and solitary mode of digital where one is task oriented and impatient with advertising).

Figure 4 gives examples of advertisers in each vertical that lost market share when they decreased their TV spend. These are a few typical cases, one from each vertical, which illustrate the general pattern. Each of the advertisers significantly shifted ad spend from TV to digital and saw negative impacts on sales.

FIGURE 4: Examples From Each Vertical



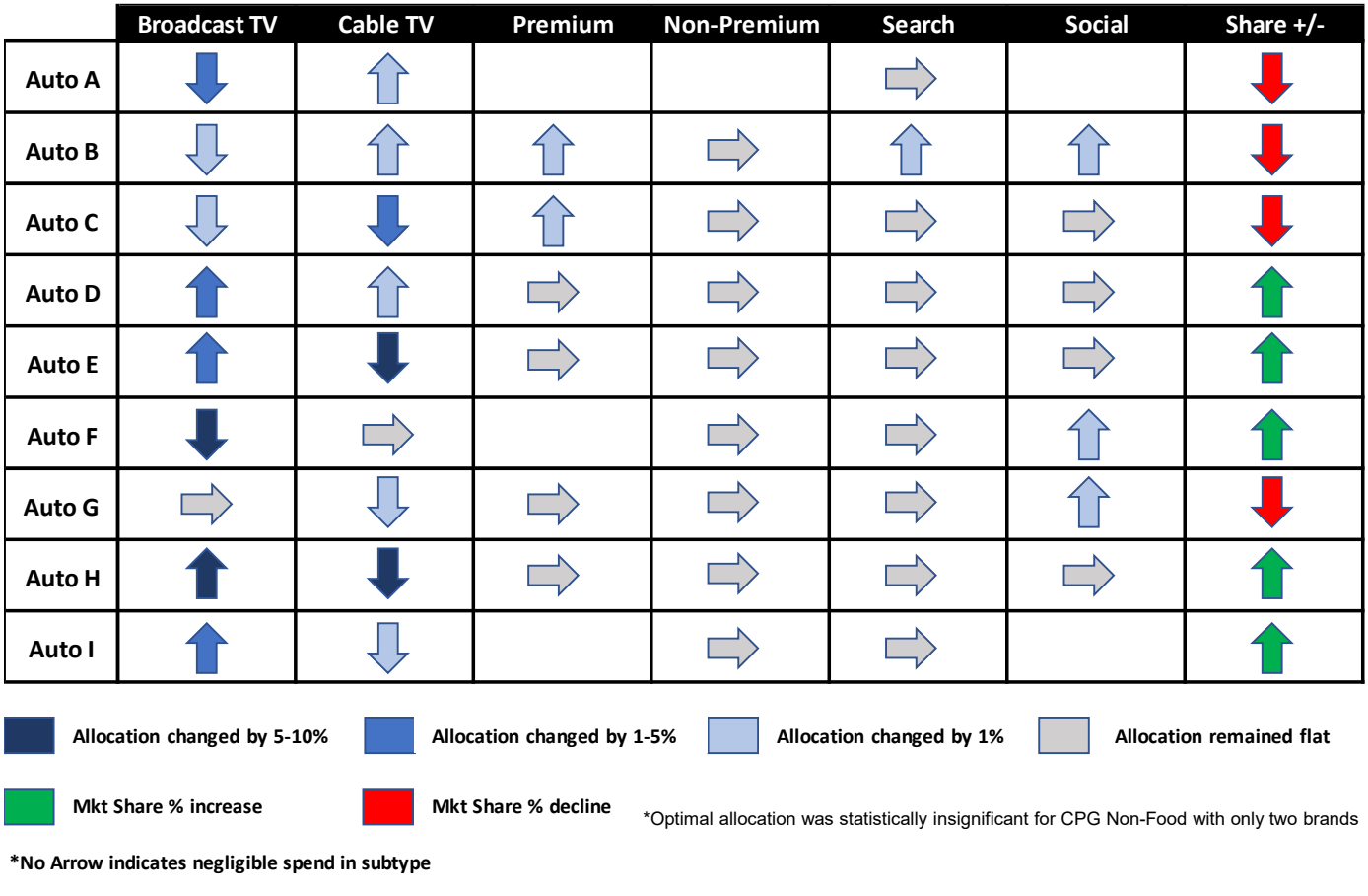
Key Findings

3. BRANDS THAT REDUCED SPEND IN TV LOST MARKET SHARE (continued)

Looking specifically at automotive, figure 5 shows that increases in TV ad spend drove increases in market share, with the exception of one outlier. Auto F is an outlier case, which despite TV allocation (60%) well below optimal allocation point for automotive (68.7%), was able to increase market share during the study period due to (1) the creative which won accolades in the trade press and (2) the product itself which earns high satisfaction scores and awards from automotive enthusiast publications. It should be noted that toward the end of the study period even Auto F shifted media dollars back into TV from digital.

FIGURE 5: Auto growth with increase in TV. 4 out of 5 of the auto brands increasing sales were increasing broadcast TV.

Timespan of Analysis: July 2014 – June 2017



Key Findings

4. TV SHOULD OPTIMALLY RECEIVE TWO-THIRDS TO THREE-QUARTERS OF SPEND

Overall, advertisers with higher proportions of media spend allocated to TV witnessed a gain in market share. Figure 6 shows the optimal midpoint of TV ad spend allocation across verticals. The reason for different TV/digital allocations across product categories relates to the way consumers make purchase decisions. In categories where there is more active information search, consideration of consumer reviews of brands, and so on, the digital optimal allocation calculates higher than in categories where purchases are more impulsive (e.g. QSR).

FIGURE 6: Optimal Allocation

Verticals	Optimal TV ad spend allocation	Optimal Digital ad spend allocation
QSR	78.8%	15.5%
Automotive	68.7%	23.7%
CPG Food	63.4%	27.2%

Key Findings

5.BRANDS INCREASING TV ARE GROWING ABOUT TWICE AS FAST AS THE NORM

In categorizing brands by their ad spending patterns, figure 7a and 7b show the relative YoY compound average growth rate (CAGR) for each brand in relation to each brand's media mix characteristic. This shows that most brands that underperformed versus industry average are brands that increased digital share, while brands that have reverted back significant dollars from digital to TV (TV on the Rise) and those that have consistently spent the majority of their dollars on TV (TV behemoth) tended to grow at a much faster pace than industry norm. Please note that the only two brands that consistently declined during the study period increased their digital spend. Brands are ranked by success level.

FIGURE 7a: QSR YoY CAGR Index

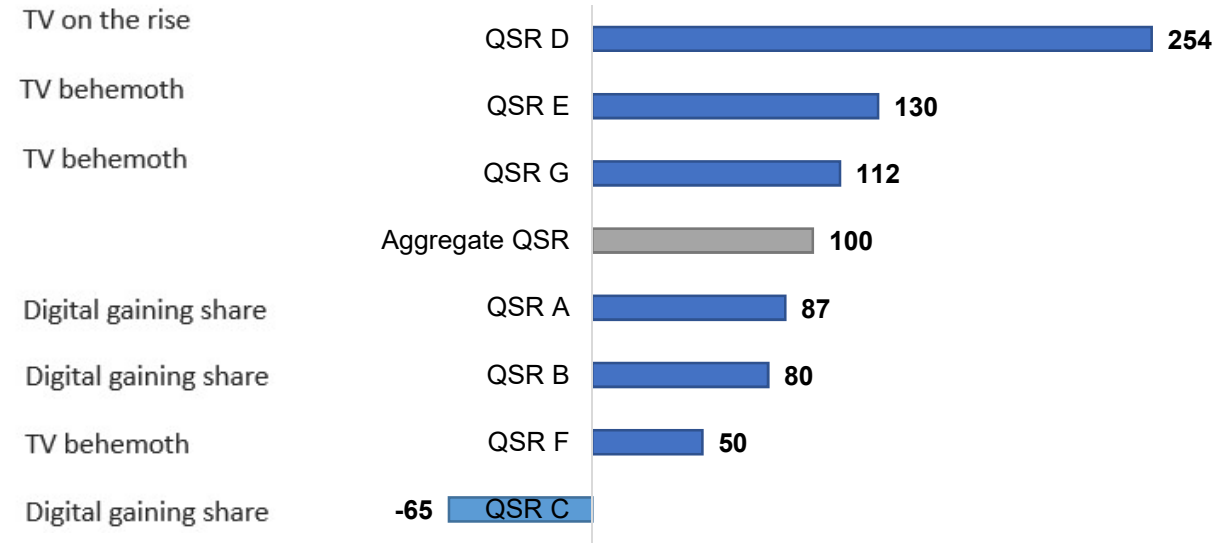
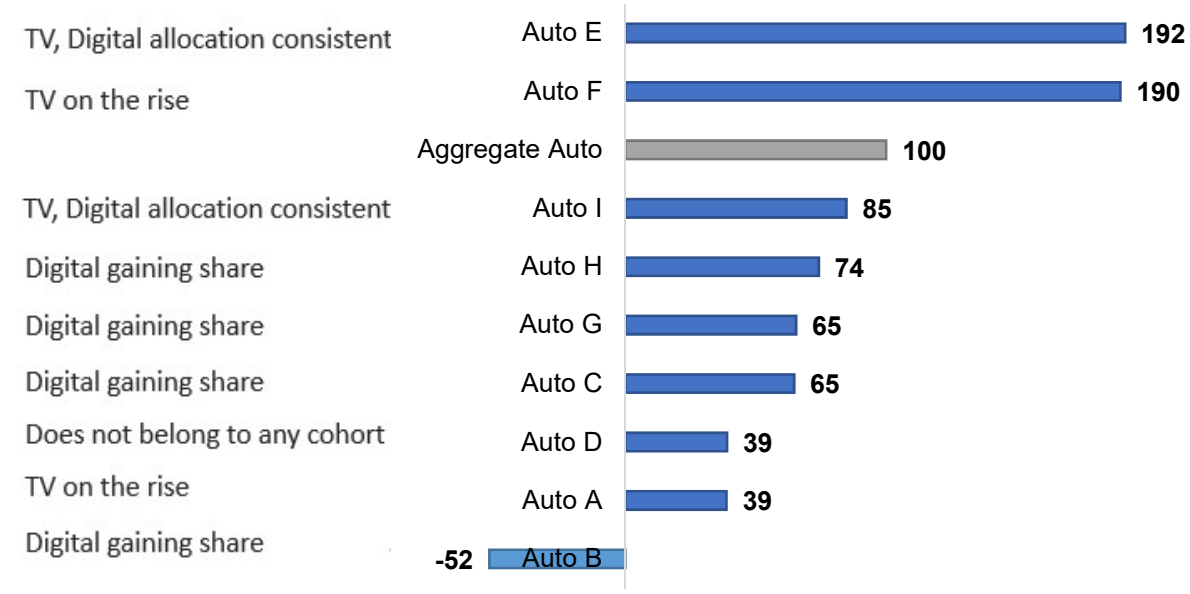


FIGURE 7b: Auto YoY CAGR Index



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Key Findings

6. TV GREATLY INCREASES THE EFFECTIVENESS OF OTHER MEDIA

To assess synergistic effect, TV was bundled with each type of digital media and the bundle's impact on sales was compared to the impact the media type individually had on sales. Based on that model, when TV is included in an auto or CPG plan, its synergistic effects significantly increased ROI for all digital media types in almost all cases. One outlier is the synergy of TV and social in the auto vertical, where increased spending on TV and social individually led to higher ROI than spending on a TV and social bundle, likely caused by overlapping audience or simply due to diminishing return on investment.

FIGURE 8a: Auto Synergy Effect

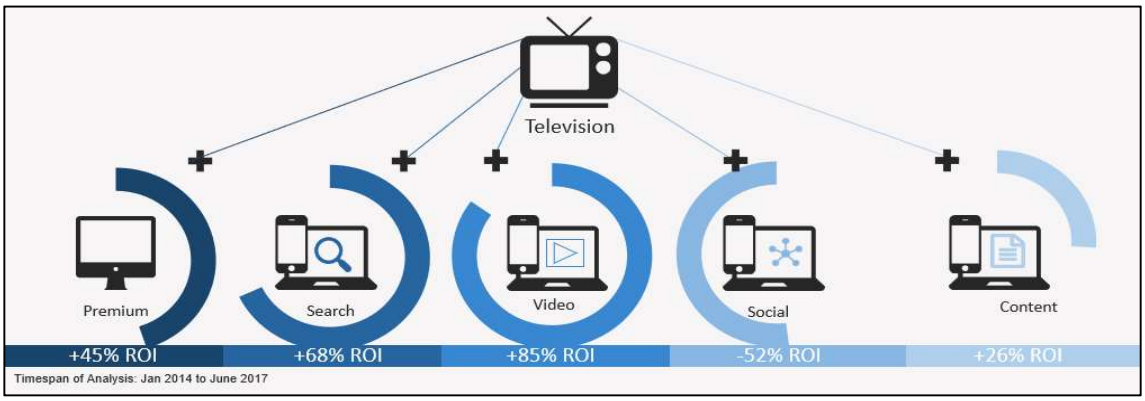


FIGURE 8b: CPG Food Synergy Effect

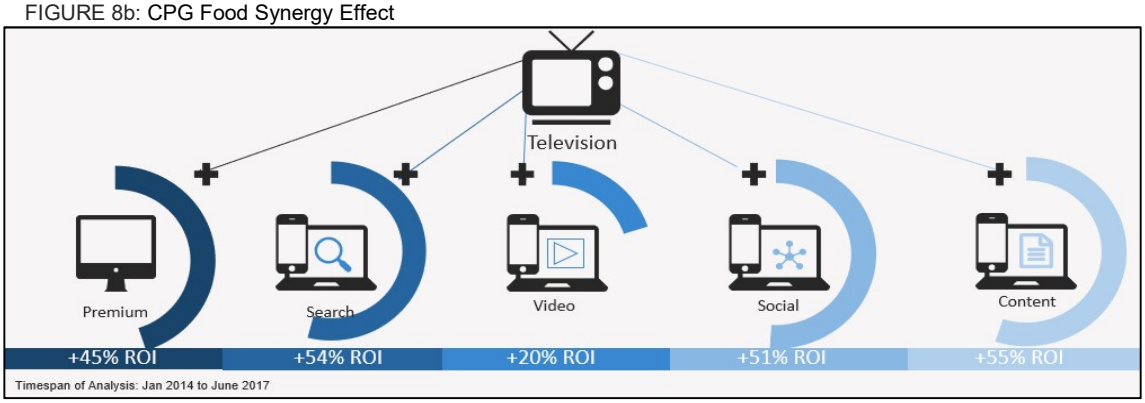
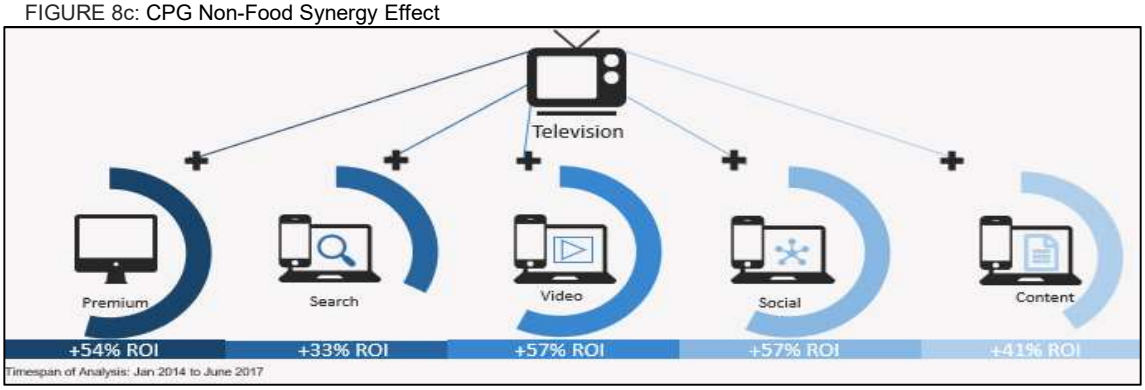


FIGURE 8c: CPG Non-Food Synergy Effect



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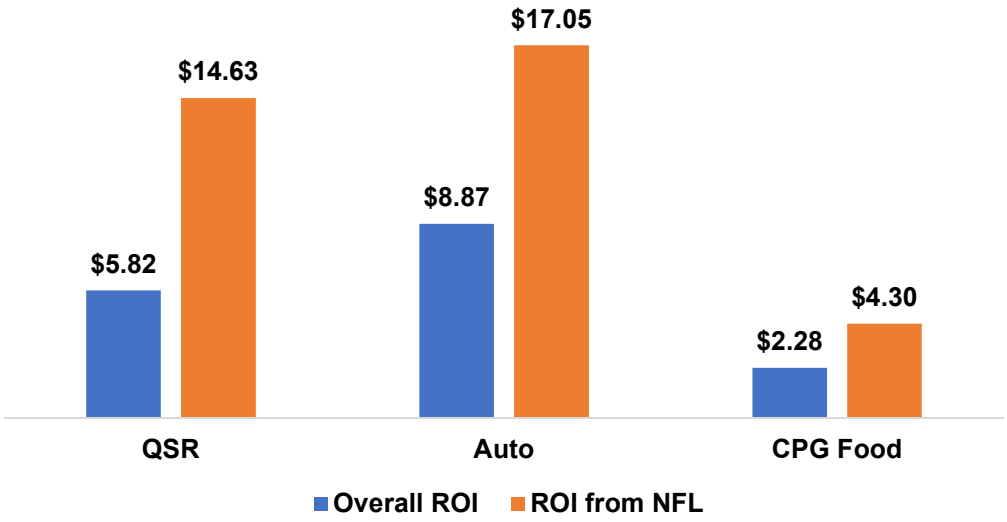
Key Findings

7. TELEVISED SPORTS IMPACT

Sports had the highest ROI on average, over entertainment and news, for automotive and QSR. The NFL, in particular was an exceptional performer, delivering ROI nearly 3x higher than average on QSR and approximately 2x higher on Automotive and CPG food

NFL Return on Ad Spend

FIGURE 9: ROI by vertical



ROI = total sales attributed to ad spend / total NFL ad spend

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Key Findings

8.TV BRAND INTEGRATION

Because agencies do not report brand integrations to SMI, a sub-study based on comprehensive information provided by FOX on its most recent integrations was carried out. In the studied product categories, custom sponsorships/TV brand integration were shown to be an exceptional ROI powerhouse, particularly for automotive, with noticeable sales effects lasting for up to 8 months for automotive and up to 4 months for CPG. Because brands have learned to cluster branded integrations across networks at about the same time, these results should be looked at as the collective effect of brand integrations across Fox and other networks.

FIGURE 10: Television Branded Integration into Programming is an ROI Powerhouse

	Automotive	CPG
Avg. M/M Sales Growth % During Integrations	9.4%	4.6%
Impact Period (Months)	6 to 8	2 to 4
Integrations Measured	11	3

Figure 11 shows results of a representative sample of automotive integrations. Product J1 Int. 1 had the highest absolute dollar sales lift while product C1 had the highest percentage sales lift.

FIGURE 11: Auto sales lift attributable to branded content integration

	ALL CARS (Standard and Luxury)	ALL Standard Cars	Product J4	Product J1 Int. 1	Product J1 Int. 2	Product J3	Product C1	Product C2	Product J5
PRODUCT SALES TREND	↑	↑	→	↑	↑	↓	↓	↑	→
AVG. SALES DURING PERIOD OF ANALYSIS	$569.7M	$827.0M	$549.2M	$1796.7M	$1796.7M	$400.1M	$203.9M	$436.2M	$606.4M
M/M SALES GROWTH % DURING INTEGRATIONS	9.4%	7.5%	5.31%	3.87%	2.17%	7.73%	23.43%	3.27%	6.54%
SALES LIFT $ DURING INTEGRATIONS	$311.3M	$251.1M	$27.7M	$66.9M	$38.1M	$28.7M	$38.7M	$13.8M	$37.2M

While integrations were generally superb drivers of sales, some tactics proved to be more powerful than others across verticals. In automotive integrations, for example, the use of sweepstakes, the chance to win a car was a strong element. In both CPG and automotive, talent is another powerful element.

Methodology

In conclusion, an objective third party study employing the most definitive available ad spend and sales data, for all brands above a specific spend level, in three verticals accounting for almost half of all ad spend by the top 100 advertisers in the U.S., finds that no other medium digital or otherwise can match television in terms of ROI/ROAS, long-term sales effect, high saturation point, or ability to lift the sales effect of other media used concurrently. Not included in the study but generally believed by practitioners, this is because of achievable TV brand campaign reach and branding effect, the lean back mindset of TV, and the combination of sight, sound, motion, and emotion.

Vertical/Category Data Preparation and Cleaning

Quick service restaurants

- NPD CREST is the industry standard for the QSR vertical and provided weekly sales data to SMI

Automotive

- For legal reasons, Polk provided the automotive sales numbers to SMI in the form of price ranges. Averages were derived for use in calculations.
- Some Motor Vehicle Bureaus stopped reporting price information. An algorithm was created and utilized which calculated the average price based on the past sales price for those vehicles by make/model/type/year.
- For exotic cars (e.g. Lamborghini) a general sales price range of >$110,000 was provided in the dataset. Through extensive search activity, SMI updated the dataset with actual prices.

Consumer Package Goods (CPG)

- IRI provided weekly CPG sales numbers to SMI, while SMI ad spend data is monthly in nature
- Monthly sales data were estimated by prorating IRI's weekly sales data

Methodology

Vertical/Category Analysis – Time Series Regression

1. Utilized time series regression models on all brands in the SMI U.S. data pool that spent at least $250MM in U.S. advertising (as detailed in item 6 below) during the period January 1 2014 through June 30 2017. For the purpose of anonymity, these brands are labeled as Brand A through G for QSR; Brand A through I for automotive; Advertiser A through E for CPG.*
2. Because there is an inherent lag from the time brands advertise to the time it reflects on sales, analysis started by finding the "best fit" lag time for each media subtype for the category and for each brand, in the sense of how many weeks after spending correlation between spend and sales became significant.
3. This was done using a script that would loop through every combination of lag lengths for each subtype (tens of millions of regressions) to find those combinations significantly correlated with sales.
4. After finding these inherent lag lengths, the lagged ad spend variables were used in regression with sales (by market share %) as the dependent variable. Seasonal effects were also considered, after finding that brand-level sales data has its own monthly trends, even outside of market trends by vertical. Therefore, typical regression looks like: *Sales ~ α1 + β1(National TV) + β2(Premium Video) + β3(Non-Premium Video) + β4(Search) + β5(Social) + β6(Internet Radio) + β7(Print Digital) + indices for seasonal and monthly trends*
5. The beta associated with each variable is Advertising Elasticity of Demand (a form of ROI) which means how much demand changes with an extra dollar in advertising. This approach along with using market share brings brands on the same scale regardless of their size. Because the effects of a single ad dollar are negligible, the incremental effects with shifts of $10MM in advertising are shown.
6. It is worth noting that all available data in each regression was included to allow for as much accuracy as possible. All brands available in the SMI pool by vertical, that spent the following, are reported—no judgment-based deviations have been made: These cutoffs were set such that at least the top 5 advertisers would be reported per vertical:
   - QSR at least $250MM
   - Automotive at least $475MM
   - CPG at least $475MM

* Integrations analytics were based on brands recently using integrations on Fox Networks

All results are reported if they are statistically significant. So, although spend for media types such as ad networks/exchanges, magazines, out of home, and radio are included, their results either do not reach significance according to p-values less than .05, and/or because they have negligible spend, and are therefore not shown. All regressions exhibit F-statistics with corresponding p-values lower than .05 (95% confidence) for QSR, automotive, and CPG, unless otherwise noted.

Time Series Regression*

Sales (Market Share) ~ 38.96% +0.0571% (Premium Video) + 0.1365% (National TV) + 0.0021% (Ad Network) - 0.0086% (Content) - 0.0086% (Social) - 0.0213% (Search) - 0.059% (Non-Premium Video) + Indices for Seasonal and Monthly Trends

*Represents percent market share increase per $10M ad spend. Timespan of Analysis: Jan 1 2014 through June 30 2017.

Methodology

Optimal Media Allocation Analysis – Time Series Regression

1. Software was created to find the optimal TV and digital allocations within each vertical—this would be a % allocation where any deviations from which, higher or lower, would be expected to result in decreased market share growth.
2. This was done by iterating through every possible allocation for TV and digital from 0% to 100% by .1% increments. For each possible allocation, data was transformed to regress, on a quarterly basis, the market share growth on how much the media allocation deviated from the allocation being tested, along with total ad spend for the quarter.
3. The allocations that led to the transformed data being most statistically significant in correlation to market share growth are therefore optimal allocations.
4. Looking at their coefficients, in every scenario the transformed data had a negative coefficient meaning that increasing the deviation from this allocation leads to negative returns (and therefore it is an optimal allocation), and total ad spend had a positive coefficient (increasing ad spend leads to positive growth).

Benchmarking Advertisers Against Sectors

1. Growth rates and therefore indices were calculated from the cleaned data obtained from sales data suppliers.
2. Compound annual growth rates were calculated for a) each of the brands within each vertical as well as b) the aggregated sales of all brands in the study within each vertical, studying growth from the first half of 2014 through the first half of 2017.

$$CAGR\ \% = \left[\left[\frac{sales\ in\ first\ six\ months\ of\ 2017}{sales\ in\ first\ six\ months\ of\ 2014}\right]^{\frac{1}{3}} - 1\right] * 100$$

3. All growth rates were normalized against the aggregated sales of the vertical, by dividing the growth rate of each brand by the aggregate and multiplying by 100. This creates an index where the benchmark for each vertical is the aggregated sales growth for all brands studied in the vertical.

$$Index\ for\ brand\ i = \left[\frac{CAGR\ for\ brand\ i}{CAGR\ for\ aggregate\ sales}\right] * 100$$

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Methodology (Continued)

Integration – Time Series Regression

2. Utilized time series regression models on each of the product integrations. For the purpose of anonymity, CPG advertisers were labelled D, E, & F; Auto brands were labelled A, B, C, & J. Each of these were further divided by their products, if multiple products had integrations (e.g. Auto Brand A had Product A1 and Product A2).
1. SMI did not have consistent access to agency digital ad spend (and therefore media mixes) for a majority of automotive advertisers throughout the time period of January 2014 to June 2017, whereas we did for CPG advertisers. In order to keep our methodology consistent within each category of product integration campaigns, we incorporated ad spend and media mixes for the 3 product integrations in CPG, while for Auto product integrations we incorporated seasonal/cyclical effects as well as trends over time that are at least partially driven by ad spend cycles. Then any shifts in these trends found during integration impact periods are assumed to be the sales lifts during integrations.
2. Integration impact periods were found for each product individually. In general, the impact period began right after the integration took place unless the integration was near the end of the month—in these scenarios, they start the month after, as the impact during the remainder of the month was not statistically significant. Different lengths of impact were tested to find which had the strongest statistical correlations. Typically, CPG integrations experienced significant impacts for 3-4 months, and closer to 10 months for auto. For integrations that made multiple appearances over time, longer impact periods resulted from the length of the integration period.
3. All regressions exhibit F-statistics with corresponding p-values lower than .05 (95% confidence), unless otherwise noted.

Media Type Definitions

Ad Network/Exchange – Social Code, TubeMogul, The Trade Desk, YuMe

Content – MLB, Waze, IGN, News Distribution Network, MSN, NBA, VICE, SoundCloud, Yelp, NCAA, NFL.com, Vox Media, Defy Media

Internet Radio – Pandora, Spotify

Non-Premium Video – YouTube, Twitch

Premium Video – TV Network Digital and professionally produced longform content and clips

Search – Google, Yahoo!, AOL

Social – Facebook, FourSquare, Instagram, Musical.ly, Pinterest, Reddit, Snapchat, Twitter and Tumblr

Full Episode Player – FEP - The online programming that contains the full episodes from the TV shows/series make FEP videos

Short-Form – All video programming that is 10 minutes or under. For example: movie trailers, short clips, music videos, etc.

Live Streaming– The video programming that is streamed live online including the live concerts, shows, sporting events, etc.

Video On Demand – The video programs that viewers choose to watch based on their own preferences in filmed entertainment, TV programming, or events.

About FOX, Standard Media Index, Bill Harvey Consulting

Fox is one of the largest global sports, news and entertainment brands, creating and distributing content across all media types, and is dedicated to serving its advertisers by providing guidance and learning on the best environment to deliver advertising objectives. Fox has always been active in sponsoring primary research of its own, working with the best objective independent third party research, analytics, and data companies.

Standard Media Index (SMI) is a unique company that created the only cooperative platform across the agencies accounting for the preponderance of advertising investments, now operating in 19 countries and soon to be in many more. SMI receives the most granular and comprehensive information regarding every media buy made by these agencies. SMI cleans, structures, and harmonizes these data and serves it back to the participating agencies through a state of the art user interface in such a way as to share no information about one agency to any other agency, but at the same time to allow each agency to compare itself to the sum of all participating agencies. SMI also uses this enormous database to model the data for non participating agencies, creating average unit costs by programs and networks. The network clients of SMI indicate that in almost all cases, the SMI modeled data are >97% accurate, as compared to far lower accuracy rates of competitors' estimates.

Bill Harvey is a well-known, classically trained media researcher known for his innovations across all media types and adherence to ARF best practices.

Fox engaged SMI and Bill Harvey to perform this study to the highest standards of scientific accuracy and objectivity, and to set new standards for **100% transparency.**