

The Triggers for TV Viewing Promos, Social media, and Word-of-Mouth

*Understanding the Effects of Social Media and Television Habits:
What Role Does it Play in Viewer Choice?*

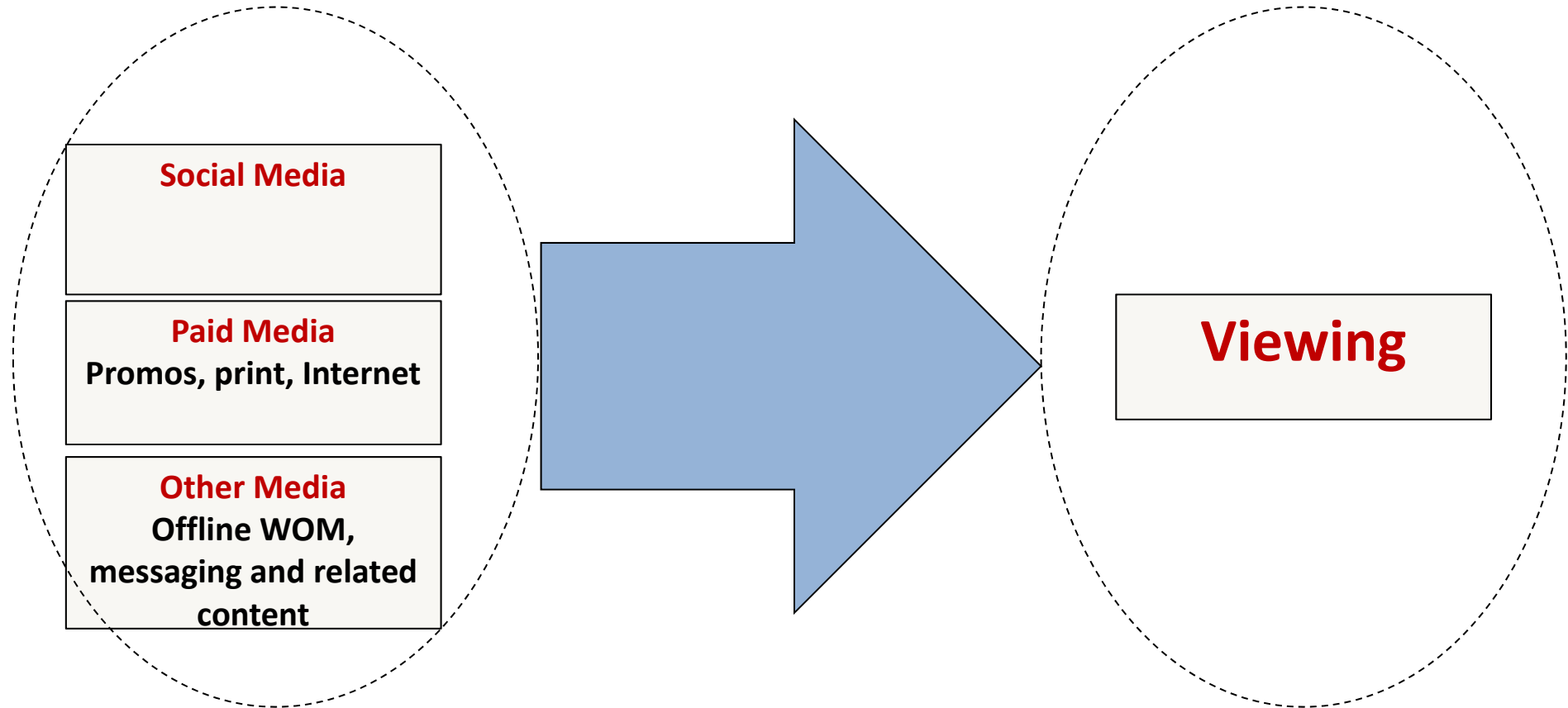
July, 2013

The Academic Team Report

Prepared by:

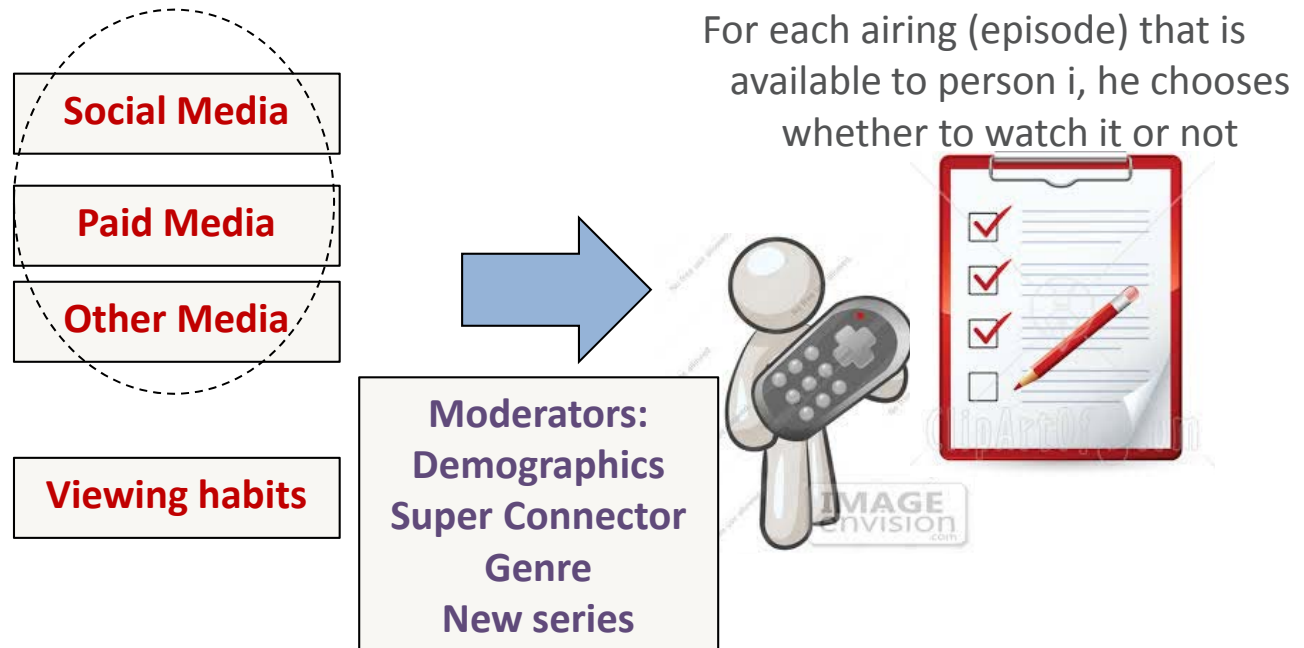
Peter Fader, Mitch Lovett and Renana Peres

The Relative impact of Social media on TV viewing



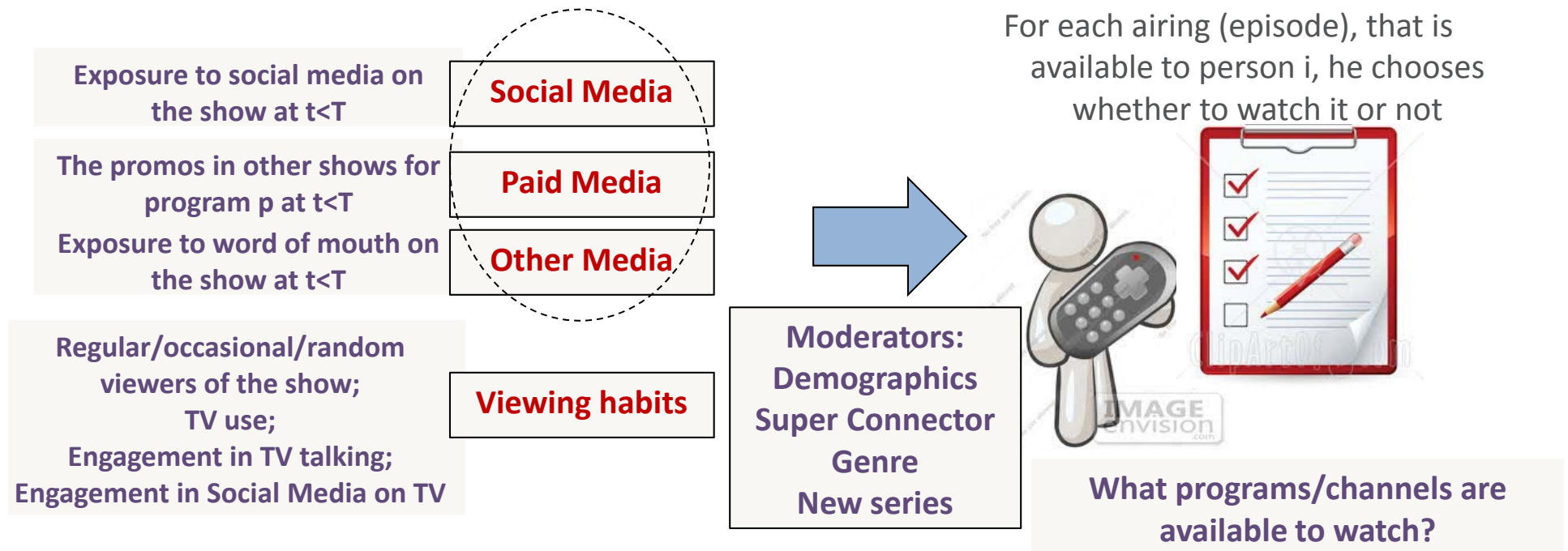
Our approach – Choice Modeling

Hierarchical Bayesian analysis with Bayesian multiple imputation



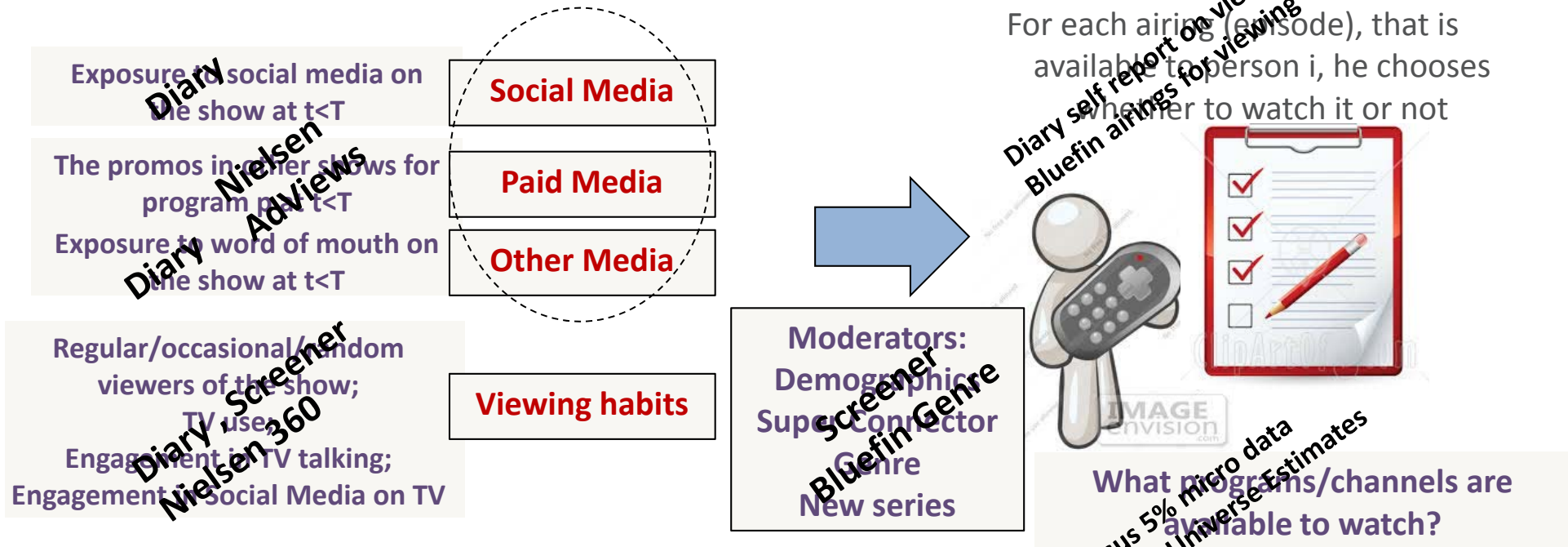
Our data needs

We required a complex set of data, that as far as we know has never been integrated before in one project.



Our data sources

Over 1000 research assistance hours before the analysis could be done
 Altogether over 3,000,000 observations (~11,000 airings, 1700 respondents)



Our main variables

Description	Operationalization
Promos	# of promos for the show aired in other shows watched by the respondent at t<T (from AdViews)
Social Media	# of social media communications on the show at t<T
Offline WOM	# of offline (F2F or on the phone from Q6 in the diary) communications on the show at t<T
Emails, chat	# of emails/ text/ im on the show at t<T
Related content	# of related content (online article or blog, TV network website, interview or other program mention) on the show at t<T
TV viewing (propensity to watch primetime)	"About how much time did you spend watching prime time TV each Weekday/Weekend"?
Use SM on TV	Answers to screener questions such as: "How often do you Share people's posts with your friends/followers"
Interact offline on TV	"How often do you talk, on the phone or face-to-face, about prime time TV shows?"
Regular or Occasional	Why did you decide to watch? Answering: I am a regular/occasional viewer

In a mathematical formulation: Two components

$$p(w_{i,j}, c_{i,c(j)} | X_{i,j}, X_i) = p(w_{i,j} | c_{i,c(j)}, X_{i,j}, X_i) p(c_{i,c(j)} | X_i)$$

The probability for person i to watch show j

The communications received about the show (WOM, social media, promos, etc.)

The individual characteristics of person i (viewing habits, demographics etc.)

The availability of show j to person i (channel availability)

Use a minimum distance estimator on aggregate data and Bayesian multiple imputation to fuse to individuals

Use a hierarchical Bayes model on individual-level data

Two segments and separate models for genre, demographic and superconnector breakouts

The probability of person i to watch telecast j given the show is available and i's individual characteristics

The probability to have show j available, given the demographics

Limitations

- Use caution in making causal claims
 - If someone communicates about a show and then watches it, the communication did not necessarily cause the viewing.*
 - People may have preferred the show prior to the diary study (unobserved heterogeneity)
 - People talk about shows they like (endogeneity)
 - Reduce these first two problems by splitting into observed preference segments
 - Ads may be targeted, for example to attract those not already watching (endogeneity)
- “Short” diary limits what is observed
 - For shows aired early in diary, don’t know full set of activities (Censoring)
 - Not enough time to capture switches to becoming a regular watcher
 - Characteristics of period of observation may be at play (e.g., portion of repeat vs. new episodes)
- Measurement errors due to
 - Self-reported data for viewing and social contacts
 - Channel availability is imputed, not observed
- Focus on direct effects: Indirect effects should also be acknowledged
 - Example: SM => offline WOM => Viewing
 - This could mean SM effect is understated

Key segments: Repeaters and Infrequents

- Definitions:
 - **Repeaters**: those that indicated watching regularly or occasionally for a show
 - **Infrequents**: those that are not Repeaters for a show. Generally don't watch or watch infrequently.
- Importance:
 - Repeaters and Infrequents are likely to respond differently to ads, social media, and word-of-mouth because their preferences are well formed (and relatively high) for the show
 - If we don't control for these differences we will get the wrong effects!

Our main analysis metric: Marginal Effect

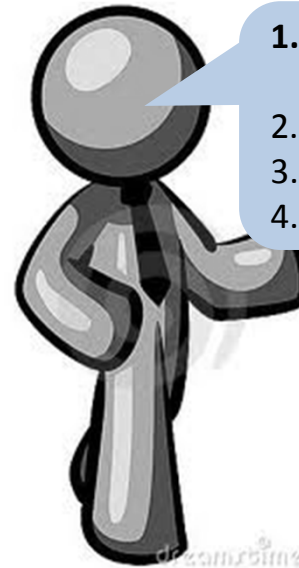
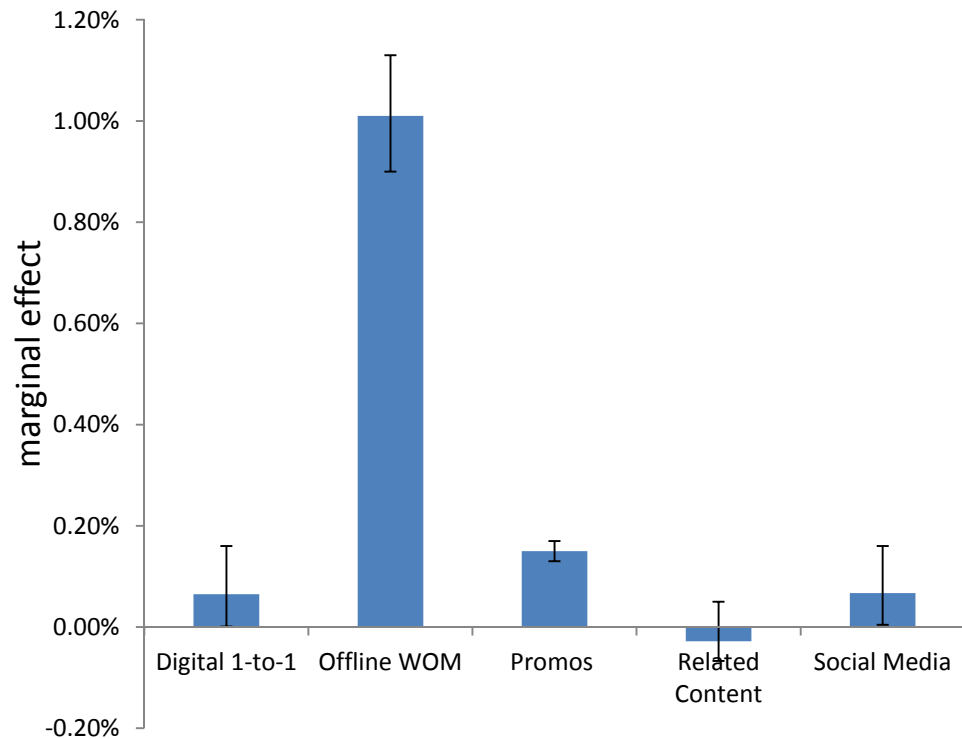
- We report direct average “marginal effects”
 - Average additional probability of viewing associated with one more encounter with a particular media (in percentage points)
 - A measure of the “impact”
 - Can compare directly across media
- Are these effects statistically significant?
 - Despite large sample size, many effects are very uncertain.
 - “Error bars” indicate 95% confidence interval
 - If the bars don’t cross 0, the effect is statistically significant

KEY FINDINGS

Key findings – The direct effect of media encounters*

The overall average gain of one more encounter/exposure*

Infrequents



1. Offline word-of-mouth (5-10 times stronger)
2. Show promos
3. Social media
4. Digital 1-to-1

Infrequent
Does not normally watch the show

Key findings – The direct effect of media encounters*

The overall average gain of one more encounter/exposure*

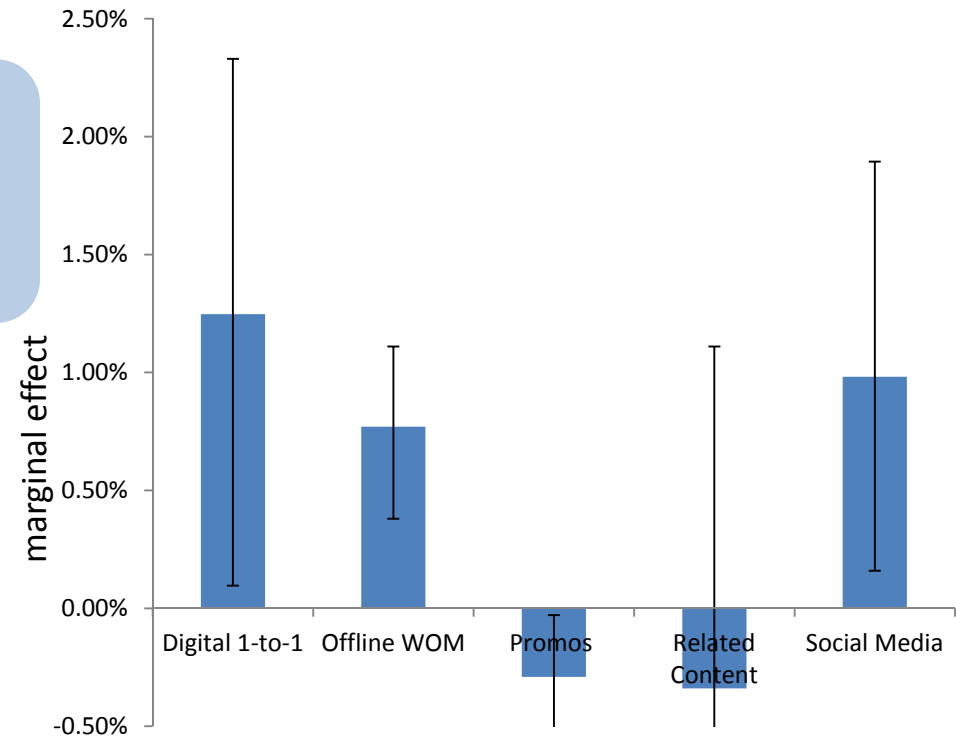
Repeaters



- 1. Digital 1-to-1
 - 2. Social media
 - 3. Offline word-of-mouth
- The effect of promos can be negative**

Repeater

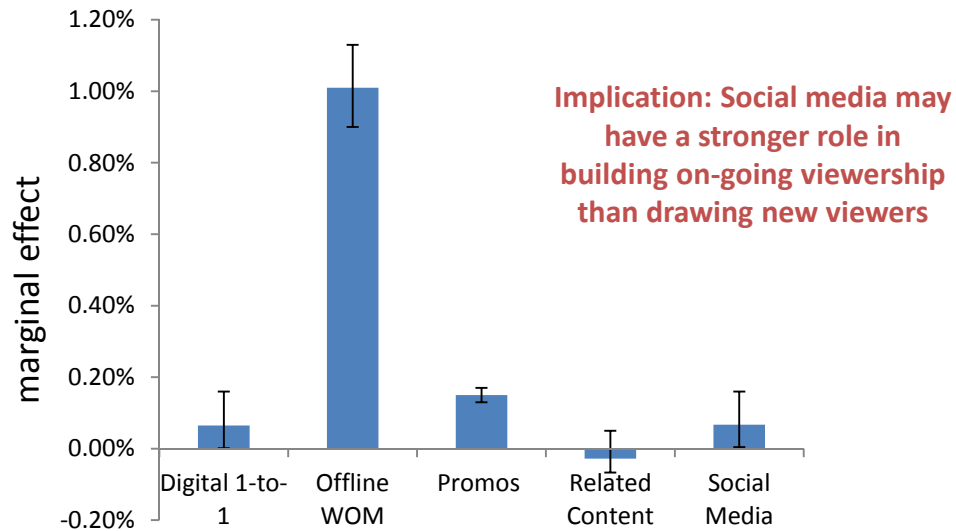
Watches the show regularly or occasionally



Key findings – The direct effect of media encounters*

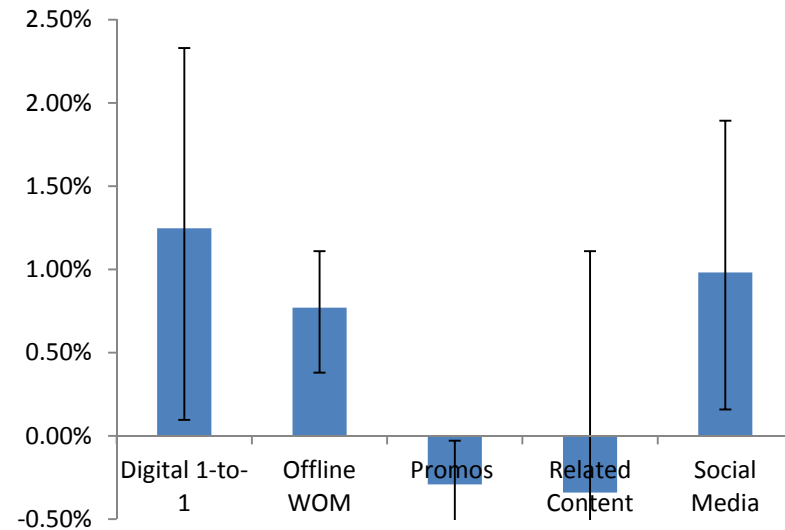
The overall average gain of one more encounter/exposure*

Infrequents



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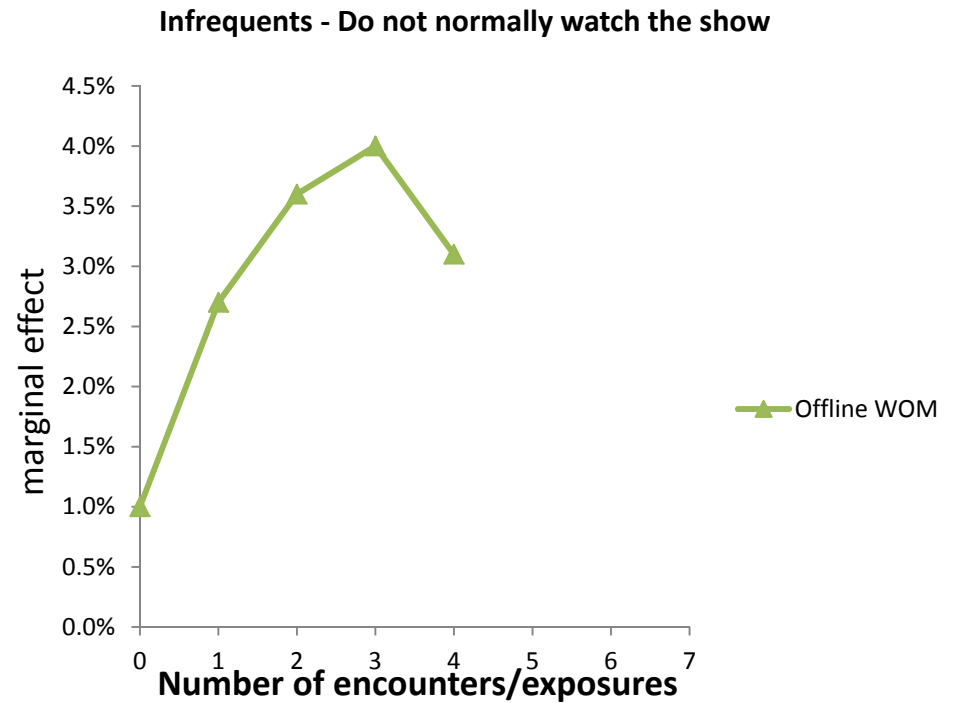
Repeaters



1. Digital 1-to-1
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Confidential and Proprietary

Key finding: The average gain of one more encounter/exposure*

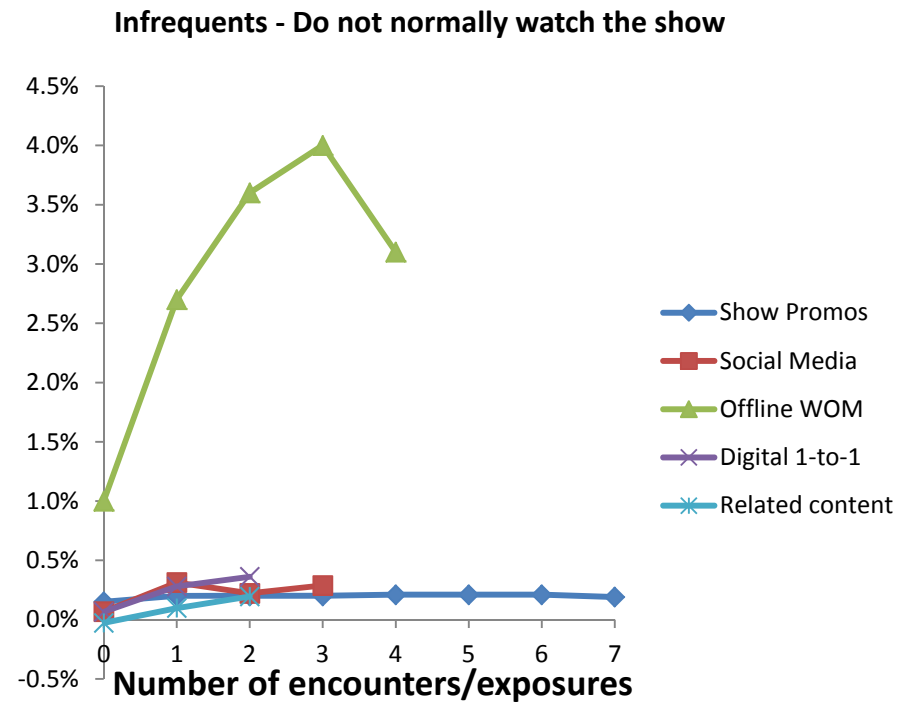
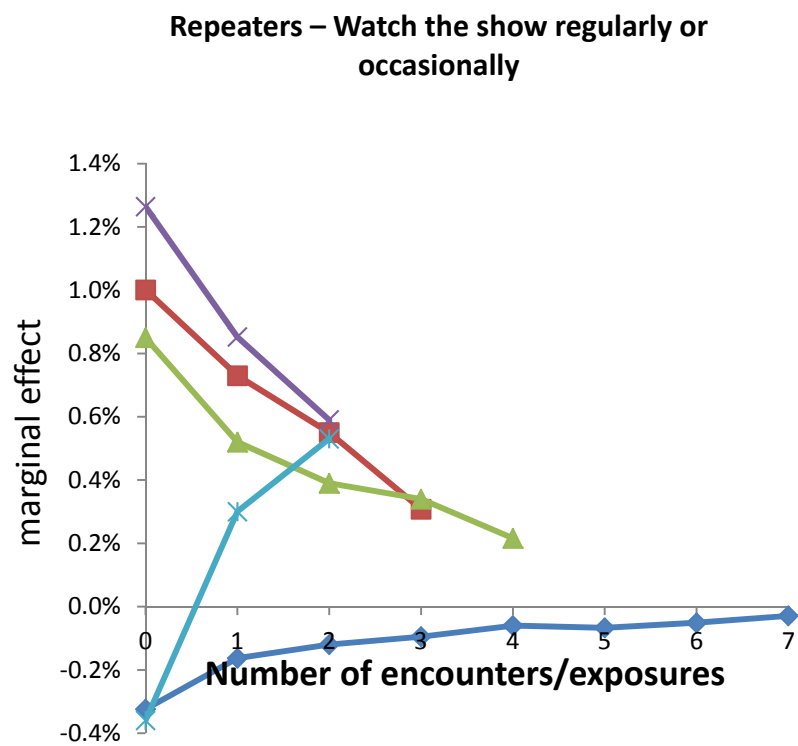


*Values are average effects of one more encounter on the viewing probability (in % points). Based on a model allowing demographic differences in media effects. Some values do not differ statistically from 0. The rightmost value for each media represents the average for that number of encounters and greater. The maximum number of encounters is limited due to the limited (1 week) diary period.

Confidential and Proprietary

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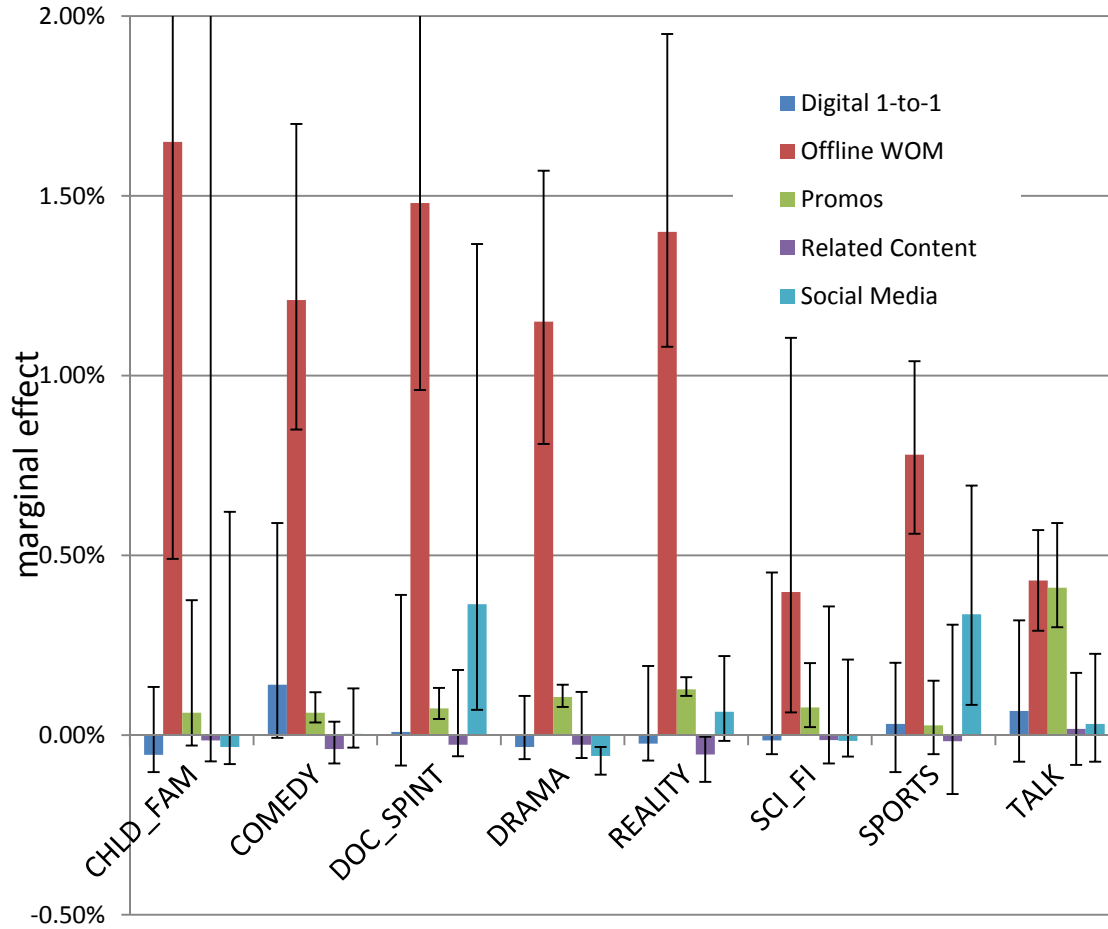
Key finding: The average gain of one more encounter/exposure*



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Influence depends on Genre (Infrequent)

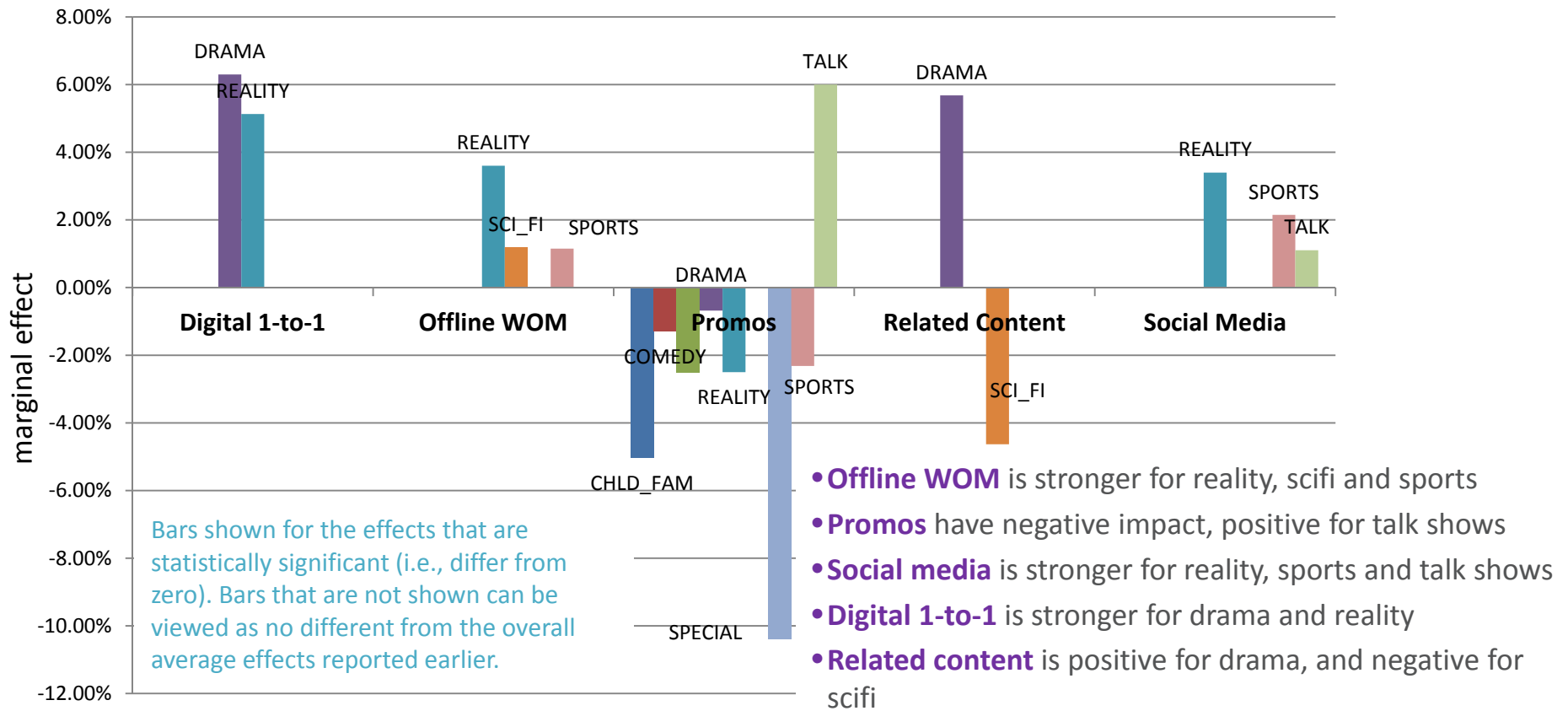
The average gain of one more encounter/exposure*



- **Offline WOM**
consistently has the strongest impact
- **Promos**
are stronger in talk shows, reality and drama
- **Social media**
is stronger for documentary and sports

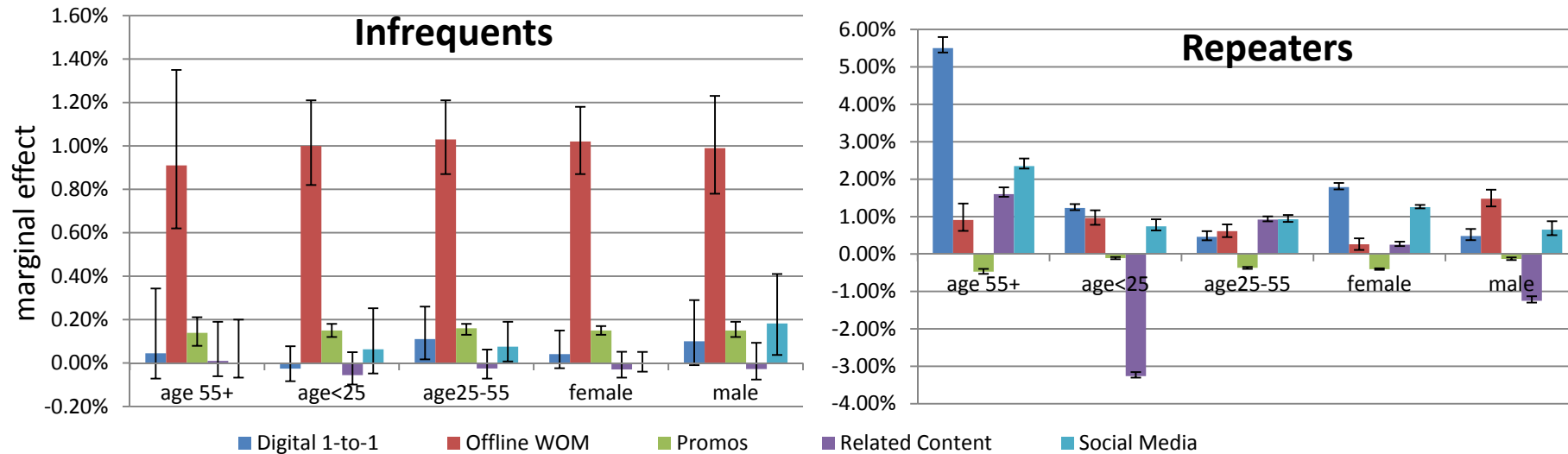
Influence depends on Genre (Repeaters)

The average gain of one more encounter/exposure*



Influence depends on Demographics – Age and gender

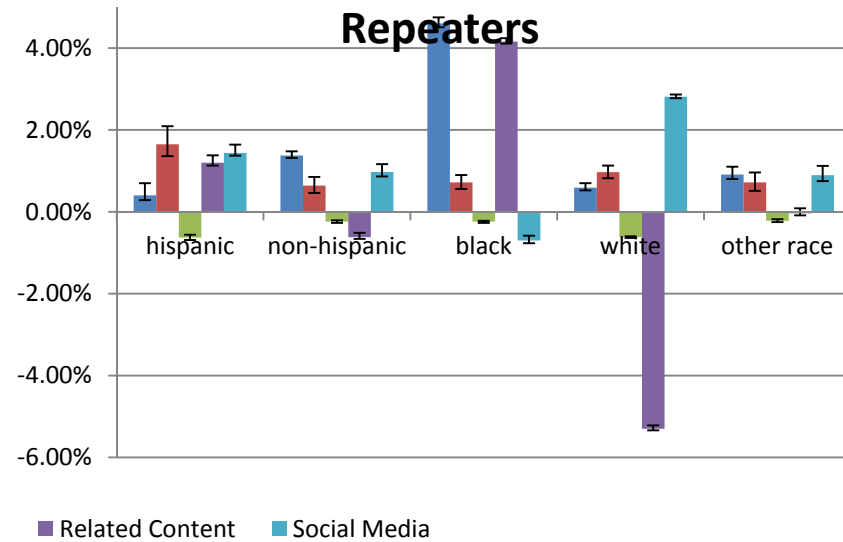
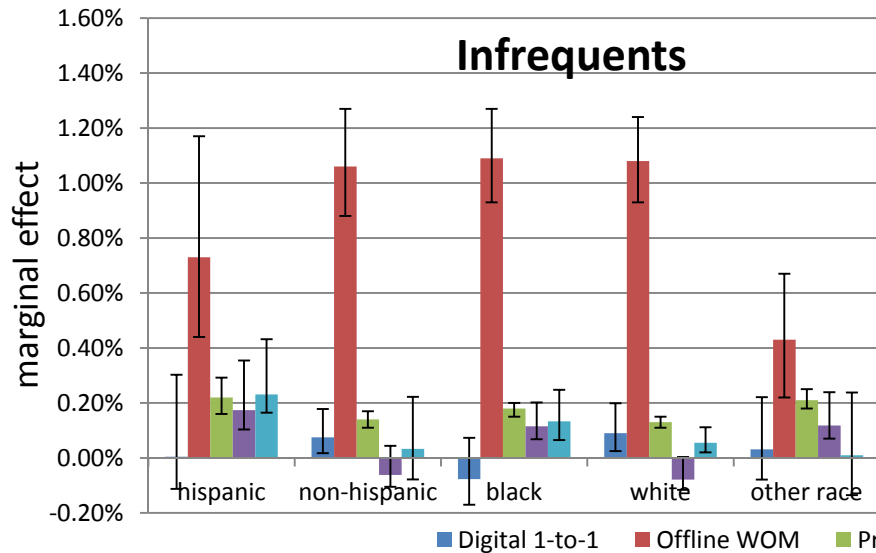
The average gain of one more encounter/exposure*



- **Offline WOM** is strongest across age/gender for infrequents, but not always for repeaters
- **Promos** are positive for infrequents, negative for repeaters across age/gender
- **Social media** is stronger for repeaters, and infrequent males
- **Digital 1-to-1** is strongest for repeaters over 55 and repeater females
- **Related content** is negative for repeaters under 25

Influence depends on Demographics – Race and ethnicity

The average gain of one more encounter/exposure*

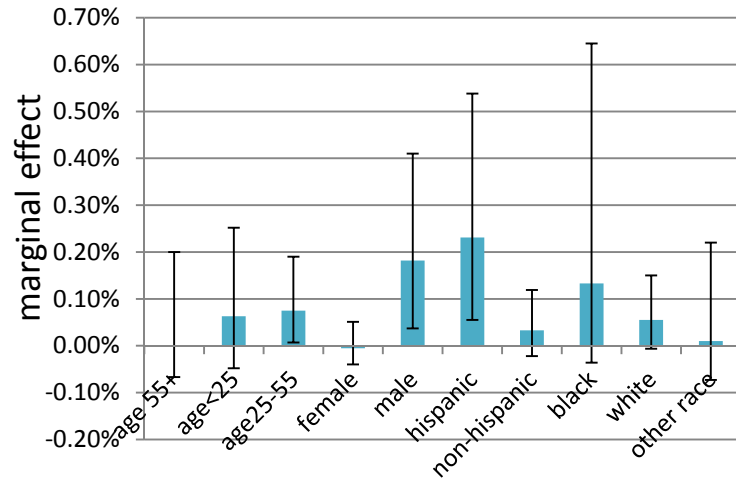


- **Offline WOM** is strongest across race and ethnicity for infrequents and strong for repeaters
- **Promos** are positive for infrequents, negative for repeaters across race/ethnicity
- **Social media** is strongest for white repeaters, is stronger for infrequent Hispanics, and stronger for repeaters generally (except blacks)
- **Digital 1-to-1** is strongest for black repeaters and non-hispanics, but weak for other races/ethnicities
- **Related content** is stronger for black repeaters and hispanic infrequents, negative for white repeaters

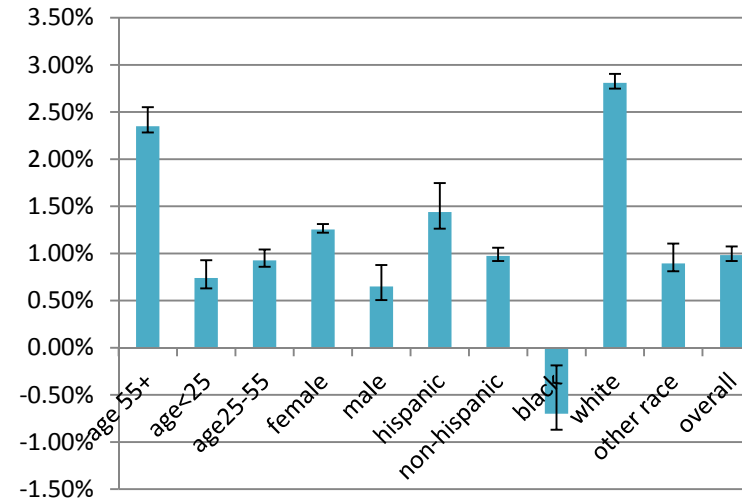
Influence depends on Demographics – Social media

The average gain of one more encounter/exposure*

Infrequents



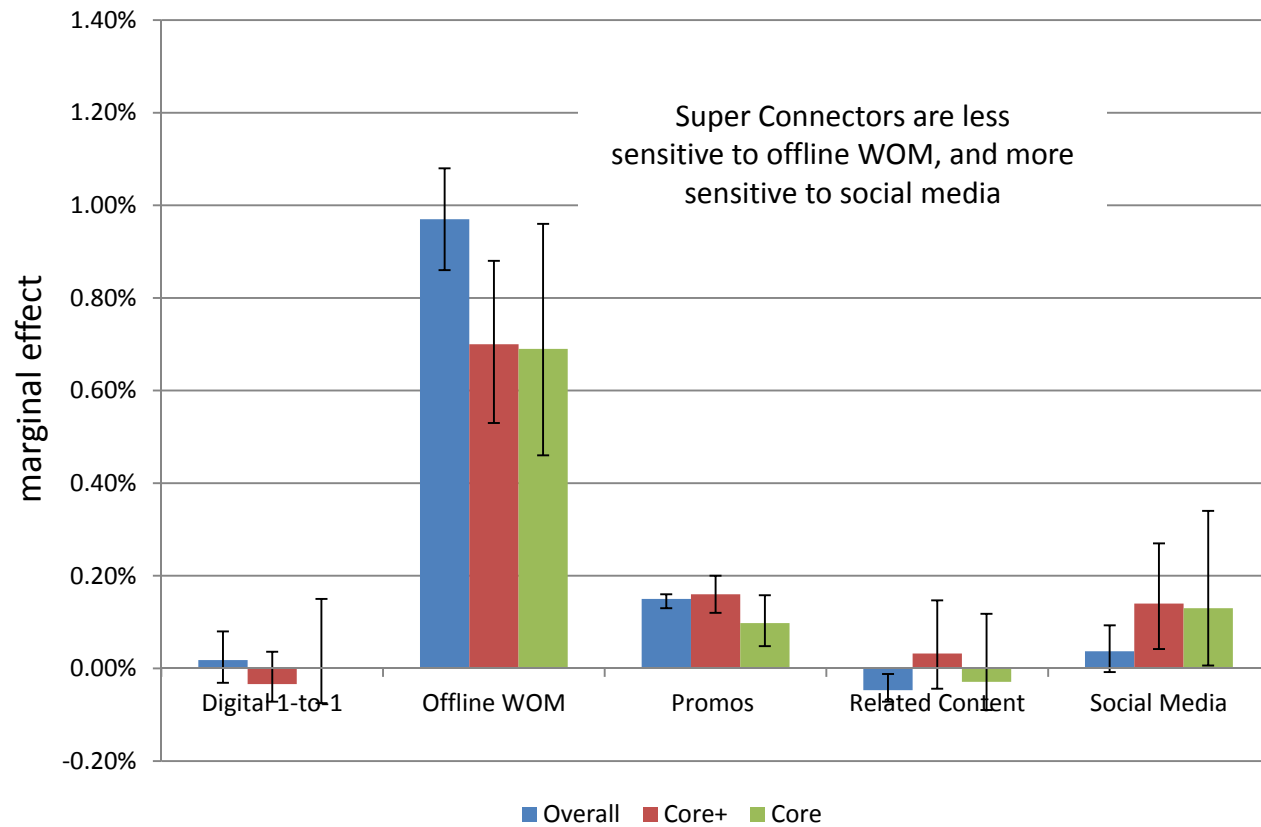
Repeaters



- **Repeaters** – Social media is strong for repeaters. Especially over 55 And white.
- **Infrequents** – The effect of social media is strong for Hispanics, males, and blacks.

Are Super Connectors different? – Infrequents

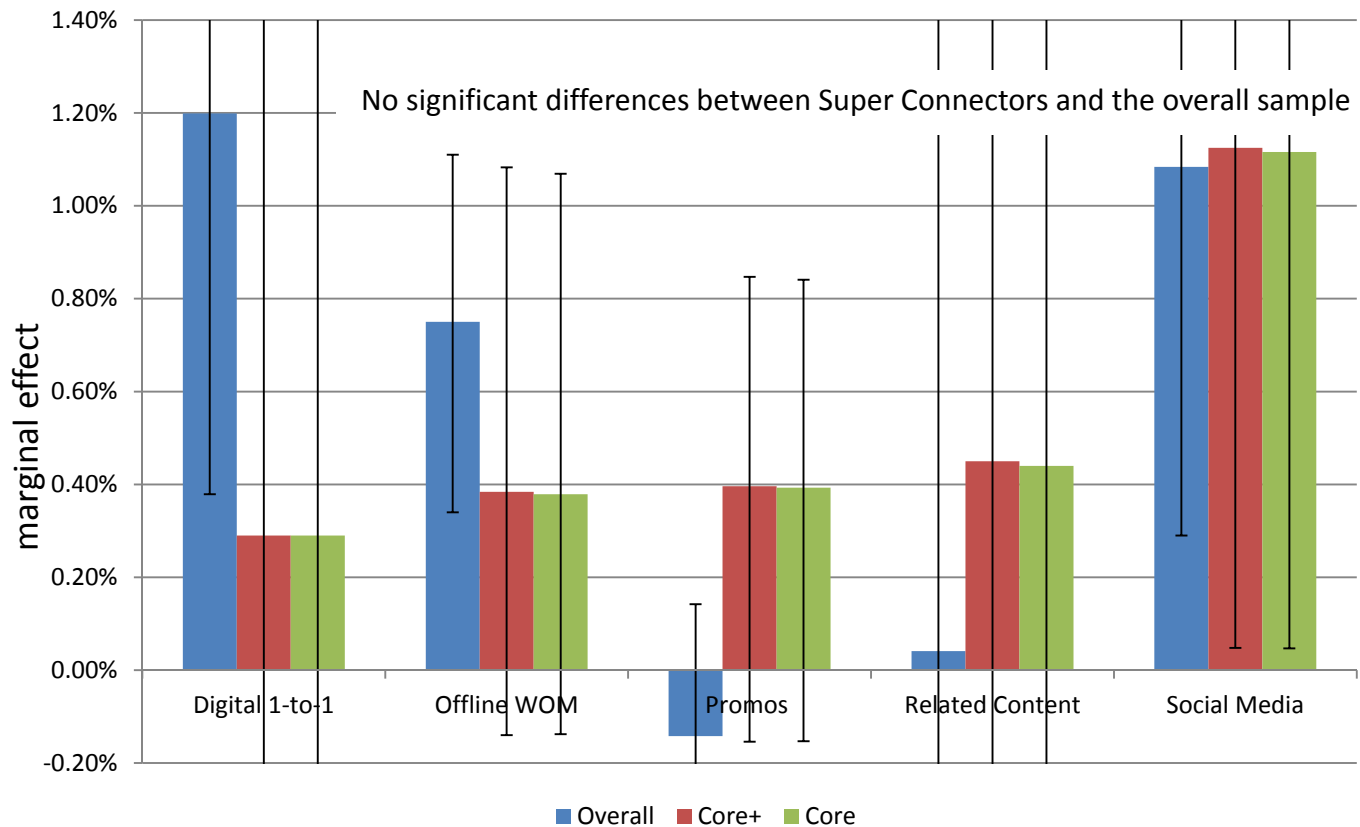
The average gain of one more encounter/exposure*



Implication: When sampling programs, Super Connectors weigh social media more and offline less

Are Super Connectors different? - Repeaters

The average gain of one more encounter/exposure*



Implication: When engaging in programs more regularly, they look similar to everyone else

Key findings – The direct effect of media encounters*

Two distinct types of viewers – repeaters and infrequents

Social media is a top influencer for repeaters, but a minor influencer for infrequents



- 1. Digital 1-to-1
 - 2. Social media
 - 3. Offline word-of-mouth
- The effect of promos can be negative**

Implication: Social media may have a stronger role in building on-going viewership than drawing new viewers

Repeater

Watches the show regularly or occasionally



- 1. **Offline word-of-mouth (5-10 times stronger)**
- 2. Show promos
- 3. Social media
- 4. Digital 1-to-1

Demographics, genre, and superconnector differences can be dramatic!

Infrequents

Does not normally watch the show

*Direct effect only – there might be indirect effects such as social media => offline WOM => viewing that are not incorporated here.

Summary of Social Media Effects

- Social media is
 - Relatively weak for generating sampling of a show (Infrequents) and weaker than ads (promos) and offline WOM
 - As strong as offline WOM in driving more viewing from Repeaters
 - Is more effective to generate sampling of a show (Infrequents) for Hispanics, Males, and Superconnectors
 - Is more(less) effective to drive more viewing among Repeaters for Blacks (Asians).
 - Is more effective for highly social genres (Reality, Sports)