Proposal for NBER-Nielsen Media Projects

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1 Research questions

We propose two research projects drawing on common data from the NBER-Nielsen collaboration.

In the first project, we will study the drivers of advertising prices in online and offline media markets. While there has been a great deal of research on the micro-structure of these markets—e.g., analysis of search advertising auctions and online ad exchanges—there has been little empirical work on the high-level supply and demand forces that determine the prices different advertisers must pay to reach different consumers. Understanding the economic drivers of advertising prices is important for understanding the incentives to produce socially valuable content including political news and information, the way the benefits of content creation are distributed across groups, the efficiency of advertising markets, and the impact of technological change and regulatory policies.

As preliminary analysis, we have looked at these questions using a small extract of Nielsen TV ratings data from the early 2000's. Consistent with anecdotal evidence, we find that young men (18-34 years old) command the highest advertising prices, and that older groups and women both command significantly lower prices. We also find that the total time different groups spend watching television shows exactly the opposite pattern: young men watch the least, and older viewers and women watch more. We argue that these facts are consistent with results from two-sided market model with multi-homing, where heavier viewers create more opportunities for advertisers to reach them, and thus more competition in the market for their attention. Preliminary analysis of online advertising data from comScore suggests that the same mechanism may also play an important role in driving advertising prices online. We believe that the richer and broader data available through Nielsen will allow us to build on these preliminary facts to convincingly estimate a model of advertising price competition and trace out its implications for policy.

In the second project, we will study trends over time in patterns of news consumption, including the extent to which news consumption varies across geographic and demographic groups with different political leanings. We will combine television, Internet and radio data from Nielsen with large-scale survey data to produce a 360-degree view of consumption patterns. Important questions include how the extent of ideological segregation (i.e., "echo chambers," "filter bubbles") has evolved since the advent of social media, and to what extent the declining trust in media evident in survey self-reports is reflected in actual consumption.

2 Data

We would like to request data from the following Nielsen databases: basic TV ratings, advanced TV ratings, website traffic, radio ratings, and Advertising Intelligence. The specific domain, scale and variables we want to request are listed below. In addition to the data requested here, we may also use other data on Internet usage and advertising prices including data obtained from comScore and our own advertising purchase experiments on Facebook.

2.1 Basic TV ratings

- Time: 1991 - present, annual level
- Domain: both network and cable TV
- Scale: both program and network level
- Characteristics for programs/networks:
  - total number of viewers, total number of households
  - whether the program/network is a broadcaster of national/international sport events (e.g. Super Bowl, Olympics)
  - average hours of watching
  - daypart
- Ratings/Share by:
  - age × gender: as granular as possible (e.g. F18-20, M21-24)
  - 220 DMA regions

2.2 Advanced TV ratings

- Time: 2002 - present, annual level
- Domain: both network and cable TV
- Scale: both program and network level
- Ratings/Share by (demo groups):
  - household income
  - cable status: VCR/DVD/cable (with pay, without pay)/broadcast
  - SVOD status: Netflix, Amazon Prime, Hulu
  - PC and Internet ownership (e.g. PC with Internet, PC non-owner), Internet usage (0, 01-04, 05-09, 10-19, 20+ hours)
  - working status
  - working women
  - race, occupation, education, household size
  - party affiliation, ideology, and other political variables
- Ratings/Share by (viewing segmentation):
  - custom groups broken by number of hours spent on TV
- Ratings/Share by intersection between groups:
  - (age × gender, custom viewing segmentation) (if possible)
  - otherwise, (age, custom viewing segmentation) and (gender, custom viewing segmentation)
- Average daily and weekly Reach for each program/network by:
  - age × gender, income, working status, etc.
- Time spent viewing by:
  - age × gender, income, working status, etc.

2.3 Website traffic

- Time: 2011 - present, annual level
- Domain: national Internet
- Scale: website level
- number of unique audience, page views and time on site by
  - age × gender, income, occupation, education, etc.
- number of unique audience, page views and time on site by (viewing segmentation):
  - custom groups broken by number of minutes spent on Internet
- number of unique audience, page views and time on site by intersection between groups:
  - (age × gender, custom viewing segmentation) (if possible)
  - otherwise, (age, custom viewing segmentation) and (gender, custom viewing segmentation)

2.4 Radio ratings

- Time: 2010 - present, annual level
- Domain: all radio programs
- Scale: program level (or station-by-hour, if data are not coded into programs)
- Time spent listening by:
  - 220 DMA regions
  - demographic groups including income, race, education, and party affiliation/ideology/other political variables.

2.5 Ad Intelligence

2.5.1 TV

- Time: 1993 - present, annual level
- Domain: both network and cable TV
- Scale: both program and network level
- Measures:
  - total ad expenditure, cost per thousand, cost per thousand equivalized
  - duration, impressions, impressions equivalized

2.5.2 Internet

- Time: 2005 - present, annual level
- Domain: national Internet
- Scale: website level
- Measures:
  - total ad expenditure, cost per thousand, cost per thousand equivalized
  - impressions

3 Research team and financial resources

Out research team consists of:

- Hunt Allcott, New York University and NBER
- Matthew Gentzkow, Stanford University and NBER
- Jesse M. Shapiro, Brown University and NBER

We have additional research funds from our home universities which can supplement the Sloan funding if necessary.