



Estimating the Effects of Advertising by Hospitals

PRESENTER: JEB JACOB

MENTOR: DR. ATUL GUPTA

CO-MENTOR: SARAH SCHUTZ, PHD CANDIDATE

Larger Project: How do Health Care Providers Deploy Public Funds?

- ▶ **Context:** Taxpayer funds from the ACA (Affordable Care Act) increased revenue by 10-15% for the average hospital (Duggan et al., 2019; Dunn et al., 2019)
 - ▶ Can we quantify the impact of this revenue increase on inputs in care delivery?
- ▶ **SUMR Aims:** To understand how Advertising Spending influences the allocation of Care Inputs & allocation of Patients across providers

Methods

▶ Task: Create a Crosswalk between two data sources

1) Television Ad Spending Data in \$/min: **Nielsen** Company keeps track of Hospital Advertising

2) Care Inputs in **AHA** (American Hospital Association) Survey Data: payroll spending (labor), number and type of hospital beds, therapies offered

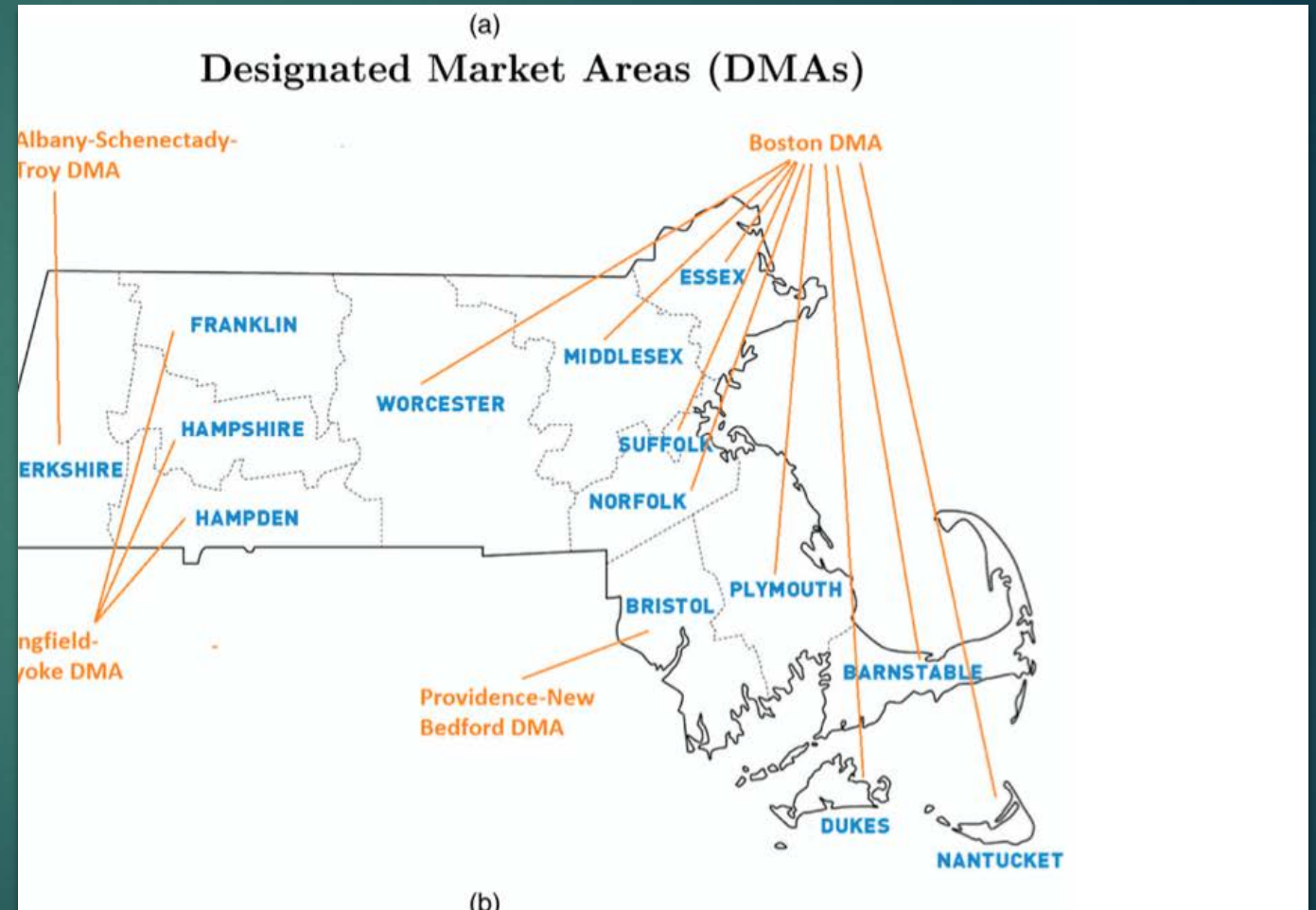
▶ 2010-2017: compare before and after ACA (2014)

Key Data Points in Matching Hospitals

- ▶ Match with Name and Location

(1) Nielsen Data

- ▶ Hospital Name
- ▶ **DMA** (Designated Market Area or region for specific television market as defined and updated by the Nielsen Company)



Key Data Points in Matching Hospitals

- ▶ (2) AHA Data
 - ▶ Hospital Name
 - ▶ AHA ID
 - ▶ System Name
 - ▶ Zip Code = "DMA"

Challenges in Matching: Hospital Name

- ▶ Ideally, we could do a direct string-to-string match for all hospital names.
- ▶ Nielsen Data has its own random notation for hospital names
 - ▶ “rehabilitatn” or “rhbltt” translates to “rehabilitation” in AHA Data
- ▶ Nielsen Hospital Name could be a system name or individual hospital name
- ▶ Hospital Mergers & Acquisitions change the hospital names/systems over time

Challenges in Matching: Hospital Location

▶ Standalone Hospital advertising in _____

(1 DMA)

(multiple DMAs but within 1 state)

(neighboring states)

("random" states)

System located in _____ and advertising in _____

(1 "DMA")

(multiple "DMAs" but only 1 state)

(neighboring states)

("random" states)

(1 DMA)

(multiple DMAs but within 1 state)

(across neighboring states)

(across "random" states)

Next Steps & Considerations

- ▶ National Advertising as a separate case
- ▶ Attributing Spending to individual hospitals
- ▶ How do we define a “random” DMA?
- ▶ After manual individual hospital matching, complete the next round of the matching process by system name.

Research Lessons

- ▶ Data is not usually codified universally
- ▶ Comparing/Merging datasets require judgement calls
- ▶ Just Ask!
- ▶ Research tasks (especially pre-processing & Cleaning Data) take longer than you think

Thank you!

- ▶ Dr. Gupta, Sarah Schutz

- ▶ Joanne, Evelyn

- ▶ Q&A