Tuskegee and the Health of Black Men

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Motivation

- African American men have the worst health outcomes
    - life expectancy for black men at 45 (3 years less than white counterpart)
    - 5 years less than black women
- Higher death rates due to
    - chronic conditions – (HIV/AIDS), heart disease, cancer
- Factors contributing to such disparity
    - socio-economic disparity
    - lower insurance
- However, these factors unable to fully explain differences
- **What is the role of medical mistrust in explaining such disparity?**

Introduction

- *Tuskegee Study of Black Male* – passively monitored hundreds of adult black men with syphilis despite availability of effective treatment
  - mistreatment or exploitation
- The intentions of the Tuskegee study was disclosed in 1972

- *The Tuskegee Study became a symbol of their mistreatment by the medical establishment, a metaphor for deceit, conspiracy, malprac- tice, and neglect, if not outright genocide.* – Corbie-Smith et al. (1999)

Tuskegee Study

- ▶ unethical and deadly experiment known as the Tuskegee Study of Untreated Syphilis in the Black Male (TSUS)
- ▶ For 40 years (1932-1972), U.S. Public Health Service (PHS) followed hundreds of poor, black men in Tuskegee (Alabama)
    - ▶ majority with syphilis
    - ▶ to understand the natural course of the disease
    - ▶ denied effective treatment (penicillin), that had been quite the norm since mid-1940s
- ▶ *The germ that causes syphilis . . . and the complications that can result from untreated syphilis were all known to medical science in 1932—the year the Tuskegee Study began. Since the effects of the disease are so serious, reporters in 1972 wondered why the men agreed to cooperate. The press quickly established that the subjects were mostly poor and illiterate, and the PHS had offered them incentives to participate.* – Jones (1992)

Tuskegee Study Disclosure

- News of the experiment was disclosed to public in 1972 by Jean Heller of the Associated Press

- Journalists, social scientists, and medical researchers point to Tuskegee experiment as a reason that African Americans remain skeptical to the medical care

- *"In retrospect the Tuskegee Study revealed more about the pathology of racism than the pathology of syphilis; more about the nature of scientific inquiry than the nature of the disease process. . . . The degree of deception and the damages have been severely under- estimated."* – Allan Brandt (1978)

This study ..

- ▶ Whether study's disclosure contributed to disparities in health and health care in years following 1972?
  - ▶ measures of trust in doctors (General Social Survey)

- ▶ How did the disclosure affect utilization of health care among black populace?
  - ▶ health care utilization (National Interview Health Survey, NHIS)

- ▶ What about health outcomes (mortality)?
  - ▶ mortality data (CDC)

Main Findings

- Increase in geographic proximity to Macon county

  - reduce utilization of routine care among older blacks relative to predisclosure mean value
  - 22% reduction

- Spike in mortality in post-1972 (black men)

- Evidence of mistrust

- Tuskegee study contributed to widening health disparity

Trend in Black-White Mortality Disparity
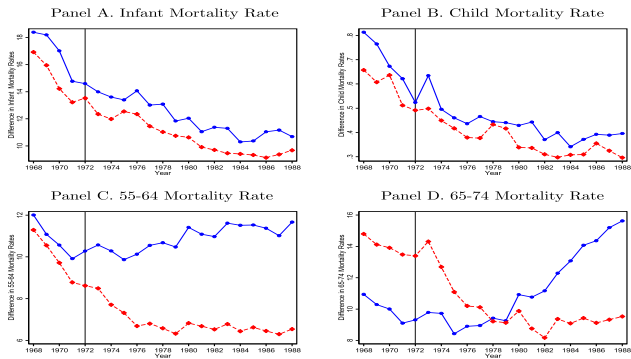
FIGURE I

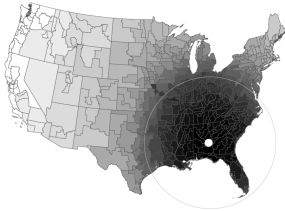Figure 1: Pattern in mortality differences (blue male)

Data

- NHIS (health seeking behavior), health care utilization (1969–...)
  - NHIS is also linked to mortality files (later on)
  - last doctor visit
  - focus on men aged 45-74
- County-level mortality statistics by age, race, and gender
  - 1968 to 1988
  - aggregate to State Economic Area (SEA) to reduce random variation due to events

Identification

- ▶ Use four different variations
    - ▶ timing (year of disclosure, 1972) – before and after
    - ▶ race – blacks vs. whites
    - ▶ sex
    - ▶ proximity (distance away from Macon county)

- ▶ Authors argue borrowing findings from the psychology literature that the vast amount of individuals tend to be affected by the news if they can relate to the news
    - ▶ concentrated among black men
    - ▶ plus proximity closer to Macon should be affected

- ▶ Black men living closer to Macon County, Alabama, (that contains Tuskegee) should be more affected.

Proximity

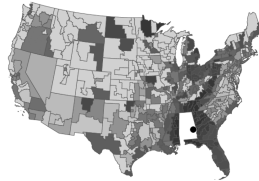Panel A. Distance to Tuskegee   Panel B. Fraction Black Migrants from Alabama

Figure 2: Proximity Measures

▶ Distance from Macon county from the centriod of each State Economic Area (SEA). White open circle – 1,000 km radius from Macon.

A 2 × 2 design

Time	Black Male	Black Female
before	Black.Male.Mortb	Blak.Female.Mortb
after	Black.Male.Morta	Black.Female.Morta

- Affected group is *Black Male* and the comparison group *Black Female*
- ($Black.Male.Morta - Black.Male.Mortb$) − ($Black.Female.Morta - Black.Female.Mortb$)

- ($Black.Male.Morta - Black.Male.Mortb$) –> First Difference
- ($Black.Female.Morta - Black.Female.Mortb$) –> Second Difference
- Do this approach by bins defined by distance away from Macon county
    - bins are of size 150 km
    - sample restricted by race and gender

A formal DD specification (Black vs. White Men)

$$Y_{rat} = \alpha + \beta^k(I_r^{black}.I_t^{post}) + \gamma(I_t^{post}) + \phi_{a,black} + \epsilon_{rat} \ for \ k \in [1, K])$$

- ▶ $Y_{rat} ->$ group specific chronic mortality
- ▶ $r ->$ race
- ▶ $a ->$ SEA of residence
- ▶ $t ->$ before/after
- ▶ k is the bin indicator
- ▶ sample conditional to men

A formal DD specification (Black Men vs. Black Women)

$$Y_{gat} = \alpha + \beta^k(I_r^{men}.I_t^{post}) + \gamma(I_t^{post}) + \phi_{a,men} + \epsilon_{gat} \text{ for } k \in [1, K])$$

- ▶ Y_{rat} –> group specific chronic mortality
- ▶ r –> gender
- ▶ a –> SEA of residence
- ▶ t –> before/after
- ▶ k is the bin indicator
- ▶ sample conditional to men

By bins based on distance from Macon

bin number	Bins (in km)	Estimate
1	0-150	est 1
2	150-300	est 2
3	300-450	est 3
4	450-600	est 4
5	600-750	est 5
6	750-900	est 6
7	900-1150	est 7

- For bin 1, we calculate:
  - $(Black.Male.Morta - Black.Male.Mortb) - (Black.Female.Morta - Black.Female.Mortb)$
- Then go to bin 2:
  - $(Black.Male.Morta - Black.Male.Mortb) - (Black.Female.Morta - Black.Female.Mortb)$

Let's hypothesize

▶ Authors argue that:

1. Black men should be affected by the disclosure
   ▶ individuals tend to be affected by news if they share similar identity with the subject
2. Even within black men, those residing closer to Macon should be affected
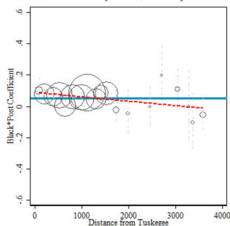   ▶ captures intensity of news

▶ Given the conditions above:
   ▶ *The DD estimate should be negative and larger in magnitude for bins close to Macon*
   ▶ *As for the bins away from Macon, the size of the coefficient should decrease monotonically*

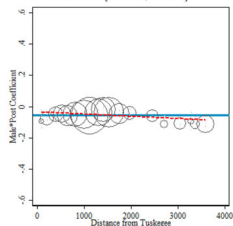# Difference-in-Difference Findings
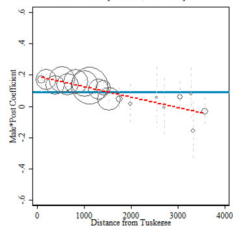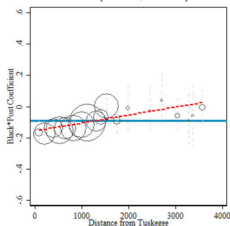
Figure 3: DD Estimates Based on Proximity Measures

Description of Figure 3

▶ These figures plot β coefficients from equation (1) estimated on various demo- graphic group samples (all-male, all-black, all-white, and all-female) as indicated by the figure headings and further subdivided into distance bins from Tuskegee. The outcome variable for each regression is the log of age-adjusted chronic mortal- ity. Panels A and B plot β coefficients on black*male*post in the all-male and all- black sample, respectively. Panels C and D plot β coefficients on white*male*post and black*female*post in the all-white and all-female sample, respectively. Panels E and F plot the same coefficients as in Panels A and B, however, the time period of the analysis is restricted to the pre-1974 period with all observations after 1969 constituting the post period. SEAs were grouped into K bins of 150 kilometers of distance from Macon County each bin yielding a β k . Bins in the middle of the country with less than 2,500 black men in 1970 were combined, and confidence intervals that were greater than 0.6 in absolute value were omitted so that the scale could be the
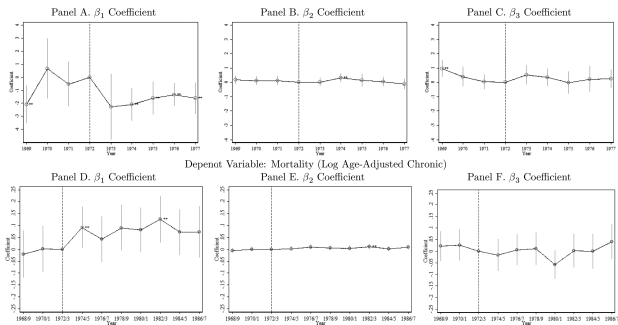
Event Study Results (DDD)

Figure 5: Figure 2. Proximity Measures

▶ See A&W (2017) page 434 for description. Panels A to C use the number of outpatient visits in past 12 months. Panels D to F use the Log Adjusted Chronic Mortality Rate.

Results

- See Table 1 (main results). page 436
- read the description on page 437
- See Table 2 (heterogeneous effects), page 439