

# Health Care Reform: Colorectal Cancer Screening Expansion, Before and After the Affordable Care Act (ACA)

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***No Financial Conflicts of Interest to Disclose***

# Presentation Outline

- \* Background and Significance
- \* Theoretical Framework
- \* Objective
- \* Methods
- \* Results
- \* Conclusions
- \* Implications

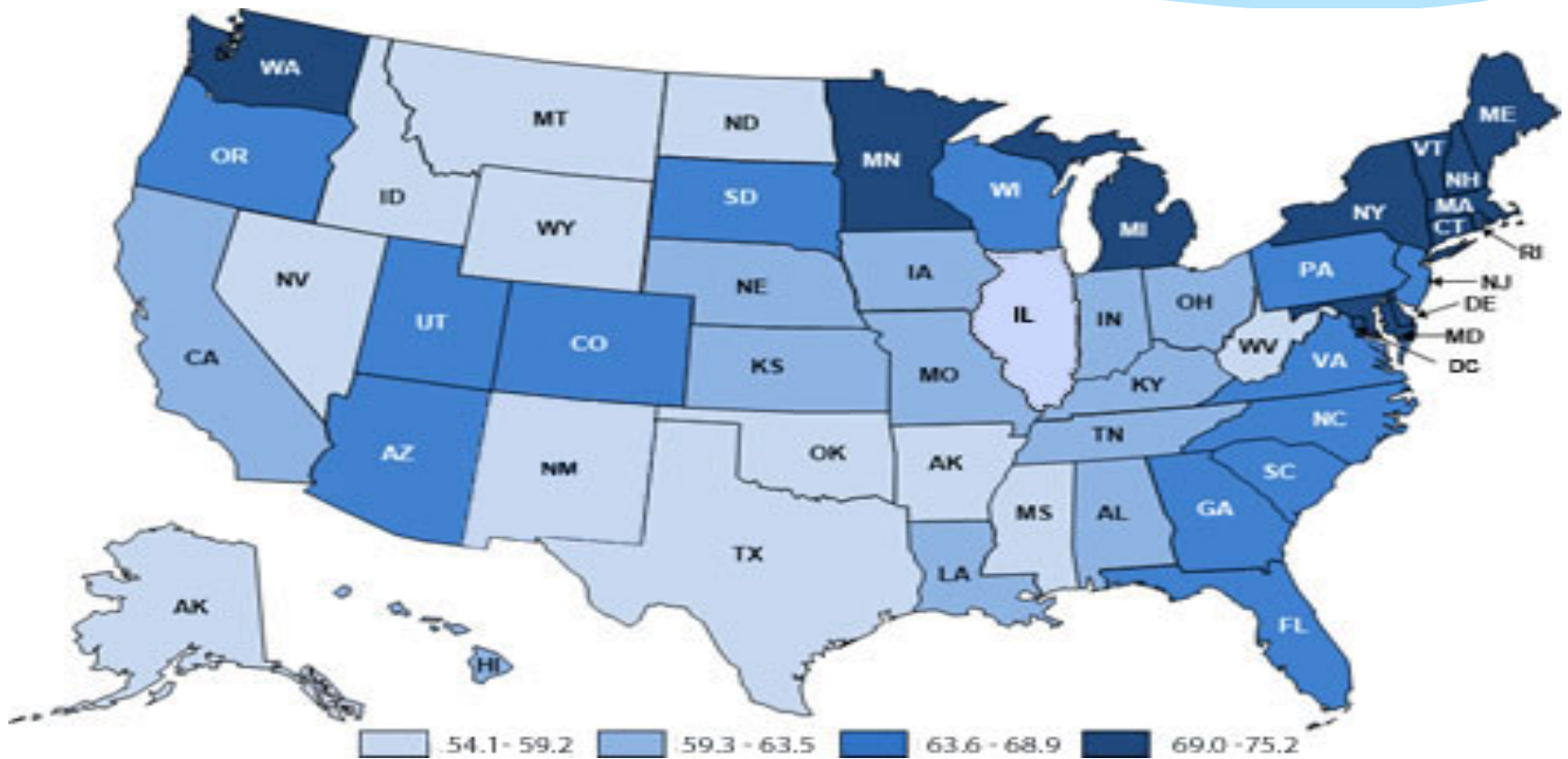
# Colorectal Cancer

- \* Third leading cause of cancer-related deaths in men and women when counted separately
- \* Second leading cause of cancer-related deaths in men and women when counted collectively
- \* 142K+ new cases
- \* 50K+ deaths
- \* Over the past 20+ years, death rates have decreased
- \* Disparities remain among medically underserved populations

# Colorectal Cancer Screening

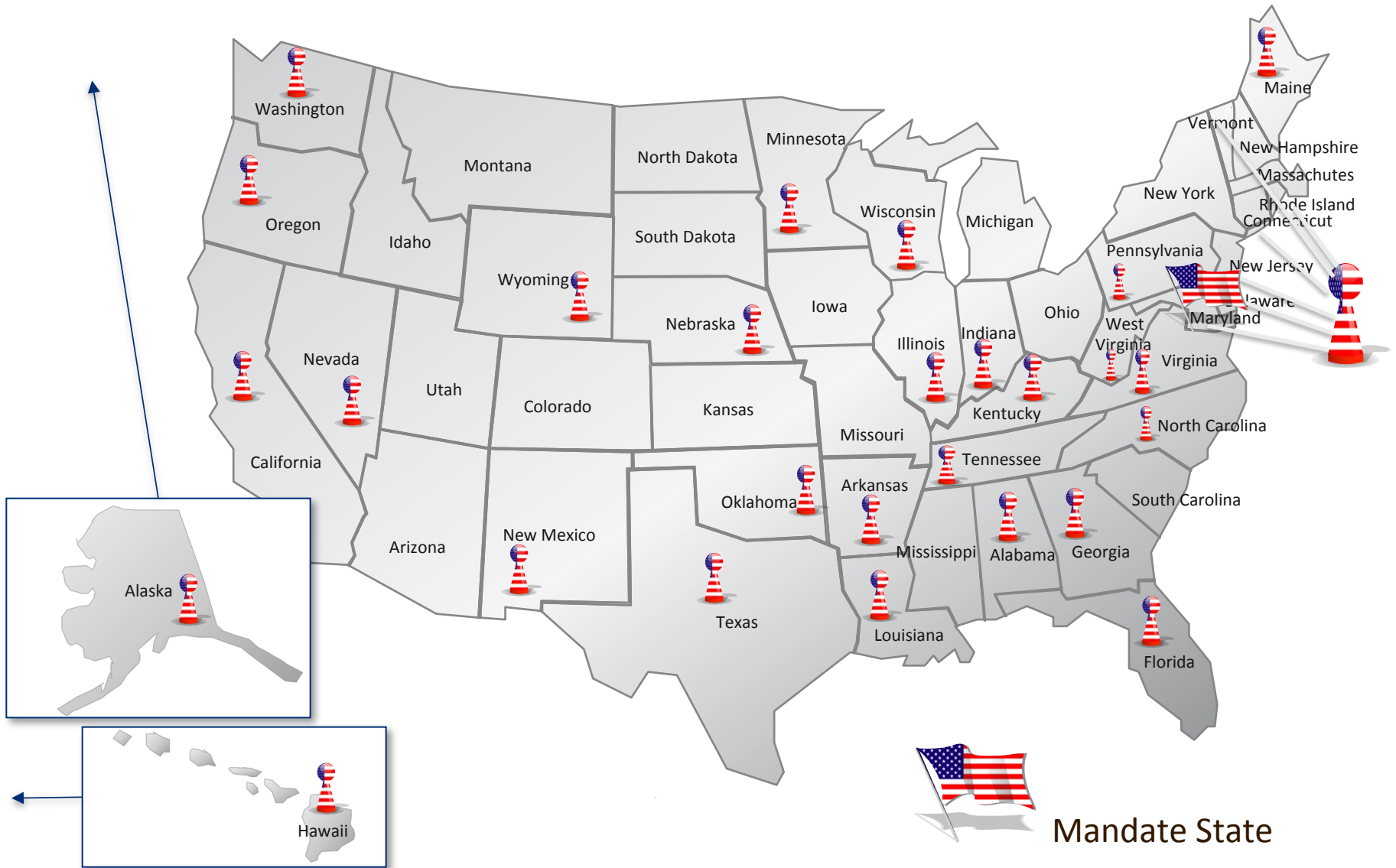
- \* Early detection has been a major contributor to the overall decline in new cases and deaths from CRC
- \* Screening allows for detection and removal of precancerous polyps before they progress to cancer (Cancer Facts & Figures 2012)
- \* Screening allows for earlier detection when disease is easier to cure
- \* Improvement in treatment over the years
- \* Healthy People 2020 screening goal 70.5%

# Colorectal Cancer Screening Rates (BRFSS, 2010)



Source: CDC, 2010

# Insurance Coverage Mandate States in the U.S.



Source: SCLD, 2012

# Insurance Coverage Mandate for CRC

- \* Policy that requires insurers to cover the cost of medical services they would not otherwise if a mandate is not in place
- \* Not all states passed mandates related to CRC
- \* Variation in the types of mandates that were passed
  - \* Differences in the amount of cost-sharing
- \* Mandates reduced out-of-pocket expenses
  - \* Increase CRC screenings

# AR Example: Act 2236

- \* The Colorectal Cancer Act of 2005
  - \* Rep Elliot; Sen Steele, Sen Critcher, Sen Whitaker
- \* Established:
  - \* CRC Control and Research Demonstration Project
    - \* UAMS Cancer Control (PI: Henry-Tillman)
  - \* Policy that requires insurers to cover CRC screenings
    - \* 2 main exemptions
      - \* Employer self-funded benefit plans (mainly large employers)
      - \* No restrictions on cost-sharing

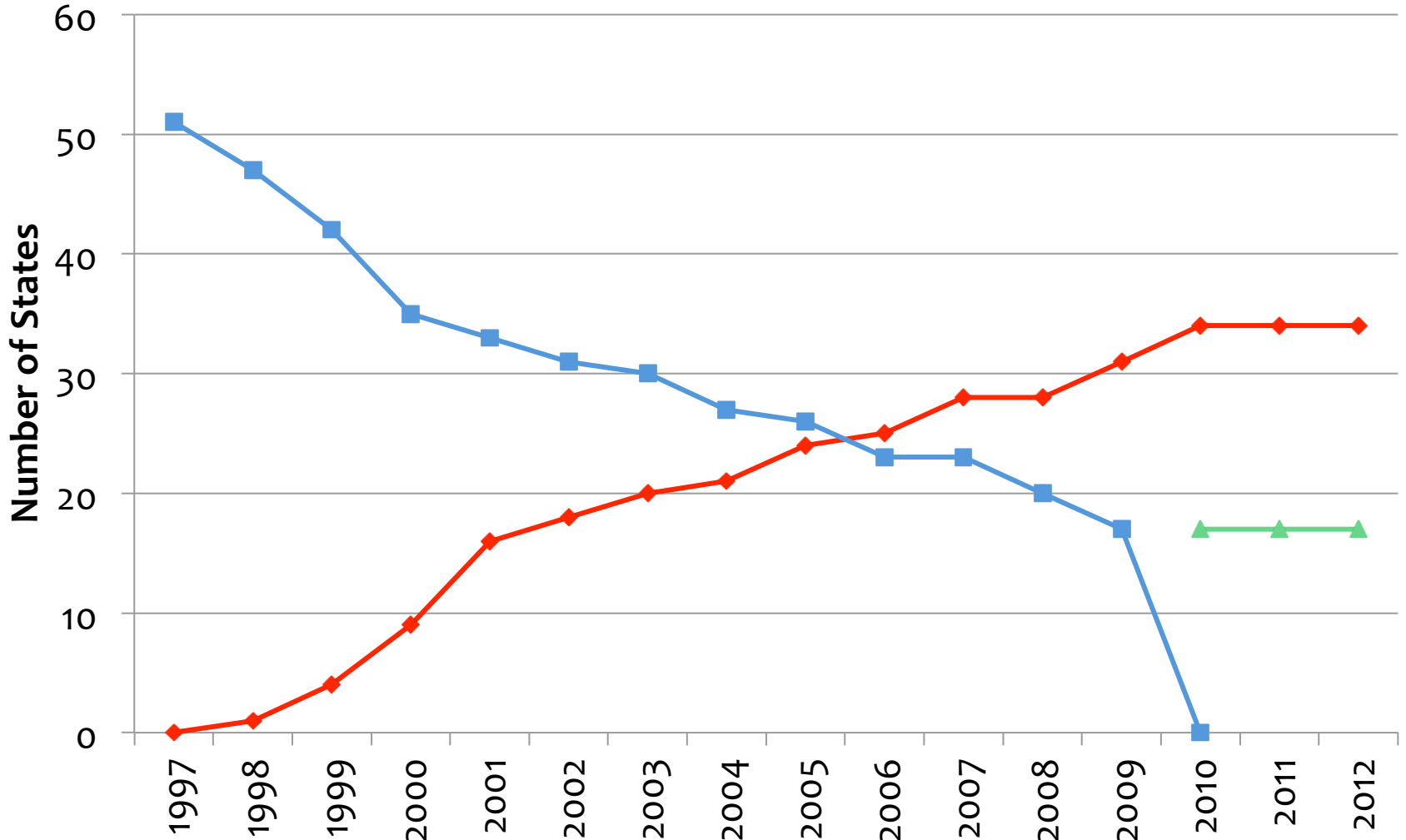


# Health Care Reform

- \* 2010, Patient Protection and Affordable Care Act (ACA)
  - \* Decrease the number of uninsured Americans
  - \* Reduce the overall cost of health care
  - \* Insurance coverage mandates for preventive health services
    - \* Closed loop-holes in state mandates
      - \* Employer self-funded benefit plans
      - \* No restrictions on cost-sharing

# Policy Adoption Over Time

Mandate Non-Mandate Reform



# Law of Demand



As out-of-pocket  
costs decrease...



... the quantity of  
colorectal  
screenings increase

# Goal of Research Study

- \* To estimate the effects of health insurance coverage expansions on overall CRC screening rates.



The facts are coming! The facts are coming!

# Methods

- \* Difference-in-differences (DID)
  - \* Measures the difference in CRC screening before and after policy
  - \* Measures the difference in CRC screening b/w the treatment and control groups
- \* Treatment group: non-mandate states
- \* Control group: mandate states
- \* DID allows us to identify causal effects of ACA on CRC screening

# Data

- \* Behavioral Risk Factor Surveillance System (BRFSS)
  - \* Study population is a sample of U.S. adults age 50 or greater
- \* National Cancer Institute State Cancer Legislative Database
  - \* Used to determine provisions, exemptions, and enforcements of state mandates
- \* The dataset was used to assess state-level estimates of health behaviors and health care utilization by building a state-year longitudinal data file
- \* This data file provided information on types of CRC screening, date latest test was performed, insurance status, race/ethnicity and SES for years studied
- \* Analytical sample 34,017 (M:25,729; NM:8,288)
  - \* Person-years

# Analysis

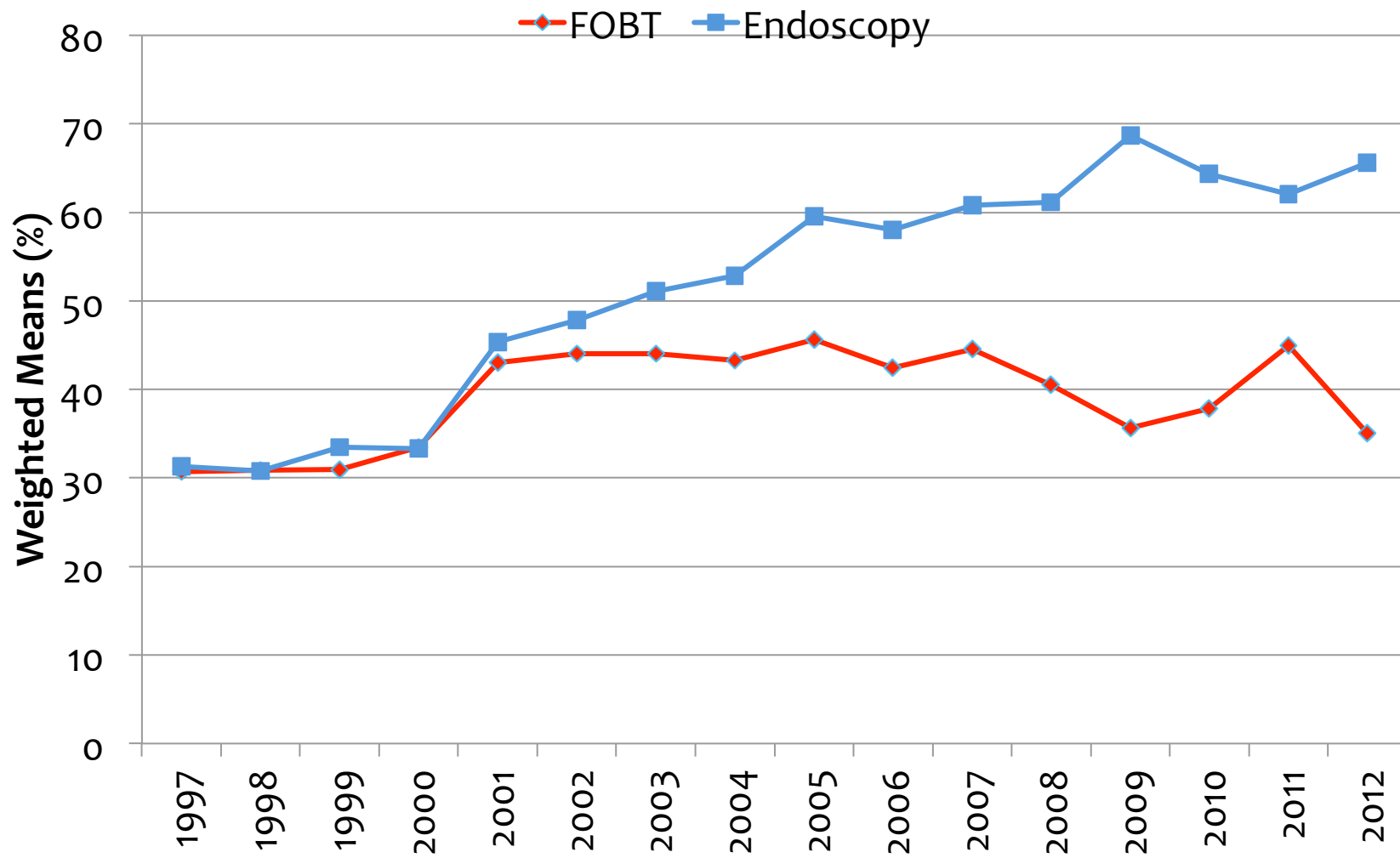
\* *Model Specification 1:*

\* Difference-in-differences (DD)

$$= (\text{CRCscreening}_{\text{reform, post}} - \text{CRCscreening}_{\text{reform, pre}}) - (\text{CRCscreening}_{\text{non-reform, post}} - \text{CRCscreening}_{\text{non-reform, pre}})$$

\*  $Y_{c,s,t} = \alpha + \beta_0 + \beta_1 * \text{REFORM}_t + \beta_2 * \text{POST}_s + \beta_3 * \text{REFORM}_t * \text{POST}_s + X\beta_4 + \delta_s + \varepsilon_{s,t}$

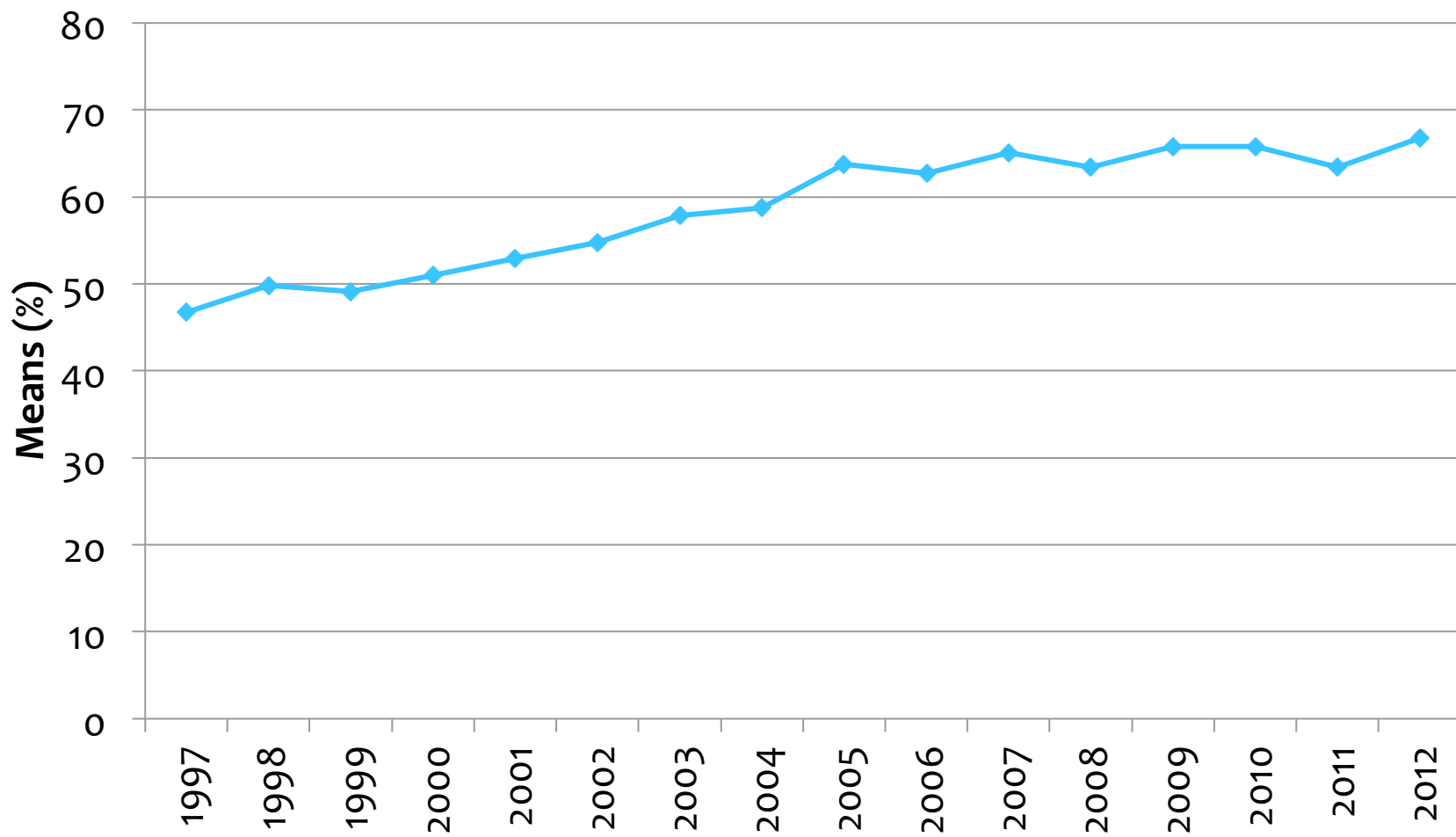
## Colorectal Screening Over Time





## Colorectal Screening (Up-to-date) Over Time

Overall Compliance



# Mandates

## Colorectal Screenings

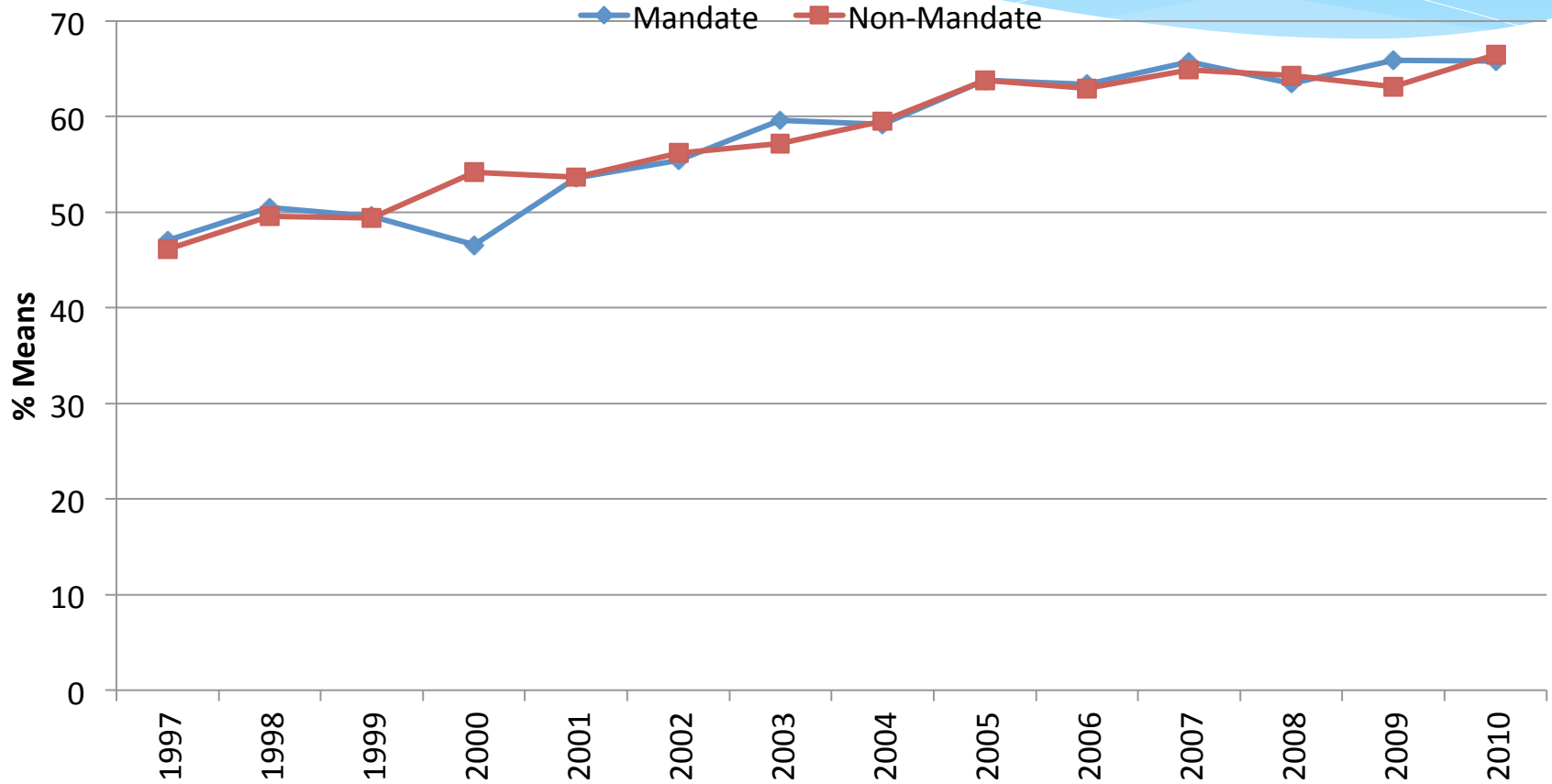


Table 1. Descriptive statistics of the study population receiving any colorectal screening, individual characteristics only

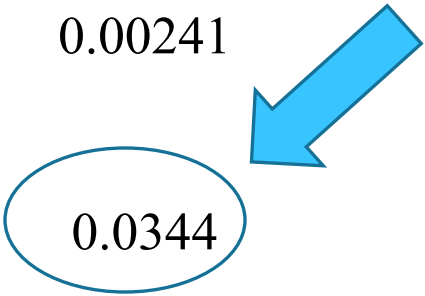
| Characteristics                                 | Received colorectal cancer screening (%) |                  |
|---|--|------------------|
|   | Yes                                      | No               |
| Overall colorectal screening test (n=1,571,267) | 61.55                                    | 38.45            |
| Endoscopic test (n=930,547)                     | 95.61                                    | 4.39             |
| FOBT test (n=660,167)                           | 35.92                                    | 64.08            |
| Mean age +/- s.d. (in years)                    | <b>66.2 +/-10</b>                        | <b>63.8+/-11</b> |
| Mandate state coverage                          |  |                  |
| Yes   | <b>61.78</b>                             | 38.22            |
| No  | <b>61.13</b>                             | 38.87            |
| Health care reform                              |  |                  |
| Post  | <b>64.24</b>                             | 35.76            |
| Pre   | <b>58.79</b>                             | 41.21            |

## Table 2. Summary statistics

| <b>Characteristics</b>                  | <b>Pre-health care reform</b> |           | <b>Post-health care reform</b> |           |
|---|-------------------------------|-----------|--------------------------------|-----------|
|   | <i>Mean</i>                   | <i>SD</i> | <i>Mean</i>                    | <i>SD</i> |
| Mean age +/- s.d. (in years)            | 64.93                         | 10.199    | 64.76                          | 10.274    |
| Self-reported health status (Fair/poor) | 26.99                         | 0.444     | 28.41                          | 0.451     |
| Covered by health insurance             | 92.92                         | 0.256     | 92.02                          | 0.271     |
| Did not see doctor due to medical costs | <b>9.06</b>                   | 0.287     | <b>12.53</b>                   | 0.331     |
| Doctor visit                            | 1.29                          | 0.649     | 1.36                           | 0.691     |
| Presence of a personal physician        | <b>93.97</b>                  | 0.238     | <b>89.37</b>                   | 0.308     |
| Race/ethnicity                          |                               |           |                                |           |
| Whites                                  | <b>81.99</b>                  | 0.384     | <b>76.67</b>                   | 0.425     |
| Hispanics                               | 3.74                          | 0.190     | 8.92                           | 0.285     |
| Marital status                          | 51.46                         | 0.500     | 48.17                          | 0.500     |
| Male                                    | 38.42                         | 0.486     | 39.20                          | 0.488     |

# Table 3 Marginal Effects of Health Care Reform on Colorectal Cancer Screening

| <b>Variable</b>           | <b>Coefficient</b> | <b>SE</b> | <b>Marginal Effects</b> |
|---------------------------|--------------------|-----------|-------------------------|
| Mandate state coverage    | -0.376             | 0.278     | -0.080                  |
| Health care reform        | 0.0113             | 0.0931    | 0.00241                 |
| Health care reform effect | 0.161*             | 0.100     | 0.0344                  |



# Conclusions

- \* Health care reform increased the probability of having a CRC screening by 3.4 percentage points on average
- \* Estimated 2.87 million additional age-eligible persons will receive a colorectal cancer screening as a result of health care reform
- \* Clearly found evidence that ACA influences CRC screening

# Policy Implications

- \* Under the ACA, lowering out-of-pocket costs is an effective approach to increase colorectal cancer screening utilization in the United States
- \* Starting 2014, all US citizens are required to have health coverage
  - \* Expect demand to increase for CRC screening

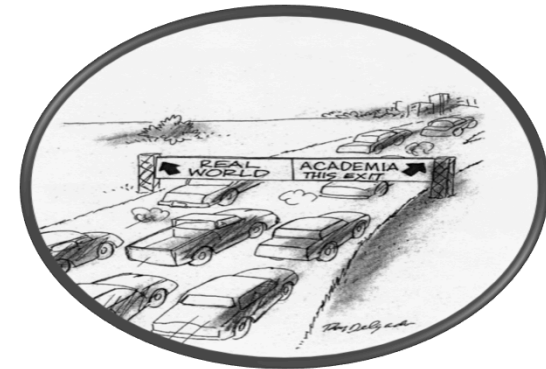
# For More Information

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Archive: [http://works.bepress.com/michael\\_preston](http://works.bepress.com/michael_preston)

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# Next Steps

- \* Identify additional datasets that include CRC information and provider information
- \* Expand research to include an additional year post-reform
- \* Include an analysis that examines physician recommendation on CRC disparities
- \* Examine why some groups respond better to certain policies

# Types of CRC Screening

- \* High-Sensitivity FOBT (Stool Test)
  - \* Stool samples are checked for blood
- \* Flexible Sigmoidoscopy
  - \* Short, thin, flexible, lighted tube placed inside the rectum and lower third of the colon
- \* Colonoscopy
  - \* Long, thin, flexible, lighted tube placed inside the rectum and entire colon
  - \* Also used as a follow-up test for other CRC screening tests if there are abnormal findings

# Conceptual Framework



## Contextual Factors

- Racial/Ethnic Minority & low-income population; health system barriers (access, delays); CRC screening guidelines; patient barriers (trust, stigma, fear, education)

## Mechanisms

- Health care reform, state mandates, physician utilization; communication level of providers and patients;

## Outcome

- Increase in CRC screening

# Discussion

- \* This study addressed how policy influences colorectal cancer screenings overall and provides greater insight on whether or not such policies are enough to reduce the disparity gap in screening among racial and ethnic minority populations
- \* Robust to different model specifications
  - \* Random Effects Model
  - \* Fixed Effects Model