2006 Massachusetts Health Care Reform and its Impact on Sources of Insurance Coverage

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Keywords

Massachusetts Health Reform, Insurance Mandate, Synthetic Control Method (SCM), Employer Provided Insurance, Medicaid

Abstract

Using Synthetic Control Method (SCM) for comparative case studies, we estimate the causal impacts of the 2006 Massachusetts Health Care Reform (MHR) on the sources of insurance coverage. We find:

- The overall expansion of over ½ million distributed approximately 60:40 between employer sponsored insurance (ESI) and Medicaid
- Direct purchase and Medicare were unaffected

Research Question

- Question: in Massachusetts, which sources of health insurance coverage were impacted by the MHR, and in which way?
- Both *Affordable Care Act* (ACA) and (MHR) aim to achieve significant expansion of insurance coverage leading to near universal coverage.
  - Not enough time has passed to study ACA.
  - ACA apply to all states very similarly, difficult to construct counterfactual.
- MHR went into effect 7 years prior to ACA. MHR can be used to envisage, at least qualitatively, ACA impacts
- Due to events such as the 2007-2009 'great recession', pre-MHR Massachusetts is not a valid counterfactual for post-MHR Massachusetts
  - We use SCM for constructing a valid counterfactual to estimate the causal impact of MHR on sources of coverage

Source of Insurance Coverage

The distribution of coverage expansion between private and government important for various economic implications

- Labor market implications: pay package of firms and hiring decisions may be affected
- Government budgetary implications: how much does Medicaid and the subsidy impacted
- Cost containment issues of the overall health care system may interact with the expansion pattern

SCM and Causal Inference

- Challenges when using other states to construct a counterfactual for Massachusetts
  - With only 1 treatment unit, regression model may not be used
  - Method such as border states, or other matching model can be arbitrary
- SCM: a systematic data-driven process to construct counterfactual of the intervention (health reform)
  - Derive weights $\boldsymbol{w^*}$ such that the difference between treatment state and each state in the control group is minimized in terms of different pre-intervention characteristics as well as pre-intervention outcome
  - The counterfactual/synthetic outcome is the $\boldsymbol{w^*}$ weighted average of the control state outcomes
  - Estimate of the impact of the intervention (reform) is the post-intervention gap between actual and synthetic outcome (=Δ)
- Inference: apply placebo intervention (i.e., health reform) to the control states that did not have reform
- Calculate post-intervention gap b|w actual and synthetic (Δ) for every control state and compare the Δ of the treatment against them.

Data

- Outcome variables:
  Private coverage: Employer sponsored insurance (ESI), Direct purchase
  Government coverage: Medicare, Medicaid, Military
- State characteristics for matching:
  Age, race, education, other demographic characteristics
  Economic characteristics, unban characteristics
  Natural amenities, crime

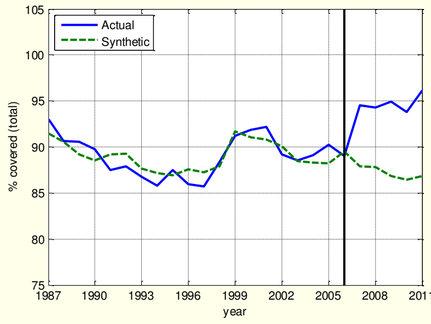
Results

- Main control set: 32 states that did not have any health reform over the period 1987-2011
- By 2011, MHR raised overall health insurance coverage by 9.3 percent of the state's population, which is 2.2 percent higher than a before-and-after comparison
- Coverage expansion came from ESI and Medicaid with Medicare and direct purchase unaffected by MHR

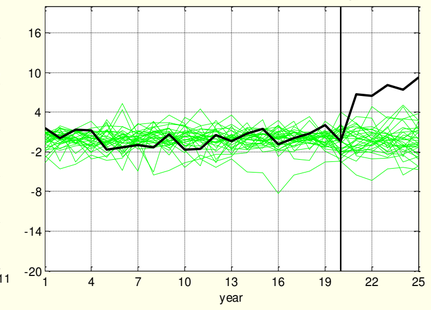
Results

2006 MHR and Expansion of Total Insurance Coverage

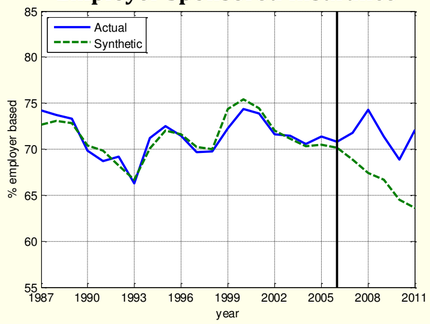
Actual versus Synthetic



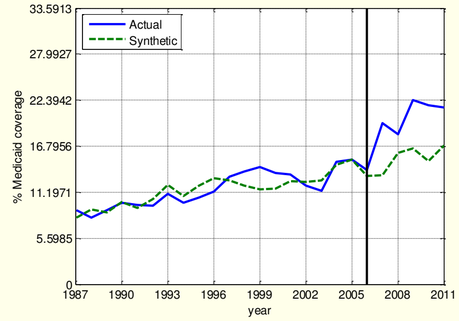
Massachusetts gap between actual and synthetic versus placebo gaps



2006 MHR and Expansion of Employer Sponsored Insurance



2006 MHR and Expansion of Medicaid



Robustness and Falsification Tests

- Results robust with alternative donor pool: 47 contiguous states
- Could it be 'something else' causing gap between actual and synthetic?
  Falsification test: MHR not reasonably expected to affect military coverage. Our SCM estimates of military coverage confirms no impact of intervention.
- Is the gap between actual and synthetic due to the synthetic's inability to replicate the treatment's post-intervention outcome?
  Falsification test: Assign placebo health reform 6 years early.
  SCM estimates confirms no effect of this placebo treatment.

Concluding Remarks

- Comparing the relative growth of ESI vis-à-vis that of Medicaid we find no evidence of crowding out of private coverage
- While ESI declined in many states during the 2007-2009 recession, MHR arrested the decline of ESI in MA
- Causal impact of MHR on Medicaid expansion less than a before-after comparison.