Grading Medicaid: Fiscal Federalism and Social Insurance in the United States

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Motivation

- Social insurance programs exhibit **varying degrees of centralization**

  - Centralized programs designed and managed at national level
  - De-centralized programs allow for some local autonomy

- Examples of **centralized programs**:

  - Medicare program
  - Social Security Disability Insurance (SSDI) program

- Examples of **de-centralized programs**:

  - Medicaid program
  - Unemployment Insurance (UI) programs

Medicaid vs. Medicare

- In this paper, we study the **trade-offs involved with de-centralization** by comparing **Medicaid and Medicare**

  - Two largest social health insurance programs in U.S.

- **Medicare** – Enrolls **elderly** and **SSDI** recipients

  - Centralized at national level
  - No role for states in program management, design, funding, etc.

- **Medicaid** – Enrolls **low-income children and adults** and **SSI** recipients

  - Jointly funded by states and federal government
  - States have significant flexibility to design benefits and manage program
  - States also have some flexibility around eligibility (though not for SSI)

- Focus specifically on **program effects for adults with disabilities**

  - Know little about how programs affect these groups
  - **Sickest** groups in these programs; minor program design decisions can have **big effects on health**
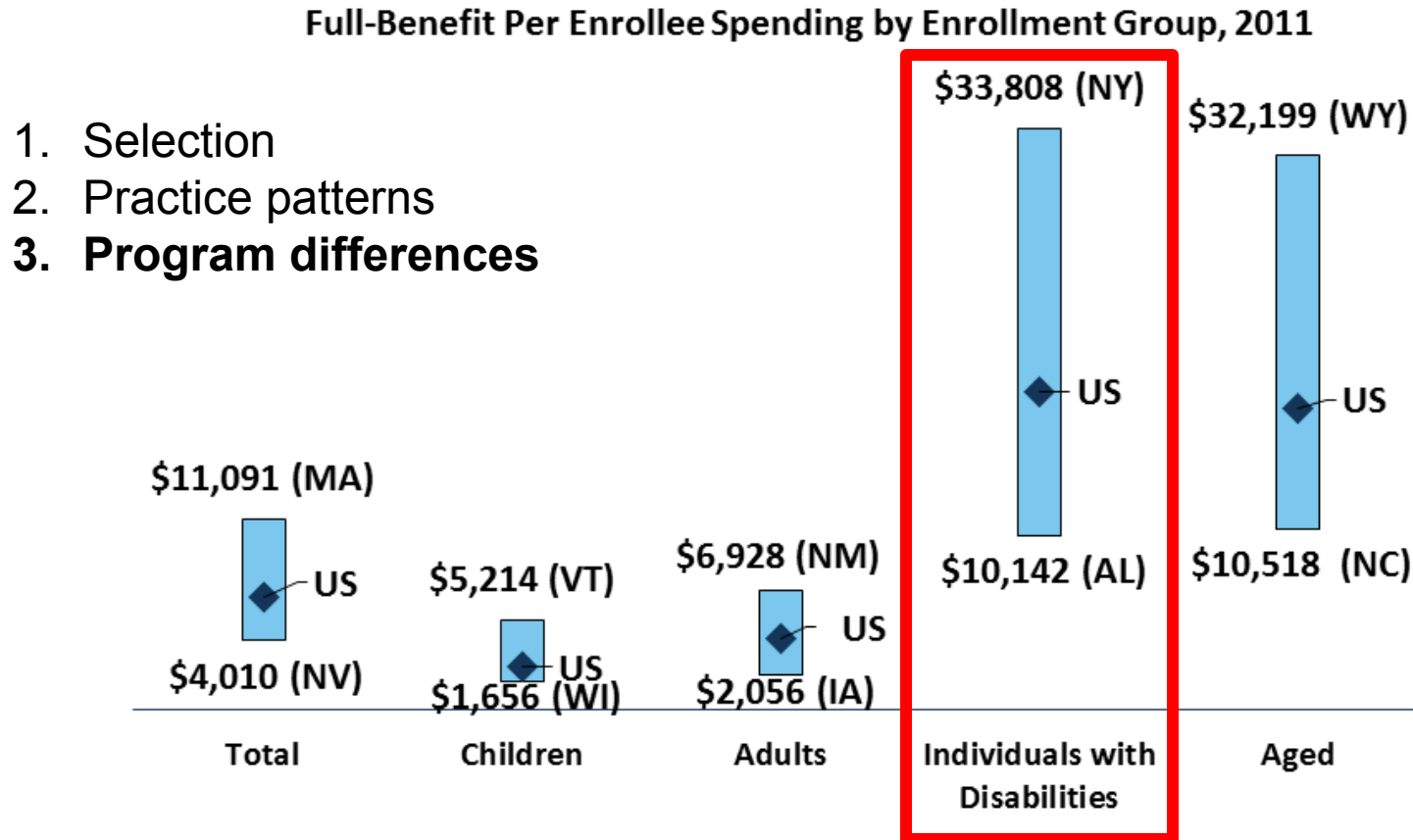 - **Most expensive** groups in both programs

Medicaid insures more people for less money

Enrollment (millions)

Marketplaces: 5.40
Medicare: Managed Competion 16.00, Fee-for-Service 38.00
Medicaid: Managed Competion 43.39, Fee-for-Service 28.32

Expenditure (billions)

Marketplaces: $22
Medicare: Managed Competion $156, Fee-for-Service $362
Medicaid: Managed Competion $162, Fee-for-Service $314

- Fee-for-Service
- Managed Competion

Medicaid = $6637/person
Medicare = $9592/person

Some state Medicaid programs insure people for much less than others

Figure 1

Full-benefit per enrollee spending by enrollment group, 2011

Full-Benefit Per Enrollee Spending by Enrollment Group, 2011

1. Selection
2. Practice patterns
3. **Program differences**

$33,808 (NY)

$32,199 (WY)

$11,091 (MA)

$6,928 (NM)

$5,214 (VT)

$10,142 (AL)

$10,518 (NC)

US

US

US

US

US

$4,010 (NV)

$1,656 (WI)

$2,056 (IA)

| Total | Children | Adults | Individuals with Disabilities | Aged |

NOTE: Spending per capita was calculated only for Medicaid enrollees with unrestricted benefits or those enrolled in an alternative package of benchmark equivalent coverage. Outliers are included in the figure, but not marked as outliers.
SOURCE: KCMU and Urban Institute estimates based on data from FY 2011 MSIS and CMS-64 reports.

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Medicaid vs. Medicare

- **Two key questions:**

  1. **How do Medicaid and Medicare compare to each other?**
     - Differences in quality of care and spending for SSI population
  2. **How do state Medicaid programs compare to each other?**
     - If we made Texas' Medicaid program look more like New York's, how would spending and outcomes change in Texas?
     - NOT, if I moved Texas Medicaid benes to New York, how would spending and outcomes change for those benes?

- **Question 1** motivated by questions about costs and benefits of

  - **Enrolling SSI population in Medicaid vs. Medicare**
  - Expanding coverage generally via Medicaid vs. Medicare

- **Question 2** motivated by questions about optimal program design and deeper question about costs and benefits of de-centralization

  - What aspects of program design result in **best outcomes** for SSI beneficiaries?
  - Do **differences across state programs** exhibit:
    - **Differences in preferences**: Trade off spending and outcomes
    - **Differences in efficiency**: Doing more for less
  - Important for welfare analysis of de-centralization

Data

- **Linked Medicaid-Medicare enrollment and claims data** (2007-2012)

  - Follow people from one program to the other
  - Concurrently observe full Medicaid and Medicare enrollment and claims
  - Includes SSI beneficiaries, SSDI beneficiaries

- **Outcomes:**

  - **Total fiscal spending** (FFS payments + premium payments to MMC plans): Observed for all Medicaid enrollees and for all Medicare enrollees not enrolled in Medicare Advantage
  - **Disaggregated health care utilization** (IP, OP, drugs, ED): Observed for all FFS Medicaid enrollees and all Medicaid managed care enrollees in some states. Observed for all FFS Medicare enrollees.
  - **Mortality**: Source 1 – Social Security Death Index; Source 2 – Disability Analysis File (DAF). Both provide universe of death dates.
  - **Functional status** for LTC utilizers: OASIS and MDS

- Currently working on validating fiscal spending, and utilization outcomes using: CMS-64, Medicare hospital cost reports, Medicaid drug rebate data – *All results today are VERY preliminary*
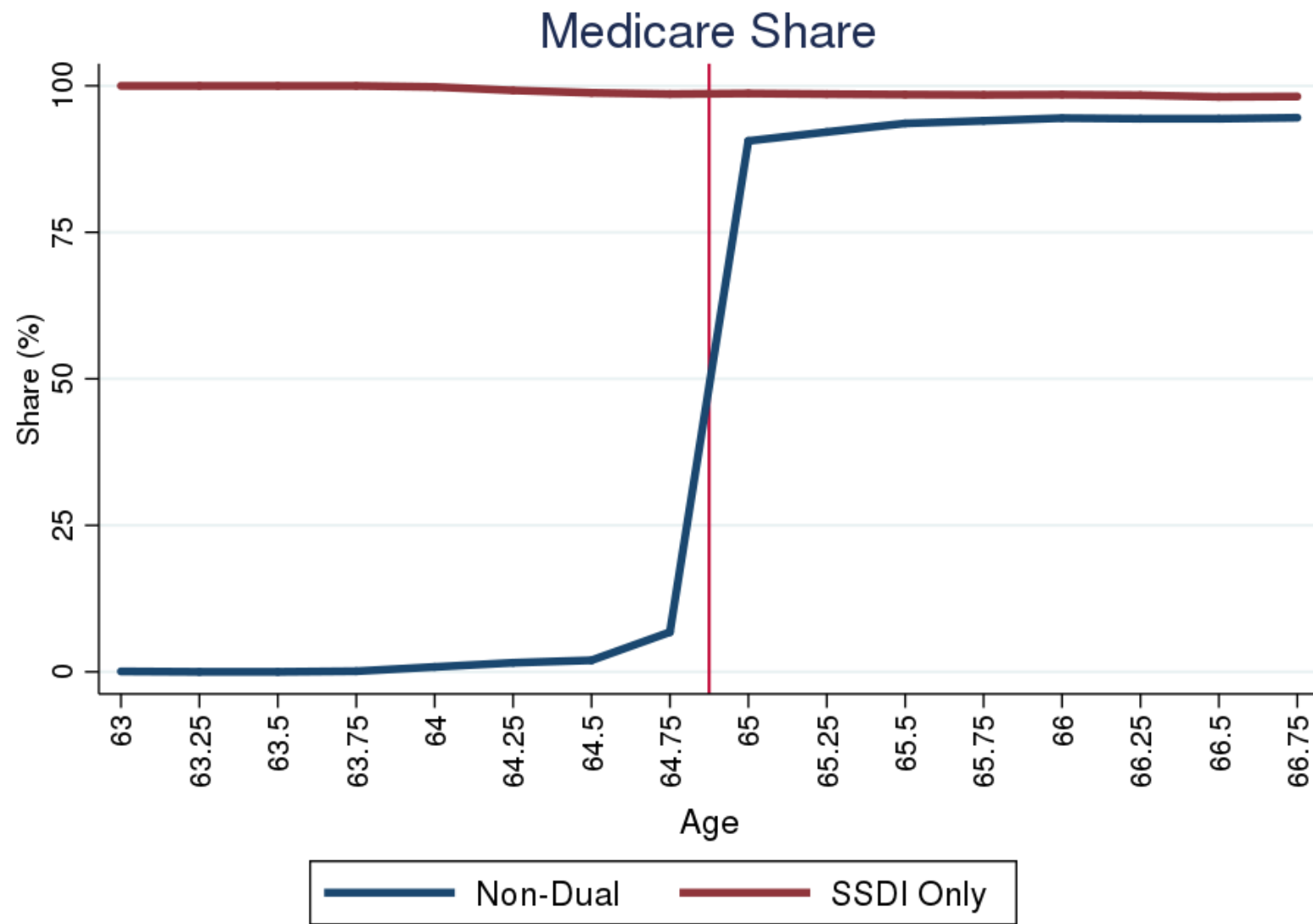
Part 1: Medicaid vs. Medicare

- **ID strategy:** Follow individuals enrolled in SSI (and Medicaid, but not Medicare) at age 63 as they exogenously enter Medicare (plus Medicaid supplemental) at age 65

- **Control groups:** 3 groups not experiencing transitions at age 65

  - Individuals enrolled in both SSI and SSDI (Medicaid + Medicare) at age 63
  - Individuals enrolled in SSDI only (Medicare only) at age 63
  - Individuals enrolled in SSI at age 63 (Medicaid only) not eligible for Medicare

$$Y_{it} = \beta_0 + \beta_1 \mathbf{1}[age_{it} > 65]\mathbf{1}[treated_i = 1] + \delta_i + \theta_a + \eta_{ac} + \epsilon_{it}$$
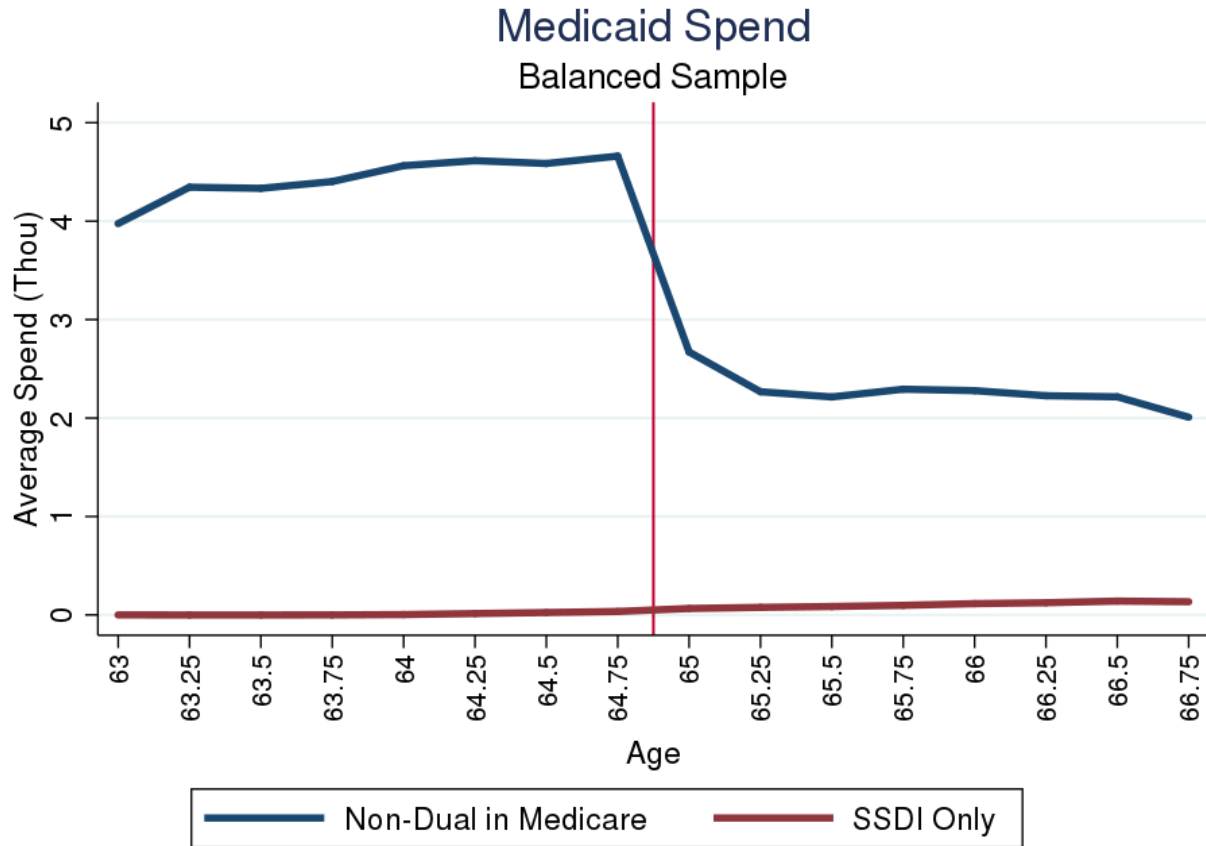
- **Difference-in-differences:** Compare changes in outcomes for treatment vs. control group at age 65

  - Individual FEs
  - Age FEs
  - Cohort-by-age FEs
  - Today, restricting to balanced panel of beneficiaries and to treatment group members who transition at 65 (80-90%)
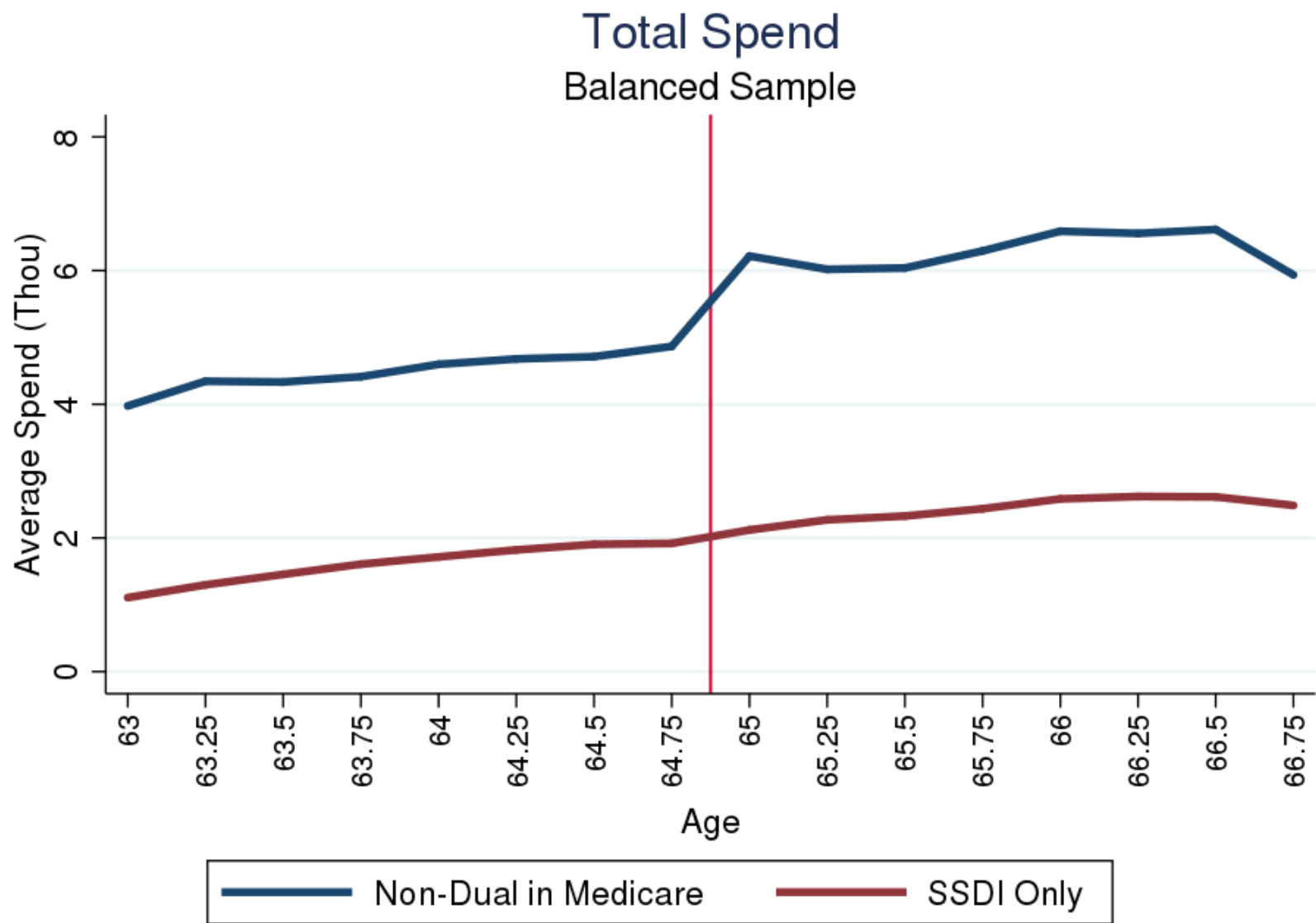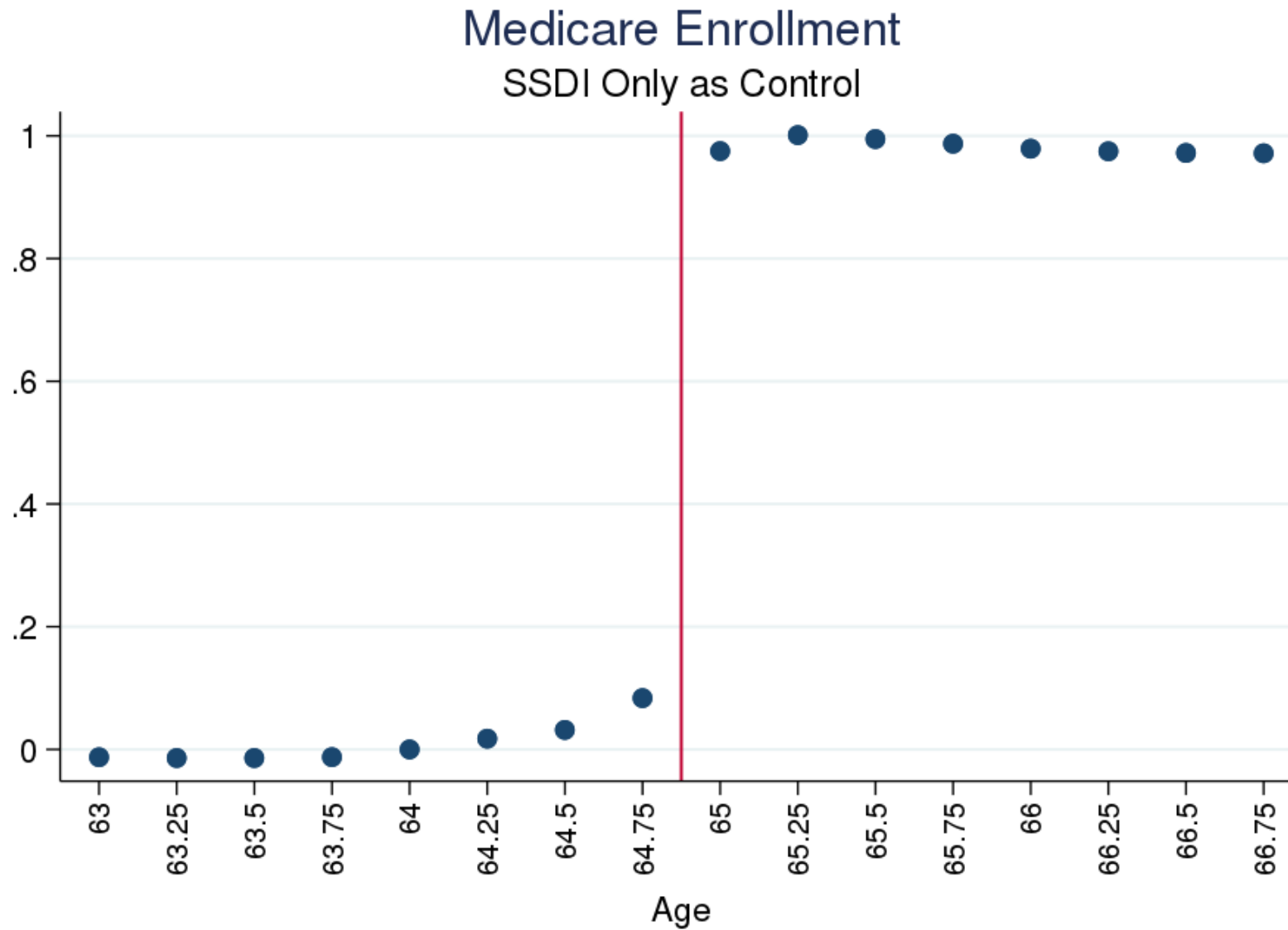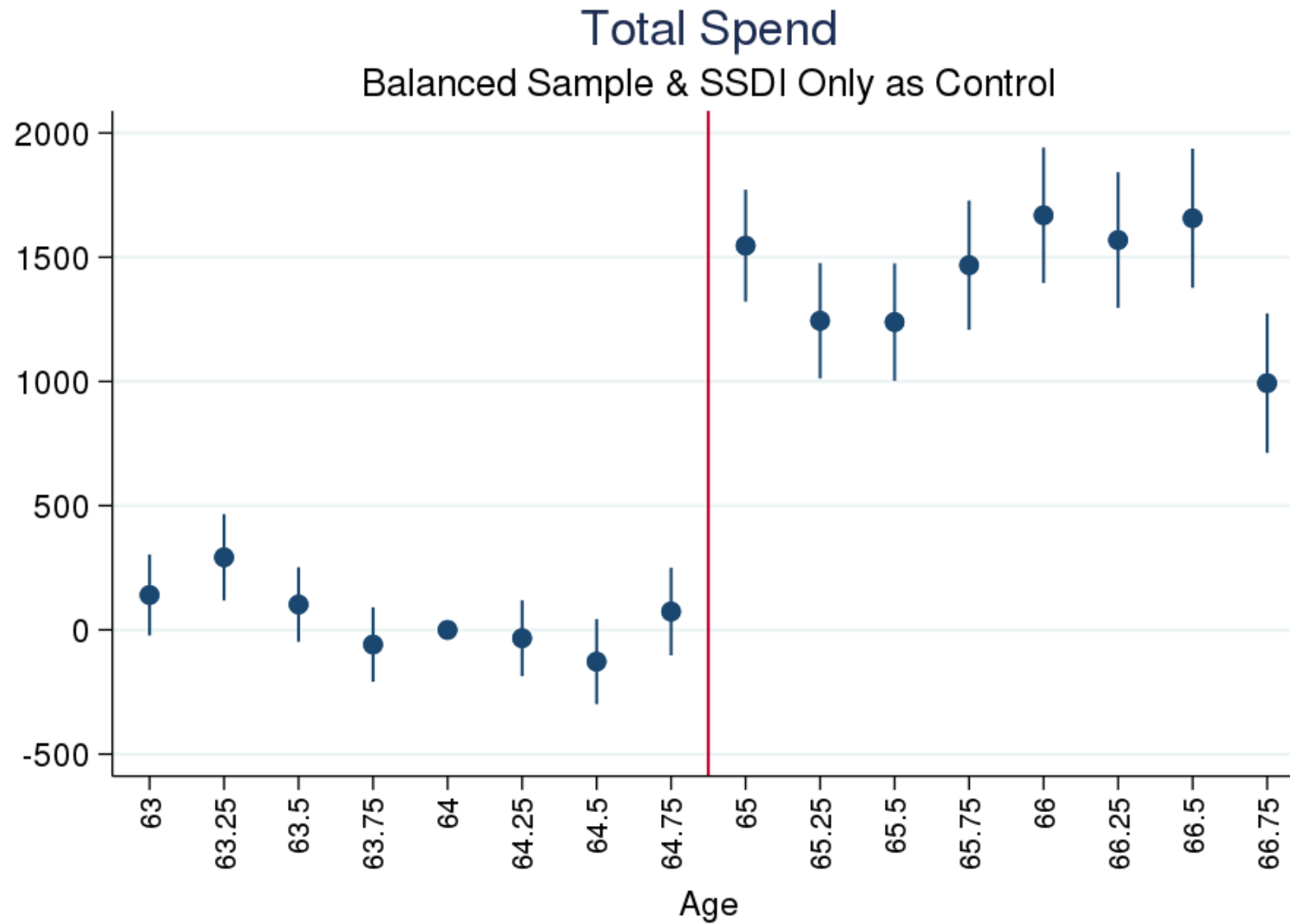
First stage – Medicare take-up

Medicare Share

Medicaid and Medicare Spending
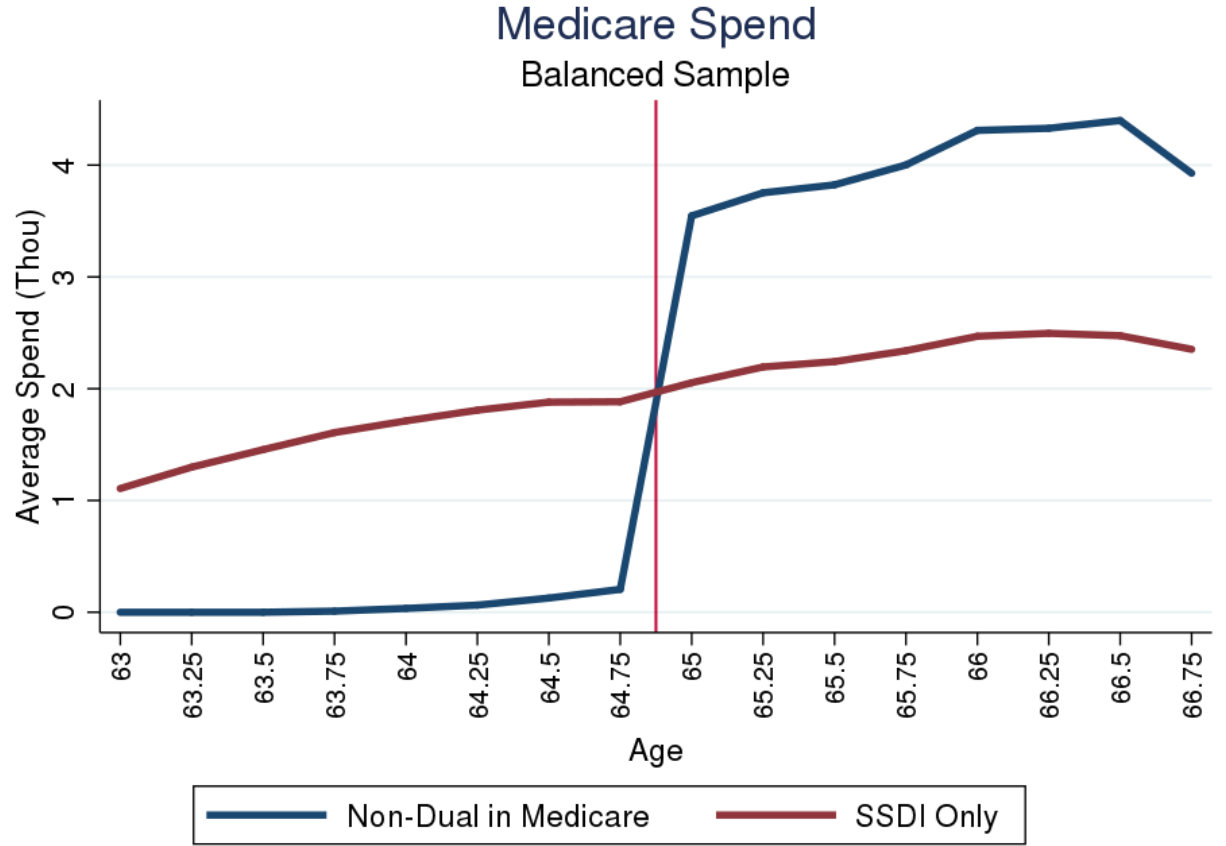
Overall fiscal spending

Total Spend
Balanced Sample

Event Study – First Stage

Medicare Enrollment
SSDI Only as Control

Event Study – Total spending

Total Spend
Balanced Sample & SSDI Only as Control

ED Visits
Balanced Sample & SSDI Only as Control
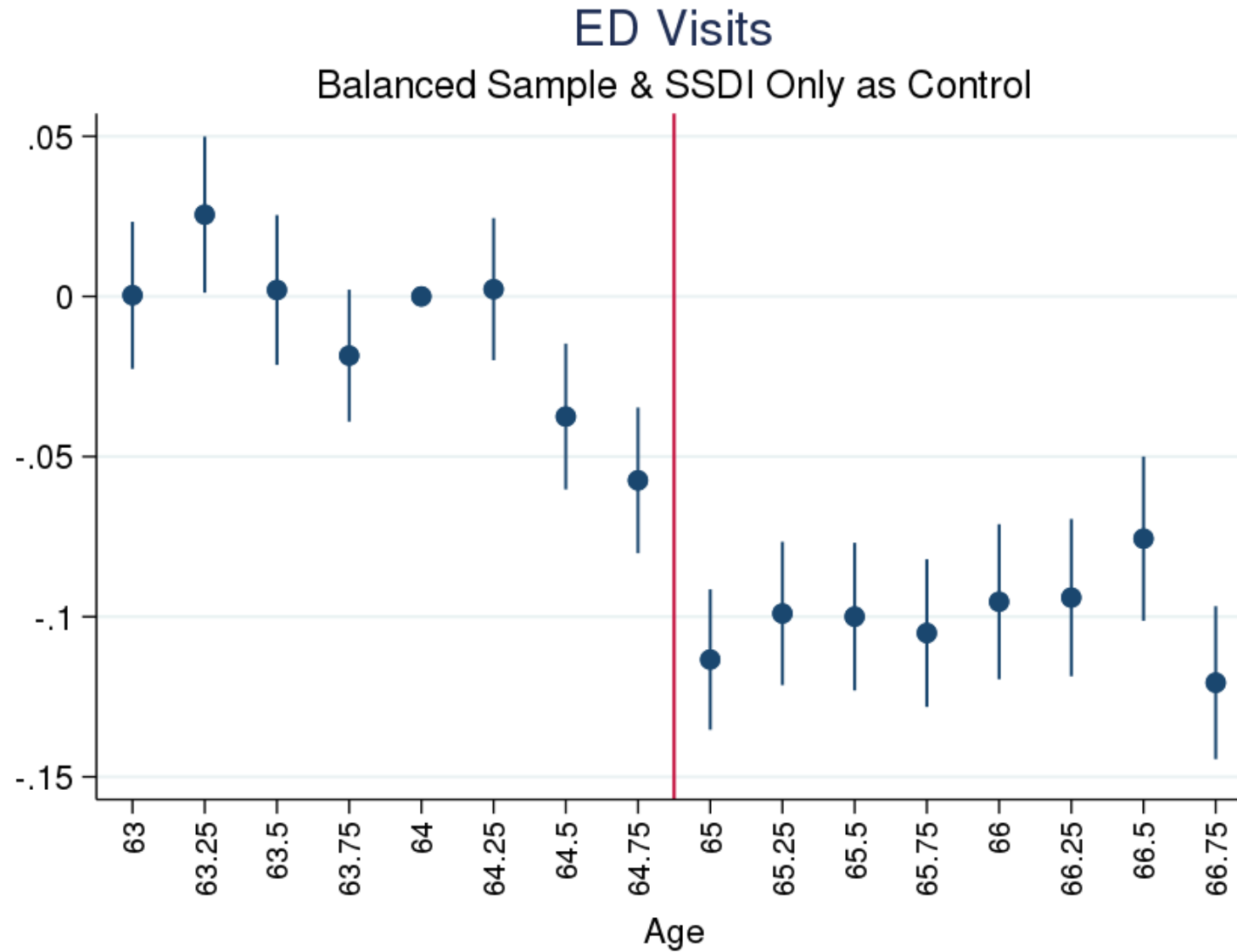
Table 1: Pooled 65 & Over Coefficients

Outcome	Dual	SSDI Only	Non-Dual Not in Medicare
Total Spend	923.6202***	1374.633***	2126.891***
	[98.63187]	[77.80831]	[199.1384]
Log Total Spend	.19592***	-.38584***	.66323***
	[.01777]	[.0187]	[.06087]
Medicaid Spend	-2376.475***	-2220.694***	-2426.528***
	[59.32506]	[43.87559]	[190.9449]
Medicare Spend	3300.095***	3595.327***	4553.419***
	[85.36723]	[72.43764]	[69.55235]
ED Visits	-.1001***	-.08997***	-.03179
	[.00697]	[.00617]	[.01654]

Medicaid vs. Medicare – Take-aways

- On average, an SSI beneficiary costs $1400 more to insure in Medicare vs. Medicaid

  - 28% of baseline mean

- ED visits drop significantly post-65

  - 0.1 visits
  - 27% of baseline mean

- Implications of opposite sign effects for two outcomes:

  - Spending result unlikely to be driven purely by reporting differences: *Poor reporting in Medicaid relative to Medicare would lead to estimated increases in both spending and ED visits*
  - Some evidence of trade-off between spending and quality (i.e. ED visits) rather than clear efficiency difference between programs, but need better outcomes
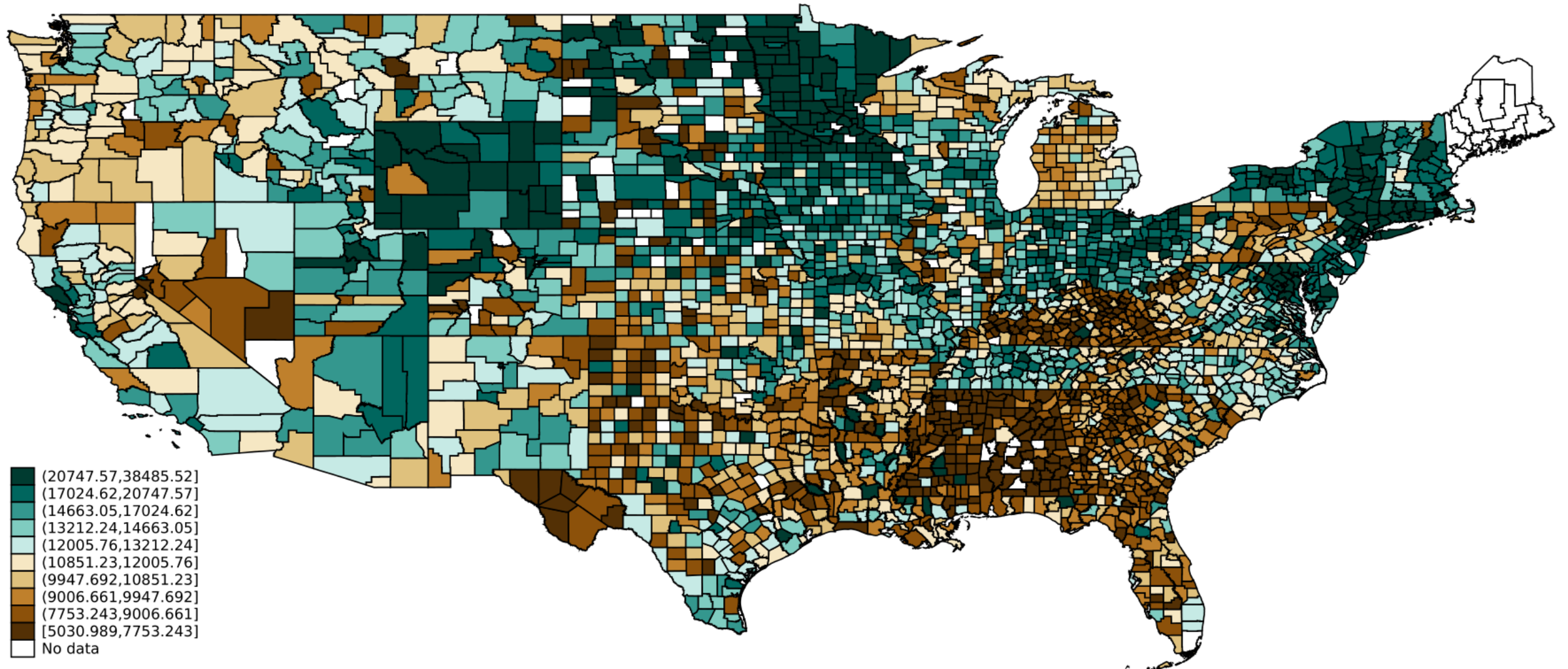
Part 2: Medicaid vs. Medicaid

- Recall that we want to isolate **variation in outcomes due to program differences**: Need to difference out *selection* and *effects of local healthcare markets* (i.e. physician practice patterns, etc.)

- **ID strategy:** Border discontinuity diff-in-diff

  - Treatment group: Adult SSI beneficiaries (in Medicaid)
  - Control group: Adult SSDI beneficiaries (in Medicare)

- **Selection:** Focus on SSI beneficiaries, with national eligibility rules instead of state rules, helps here

  - Zooming in on border eliminates most state-to-state variation in underlying health
  - SSDI beneficiaries used to difference out any remaining cross-border variation in health, including SSA-office effects on program enrollment

- **Local practice patterns:** Zooming in on borders + SSDI beneficiaries removes effects of local practice patterns

- *Note: All results here highly preliminary. Still validating Medicaid data.*
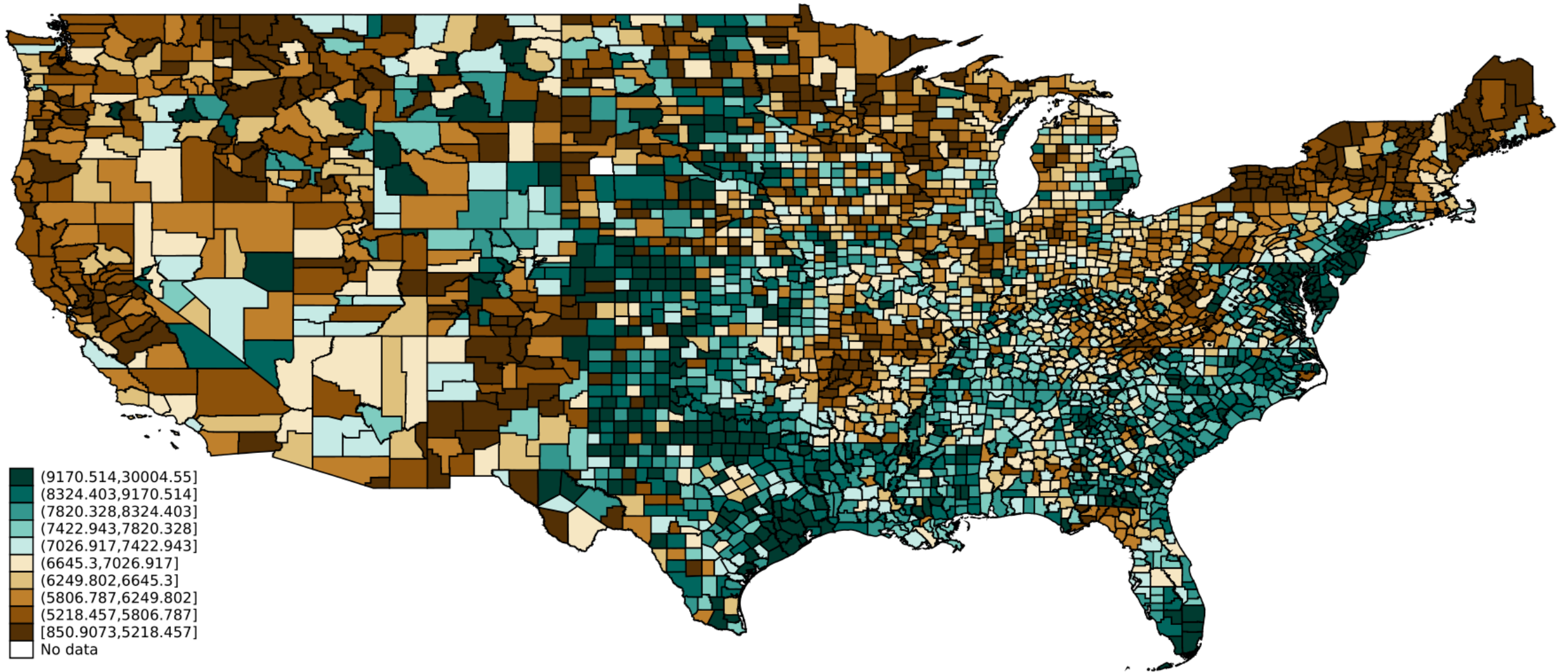
Medicaid (treatment) spending variation

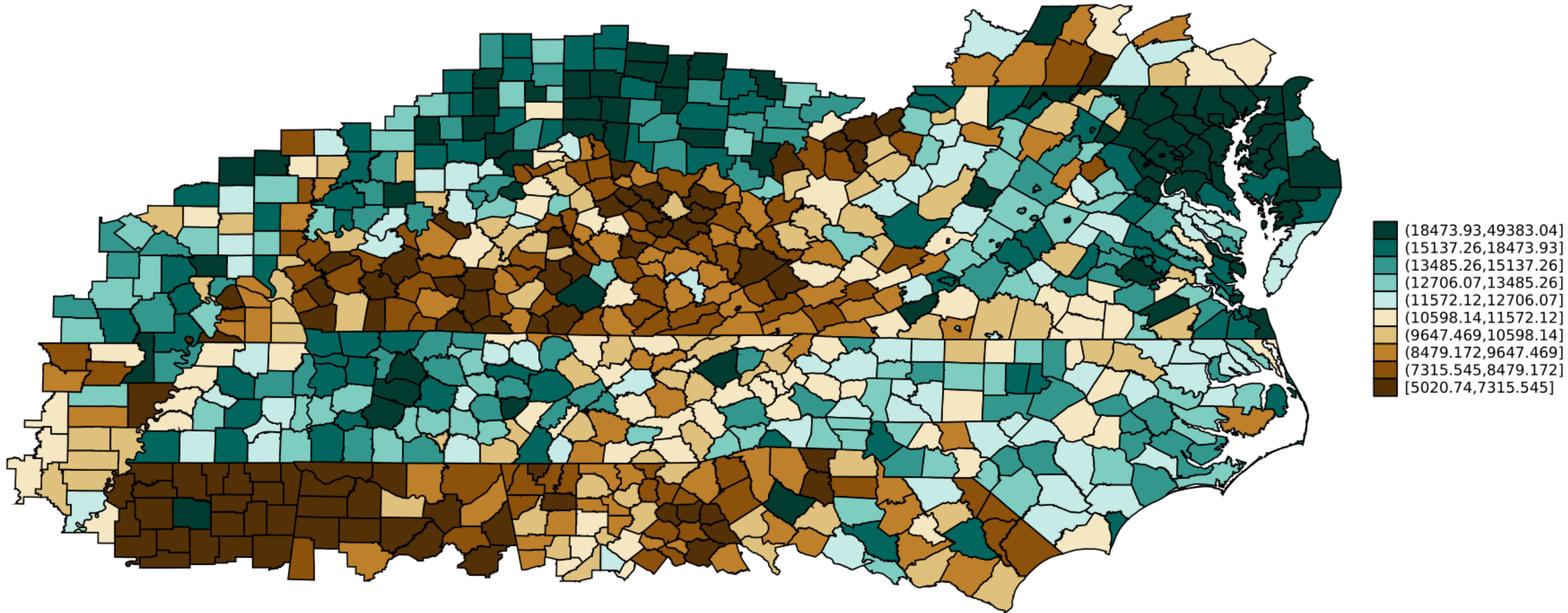Annual Medicaid Adjusted Spending at County Level

Legend:
- (20747.57,38485.52]
- (17024.62,20747.57]
- (14663.05,17024.62]
- (13212.24,14663.05]
- (12005.76,13212.24]
- (10851.23,12005.76]
- (9947.692,10851.23]
- (9006.661,9947.692]
- (7753.243,9006.661]
- [5030.989,7753.243]
- No data

Medicare (control) spending variation

Annual Medicare Adjusted Spending at County Level

(9170.514,30004.55]
(8324.403,9170.514]
(7820.328,8324.403]
(7422.943,7820.328]
(7026.917,7422.943]
(6645.3,7026.917]
(6249.802,6645.3]
(5806.787,6249.802]
(5218.457,5806.787]
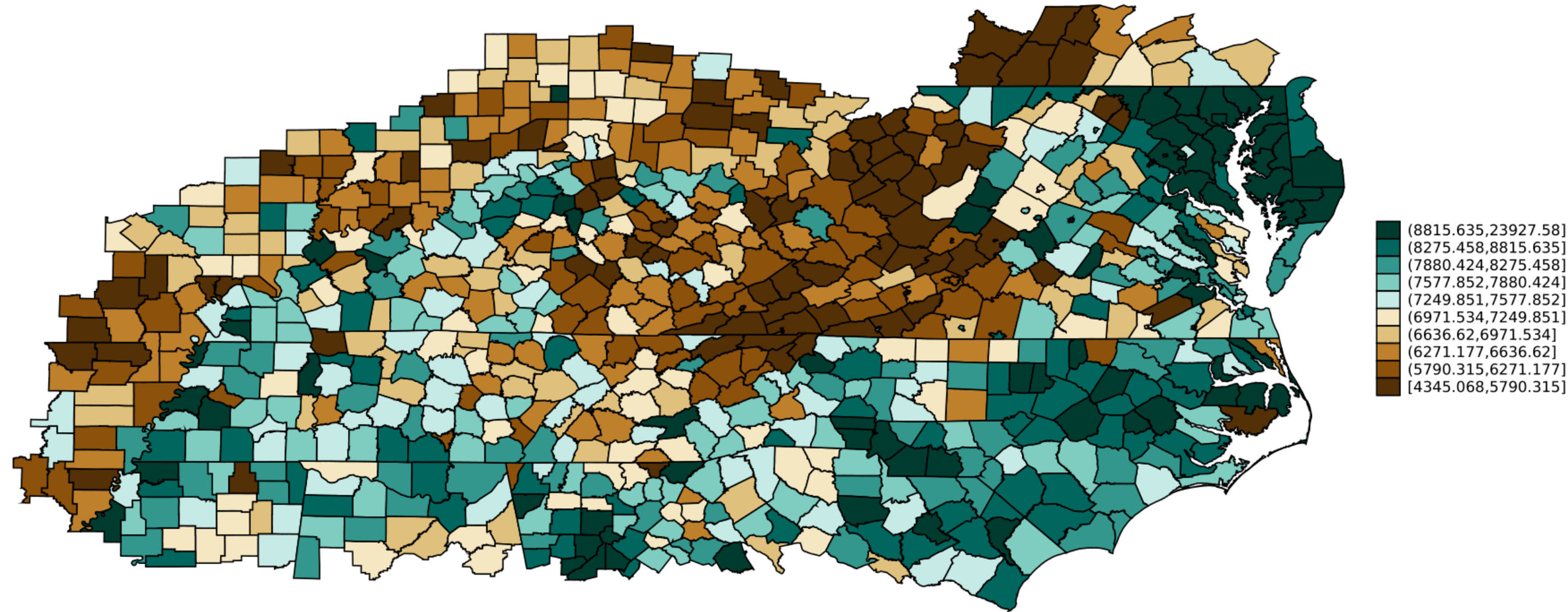[850.9073,5218.457]
No data

Medicaid (treatment) spending variation

Annual Medicaid Adjusted Spending at County Level
Tennessee, Kentucky, North Carolina, Virginia and bordering counties

(18473.93,49383.04]
(15137.26,18473.93]
(13485.26,15137.26]
(12706.07,13485.26]
(11572.12,12706.07]
(10598.14,11572.12]
(9647.469,10598.14]
(8479.172,9647.469]
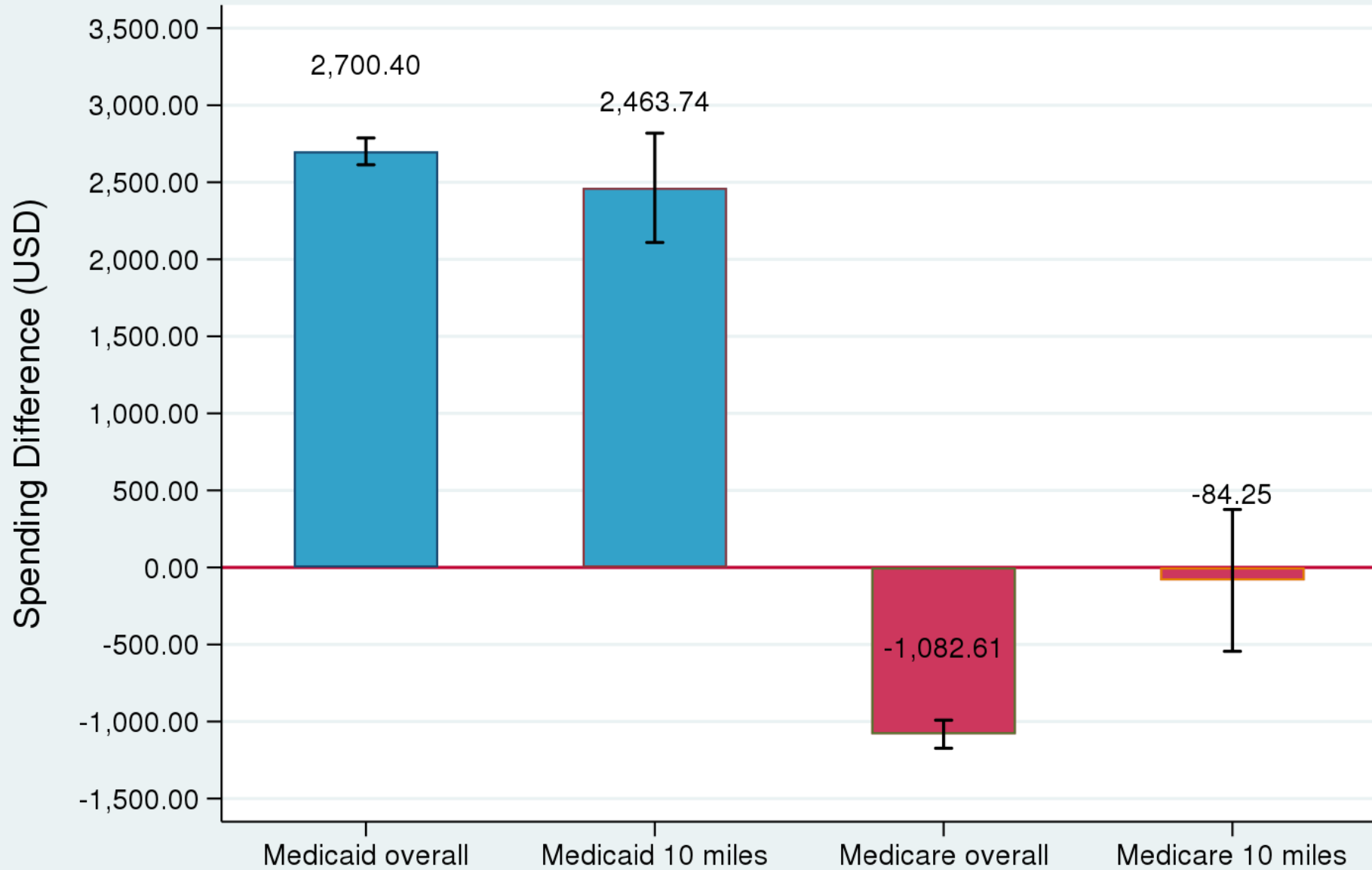(7315.545,8479.172]
[5020.74,7315.545]

Medicare (control) spending variation

Annual Medicare Adjusted Spending at County Level
Tennessee, Kentucky, North Carolina, Virginia and bordering counties

(8815.635,23927.58]
(8275.458,8815.635]
(7880.424,8275.458]
(7577.852,7880.424]
(7249.851,7577.852]
(6971.534,7249.851]
(6636.62,6971.534]
(6271.177,6636.62]
(5790.315,6271.177]
[4345.068,5790.315]

Virginia - North Carolina Estimated (Per Person) Spending Difference

Kentucky - Tennessee Estimated (Per Person) Spending Difference
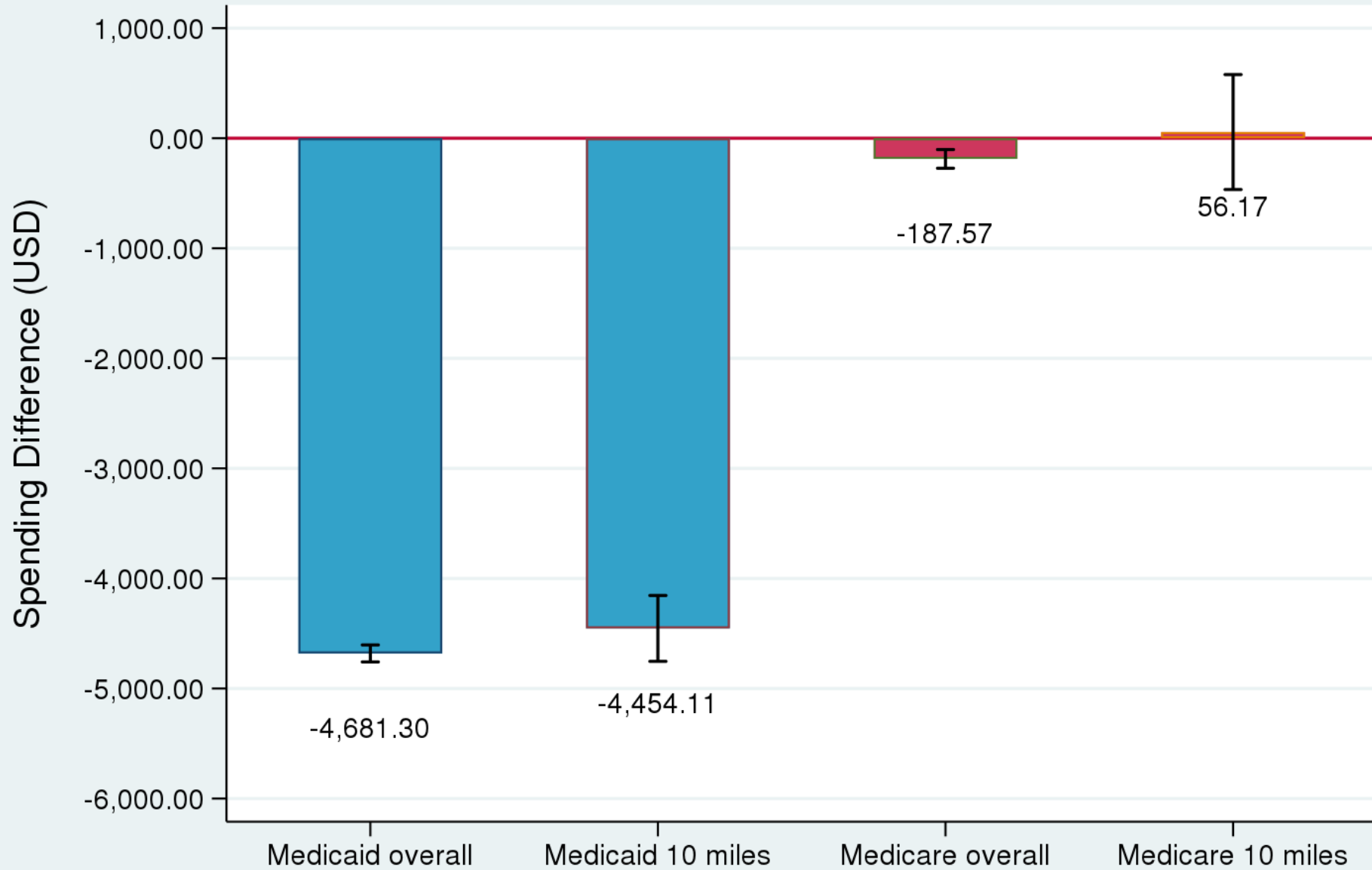
Results so far

- Results suggest that Medicaid spending *causally* varies across states due to variation in program design

  - Selection matters and local practice patterns matter, but not that much

- Next steps are to estimate a summary measure of portion of cross-state variation that is due to program variation

- Then, move to outcomes

Where we're going

Medicaid-Medicare spending effect (larger = lower Medicaid spending)

Moving toward PPF: Lower spending, better outcomes (more efficient)

Moving along PPF: Lower spending, worse outcomes

Index state

Medicaid-Medicare mortality effect (larger = worse Medicaid outcomes)

Moving along PPF: Higher spending, better outcomes

Moving away from PPF: Higher spending, worse outcomes (less efficient)

Thank You!

Appendix slides

Formal Model

- Production function for individual medical spending:

$$Y_{it} = \sigma^j \gamma^{sj} \delta_{it}^m h_{it}$$

- $h_{it} = h_i h_a$ time-varying health state of person i

- $\delta_{it}^m = \delta_i^m \delta_t^m$ time-varying location-specific factors in market m

- $\gamma^{sj} = \begin{cases} \gamma^s \text{ if } j = Medicaid \\ 1 \text{ if } j = Medicare \end{cases}$ state Medicaid policy factors

- $\sigma^j = \begin{cases} 1 \text{ if } j = Medicaid \\ \sigma \text{ if } j = Medicare \end{cases}$ (national) Medicare policy factors

- Implicit assumption: Medicaid varies across states but Medicare does not

Formal Model

- Take logs so that

$$\log(Y_{it}) = \hat{\sigma}^j + \hat{\gamma}^{sj} + \hat{\delta}_i^m + \hat{\delta}_t^m + \hat{h}_i + \hat{h}_a$$

- Suggests following regression for overall Medicaid vs. Medicare question

$$Y_{it} = \beta_0 + \beta_1 \mathbf{1}[age_{it} > 65]\mathbf{1}[treatment_i = 1] + \theta_i + \theta_a + \theta_{acm} + \epsilon_{it}$$

  - Include individual fixed effects to soak up δ_i^m and h_i
  - Include age fixed effects to soak up h_a
  - Include quarter-by-birth cohort-by-market effects to soak up δ_t^m
- Under model, β_1 gives causal effect of Medicare vs. Medicaid

  - $\beta_1 = \sigma - \bar{\gamma}$ where $\bar{\gamma}$ is enrollment-weighted average across state Medicaid programs

Formal Model

- Take logs so that

$$\log(Y_{it}) = \hat{\sigma}^j + \hat{\gamma}^{sj} + \hat{\delta}_i^m + \hat{\delta}_t^m + \hat{h}_i + \hat{h}_a$$

- Also suggests following regression for Medicaid vs. Medicaid question:

$$Y_{it} = \beta_0 + \sum_{s=1}^{51} \beta_s \mathbf{1}[state_i = s]\mathbf{1}[age_{it} > 65]\mathbf{1}[treatment_i = 1] + \theta_i + \theta_a + \theta_{acm} + \epsilon_{it}$$

- From the previous slide, we know that $\beta_s = \sigma - \gamma^s$

- So we also know that $\beta_s - \beta_{s'} = (\sigma - \gamma^s) - (\sigma - \gamma^{s'}) = \gamma^{s'} - \gamma^s$

- In other words, comparing the Medicaid vs. Medicare effects across states gives us the difference between Medicaid program factors for the two states

- Critical implicit assumptions:

  - Medicare program effect is identical across states
  - σ and γ are constant across people