Public vs. Private Provision of Social Insurance: Evidence from Medicaid

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Social health insurance programs in the U.S. have undergone rapid shift to private provision in recent years.

![Bar chart showing millions of enrollees from 2003 to 2016 for ACA Exchanges, Medicare Part D (Standalone), Medicare Advantage, and Medicaid Managed Care.]
Private Provision Most Prevalent in Medicaid

- Shift to private provision almost complete in terms of enrollment
- But just getting started in terms of $$, as states shift disabled to private plans
This paper: Private provision of Medicaid among adults w/ disabilities

We study the consequences of the shift to private provision of Medicaid benefits for the disabled (SSI) population (also known as Medicaid Managed Care, MMC)

Why the disabled?
Sickest, most policy relevant group of Medicaid enrollees
Difficult to observe impacts in general Medicaid population (moms and kids) due to low average healthcare use
Disabled (SSI) make up 40% of Medicaid spending, 13.5% of enrollment
Enrollment in Medicaid automatic for SSI beneficiaries
Portion in private plan increased from 25% in 2006 to over 50% in 2012
Allows us to get better picture of effects of private provision on healthcare

What do we do?
Combine natural experiments (county-level introduction/mandates) in Texas and New York with rich administrative claims and enrollment data
Clean difference-in-differences variation in Medicaid managed care (MMC) implementation
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What do we think Medicaid managed care might do?

Prior literature on Medicaid Managed Care for *non-disabled* finds (see Sparer 2012):

- **Cost savings (maybe)**
  - MMC lowers drug spending without affecting quantities: Dranove et al. (2018)
  - No cost savings to Medicaid program: Duggan and Hayford (2012), Herring and Adams (2010)

- **Reduced quality (stinting)**
  - MMC worsens birth outcomes (for some): Aizer et al. (CA, 2007), Kuziemko et al. (TX, forthcoming)

- **No evidence of offsetting health gains from better care management**
Preview of Results

1. Large increase in drug utilization in Texas, nothing in New York
   - Concentrated in high-value critical drugs
   - Mechanism: Strict rationing in TX public program

2. Increases in outpatient spending and utilization (both states)
   - Mechanism: Private plans pay providers slightly more, expanding access

3. Suggestive evidence of quality improvements
   - ↓ overall inpatient spending (both states)
   - ↓ concentrated in potentially avoidable categories

4. Increase in overall healthcare and Medicaid spending (NY and TX)
   - 1/3 increase carved-out services; 2/3 MMC cap payments (NY and TX)
   - 80% of increase goes to patients/providers

5. Features of both FFS and MMC programs are important
   - Heavy rationing of drugs in TX FFS = larger increases in drug use vs. NY
   - Shift to private provision most beneficial where public program is stingy

Main takeaway: Effects of managed care are nuanced and depend not only on design of private program—but also state-specific counterfactual public program.
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Contributions

There is a prior literature on Medicaid Managed Care for non-disabled (Sparer 2012).

2. Worsens birth outcomes (for some): Aizer et al. (CA, 2007), Kuziemko et al. (TX, forthcoming)

Main takeaway from our study: Effects of managed care are nuanced and depend on design of public and private programs. Show suggestive evidence of trade-off between spending and quality/access.
1. Background: MMC Program Features
Rationing in public Medicaid

- Unlike many health insurance programs, Medicaid does not employ demand-side cost-sharing as tool for reducing healthcare utilization
  - No deductibles
  - No coinsurance
  - (almost) No copays

- Despite this, Medicaid is widely perceived to be a relatively low-cost form of health insurance coverage
- How can this be?
  - Non-cost-sharing forms of rationing
Rationing tools vary across types of services

Medical services: Low payment rates
- Over 30 states pay rates less than 80% of Medicare
- Low rates directly lower spending
- Also indirectly by limiting supply of care, i.e. fewer providers willing to treat
- Zero consumer price + low physician fees = “shortages”
- States effectively outsourcing rationing of healthcare services to providers
- Low fees many also lead to lower quality (Hackmann 2018)
Rationing tools vary in across types of services

Drugs: Quantity limits

- Limited ability to negotiate lower drug prices; largely determined by formula
  - Some ability to use PDLs + prior auth to get better prices
- Required to cover all FDA-approved drugs offered by manufacturers that agree to provide rebates
- Without ability to limit price, resort to quantity limits in form of ad hoc prescription drug caps
- Use of caps increased from 12 states in 2001 to 20 in 2010
- Caps vary from strict caps that apply to almost all populations (Texas, Arkansas) to less strict caps (North Carolina)
Alternative rationing method: Outsource to private plans

- Pay plans fixed per-person fee; plan is residual claimant on savings
  - Service and subpopulation “carve-outs” may limit this
- Plans construct provider networks, negotiate prices, hire care managers, incentivize providers via capitation and other models
- Hopes:
  - Plans get to keep savings, so they aggressively ration access to care
  - Plan payments based on prior spending projected forward: if plans lower spending, the state lowers payments, bends the cost curve
  - Competition for future procurement/aggressive state oversight ensures that rationing is done efficiently
- Fears:
  - Plan payments based on prior spending projected forward: incentives for plans to save money are weak
  - If state over-emphasize quality/access in procurement process, plans weakly ration → Medicaid spending increases, quality/access increase
  - If states under-emphasize quality/access, plans ration excessively → Medicaid spending decreases, but quality/access may also decrease
## MMC Program Features

<table>
<thead>
<tr>
<th>Program Features</th>
<th>Texas</th>
<th>New York</th>
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</thead>
<tbody>
<tr>
<td><strong>Start Date</strong></td>
<td>February 2007</td>
<td>Varied by county between 2007 and 2009</td>
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<tr>
<td><strong>Plan Payment</strong></td>
<td>Fixed monthly premiums for each enrollee</td>
<td>Fixed monthly premiums for each enrollee</td>
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<td><strong>Plan design</strong></td>
<td>Fixed (minimal) cost-sharing Plans set up provider networks and negotiate prices</td>
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<tr>
<td><strong>Carve-outs</strong></td>
<td>Inst'l LTC (all) Inpatient (disabled only) Drugs (all)</td>
<td>Inst'l and comm LTC (all) Behavioral health (disabled only) Drugs (all)</td>
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<tr>
<td><strong>FFS drug coverage</strong></td>
<td>3 drugs per month prescription cap relaxed under MMC</td>
<td>No restrictions</td>
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<tr>
<td><strong>FFS payment rates</strong></td>
<td>39th out of 50 states</td>
<td>40th out of 50 states</td>
</tr>
</tbody>
</table>
Texas MMC Roll-out

- Treatment counties in Travis, Harris, Bexar, Nueces services areas
- Control counties contiguous to treatment counties
- MMC rolled out in February 2007; roll-out was sharp and significant
New York MMC Roll-out

- Treatment counties: MMC rolled out AND contiguous to county in same service area without MMC
- Control counties: contiguous to treatment counties in same service area
- Gradual increases starting 2008-2009; messy, use to validate TX results
2. Data and Empirical Strategy
Data and Sample

Data:
- 2004-2010 Medicaid Analytic eXtract (MAX) from CMS
- Beneficiary characteristics and enrollment Information
- Comprehensive claims data (inpatient, outpatient, Rx)
- Covers everyone in FFS Medicaid and in Medicaid managed care

Sample:
- Construct (unbalanced) individual panel
- Restrict to individuals:
  - Enrolled in Medicaid
  - Disabled
  - Not in Medicare
  - Over 21
  - Not in MMC prior to February 2007
MMC Data Quality

Unlike other states, Texas and New York have high quality MMC data: No large discontinuous change in outcomes with introduction of MMC.

<table>
<thead>
<tr>
<th>Spending type</th>
<th>Texas</th>
<th>New York</th>
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<tbody>
<tr>
<td>Inpatient</td>
<td>Always FFS claims</td>
<td>FFS claims</td>
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<td></td>
<td>MMC encounters - validated w/ SPARCS discharges</td>
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<tr>
<td>Outpatient</td>
<td>FFS claims</td>
<td>FFS claims</td>
</tr>
<tr>
<td></td>
<td>MMC encounters (w/ payments)</td>
<td>MMC encounters (no payments)</td>
</tr>
<tr>
<td>Drugs</td>
<td>Always FFS claims</td>
<td>Always FFS claims</td>
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<tr>
<td>LTC</td>
<td>Always days * avg FFS price/day</td>
<td>Always days * avg FFS price/day</td>
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<tr>
<td>Program spending</td>
<td>FFS spending + MMC premiums (- admin)</td>
<td>FFS spending + MMC premiums (- admin)</td>
</tr>
</tbody>
</table>

However, while overall outpatient and LTC spending results appear high-quality, disaggregations are less reliable.
Population is sick (especially for Medicaid)

- Heart Disease
- Diabetes
- HIV/AIDS
- Cancer
- Rheumatoid Arthritis
- Obesity
- Substance Use
- Mental Illness

(e) Diagnoses in Claims

(f) SSI Qualifying Diagnoses
Empirical approach

- Difference-in-differences
- Only include contiguous treatment and control counties
- Control for individual fixed effects in most analyses
- Control for service area-by-year fixed effects
- Event study:
  \[ Y_{it} = \beta_0 + \sum_{t=2004}^{2010} \beta_t \text{Treat}_{it} + \alpha_{st} + \gamma_i + \epsilon_{it} \] (1)
- Incomplete takeup motivates IV approach:
  \[ Private_{it} = \delta_0 + \delta_1 \text{Treat}_{it} \times Post_t + \alpha_{st} + \gamma_i + \eta_{it} \] (2)
  \[ Y_{it} = \theta_0 + \theta_1 Private_{it} + \alpha_{st} + \gamma_i + \psi_{it} \] (3)
Identification

- Key threat to identification is possibility that the composition of disabled Medicaid enrollees differentially changes over time for treatment counties vs. control counties.
- This motivates the inclusion of individual fixed-effects:
  - Identification based on timing of exogenous switch from FFS to MMC.
  - Note that transition may have different effects for “switchers” vs. new enrollees (due to care disruption/habit formation).
  - Because of this, we also include results without ind FEs.
- Also motivates restriction to contiguous treatment/control counties:
  - And service-area-by-quarter FEs.
- Find no effect of shift to private provision on demographic composition of enrollees.
3. Results
Slight drop initially, likely due to transition

No extensive margin effects (84% use some care at baseline)
Drug utilization

- No overall extensive margin (any drugs) effects; but strong category-specific extensive margin effects
- No effect in New York
Outpatient utilization

- Initial drop
- No extensive margin (any outpatient days)
Log Inpatient Spending (Texas)

- Even larger decrease in New York
- Mostly through extensive margin (any admissions); all non-surgery admissions
Results

Effects driven by *ex ante* sickest beneficiaries

Figure: Heterogeneity by Number of Comorbidities

- (a) Log Inpatient Spending
- (b) Log Realized Outpatient Cost
- (c) Log Rx Spending
Additional results

- All effects (except inpatient) larger without ind FE $\Rightarrow$
- Large reduction in LTC days (16%) in Texas $\Rightarrow$
  - Pre-trends aren’t great $\Rightarrow$
  - No effect in New York $\Rightarrow$
- All results hold if we restrict to zip codes within 25 miles of each other (i.e. “border” zip codes) $\Rightarrow$
- Spillovers seem unlikely, as very little overlap in providers for treatment and control county beneficiaries $\Rightarrow$
Fiscal spending and pass through

- Large increase (10% in TX; 13% in NY) in fiscal spending in both states.
  - 1/3 due to increase in spending on carved out services
  - 2/3 due to MMC premiums higher than counterfactual FFS spending
- But most of increase (80%) went to providers/beneficiaries
Quality

Healthcare spending increases, but it is increasing in ways that appear good for beneficiaries/social efficiency?

- Drugs: Drug effects driven by
  - Insulins
  - Anti-psychotics and anti-depressants
  - Statins and other cardiac drugs
  - Asthma drugs

- Inpatient: Inpatient decreases driven by admissions related to
  - Mental illness
  - Respiratory conditions (asthma, COPD)
  - Endocrine disorders (diabetes)
  - Gastrointestinal diseases

Takeaway: Drug and inpatient effects appear consistent with important quality improvements
Quality

- Healthcare spending increases, but is it increasing in ways that appear good for beneficiaries/social efficiency?
  - Shift from inpatient to outpatient and drugs seems potentially efficient
  - What are the marginal inpatient services/drugs?
    - Outpatient data quality doesn’t allow drilling down
  - What can we infer about quality/efficiency from the marginal services?
- Look at drug use and potentially avoidable hospitalizations
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- Working to get additional info from SSA
  - SSI mortality rate
  - Average earnings
  - SSI non-mortality program exit rate
Log spending by Therapeutic category

**Figure:** Log Spending On Rx Classes

- Central Nervous System
- Cardiovascular Agents
- Anti-Infective Agents
- Hormones & Synthetic Subst
- Gastrointestinal Drugs
- Autonomic Drugs
- Blood Form Coagul Agents
- Misc Therapeutic Agents
- Antineoplastic Agents
- Immunosuppressants

(a) Texas

(b) New York
Drug utilization

**Figure:** Distribution of Rx Spending

- Central nervous system: Anti-depressants, anti-psychotics, benzos, opioid and non-opioid pain drugs
- Cardiovascular: ACE inhibitors, beta blockers, statins
- Anti-infective: Anti-biotics
- Hormones: Insulins and other diabetes drugs, drugs used to treat asthma
- Gastrointestinal: Drugs for GI problems
- Autonomic: Muscle relaxants, drugs used to raise blood pressure
Inpatient utilization

Figure: Inpatient Spending By CCS

(a) Texas

(b) New York

- **Encocrine** = Diabetes; **Respiratory** = asthma/COPD
Mechanisms

3 major effects:

1. Increase in drug spending: relaxation of drug cap, carve-out of drugs from MMC plan contract, or effects of care management
Results

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2. Increase in outpatient spending: prices or quantities
Mechanisms

3 major effects:

1. Increase in drug spending: relaxation of drug cap, carve-out of drugs from MMC plan contract, or effects of care management

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3. Decrease in inpatient spending: Drug offsets or effects of care management
Drugs

**Figure:** Number of Months With More Than a Given Number of Unique Drugs

Also no effect of carve-in of drug benefits in 2011 on utilization in aggregate data

(a) Texas  
(b) New York
Prices vs. Quantities

- Potential price change only for outpatient; inpat/drugs always paid FFS
- For outpatient services we observe in both FFS and MMC, can compare prices
- Regression tells us MMC payments 8.7% larger, cond’l on proc
  - Higher prices $\rightarrow$ higher spend, more access
  - Different services? Coding changes make it difficult to decompose
  - Different providers? [Work-in-progress]
Inpatient Effects

- Hard to know if inpatient effects are due to drug offsets or other actions by MCOs
- Reductions in inpatient spending are for same conditions as largest increases in drug utilization: mental illness, diabetes, asthma
  - Though no inpatient effects for heart conditions but big drug effects
- Reductions in inpatient spending are biggest for same groups that see biggest increases in drug utilization: sickest, oldest
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- But, we see large inpatient effect in NY where there is no increase in drug utilization.
  - Though effect is only for admissions related to mental illness.
4. Discussion
State’s contracting problem

- States set up contracting system to attempt to get highest quality plans for lowest cost
- States concerned about 3 things:
  1. Attract high quality plans
  2. Incentivize plans to exert costly effort to reduce spending
  3. Share in the savings plans achieve

States have responded to problem by setting rates administratively
Based on trending forward past regional spending
Clearly, weakens incentives for plans to lower spending, so why would they do this?
Protects plans from unexpected shocks
Attracts higher quality plans?
Protects state against making ex-post payments to limit plans from breaking contract
Iowa/Kentucky experience and econ procurement lit (Decarolis 2014)
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5. Conclusion
Conclusion

- Study transition of disabled to private Medicaid plans in two states
- Find that private provision raises both healthcare and fiscal spending, but that the spending increases appear largely consistent with quality improvements
  - Costs more money, but that money seems to go to providers/patients
  - No obvious stinting/quality deterioration
  - Trade-off between spending and quality
- Larger quality improvement in Texas, similar cost increases
  - Private provision may be more beneficial in states that ration more in public program
- Much of effect may be attributable to weaker rationing of drugs under private provision
  - But, there really is no counterfactual world where Texas relaxes drug cap without shifting to private plans
  - Complex political economy equilibrium
Adult SSI Population Has High Rates of Comorbidities

Figure: Percent With Each Comorbidity

(a) Texas

(b) New York
Types of Mental Illness

- Developmental disorders: 16.4%
- Childhood and adolescent disorders: 18.9%
- Schizophrenic and other psychotic disorders: 16.4%
- Mood disorders: 18.9%
- Intellectual disability: 8.9%
- Organic mental disorders: 5.7%
- Other mental disorders: 3.9%
- Autistic disorders: 1.8%
- Mood disorders: 1.8%
- Intellectual disability: 0.7%
## Table 2: Main outcomes

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<td>Log Realized Spending</td>
<td>0.068*</td>
<td>0.197***</td>
<td>-0.133**</td>
<td>-0.050</td>
<td>0.144***</td>
<td>0.235***</td>
<td>0.094</td>
<td>0.221***</td>
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<td>Treatment x Post</td>
<td>0.029</td>
<td>0.128***</td>
<td>-0.140**</td>
<td>-0.074*</td>
<td>0.093***</td>
<td>0.193***</td>
<td>0.043</td>
<td>0.142***</td>
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<td>(2007-2008)</td>
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<td>Treatment x Post</td>
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<td>0.258***</td>
<td>-0.123*</td>
<td>-0.028</td>
<td>0.225***</td>
<td>0.272***</td>
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<td>(2009-2010)</td>
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<td>IV Coefficient</td>
<td>0.098**</td>
<td>0.120***</td>
<td>0.367***</td>
<td>0.378***</td>
<td>-0.190***</td>
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<td>Baseline Mean</td>
<td>7.06</td>
<td>7.06</td>
<td>7.06</td>
<td>7.06</td>
<td>1.695</td>
<td>1.695</td>
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<tr>
<td>Individual Fixed Effects</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
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<tr>
<td>Log LTC Spending</td>
<td>-0.544**</td>
<td>-0.088</td>
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<tr>
<td>Treatment x Post</td>
<td>-0.044*</td>
<td>-0.047</td>
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<tr>
<td>(2007-2008)</td>
<td>(0.023)</td>
<td>(0.043)</td>
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</tr>
<tr>
<td>Treatment x Post</td>
<td>-0.069**</td>
<td>-0.087</td>
<td></td>
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<tr>
<td>(2009-2010)</td>
<td>(0.033)</td>
<td>(0.075)</td>
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</tr>
<tr>
<td>Portion of Year on Medicaid Managed Care</td>
<td>-0.077***</td>
<td>-0.080***</td>
<td>-0.127</td>
<td>-0.130</td>
<td></td>
<td></td>
<td></td>
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<tr>
<td></td>
<td>(0.028)</td>
<td>(0.029)</td>
<td>(0.111)</td>
<td>(0.114)</td>
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<td></td>
<td></td>
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<td></td>
</tr>
<tr>
<td>Individual Fixed Effects</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td></td>
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</tr>
</tbody>
</table>

Note: Table shows control-treatment differences in the main outcomes in Texas. Results are from estimating equation 3. We control for service area by year fixed effects. Standard errors are clustered at the county level. For more details, see Section 4.2.
## Healthcare spending (Texas)

<table>
<thead>
<tr>
<th></th>
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</thead>
<tbody>
<tr>
<td>Log Realized Spending</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>[RF] Treatment × Post</td>
<td>0.068* (0.038)</td>
<td>-0.003 (0.004)</td>
<td>0.106*** (0.023)</td>
</tr>
<tr>
<td>[IV] Portion of year in MMC</td>
<td>0.098** (0.043)</td>
<td>-0.004 (0.005)</td>
<td>0.150*** (0.026)</td>
</tr>
<tr>
<td>Baseline Mean</td>
<td>7.06 .84</td>
<td>8.408</td>
<td></td>
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</tbody>
</table>

Standard errors in parentheses

* $p < 0.1$, ** $p < 0.05$, *** $p < 0.01$
## Drug utilization (Texas)

<table>
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<tr>
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<th>(3)</th>
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<th>(5)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Log Spending</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Any Prescriptions</td>
<td>0.190***</td>
<td>0.006</td>
<td>220.814***</td>
<td>312.661***</td>
<td>0.000</td>
</tr>
<tr>
<td></td>
<td>(0.048)</td>
<td>(0.005)</td>
<td>(27.800)</td>
<td>(32.151)</td>
<td>(0.005)</td>
</tr>
<tr>
<td>[IV] Portion of year in MMC</td>
<td>0.269***</td>
<td>0.008</td>
<td>311.827***</td>
<td>413.907***</td>
<td>0.000</td>
</tr>
<tr>
<td></td>
<td>(0.052)</td>
<td>(0.006)</td>
<td>(25.752)</td>
<td>(26.483)</td>
<td>(0.006)</td>
</tr>
<tr>
<td>Baseline Mean</td>
<td>5.137</td>
<td>.734</td>
<td>653.376</td>
<td>918.115</td>
<td>.948</td>
</tr>
</tbody>
</table>

Standard errors in parentheses

* $p < 0.1$, ** $p < 0.05$, *** $p < 0.01$
Extensive margin by their category

Figure: Any Spending On Rx Classes

(a) Texas

(b) New York
## Drug utilization (New York)

<table>
<thead>
<tr>
<th></th>
<th>(1)</th>
<th>(2)</th>
<th>(3)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Log Spending</td>
<td>Any Prescriptions</td>
<td>Total Days Supply</td>
</tr>
<tr>
<td>[ITT] Treatment × Post3</td>
<td>0.096*</td>
<td>0.009</td>
<td>-6.850</td>
</tr>
<tr>
<td></td>
<td>(0.055)</td>
<td>(0.007)</td>
<td>(18.333)</td>
</tr>
<tr>
<td>Baseline Mean</td>
<td>5.892</td>
<td>.803</td>
<td>1099.953</td>
</tr>
</tbody>
</table>

Standard errors in parentheses

* $p < 0.1$, ** $p < 0.05$, *** $p < 0.01$
### Outpatient utilization (Texas)

<table>
<thead>
<tr>
<th></th>
<th>(1)</th>
<th>(2)</th>
<th>(3)</th>
<th>(4)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Log Realized Cost</td>
<td>Number of Outpatient Days Any Use</td>
<td>Number of Outpatient Days Conditional</td>
<td></td>
</tr>
<tr>
<td>[RF] Treatment (\times Post)</td>
<td>0.100**</td>
<td>5.500***</td>
<td>-0.004</td>
<td>5.597***</td>
</tr>
<tr>
<td></td>
<td>(0.042)</td>
<td>(1.120)</td>
<td>(0.005)</td>
<td>(1.190)</td>
</tr>
<tr>
<td>[IV] Portion of year in MMC</td>
<td>0.142***</td>
<td>7.767***</td>
<td>-0.006</td>
<td>7.647***</td>
</tr>
<tr>
<td></td>
<td>(0.047)</td>
<td>(1.231)</td>
<td>(0.005)</td>
<td>(1.287)</td>
</tr>
<tr>
<td>Baseline Mean</td>
<td>6.11</td>
<td>27.844</td>
<td>.827</td>
<td>33.506</td>
</tr>
</tbody>
</table>

Standard errors in parentheses

* \(p < 0.1\), ** \(p < 0.05\), *** \(p < 0.01\)
# Outpatient utilization (Texas)

<table>
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<tr>
<th></th>
<th>(1)</th>
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<th>(3)</th>
<th>(4)</th>
<th>(5)</th>
<th>(6)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>ED Visits</td>
<td>Home Health Services Hours</td>
<td>Psychiatric Services Claims</td>
<td>Behavioral Therapy Minutes</td>
<td>Imaging and Diagnostic Testing</td>
<td>Physical Therapy</td>
</tr>
<tr>
<td>[RF] Treatment ×Post</td>
<td>-0.571</td>
<td>0.300</td>
<td>0.066</td>
<td>-1.763</td>
<td>-0.177</td>
<td>0.172*</td>
</tr>
<tr>
<td></td>
<td>(0.470)</td>
<td>(0.273)</td>
<td>(0.145)</td>
<td>(3.424)</td>
<td>(0.450)</td>
<td>(0.098)</td>
</tr>
<tr>
<td>[IV] Portion of year in MMC</td>
<td>-0.806</td>
<td>0.424</td>
<td>0.094</td>
<td>-2.489</td>
<td>-0.250</td>
<td>0.242**</td>
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<tr>
<td></td>
<td>(0.543)</td>
<td>(0.313)</td>
<td>(0.165)</td>
<td>(3.921)</td>
<td>(0.510)</td>
<td>(0.112)</td>
</tr>
<tr>
<td>Baseline Mean</td>
<td>7.421</td>
<td>.3</td>
<td>2.312</td>
<td>17.854</td>
<td>15.325</td>
<td>1.116</td>
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</table>

Standard errors in parentheses
* $p < 0.1$, ** $p < 0.05$, *** $p < 0.01$
## Diagnoses (Texas)

<table>
<thead>
<tr>
<th></th>
<th>(1) Mental Health Condition</th>
<th>(2) Diabetes</th>
<th>(3) Asthma</th>
<th>(4) Heart Disease</th>
<th>(5) Cancer</th>
</tr>
</thead>
<tbody>
<tr>
<td>[RF] Treatment $\times Post$</td>
<td>0.035*** (0.009)</td>
<td>0.012* (0.007)</td>
<td>0.014*** (0.003)</td>
<td>0.008 (0.006)</td>
<td>0.006** (0.003)</td>
</tr>
<tr>
<td>[IV] Portion of year in MMC</td>
<td>0.050*** (0.010)</td>
<td>0.016** (0.008)</td>
<td>0.019*** (0.004)</td>
<td>0.011 (0.007)</td>
<td>0.009*** (0.003)</td>
</tr>
<tr>
<td>Baseline Mean</td>
<td>.326</td>
<td>.187</td>
<td>.058</td>
<td>.15</td>
<td>.052</td>
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</tbody>
</table>

Standard errors in parentheses

* $p < 0.1$, ** $p < 0.05$, *** $p < 0.01$
## Inpatient utilization (Texas)

<table>
<thead>
<tr>
<th></th>
<th>(1) Log Spending</th>
<th>(2) Admissions</th>
<th>(3) Any Admissions</th>
<th>(4) Surgery</th>
<th>(5) Non-Surgery</th>
</tr>
</thead>
<tbody>
<tr>
<td>[RF] Treatment $\times$ Post</td>
<td>-0.133***</td>
<td>-0.019</td>
<td>-0.010*</td>
<td>0.002</td>
<td>-0.020*</td>
</tr>
<tr>
<td></td>
<td>(0.051)</td>
<td>(0.014)</td>
<td>(0.005)</td>
<td>(0.007)</td>
<td>(0.011)</td>
</tr>
<tr>
<td>[IV] Portion of year in MMC</td>
<td>-0.190***</td>
<td>-0.027*</td>
<td>-0.015**</td>
<td>0.002</td>
<td>-0.029**</td>
</tr>
<tr>
<td></td>
<td>(0.056)</td>
<td>(0.016)</td>
<td>(0.006)</td>
<td>(0.007)</td>
<td>(0.013)</td>
</tr>
<tr>
<td>Baseline Mean</td>
<td>1.695</td>
<td>.325</td>
<td>.189</td>
<td>.133</td>
<td>.193</td>
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</tbody>
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Standard errors in parentheses

* $p < 0.1$, ** $p < 0.05$, *** $p < 0.01$
## Inpatient utilization (New York)

<table>
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<tr>
<th></th>
<th>(1) Admissions</th>
<th>(2) Any Admissions</th>
<th>(3) Surgery</th>
<th>(4) Non-Surgery</th>
</tr>
</thead>
<tbody>
<tr>
<td>[ITT] Treatment $\times$ Post3</td>
<td>-0.057***</td>
<td>-0.027***</td>
<td>-0.007</td>
<td>-0.050**</td>
</tr>
<tr>
<td></td>
<td>(0.019)</td>
<td>(0.007)</td>
<td>(0.005)</td>
<td>(0.020)</td>
</tr>
<tr>
<td>Baseline Mean</td>
<td>.368</td>
<td>.188</td>
<td>.094</td>
<td>.274</td>
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Standard errors in parentheses
* $p < 0.1$, ** $p < 0.05$, *** $p < 0.01$
### Long-term care utilization (Texas)

<table>
<thead>
<tr>
<th></th>
<th>(1) Total Long-term Care Days</th>
<th>(2) Nursing Facility Days</th>
<th>(3) Intermediate Care Facility Days</th>
</tr>
</thead>
<tbody>
<tr>
<td>[RF] Treatment *Post</td>
<td>-1.972(^{***}) (0.673)</td>
<td>-0.718 (0.604)</td>
<td>-1.242(^{***}) (0.392)</td>
</tr>
<tr>
<td>[IV] Portion of year in MMC</td>
<td>-2.785(^{***}) (0.761)</td>
<td>-1.015 (0.675)</td>
<td>-1.754(^{***}) (0.468)</td>
</tr>
<tr>
<td>Baseline Mean</td>
<td>17.311</td>
<td>6.827</td>
<td>10.477</td>
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</table>
## Long-term care utilization (New York)

<table>
<thead>
<tr>
<th></th>
<th>(1) Total Long-term Care Days</th>
<th>(2) Nursing Facility Days</th>
<th>(3) Intermediate Care Facility Days</th>
</tr>
</thead>
<tbody>
<tr>
<td>New York [ITT]</td>
<td>1.211 (1.060)</td>
<td>1.463 (1.089)</td>
<td>-0.245 (0.272)</td>
</tr>
<tr>
<td>Baseline Mean</td>
<td>7.913</td>
<td>5.501</td>
<td>2.33</td>
</tr>
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</table>

Note: The table shows the comparison of total long-term care days in New York between the treatment group and the baseline mean, with and without the post-31 effect.
Heterogeneity - Health status

Figure: Heterogeneity by Number of Comorbidities

(a) Log Inpatient Spending
(b) Log Realized Outpatient Cost
(c) Log Rx Spending
Heterogeneity - Age

Figure: Heterogeneity by Age

(a) Log Inpatient Spending
(b) Log Realized Outpatient Cost
(c) Log Rx Spending
# Fiscal spending (Texas)

<table>
<thead>
<tr>
<th></th>
<th>(1)</th>
<th>(2)</th>
<th>(3)</th>
<th>(4)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Log Medicaid Spending</td>
<td>Log Covered Spending</td>
<td>Log Not Covered Spending</td>
<td>Log Realized Spending</td>
</tr>
<tr>
<td>Treatment (\times Post)</td>
<td>0.090* (0.053)</td>
<td>0.079 (0.074)</td>
<td>0.105*** (0.029)</td>
<td>0.069 (0.054)</td>
</tr>
<tr>
<td>Treatment</td>
<td>0.134*** (0.041)</td>
<td>0.224*** (0.057)</td>
<td>-0.000 (0.022)</td>
<td>0.135*** (0.042)</td>
</tr>
<tr>
<td>Baseline Mean</td>
<td>9.414</td>
<td>8.964</td>
<td>8.343</td>
<td>9.413</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
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<th>(3)</th>
<th>(4)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Medicaid Spending</td>
<td>Covered Spending</td>
<td>Not Covered Spending</td>
<td>Realized Spending</td>
</tr>
<tr>
<td>Treatment (\times Post)</td>
<td>1,344.239 (914.177)</td>
<td>905.275 (923.877)</td>
<td>438.964*** (132.987)</td>
<td>1,055.697 (916.851)</td>
</tr>
<tr>
<td>Treatment</td>
<td>1,027.558 (710.133)</td>
<td>1,043.286 (717.669)</td>
<td>-15.729 (103.305)</td>
<td>1,029.597 (712.210)</td>
</tr>
<tr>
<td>Baseline Mean</td>
<td>12573.788</td>
<td>8317.143</td>
<td>4256.645</td>
<td>12572.139</td>
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Standard errors in parentheses
* \(p < 0.1\), ** \(p < 0.05\), *** \(p < 0.01\)
### Fiscal spending (New York)

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<th>(5)</th>
<th>(6)</th>
</tr>
</thead>
<tbody>
<tr>
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<td>Medicaid Spending</td>
<td>Log Medicaid Spending</td>
<td>Covered Spending</td>
<td>Log Covered Spending</td>
<td>Not Covered Spending</td>
<td>Log Not Covered Spending</td>
</tr>
<tr>
<td>Treatment × Post 1</td>
<td>1,947.030** (842.158)</td>
<td>0.110** (0.045)</td>
<td>1,475.289** (737.457)</td>
<td>0.120** (0.056)</td>
<td>471.742* (275.927)</td>
<td>0.086* (0.047)</td>
</tr>
<tr>
<td>Treatment × Post 2</td>
<td>2,160.670* (1,190.860)</td>
<td>0.121* (0.063)</td>
<td>1,680.036 (1,042.806)</td>
<td>0.134* (0.079)</td>
<td>480.634 (390.177)</td>
<td>0.101 (0.067)</td>
</tr>
<tr>
<td>Treatment × Post 3</td>
<td>2,412.561** (1,115.176)</td>
<td>0.128** (0.059)</td>
<td>1,554.755 (976.532)</td>
<td>0.124* (0.074)</td>
<td>857.806** (365.380)</td>
<td>0.146** (0.062)</td>
</tr>
<tr>
<td>Baseline Mean</td>
<td>17938.372</td>
<td>9.779</td>
<td>12608.478</td>
<td>9.42</td>
<td>5329.894</td>
<td>8.572</td>
</tr>
</tbody>
</table>

Standard errors in parentheses
* $p < 0.1$, ** $p < 0.05$, *** $p < 0.01$
Provider Overlap

Q1: 0.8 Median: 0.9 Q3: 1.0

Percent of claims from treatment

Percent

Layton, Maestas, Prinz, Vabson
Private Provision of Social Insurance
Duals: Rx spending

Appendix
Duals: Inpatient spending

![Chart showing inpatient spending for Duals and Non-Duals over different quarters from 2006q1 to 2010q4. The chart compares the spending trends for both groups, highlighting fluctuations and patterns over time.]
## Non-duals

<table>
<thead>
<tr>
<th></th>
<th>(1) Log Inpatient Spending</th>
<th>(2) Log Inpatient Spending</th>
<th>(3) Log Inpatient Spending</th>
<th>(4) Log Inpatient Spending</th>
<th>(5) Log Rx Spending</th>
<th>(6) Log Rx Spending</th>
<th>(7) Log Rx Spending</th>
<th>(8) Log Rx Spending</th>
</tr>
</thead>
<tbody>
<tr>
<td>Treatment × Post</td>
<td>-0.055** (0.025)</td>
<td>-0.056** (0.022)</td>
<td>0.086*** (0.031)</td>
<td>0.089** (0.034)</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Treatment × Post</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>(2007-2008)</td>
<td>-0.058** (0.024)</td>
<td>-0.058** (0.024)</td>
<td>0.052* (0.029)</td>
<td>0.080** (0.032)</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Treatment × Post</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>(2009-2010)</td>
<td>-0.061** (0.024)</td>
<td>-0.059** (0.024)</td>
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<td>-0.110*** (0.041)</td>
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Standard errors in parentheses
* p < 0.1, ** p < 0.05, *** p < 0.01
### Appendix

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Standard errors in parentheses

* $p < 0.1$, ** $p < 0.05$, *** $p < 0.01$