Paid Sick Leave and Use of Clinical Smoking Cessation Tools

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Research Question

- **Paid Sick Leave and Cancer Prevention**

- **Research question:** Does gaining PSL coverage improve cancer screening and promote smoking cessation?
Research Question

- **Paid Sick Leave and Cancer Prevention**

- **Research question:** Does gaining PSL coverage improve cancer screening and promote smoking cessation?

- **What We Do:** Use plausibly exogenous variation in PSL coverage to estimate effects on screening mammography, colorectal cancer screening, tobacco cessation counseling, and prescriptions for cessation medications.
Motivation

- Why do we care?

Figure 1: Share of U.S. Private Sector Workers Lacking Paid Sick Leave Coverage by Income Quartile

Paid Sick Leave Mandates

State and Local Paid Sick Leave Laws, 2021

State enacted paid sick leave law
State enacted general paid time off law
Cities and counties with paid sick leave laws:
- CA: San Francisco, Berkeley, Emeryville, Oakland, Los Angeles, Santa Monica, San Diego†
- IL: Cook Co.†, Chicago†
- MD: Montgomery Co.†
- MN: Minneapolis†, Saint Paul†, Duluth
- NY: New York City†
- TX: Austin, San Antonio, Dallas
- WA: Seattle†, Tacoma†

†Law permits use of accrued leave for workplace closure or closure of the worker’s child’s school or childcare associated with a public health emergency.
NOTES: NM’s law takes effect July 1, 2022. CO’s law for employers with fewer than 16 workers takes effect Jan. 1, 2022; currently in effect for all other CO employers. Allegheny Co.’s law was enacted in Sept. 2021 and will take effect 90 days after the county posts compliance information for employers. The three local laws passed in TX are on hold due to a pending court challenge. All other state and local laws are currently in effect. All state and all local paid sick leave laws except Pittsburgh, Oakland, and Berkeley permit use of paid leave for reasons associated with sexual assault, domestic violence, or stalking, known as “safe time.”
Paid Sick Leave Mandates

The graph shows the annual gain and cumulative gain in paid sick leave mandates from 2015 to 2018. The annual gain is represented by the shaded bars, and the cumulative gain is represented by the dashed line. The graph indicates a significant increase in the annual and cumulative gains over the years.
Mechanisms

1. PSL mandates increase PSL coverage (28-45% increase)

Mechanisms

2. PSL mandates increase absenteeism (20-62% increase)

Mechanisms

3. PSL increases physician visits (2.2% extensive, 1.4% intensive).
Questions?
Data

- IBM MarketScan Commercial Claims and Encounters Database
  - 2011-2019
  - Commercial claims with diagnosis/procedure codes for tobacco use, cessation counseling, and prescription cessation medications.
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- **Sample restrictions**
  - Age 40-59
  - Paid hourly
  - Employed in Agriculture, Forestry, Fishing; Construction; Manufacturing, Durable Goods; Oil & Gas Extraction, Mining
  - Continuous plan enrollment for 12 months
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Sample Size
- 1.15 million person-years
- 292 MSA-by-state units x 8 years = 2,336 observations

MSA Mandate Conversion
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MSA Mandate Conversion
Research Strategy

- Model: Difference-in-differences

\[ Y_{mt} = \alpha + \gamma PSL_{mt} + Z_{mt}\theta + \delta_m + \tau_t + \epsilon_{mt} \]

- \( PSL \) = Share of MSA population exposed to mandate
- \( Z \) = age, sex, race, ethnicity, education, ACA, unemployment rate, poverty rate

- Estimation:
  1. Two-way Fixed Effects
  2. Goodman-Bacon Decomposition (diagnostic)
     - 3.8% of weight is treatment timing
  3. Callaway & Sant’Anna

- Standard errors clustered at the state level
Questions?
### Descriptive Stats

#### Baseline Descriptive Statistics (2012-2014)

<table>
<thead>
<tr>
<th>MSA Average Outcomes (%)</th>
<th>Mandate</th>
<th>No Mandate</th>
<th>p-value of Difference</th>
</tr>
</thead>
<tbody>
<tr>
<td>Past Year Tobacco Diagnosis</td>
<td>4.97</td>
<td>7.72</td>
<td>&lt;0.001</td>
</tr>
<tr>
<td>Past Year Tobacco Diagnosis + History of Dependence</td>
<td>6.17</td>
<td>9.40</td>
<td>&lt;0.001</td>
</tr>
<tr>
<td>Past Year Cessation Counseling</td>
<td>0.93</td>
<td>1.50</td>
<td>&lt;0.001</td>
</tr>
<tr>
<td>Past Year Cessation Prescription Fill</td>
<td>3.15</td>
<td>4.44</td>
<td>&lt;0.001</td>
</tr>
</tbody>
</table>
Results

A. Past Year Tobacco Diagnosis

B. Past Year Tobacco Dx + History of Dependence

C. Past Year Cessation Counseling

D. Past Year Cessation Rx
Results

A. Past Year Tobacco Diagnosis

B. Past Year Tobacco Dx + History of Dependence

C. Past Year Cessation Counseling

D. Past Year Cessation Rx
Results

Past Year Tobacco Diagnosis

Years from Mandate
Results
Results

A. Past Year Tobacco Diagnosis - adjusted

B. Past Year Tobacco Dx + History - adjusted

C. Past Year Cessation Counseling - adjusted

D. Past Year Cessation Rx
Results

Graph showing coefficient estimates with 95% confidence intervals for different variables such as Tobacco Dx (TWFE), Tobacco Dx (C&S), Tobacco Dx+History (TWFE), Tobacco Dx+History (C&S), Counseling (TWFE), Counseling (C&S), Cessation Rx (TWFE), and Cessation Rx (C&S).
Results

Coefﬁcient Estimate & 95% CI

-3.0%  -0.1%  -2.9%  -11.5%  -27.2%  -21.8%  -12.5%

Tobacco Dx (TWFE)  Tobacco Dx (C&S)  Tobacco Dx+History (TWFE)  Counseling (TWFE)  Counseling (C&S)  Cessation Rx (TWFE)  Cessation Rx (C&S)
Conclusions & Next Steps

- PSL increases physician visits, but does not appear to impact the use of clinical tools for tobacco cessation.

Next Steps:
- Nielsen retail scanner data

Thank you!
Conclusions & Next Steps

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- Thank you!
Appendix Slides
MSA Mandate Conversion

- Metropolitan Statistical Area
<table>
<thead>
<tr>
<th>Mandate Jurisdiction</th>
<th>Year</th>
<th>Minimum Firm Size (# employees)</th>
<th>Accrual Rate/Maximum</th>
</tr>
</thead>
<tbody>
<tr>
<td>California</td>
<td>2015</td>
<td>No Minimum</td>
<td>1 hour per 30 hours worked / 48 hours</td>
</tr>
<tr>
<td>Massachusetts</td>
<td>2015</td>
<td>11+</td>
<td>1 hour per 30 hours worked / 40 hours</td>
</tr>
<tr>
<td>Philadelphia, PA</td>
<td>2015</td>
<td>10+</td>
<td>1 hour per 40 hours worked / 40 hours</td>
</tr>
<tr>
<td>Trenton, NJ</td>
<td>2015</td>
<td>No minimum</td>
<td>1 hour per 30 hours worked / 40 hours if firm size is 10+, 24 hours otherwise</td>
</tr>
<tr>
<td>Oregon</td>
<td>2016</td>
<td>10+ (6+ if located in a city with 500k residents)</td>
<td>1 hour per 30 hours worked / 40 hours</td>
</tr>
<tr>
<td>Arizona</td>
<td>2017</td>
<td>No minimum</td>
<td>1 hour per 30 hours worked / 40 hours if firm size is 15+, 24 hours otherwise</td>
</tr>
<tr>
<td>Chicago &amp; Cook County, IL</td>
<td>2017</td>
<td>No minimum</td>
<td>1 hour per 40 hours worked / 40 hours</td>
</tr>
<tr>
<td>Minneapolis, MN &amp; St. Paul</td>
<td>2017</td>
<td>5+ (Minneapolis only)</td>
<td>1 hour per 30 hours worked / 48 hours</td>
</tr>
<tr>
<td>Spokane, WA</td>
<td>2017</td>
<td>No minimum</td>
<td>1 hour per 30 hours worked / 24 hours</td>
</tr>
<tr>
<td>Vermont</td>
<td>2017</td>
<td>No minimum</td>
<td>1 hour per 52 hours worked / 24 hours in 2017/2018, 40 hours after 2018</td>
</tr>
<tr>
<td>Maryland</td>
<td>2018</td>
<td>15+</td>
<td>1 hour per 30 hours worked / 40 hours</td>
</tr>
<tr>
<td>Rhode Island</td>
<td>2018</td>
<td>18+</td>
<td>1 hour per 35 hours worked / 24 hours in 2018, 32 hours in 2019, and 40 hours after 2019</td>
</tr>
<tr>
<td>New Jersey</td>
<td>2018</td>
<td>No minimum</td>
<td>1 hour per 30 hours worked / 40 hours</td>
</tr>
<tr>
<td>Washington</td>
<td>2018</td>
<td>No minimum</td>
<td>1 hour per 40 hours worked / No maximum</td>
</tr>
</tbody>
</table>

Goodman-Bacon Decomposition

Overall DD Estimate = .02740198
Within component = 1.2696862 (weight = .11364734)

Overall DD Estimate = -.29259483
Within component = 2.1516957 (weight = .11364734)

Overall DD Estimate = -.06914999
Within component = -.34577271 (weight = .11364734)

Overall DD Estimate = -.6977377
Within component = .37834099 (weight = .11364734)
Callaway & Sant’Anna estimator:
- $\text{ATT}(g, t) = \mathbb{E}[Y_t(g) - Y_t(0) | G_g = 1]$, for $t \geq g$
- “Group-time ATT”
Callaway & Sant'Anna estimator:

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- “Group-time ATT”

Aggregate ATTs into a single estimate using weighted averages.

\[
\theta_w = \frac{1}{k} \sum_{g=1}^{\Gamma} \sum_{t=2}^{T} 1\{t \geq g\} \text{ATT}(g, t) P(G = g|C \neq 1)
\]

- Where \( k \) is the number of groups.
PSL and Encounters

Coefficient Estimate & 95% CI

- Office Visit 12 Mos.: 2.2%
- Outpatient Visit 12 Mos.: 3.9%
- ED Visit 12 Mos.: -2.4%
- Hospital Stay 12 Mos.: -1.5%