Can the economy explain the explosion in the SNAP caseload?
An assessment of the local-level approach

Caroline Danielson (PPIC) and Jacob Klerman (Abt)
2014 NAWRS Workshop: “Ensuring that SNAP-Eligible Americans Have Access to SNAP” Session
Providence RI, August 19, 2014
Acknowledgements

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  - USDA-RAND Cooperative Agreement 43-3AEM-5-80090 “Determinants of the Food Stamp Caseload”
  - USDA Research Innovation and Development Grants in Economics administered by the Institute for Research on Poverty, University of Wisconsin-Madison “Why Did the Food Stamp Caseload Decline (and Rise)?”

- This paper has benefited from earlier comments received at:
  - 2013 NAWRS (this is a major revision)
  - Abt Journal Author Support Group
## Related Research Questions

<table>
<thead>
<tr>
<th>Question</th>
<th>Answer</th>
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</thead>
<tbody>
<tr>
<td>1. What caused the “explosion” in the SNAP caseload?</td>
<td>2007-2011 “it’s all the economy”</td>
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<tr>
<td></td>
<td>So caseload should return to “normal levels” as economy improves</td>
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<tr>
<td>2. How should we answer that question?</td>
<td>Lags matter</td>
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<tr>
<td></td>
<td>EPR/Employment-to-Population Ratio is better than UR/Unemployment Rate</td>
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<tr>
<td></td>
<td>Sub-state data make things worse!</td>
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</tbody>
</table>
Outline

- Policy and Analytic Challenge
- Results
- Discussion
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- Policy and Analytic Challenge
- Results
- Discussion
SNAP Caseload Has Exploded

Share of pop. on SNAP

- 52% 2001-2007
- 70% 2007-2011
In Part Due to Weak Economy

Share of pop. on SNAP

UR

52% 2001-2007

70% 2007-2011
In Part Due to Weak Economy
Widespread Policy Changes

- Simplified reporting
- Expanded categorical eligibility
- Vehicle exclusion(s)
Previous Literature

- Earlier studies model the economy using state-level unemployment rates
  - Currie and Grogger (2001); Kornfeld (2002); Kabbani and Wilde (2003); Hanratty (2006); Ratcliffe, McKernan, and Finegold (2008); Mabli, Martin, and Castner (2009); Klerman and Danielson (2011)

- All find that an increase in the unemployment rate raises SNAP participation

- Klerman and Danielson (2011) consider caseload increase from 2000-2009
  - 25% due to the economy
  - 15% due to SNAP policy changes broadening and easing eligibility

  -- *leaving much unexplained*
Role of Economy Matters

- If it’s the economy, then as the economy improves the caseload should go back down
  - Concern about “dependency” is unnecessary
- If it’s a more structural shift—e.g., to changes in SNAP policy—then caseload is likely to stay high
  - Perhaps, raising concerns about “dependency”
**Critique: Perhaps ...** | **Response**
---|---
1. Earlier studies did not have enough data after reforms easing SNAP eligibility | • Update earlier DiD models with three more years of data
2. UR is the wrong proxy (e.g., discouraged workers) | • Explore using Employment to Population Ratio (EPR)
3. State is too gross a proxy for local labor markets | • Use county level caseload counts and sub-state proxies for the economy
4. State x time unobservables bias DiD estimates | • Estimate DiDiD models
Counteracting Biases

- Intra-state variation in the labor market favors sub-state proxies
  - Measurement error in state-level proxies biases point estimates down (in absolute value)
- Measurement error favors state-level measures (Griliches and Hausman, 1978)
  - Fixed effects/DiD—and even more so, DiDiD—sweep out much of the “signal”
  - Leaving all of the “noise”
  - Increasing attenuation bias; i.e., biasing sub-state point estimates down (in absolute value)
Outline

- Policy and Analytic Challenge

- Results
  - State DiD/Difference-in-Differences
  - Sample Selection
  - Sub-state DiD
  - Sub-state DiDiD
  - Simulations

- Discussion
Results: State Level

- Policy does not matter
  - At least once state-specific time trends are included
  - This approach is slightly less powerful than earlier paper; policy impacts were not strong there

- The UR matters
  - and a lot more when you include lags

- With time trends, EPR matters more than UR
  - Opposite of situation w/o time trends

- UR helps even with EPR and lags
  - Magnitude 7.9 percent per 1 percentage point of UR equivalent
### State Level: Policy does not Matter

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- The UR matters
  - Magnitude 3.3% per 1 p.p. (percentage point) of UR equivalent

- Table entries are sum of all economic coefficients in UR units
- EPR normalized to UR by 1.23 (ratio of s.d., w/dummy variables)
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- The UR matters
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- EPR matters more than UR
- UR helps even with EPR and lags

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### Pure Sample Selection Effect

- Impact is larger in reporting counties

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- Otherwise, similar patterns:
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- Otherwise, similar patterns:
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Sub-State Proxies Don’t Help

- LMA/Labor Market Area alone does horribly

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- LMA/Labor Market Area alone does horribly
- Adding LMA to State does little

- Table entries are sum of all economic coefficients in UR units
- EPR normalized to UR by 1.23 (ratio of s.d., w/dummy variables)
### DiDiD Makes Things Worse

**Table entries are sum of all economic coefficients in UR units**

- EPR normalized to UR by 1.23 (ratio of s.d., w/dummy variables)

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<td>4.8</td>
<td>5.2</td>
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<tr>
<td>DiDiD</td>
<td></td>
<td>0.9</td>
<td>1.5</td>
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- LMA/Labor Market Area alone does horribly
- Adding LMA to State does almost nothing
- DiDiD exacerbates measurement error
## Simulations

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<tr>
<td></td>
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<td>UR</td>
<td>EPR</td>
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<tr>
<td>Earlier Period: 2001-2007 (+52%)</td>
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<td></td>
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</tr>
<tr>
<td>State</td>
<td>State</td>
<td>7%</td>
<td>8%</td>
</tr>
<tr>
<td>County</td>
<td>State</td>
<td>6%</td>
<td>20%</td>
</tr>
<tr>
<td>County</td>
<td>LMA</td>
<td>2%</td>
<td>7%</td>
</tr>
<tr>
<td>County</td>
<td>Both</td>
<td>5%</td>
<td>20%</td>
</tr>
<tr>
<td>DiDiD</td>
<td></td>
<td>1%</td>
<td>6%</td>
</tr>
<tr>
<td>Later Period: 2007-2011 (+70%)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>State</td>
<td>State</td>
<td>35%</td>
<td>41%</td>
</tr>
<tr>
<td>County</td>
<td>State</td>
<td>45%</td>
<td>54%</td>
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<td>County</td>
<td>LMA</td>
<td>19%</td>
<td>24%</td>
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<td>County</td>
<td>Both</td>
<td>45%</td>
<td>55%</td>
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<tr>
<td>DiDiD</td>
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<td>10%</td>
<td>15%</td>
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- Simulation results w/in panels are similar to impact results.
  - But, remember pure sample selection effect!
- Across panels, the economy explains a lot more in the later period.
  - Same parameters
Outline

- Policy and Analytic Challenge
- Results
- Discussion
Findings: Modelling

- Conventional model is (i) contemporaneous; (ii) UR; (iii) at state level

- Sample selection matters
  - Relative to all counties, impact of economy is larger (~25%) in counties that report

- Proxies for the economy
  - EPR is moderately (~15%) better than UR
  - Both are a little better (~5%) than EPR alone
  - Only small contribution of including sub-state proxies

- DiDiD models do much worse
  - Apparently due to measurement error
Findings: Substance

- Policy (the ones we measure) matter almost not at all
- The economy matters a lot
  - Especially in the later period
- Strong policy implication
  - Caseload should go back down as the economy improves
  - At least in later period, little evidence of a structural shift/increase in “dependency”
So Caseload Should Come Down as Economy Improves

- Share of pop. on SNAP (left axis)
- UR (left axis)
- EPR (right axis)

- 52% 2001-2007
- 70% 2007-2011

Outline

- Policy and Analytic Challenge
- Results
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Outline

- Policy and Analytic Challenge
- *Data and Methods*
- Results
- Discussion
Conventional Approach and Four Critiques

- Conventional approach (ours and others)
  - Difference-in-differences at the state level
  - Proxy for the economy with state-level unemployment rate (UR)

- With four possible critiques
  1. Perhaps earlier studies did not have enough data post-reforms broadening SNAP eligibility and lowering paperwork burden
  2. Perhaps the UR is the wrong proxy (e.g., discouraged workers)
  3. Perhaps state is too gross a proxy for local labor markets
  4. Perhaps there are state x time unobservables that bias DiD estimates

- Small sub-state literature: Ganong and Liebman (2013) considers only the third critique; Lindo (2013) considers the second and third critique (for the question of health outcomes)
Data

- Required at both the state and the sub-state level:
  - SNAP caseloads – FNS/National Data Bank
  - Unemployment rates / employment counts – BLS/LAUS and QCEW
  - Population estimates – Census

  - State-level policies probably an approximation
  - “Local control” not a prominent feature of SNAP
  - National policies (and change in “spirit”) only captured in time dummy variables
Methods: 3 Specifications

- Standard approach is state-level difference-in-differences (DiD):
  \[ y_{s,t} = \log \left( \frac{M_{s,t}}{N_{s,t}} \right) = \alpha + X_{s,t}\beta + Z_{s,t}\delta + \tau_t + \mu_s + \eta_s t + \varepsilon_{s,t} \]

- We extend to sub-state data (c/county, l/LMA):
  \[ y_{c,t} = \log \left( \frac{M_{c,t}}{N_{c,t}} \right) = \alpha + X_{s,t}\beta + X_{l,t}\gamma + Z_{s,t}\delta + \tau_t + \mu_c + \eta_c t + \varepsilon_{c,t} \]

- Finally, we estimate DiDiD models:
  \[ y_{c,t} = \log \left( \frac{M_{c,t}}{N_{c,t}} \right) = \alpha + X_{l,t}\gamma + \mu_c + S^*\tau + \varepsilon_{c,t} \]