Does the Economy Explain the Explosion in the SNAP Caseload?

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Outline

- Background: Policy and Literature
- Methods and Data
- Results
- Discussion
SNAP

- SNAP/Supplemental Nutrition Assistance Program
  - Nationwide since 1974
- Provides “near cash” for the purchase of groceries (and seeds) at approved retailers via EBT cards
- Broad targeting
  - Main restriction is income: 130% of FPL
  - Compared with other means-tested programs (e.g., EITC, welfare/TANF, Medicaid*), minimal family composition/age restrictions
- National average benefit: $133 monthly per recipient (FFY2012)

*Until January 2014 when roughly states will participate in the Medicaid expansion.
Caseload Grew Substantially, Both Before and During/After the Great Recession

Caseload Higher than at any Point in Program’s History

- 50% increase 2001-2007
- Another 50% increase 2007-2011
For the Most Part, Strongly Related to the Economy

- Share of population on SNAP
- Unemployment rate
For the Most Part, Strongly Related to the Economy

But not always!
“Soaring” SNAP Caseload in the News
The Literature

- Kabbani and Wilde (2003; *Journal of Human Resources*) using Food Stamp Program Quality Control (FSPQC)
- Ratcliffe, McKernan, and Finegold (2009, *Social Services Quarterly*) using SIPP
- Mabli, Martin, Castner (2009, USDA ERS report), using Current Population Survey (CPS) and modeling take-up
- Klerman and Danielson (2011) using SNAP QC data to model per capita participation across demographic / earnings sub-groups
This Paper

- In part updates Klerman and Danielson (2011)
- Three main contributions to understanding the sources of the large SNAP caseload increase
  - More recent data / through and beyond the Great Recession
  - Disaggregate to sub-state level / measure local labor markets
  - Disaggregate to sub-state level / relax the state-level difference-in-differences assumption of common national year-to-year shifts
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Data

- SNAP recipient counts: FNS National Data Bank
  - Reported by states at state level but also “program area” level (typically counties)
- Population: Census estimates
- Economy: BLS
  - Unemployment rate (local and state)
  - Employment (local and state)
- Policies (SNAP, TANF):
  - State-level
  - Update of our previous research (Danielson, Klerman, Andrews, and Krimm, 2011)
Equation 1: DiD Model, State Level

\[ y_{st} = \log \left( \frac{M_{st}}{N_{st}} \right) = \alpha + \gamma t + \mu_s + f(s,t,\tau) + \varepsilon_{st} \]

- Subscript \( s \): state
- Covariates \( Z \) at state level: includes proxies for the economy and policies (SNAP, TANF)
- Fixed effects: state, year, month, state-specific linear trends
- \textit{Strategy precludes measurement of national-level changes}
Equation 2: DiD Model, LMA Level

\[ y_{c,s,t} = \log \left( \frac{M_{c,s,t}}{N_{c,s,t}} \right) = \alpha + X_{c,s,t} + Z_{s,t} \gamma + \eta_c + f(c, t, \tau) + \epsilon_{c,s,t} \]

- Subscript \( c \): sub-state unit
  - Labor Market Area (LMA)
- Dependent variable, \( y \), and covariates \( X \) at LMA level
- Covariates \( Z \) at state level
- Fixed effects: LMA, year, month, LMA-specific linear trends

*Strategy precludes measurement of national-level changes*
Equation 2: DiDiD Model

\[ y_{c,s,t} = \log \left[ \frac{M_{c,s,t}}{N_{c,s,t}} \right] = \alpha + X_{c,s,t} \beta + \eta_c + f(c,s,t,\tau) + \varepsilon_{c,s,t} \]

- Subscripts, dependent variable, and covariates, as in Equation 2
- Changes to fixed effects
  - State \( x \) year (in place of state, year)
- \textit{Strategy precludes measurement of national-or state-level changes}
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DiD Specification (Equation 1)

Level of aggregation of the dependent variable: States

<table>
<thead>
<tr>
<th>State level</th>
<th>(1)</th>
<th>(2)</th>
<th>(3)</th>
<th>(4)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Unemployment rate</td>
<td>0.037 (0.004)***</td>
<td>-3.461 (0.408)***</td>
<td>-2.730 (0.406)***</td>
<td>0.014 (0.005)***</td>
</tr>
<tr>
<td>Employment/population</td>
<td></td>
<td></td>
<td></td>
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</tr>
<tr>
<td>Retail employment/population</td>
<td></td>
<td></td>
<td>-7.659 (4.222)*</td>
<td>-7.544 (4.049)*</td>
</tr>
<tr>
<td>Food, accommodation emp/pop</td>
<td></td>
<td></td>
<td>-0.123 (2.327)</td>
<td></td>
</tr>
</tbody>
</table>

Notes:
N=13,050
Robust standard errors (clustered on state) in parentheses
*** p<0.01, ** p<0.05, * p<0.1
F-test of joint significance p<0.05 or better, all columns
DiD Specification (Equation 2)

Level of aggregation of the dependent variable: LMAs

<table>
<thead>
<tr>
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<th>(2)</th>
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<th>(5)</th>
<th>(6)</th>
<th>(7)</th>
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<th>(9)</th>
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</thead>
<tbody>
<tr>
<td><strong>State level</strong></td>
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<tr>
<td>Unempl rate</td>
<td>0.043 (0.005)**</td>
<td>0.036 (0.006)**</td>
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<td>0.033 (0.008)**</td>
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<td>0.032 (0.008)**</td>
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<tr>
<td>Employment/pop</td>
<td></td>
<td></td>
<td>-2.766 (0.456)**</td>
<td></td>
<td>-1.925 (0.482)**</td>
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<td>-1.217 (0.401)**</td>
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<tr>
<td>Retail emp/pop</td>
<td></td>
<td></td>
<td></td>
<td>-1.971 (0.341)**</td>
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<td></td>
<td>8.201 (7.665)</td>
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<td>9.844 (7.674)</td>
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<td><strong>LMA level</strong></td>
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</tr>
<tr>
<td>Unempl rate</td>
<td>0.019 (0.003)**</td>
<td>0.007 (0.003)**</td>
<td></td>
<td></td>
<td>0.012 (0.004)**</td>
<td></td>
<td></td>
<td>0.001 (0.004)</td>
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<tr>
<td>Employment/pop</td>
<td></td>
<td></td>
<td>-1.370 (0.292)**</td>
<td></td>
<td>-1.040 (0.307)**</td>
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<td>-0.851 (0.332)**</td>
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<tr>
<td>Retail emp/pop</td>
<td></td>
<td></td>
<td></td>
<td>-0.956 (0.302)**</td>
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<td>-1.121 (1.527)</td>
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</tbody>
</table>

Notes:
N=62,863
Robust standard errors (clustered on LMA) in parentheses
*** p<0.01, ** p<0.05, * p<0.1
F-test of joint significance p<0.05 or better, all columns
## DiDiD Specification (Equation 3)

### Contemporaneous and lagged models

<table>
<thead>
<tr>
<th>Specification:</th>
<th>(1)</th>
<th>(2)</th>
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</thead>
<tbody>
<tr>
<td>LMA level</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Unemployment rate</td>
<td>0.0051 (0.0026)*</td>
<td>-0.0022 (0.0024)</td>
</tr>
<tr>
<td>L12 unemployment rate</td>
<td>-</td>
<td>0.0068</td>
</tr>
<tr>
<td>L24 unemployment rate</td>
<td>-</td>
<td>0.0077</td>
</tr>
<tr>
<td>Employment/population</td>
<td>-1.159 (0.279)***</td>
<td>-0.806 (0.248)***</td>
</tr>
<tr>
<td>L12 Employment/population</td>
<td>-</td>
<td>-0.335 (0.116)***</td>
</tr>
<tr>
<td>L24 Employment/population</td>
<td>-</td>
<td>-0.0165 (0.129)</td>
</tr>
</tbody>
</table>

**Notes:**
- N=62,863
- Robust standard errors (clustered on LMA) in parentheses
- *** p<0.01, ** p<0.05, * p<0.1
- F-test of joint significance p<0.05 or better, both columns
Outline

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## Summary and Discussion

<table>
<thead>
<tr>
<th>Innovation</th>
<th>Finding</th>
</tr>
</thead>
<tbody>
<tr>
<td>• State-level proxies raised concern about mis-measurement of (truly sub-state) economic conditions</td>
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<tr>
<td>• Solution: Measure economy at sub-state level</td>
<td>• Measurement error in sub-state proxies raises some questions about sub-state analysis</td>
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<tr>
<td>• Omitted state x year factors bias estimates of the economy</td>
<td>• However, both state and LMA-level proxies robustly significant</td>
</tr>
<tr>
<td>• Solution: DiDiD models (i.e., go to sub-state level and include state x year fixed effects)</td>
<td>• Accounting for these factors reduces estimates of the impact of the economy, but estimates remain significant</td>
</tr>
</tbody>
</table>
Next Steps

- “Equivalent” effects of economic proxies
  - Scale of employment to population ratio impacts similar to unemployment rate impacts?

- Simulations across specifications
  - How much of the 2000-2011 caseload increase is accounted for across models?