State-Level Microsimulation Modeling of Tax and Benefit Policies with the ACS

Where We Are, Where We Want to Go

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Context for today’s discussion

• Much of today’s policy “action” is at the state level
  • Poverty commissions
  • Minimum wage changes
  • TANF, child care subsidies, state income taxes, etc.

• State-level policy-makers have limited tools for understanding possible impacts of changes
One analytic solution: ACS plus microsimulation

• What has already been done
  • Individual research projects for state organizations, commissions

• How the capability could be expanded
  • Broadly available via the internet
  • User-friendly
  • Geared to state analyst needs
Some specific policy questions

• How would a change in the minimum age affect the number of people in poverty?
• If we increase TANF benefits, what will that do to SNAP benefits and LIHEAP eligibility?
• What would be the net impact of a set of changes in child care subsidies and the state-level child care tax credit?
What is needed to answer those questions

- Detailed data on households in the state:
  - the ACS

- A tool that can calculate what happens to each household under the new policy vs. the actual baseline:
  - a microsimulation model
What is microsimulation?

• Policies modeled on each household, one at a time
• The computer code mimics the actual rules of the program being simulated
• The computer code can “add on” variables that are not present in the survey data, such as
  • If you are eligible for SNAP
  • How much income tax you owe
• The model can simulate actual rules (the “baseline”) or alternative policies
• Great flexibility in analyzing results

*Federal government agencies have access to microsimulation models; state agencies generally do not*
The Urban Institute’s Microsimulation Modeling of State Policies

- An adapted version of the TRIM3 simulation model
- Projects for state poverty commissions and non-profits
The Original TRIM model

- CPS-based
- Funded and copyrighted by HHS/ASPE
- Comprehensive simulation model of
  - Cash benefits: SSI, TANF
  - Nutrition benefits: SNAP, WIC
  - In-kind: child care and housing subsidies, LIHEAP
  - Taxes: payroll tax, federal and state income tax
- Captures detailed state rules & cross-program interactions
- Analysis of costs, caseloads, official & SPM poverty
ACS-TRIM

- Motivation for development:
  - Earlier state-focused TRIM work used combined years of CPS data
  - Insufficient sample for detailed analysis

- Funding from foundations, 2009-2010

- ACS vs. CPS for microsimulation
  - Some weaknesses (less detail on household inter-relationships, income)
  - Some strengths (more housing-related information)
### Uses of ACS-TRIM for state and local organizations (completed projects)

<table>
<thead>
<tr>
<th>Organization</th>
<th>Data</th>
<th>Policies Examined</th>
</tr>
</thead>
<tbody>
<tr>
<td>Heartland Alliance, Illinois</td>
<td>ACS 2008</td>
<td>TANF, housing subsidies, community college scholarships, transitional jobs</td>
</tr>
<tr>
<td>Community Advocates Public Policy Institute (CA-PPI), Wisconsin</td>
<td>ACS 2008</td>
<td>Minimum wage, tax credits, senior &amp; disability credit, transitional jobs</td>
</tr>
<tr>
<td>3 NYC nonprofits</td>
<td>ACS 2012</td>
<td>Transitional jobs, minimum wage, state and local taxes, safety-net programs</td>
</tr>
<tr>
<td>Washington DC government</td>
<td>ACS 2011</td>
<td>Minimum wage</td>
</tr>
</tbody>
</table>
Results from the NYC Project: Anti-poverty impacts of individual policies

- Baseline: 21.4%
- TJ program (max. 50% partic. rate): 15.9%
- Earnings supplements, increase state/city EITCs: 20.7%
- Earnings supplements, Paycheck Plus: 20.8%
- Minimum wage at $15/hour: 17.8%
- Increased SNAP benefits: 18.7%
- More housing vouchers (50% of waiting list): 19.9%
- Guaranteed child care subsidies: 21.2%
- Senior & disability tax credit: 16.3%
Results from the NYC Project: Anti-poverty impacts of combined policies

<table>
<thead>
<tr>
<th>Baseline</th>
<th>Combination 1</th>
<th>Combination 2</th>
<th>Combination 3</th>
</tr>
</thead>
<tbody>
<tr>
<td>21.4%</td>
<td>12.1%</td>
<td>9.8%</td>
<td>6.7%</td>
</tr>
</tbody>
</table>
Results from the NYC Project: Impacts by age group

- **Baseline**
- **Combination 1**
- **Combination 2**
- **Combination 3**

- **< Age 18**
  - Baseline: 21.8%
  - Combination 1: 11.2%
  - Combination 2: 6.1%
  - Combination 3: 9.6%

- **Age 18-64**
  - Baseline: 21.2%
  - Combination 1: 13.8%
  - Combination 2: 10.9%
  - Combination 3: 7.5%

- **Age >= 65**
  - Baseline: 21.4%
  - Combination 1: 4.4%
  - Combination 2: 3.9%
  - Combination 3: 3.2%
## Results from the NYC Project: Example Cost Results

<table>
<thead>
<tr>
<th>(costs in billions)</th>
<th>Baseline</th>
<th>Comb. #1</th>
<th>Comb #2</th>
<th>Comb. #3</th>
</tr>
</thead>
<tbody>
<tr>
<td>Aggregate costs of benefits (fed, state, city)</td>
<td>$12.7</td>
<td>$14.1</td>
<td>$14.2</td>
<td>$14.0</td>
</tr>
<tr>
<td>Aggregate wage costs of TJ program</td>
<td>$0</td>
<td>$2.8</td>
<td>$4.2</td>
<td>$9.1</td>
</tr>
<tr>
<td>Aggregate tax liability</td>
<td>$70.2</td>
<td>$67.0</td>
<td>$69.4</td>
<td>$71.5</td>
</tr>
<tr>
<td>Total change in government spending</td>
<td>--</td>
<td>+ $7.3</td>
<td>+ $6.5</td>
<td>+ $9.1</td>
</tr>
</tbody>
</table>
Impact of CA-PPI Policy Package on Poverty in Wisconsin

- **Baseline**
  - Children Under 18: 2.8%
  - Adults 18 to 64: 3.6%
  - Adults 65 and Over: 3.1%

- **Combined Package: Low TJ Take-Up**
  - Children Under 18: 2.8%
  - Adults 18 to 64: 1.7%
  - Adults 65 and Over: 2.0%

- **Full Participation**
  - Children Under 18: 0.8%
  - Adults 18 to 64: 1.7%
  - Adults 65 and Over: 2.0%
Results from the DC Minimum Wage Study: Change in Annual Income, for People in Families Affected by the Wage Increase
Results from the DC Minimum Wage Study: Change in Income vs. Earnings, for People in Families Affected by the Wage Increase

- Income falls: 3%
- Income rises by <50% of rise in earnings: 18%
- Income rises by 50-100% of rise in earnings: 73%
- Income rises by >100% rise in earnings: 6%
Back to the problem…

- States/localities need answers to think about policy changes
  - How much would it cost?
  - What is the bang for the buck of different options?
  - What subgroups would be helped or hurt?

- Microsimulation is an ideal tool for those questions, AND

- The ACS data provide rich information as input to models,
  BUT
  - Most states/localities cannot afford to buy microsimulation analysis
Our vision of the ideal model for states

• Accessible via the Internet
• State-level input data (ACS)
• Very user-friendly interface
• Able to simulate full range of programs and policy options and their interactions (like TRIM)
• Multiple kinds of output
  • Program costs & caseloads, tax impacts, total spending
  • Poverty impacts
  • Easy-to-understand graphics
  • Detailed tables
Is that possible?

- Technical challenges
  - Potentially many users simultaneously
  - Speed – how fast would users expect?
  - Data storage

- Design challenges
  - Initial development of extremely user-friendly system
  - Balancing needs for capabilities vs. simplicity

- Ongoing maintenance challenge
Our Next Steps

• Under NSF funding, we are exploring various ways to meet technical challenges

• Soliciting input on:
  • Relative importance:
    • Do states need this?
  • What it would need to look like:
    • How easy?
    • What capabilities?
  • Anything else!
Contact me

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