TANF, Childcare and Well-being in Sole Parent Families

Marianne Bruins
Motivation

- Welfare reform over past two decades (primarily welfare-to-work) focused on:
  - increasing work participation
  - discouraging welfare dependency
  - Ended an era of entitlement to cash welfare

- Growing evidence that unconditional cash transfers improve long-run outcomes for the children of sole mothers (Aizer et. al. 2016; Hoynes et. al. 2012)

- Cash welfare much more generous for families with children
  - Implicit (original) objective of cash welfare:

- Have welfare-to-work reforms in the US lost sight of this original objective?
Motivation

- Welfare reform over past two decades (primarily welfare-to-work) focused on:
  - increasing work participation
  - discouraging welfare dependency
  - Ended an era of entitlement to cash welfare

- Growing evidence that unconditional cash transfers improve long-run outcomes for the children of sole mothers (Aizer et. al. 2016; Hoynes et. al. 2012)

- Cash welfare much more generous for families with children
  - Implicit (original) objective of cash welfare:

- Have welfare-to-work reforms in the US lost sight of this original objective?
Motivation

- Welfare reform over past two decades (primarily welfare-to-work) focused on:
  - increasing work participation
  - discouraging welfare dependency
  - Ended an era of entitlement to cash welfare

- Growing evidence that unconditional cash transfers improve long-run outcomes for the children of sole mothers (Aizer et. al. 2016; Hoynes et. al. 2012)

- Cash welfare much more generous for families with children
  - Implicit (original) objective of cash welfare:

- Have welfare-to-work reforms in the US lost sight of this original objective?
Motivation

- Welfare reform over past two decades (primarily welfare-to-work) focused on:
  - increasing work participation
  - discouraging welfare dependency
  - Ended an era of entitlement to cash welfare

- Growing evidence that unconditional cash transfers improve long-run outcomes for the children of sole mothers (Aizer et. al. 2016; Hoynes et. al. 2012)

- Cash welfare much more generous for families with children
  - Implicit (original) objective of cash welfare:

- Have welfare-to-work reforms in the US lost sight of this original objective?
Motivation

- Welfare reform over past two decades (primarily welfare-to-work) focused on:
  - increasing work participation
  - discouraging welfare dependency
  - Ended an era of entitlement to cash welfare

- Growing evidence that unconditional cash transfers improve long-run outcomes for the children of sole mothers (Aizer et. al. 2016; Hoynes et. al. 2012)

- Cash welfare much more generous for families with children
  - Implicit (original) objective of cash welfare: targeting additional resources to children in impoverished households

- Have welfare-to-work reforms in the US lost sight of this original objective?
Motivation

- Welfare reform over past two decades (primarily welfare-to-work) focused on:
  - increasing work participation
  - discouraging welfare dependency
  - Ended an era of entitlement to cash welfare

- Growing evidence that unconditional cash transfers improve long-run outcomes for the children of sole mothers (Aizer et. al. 2016; Hoynes et. al. 2012)

- Cash welfare much more generous for families with children
  - Implicit (original) objective of cash welfare: targeting additional resources to children in impoverished households

- Have welfare-to-work reforms in the US lost sight of this original objective?
Motivation

- Welfare-to-work reforms a response to:
  - increases in welfare caseloads
  - increased non-martial childbearing
  - perceived intergenerational culture of welfare dependence

- In the USA welfare reforms introduced:
  - work requirements
  - life-time limits
  - limits to federal expenditure on welfare
  - greater autonomy for states in designing welfare programmes
Motivation

- Welfare-to-work reforms a response to:
  - increases in welfare caseloads
  - increased non-martial childbearing
  - perceived intergenerational culture of welfare dependence

- In the USA welfare reforms introduced:
  - work requirements
  - life-time limits
  - limits to federal expenditure on welfare
  - greater autonomy for states in designing welfare programmes
Motivation

- Welfare-to-work reforms a response to:
  - increases in welfare caseloads
  - increased non-martial childbearing
  - perceived intergenerational culture of welfare dependence

- In the USA welfare reforms introduced:
  - work requirements
  - life-time limits
  - limits to federal expenditure on welfare
  - greater autonomy for states in designing welfare programmes
Motivation

- Welfare-to-work reforms a response to:
  - increases in welfare caseloads
  - increased non-martial childbearing
  - perceived intergenerational culture of welfare dependence

- In the USA welfare reforms introduced:
  - work requirements
  - life-time limits
  - limits to federal expenditure on welfare
  - greater autonomy for states in designing welfare programmes
Stylised facts post-welfare reform era

Sole mothers (no college education)

- Decline in welfare participation
- Modest increase in labour force participation
  - participation increased
  - hours worked increased
- Reduction in home production
  - decline in housework time-use
  - increase in expenditure on food away from home
  - decrease in expenditure on food at home
Stylised facts post-welfare reform era
Sole mothers (no college education)

- Decline in welfare participation
- Modest increase in labour force participation
  - participation increased
  - hours worked increased
- Reduction in home production
  - decline in housework time-use
  - increase in expenditure on food away from home
  - decrease in expenditure on food at home
Stylised facts post-welfare reform era

Sole mothers (no college education)

- Decline in welfare participation
- Modest increase in labour force participation
  - participation increased
  - hours worked increased
- Reduction in home production
  - decline in housework time-use
  - increase in expenditure on food away from home
  - decrease in expenditure on food at home
Stylised facts post-welfare reform era

Sole mothers (no college education)

- Decline in welfare participation

- Modest increase in labour force participation
  - participation increased
  - hours worked increased

- Reduction in home production
  - decline in housework time-use
  - increase in expenditure on food away from home
  - decrease in expenditure on food at home
Stylised facts post-welfare reform era

Sole mothers (no college education)

- Decline in welfare participation
- Modest increase in labour force participation
  - participation increased
  - hours worked increased
- Reduction in home production
  - decline in housework time-use
  - increase in expenditure on food away from home
  - decrease in expenditure on food at home
Structural model
Household decision-making

- $U_i$ is mother’s utility:

\[ U_i = u_i(c_i, l_i, q) + \delta_{iK} K(c_k, t_f, q) + \psi(x\beta) \]

- mother allocates time between: market work $h_i$, housework $a_i$, time with children $t_i$, and leisure $l_i$.
- $K$ is children’s utility
- $q = q(c_q, a_f)$ is quantity of public good produced
- $\psi$ is the disutility from participating in the TANF/AFDC program
Structural model
Household decision-making

- $U_i$ is mother’s utility:

$$U_i = u_i(c_i, l_i, q) + \delta_{ik} K(c_k, t_f, q) + \psi(x\beta)$$

- mother allocates time between: market work $h_i$, housework $a_i$, time with children $t_i$, and leisure $l_i$.
- $K$ is children’s utility
- $q = q(c_q, a_f)$ is quantity of public good produced
- $\psi$ is the disutility from participating in the TANF/AFDC program
Structural model

Functional forms

- Parent’s utility:
  \[ u(c, l, q) = \log c + \alpha_l \log l + \alpha_q \log q \]

- Children’s utility:
  \[ K(c, t_f, q) = A \left( \gamma_c c^n + \gamma_t t_f^n + \gamma_q q^n \right)^{1/\eta} \]

- Public good production:
  \[ q(c_q, a_f) = (\delta_c c_q^\kappa + (1 - \delta_c) a_f^\kappa)^{1/\kappa} \]

- Disutility:
  \[ \psi(x\beta) = \exp(x\beta) \]

\( x \) – time dummies interacted with whether meet work requirement (periods: 1993-95, 1996-99, 2000-04 and 2005-08)
Structural model

Functional forms

- Parent’s utility:

\[ u(c, l, q) = \log c + \alpha_l \log l + \alpha_q \log q \]

- Children’s utility:

\[ K(c, t_f, q) = A \left( \gamma_c c^n + \gamma_t t_f^n + \gamma_q q^n \right)^{1/\eta} \]

- Public good production:

\[ q(c_q, a_f) = (\delta c c_q^{\kappa} + (1 - \delta_c) a_f^{\kappa})^{1/\kappa} \]

- Disutility:

\[ \psi(x \beta) = \exp(x \beta) \]

\( x \) – time dummies interacted with whether meet work requirement (periods: 1993-95, 1996-99, 2000-04 and 2005-08)
Structural model

Functional forms

- Parent’s utility:

\[ u(c, l, q) = \log c + \alpha_l \log l + \alpha_q \log q \]

- Children’s utility:

\[ K(c, t_f, q) = A \left( \gamma_c c^n + \gamma_t t_f^n + \gamma_q q^n \right)^{1/\eta} \]

- Public good production:

\[ q(c_q, a_f) = (\delta_c c_q^\kappa + (1 - \delta_c) a_f^\kappa)^{1/\kappa} \]

- Disutility:

\[ \psi(x \beta) = \exp(x \beta) \]

\( x \) – time dummies interacted with whether meet work requirement (periods: 1993-95, 1996-99, 2000-04 and 2005-08)
Structural model

Functional forms

- Parent’s utility:

\[ u(c, l, q) = \log c + \alpha_l \log l + \alpha_q \log q \]

- Children’s utility:

\[ K(c, t_f, q) = A \left( \gamma_c c^\eta + \gamma_t t_f^\eta + \gamma_q q^\eta \right)^{1/\eta} \]

- Public good production:

\[ q(c_q, a_f) = \left( \delta_c c_q^{\kappa} + (1 - \delta_c) a_f^{\kappa} \right)^{1/\kappa} \]

- Disutility:

\[ \psi(x \beta) = \exp(x \beta) \]

\( x \) – time dummies interacted with whether meet work requirement (periods: 1993-95, 1996-99, 2000-04 and 2005-08)
Structural model

Constraints

- **Budget constraint**
  
  \[ c_f + c_k + c_q + \text{cost of childcare} \leq AT(h_f; w_f) + y - s \]
  
  - \( AT(\cdot) \) gives after-tax earnings
  - \( y \) is ‘non-labour income’, \( s \) is ‘savings’

- **Time constraints**: for \( i \in \{m, f\} \)
  
  \[ a_i + l_i + t_i \leq T - h_i \]

- **Budget set depends on** \( h_f \) **in a complicated way**
  
  - to aid estimation, make hours choice discrete
Structural model

Constraints

- **Budget constraint**

\[ c_f + c_k + c_q + \text{cost of childcare} \leq AT(h_f; w_f) + y - s \]

- \( AT(\cdot) \) gives after-tax earnings
- \( y \) is ‘non-labour income’, \( s \) is ‘savings’

- **Time constraints:** for \( i \in \{m, f\} \)

\[ a_i + l_i + t_i \leq T - h_i \]

- Budget set depends on \( h_f \) in a complicated way
- to aid estimation, make hours choice discrete
Structural model

Constraints

- Budget constraint:
  \[ c_f + c_k + c_q + \text{cost of childcare} \leq AT(h_f; w_f) + y - s \]

  - \( AT(\cdot) \) gives after-tax earnings
  - \( y \) is ‘non-labour income’, \( s \) is ‘savings’

- Time constraints: for \( i \in \{m, f\} \)
  \[ a_i + l_i + t_i \leq T - h_i \]

- Budget set depends on \( h_f \) in a complicated way
  - to aid estimation, make hours choice discrete
Data
Sources (1993–2008)

- Combine data from 5 disaggregated datasets on intra-household allocation:
  - Consumer Expenditure Survey
  - American Time-Use Survey / American Heritage Time-use Survey
  - Survey of Income and Program Participation
  - Current Population Survey
Data
Sources (1993–2008)

- Combine data from 5 disaggregated datasets on intra-household allocation:
  - Consumer Expenditure Survey
  - American Time-Use Survey / American Heritage Time-use Survey
  - Survey of Income and Program Participation
  - Current Population Survey
Estimation
Simulated method of moments

- Household choices spread across two datasets:
  - CEX: \((c_k, c_f, c_m, c_q)\) and \(x\) (exogenous household covariates)
  - ATUS: \((h_f, h_m, t_f, t_m, a_f, a_m)\) and \(x\)

- Model implies the ‘demand functions’

\[
\begin{align*}
  c_i &= c_i(x, \epsilon_i; \tau) \\
  t_i &= t_i(x, \epsilon_i; \tau) \\
  h_i &= h_i(x, \epsilon_i; \tau)
\end{align*}
\]

- \(\epsilon_i\) is a vector of unobserved disturbances (assumed Gaussian)

- Estimate parameters \(\tau\) by simulated method of moments
  - Singles: 140 moments; 29 parameters
Estimation
Simulated method of moments

- Household choices spread across two datasets:
  - CEX: \((c_k, c_f, c_m, c_q)\) and \(x\) (exogenous household covariates)
  - ATUS: \((h_f, h_m, t_f, t_m, a_f, a_m)\) and \(x\)

- Model implies the ‘demand functions’

\[
\begin{align*}
c_i &= c_i(x, \epsilon_i; \tau) \\
t_i &= t_i(x, \epsilon_i; \tau) \\
h_i &= h_i(x, \epsilon_i; \tau)
\end{align*}
\]

- \(\epsilon_i\) is a vector of unobserved disturbances (assumed Gaussian)

- Estimate parameters \(\tau\) by simulated method of moments
  - Singles: 140 moments; 29 parameters
Estimation
Simulated method of moments

- Household choices spread across two datasets:
  - CEX: \((c_k, c_f, c_m, c_q)\) and \(x\) (exogenous household covariates)
  - ATUS: \((h_f, h_m, t_f, t_m, a_f, a_m)\) and \(x\)

- Model implies the ‘demand functions’

\[
\begin{align*}
  c_i &= c_i(x, \epsilon_i; \tau) \\
  t_i &= t_i(x, \epsilon_i; \tau) \\
  h_i &= h_i(x, \epsilon_i; \tau)
\end{align*}
\]

- \(\epsilon_i\) is a vector of unobserved disturbances (assumed Gaussian)

- Estimate parameters \(\tau\) by simulated method of moments
  - Singles: 140 moments; 29 parameters
## Estimation

### Choice of moments

- Moments conditioned on: parents’ education, age of youngest child, number of children, parents’ average wage.

<table>
<thead>
<tr>
<th></th>
<th>$t_f$</th>
<th>$a_f$</th>
<th>$h_f$</th>
<th>$c_f$</th>
<th>$c_k$</th>
<th>$c_q$</th>
<th>$c_{pr}$</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>ATUS</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>s.d.</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>corr w/</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>CEX</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>s.d.</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>corr w/</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

$c_{pr} = c_f + c_m + c_k$, ✓ – exact data.

**Estimation**

Choice of moments

- Moments conditioned on: parents’ education, age of youngest child, number of children, parents’ average wage.

<table>
<thead>
<tr>
<th></th>
<th>$t_f$</th>
<th>$a_f$</th>
<th>$h_f$</th>
<th>$c_f$</th>
<th>$c_k$</th>
<th>$c_q$</th>
<th>$c_{pr}$</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>ATUS</strong></td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>s.d.</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>corr w/</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

$c_{pr} = c_f + c_m + c_k$, ✓ - exact data.

# Estimation

## Choice of moments

- Moments conditioned on: parents’ education, age of youngest child, number of children, parents’ average wage.

<table>
<thead>
<tr>
<th></th>
<th>$t_f$</th>
<th>$a_f$</th>
<th>$h_f$</th>
<th>$c_f$</th>
<th>$c_k$</th>
<th>$c_q$</th>
<th>$c_{pr}$</th>
</tr>
</thead>
<tbody>
<tr>
<td>ATUS</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>s.d.</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>corr w/</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>CEX</td>
<td>✓</td>
<td></td>
<td></td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td></td>
</tr>
<tr>
<td>s.d.</td>
<td>✓</td>
<td></td>
<td></td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td></td>
</tr>
<tr>
<td>corr w/</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

$c_{pr} = c_f + c_m + c_k$, ✓ – exact data.

Estimation
Choice of moments

- Moments conditioned on: parents’ education, age of youngest child, number of children, parents’ average wage.

<table>
<thead>
<tr>
<th></th>
<th>$t_f$</th>
<th>$a_f$</th>
<th>$h_f$</th>
<th>$c_f$</th>
<th>$c_k$</th>
<th>$c_q$</th>
<th>$c_{pr}$</th>
</tr>
</thead>
<tbody>
<tr>
<td>ATUS</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>s.d.</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>corr w/</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>CEX</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>s.d.</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>corr w/</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

$c_{pr} = c_f + c_m + c_k$, ✓ – exact data.

### Estimation

#### Choice of moments

- Moments conditioned on: parents’ education, age of youngest child, number of children, parents’ average wage.

<table>
<thead>
<tr>
<th></th>
<th>$t_f$</th>
<th>$a_f$</th>
<th>$h_f$</th>
<th>$c_f$</th>
<th>$c_k$</th>
<th>$c_q$</th>
<th>$c_{pr}$</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>ATUS</strong></td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>s.d.</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>corr w/</td>
<td>$h_f$</td>
<td>$h_f$</td>
<td></td>
<td>$h_{f,m}$</td>
<td>$h_{f,m}$</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>CEX</strong></td>
<td>✓</td>
<td>E</td>
<td>E</td>
<td>✓</td>
<td>✓</td>
<td></td>
<td></td>
</tr>
<tr>
<td>s.d.</td>
<td>✓</td>
<td></td>
<td>✓</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>corr w/</td>
<td>$h_f$</td>
<td>$h_f$</td>
<td></td>
<td>$h_{f,m}$</td>
<td>$h_{f,m}$</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

$c_{pr} = c_f + c_m + c_k$, ✓ – exact data.

Reasons not to take TANF:

(a) ineligible (i.e. income too high)
(b) disutility from taking TANF too high
(c) life-time limits

Extend Blundell and Walker (1987) to include lifetime limits

- in first stage individual has some probability of not taking TANF if (a) and (b) hold
- need to estimate probability

Adopt approach from Grogger and Michalopoulos (2003)
Estimation

Accounting for life-time limits

- Reasons not to take TANF:
  (a) ineligible (i.e. income too high)
  (b) disutility from taking TANF too high
  (c) life-time limits

- Extend Blundell and Walker (1987) to include lifetime limits
  - in first stage individual has some probability of not taking TANF if (a) and (b) hold
    - need to estimate probability

- Adopt approach from Grogger and Michalopoulos (2003)
Estimation
Accounting for life-time limits

- Reasons not to take TANF:
  - (a) ineligible (i.e. income too high)
  - (b) disutility from taking TANF too high
  - (c) life-time limits

- Extend Blundell and Walker (1987) to include lifetime limits
  - in first stage individual has some probability of not taking TANF if (a) and (b) hold
  - need to estimate probability

- Adopt approach from Grogger and Michalopoulos (2003)
Estimation
Accounting for life-time limits

- **Approach from Grogger and Michalopoulos (2003):**
  - Estimate probit for receiving TANF with:
    - Dummy variable if mother never exposed to time-limits $D_1$
      - Youngest child over 12 when time-limits introduced in state
    - Dummy variable if mother only partially exposed to time-limits $D_2$
      - Youngest child already born when time-limits introduced in state

- **Probability of not taking TANF due to life-time limits:**
  
  $$\left[ \Phi \left( x'_r \hat{\beta}_r + \hat{\beta}_{D_1} + \epsilon_r > 0 \right) - \Phi \left( x'_r \hat{\beta}_r + \hat{\beta}_{D_2} x_{D_2} + \hat{\beta}_{D_1} x_{D_1} + \epsilon_r > 0 \right) \right]$$
Estimation
Accounting for life-time limits

- Approach from Grogger and Michalopoulos (2003):
- Estimate probit for receiving TANF with:
  - Dummy variable if mother never exposed to time-limits $D_1$
    - Youngest child over 12 when time-limits introduced in state
  - Dummy variable if mother only partially exposed to time-limits $D_2$
    - Youngest child already born when time-limits introduced in state
- Probability of not taking TANF due to life-time limits:

$$
\left[ \Phi \left( x_r' \hat{\beta}_r + \hat{\beta}_{D_1} + \epsilon_r > 0 \right) - \Phi \left( x_r' \hat{\beta}_r + \hat{\beta}_{D_2} x_{D_2} + \hat{\beta}_{D_1} x_{D_1} + \epsilon_r > 0 \right) \right]
$$
Approach from Grogger and Michalopoulos (2003):

Estimate probit for receiving TANF with:

- Dummy variable if mother never exposed to time-limits $D_1$
  - Youngest child over 12 when time-limits introduced in state

- Dummy variable if mother only partially exposed to time-limits $D_2$
  - Youngest child already born when time-limits introduced in state

Probability of not taking TANF due to life-time limits:

$$
\left[ \Phi \left( x_r' \hat{\beta}_r + \hat{\beta}_{D_1} + \epsilon_r > 0 \right) - \Phi \left( x_r' \hat{\beta}_r + \hat{\beta}_{D_2}x_{D_2} + \hat{\beta}_{D_1}x_{D_1} + \epsilon_r > 0 \right) \right]
$$
Estimation
Accounting for life-time limits

- Approach from Grogger and Michalopoulos (2003):
  - Estimate probit for receiving TANF with:
    - Dummy variable if mother never exposed to time-limits $D_1$
      - Youngest child over 12 when time-limits introduced in state
    - Dummy variable if mother only partially exposed to time-limits $D_2$
      - Youngest child already born when time-limits introduced in state
  - Probability of not taking TANF due to life-time limits:
    \[
    \left[ \Phi \left( x'_r \hat{\beta}_r + \hat{\beta}_{D_1} + \epsilon_r > 0 \right) - \Phi \left( x'_r \hat{\beta}_r + \hat{\beta}_{D_2} x_{D_2} + \hat{\beta}_{D_1} x_{D_1} + \epsilon_r > 0 \right) \right]
    \]
Approach from Grogger and Michalopoulos (2003):

Estimate probit for receiving TANF with:

- Dummy variable if mother never exposed to time-limits \( D_1 \)
  - Youngest child over 12 when time-limits introduced in state

- Dummy variable if mother only partially exposed to time-limits \( D_2 \)
  - Youngest child already born when time-limits introduced in state

Probability of not taking TANF due to life-time limits:

\[
\left[ \Phi \left( x_r' \hat{\beta}_r + \hat{\beta}_{D_1} + \epsilon_r > 0 \right) - \Phi \left( x_r' \hat{\beta}_r + \hat{\beta}_{D_2} x_{D_2} + \hat{\beta}_{D_1} x_{D_1} + \epsilon_r > 0 \right) \right]
\]
Poverty and cash welfare

How has levels of child poverty changed over the last 20 years?

- No decline in child poverty in sole parent households since 1996 (Black 2002, Meyer et. al. 2003)
  - Estimates based on household level consumption and income
- Estimates don’t account for:
  - home production
  - the value of maternal time
  - intra-household allocation
Poverty and cash welfare

How has levels of child poverty changed over the last 20 years?

- No decline in child poverty in sole parent households since 1996 (Black 2002, Meyer et. al. 2003)
  - Estimates based on household level consumption and income

Estimates don’t account for:

- home production
- the value of maternal time
- intra-household allocation
Poverty and cash welfare

- How has levels of child poverty changed over the last 20 years?
  
  - No decline in child poverty in sole parent households since 1996 (Black 2002, Meyer et. al. 2003)
    
    - Estimates based on household level consumption and income
  
  - Estimates don’t account for:
    
    - home production
    - the value of maternal time
    - intra-household allocation
Poverty and cash welfare
Intra-household allocation-based child poverty measures

- Children receive: private consumption \( (c_k) \); time with both parents \( (t_f, t_m) \); a home-produced public good \( (q) \)
  - Value goods at decentralised prices \( (\tilde{w}_f, \tilde{w}_m, \tilde{p}_k) \)

- Two measures of child’s resources:
  - Consumption measure:
    \[ C_k := c_k + \tilde{p}_k q \]
    where \( \{\tilde{p}_i\} \) denotes the Lindahl prices for the public good.
  - Full income measure:
    \[ \rho_k := C_k + \tilde{w}_f t_f + \tilde{w}_m t_m, \]
    where \( (\tilde{w}_f, \tilde{w}_m) \) are ‘after-tax’ marginal wage rates.
Poverty and cash welfare
Intra-household allocation-based child poverty measures

- Children receive: private consumption ($c_k$); time with both parents ($t_f, t_m$); a home-produced public good ($q$)
  - Value goods at decentralised prices ($\tilde{w}_f, \tilde{w}_m, \tilde{p}_k$)

- Two measures of child’s resources:
  - Consumption measure:
    $$C_k := c_k + \tilde{p}_k q$$
    where $\{\tilde{p}_i\}$ denotes the Lindahl prices for the public good.
  - Full income measure:
    $$\rho_k := C_k + \tilde{w}_f t_f + \tilde{w}_m t_m,$$
    where $(\tilde{w}_f, \tilde{w}_m)$ are ‘after-tax’ marginal wage rates
Poverty and cash welfare
Intra-household allocation-based child poverty measures

- Children receive: private consumption \((c_k)\); time with both parents \((t_f, t_m)\); a home-produced public good \((q)\)
  - Value goods at decentralised prices \((\tilde{w}_f, \tilde{w}_m, \tilde{p}_k)\)

- Two measures of child’s resources:
  - Consumption measure:
    \[
    C_k := c_k + \tilde{p}_k q
    \]
    where \(\{\tilde{p}_i\}\) denotes the Lindahl prices for the public good.
  - Full income measure:
    \[
    \rho_k := C_k + \tilde{w}_f t_f + \tilde{w}_m t_m,
    \]
    where \((\tilde{w}_f, \tilde{w}_m)\) are ‘after-tax’ marginal wage rates
Poverty and cash welfare
Intra-household allocation-based child poverty measures

- Children receive: private consumption ($c_k$); time with both parents ($t_f, t_m$); a home-produced public good ($q$)
  - Value goods at decentralised prices ($\tilde{w}_f, \tilde{w}_m, \tilde{p}_k$)

- Two measures of child’s resources:
  - Consumption measure:
    $$C_k := c_k + \tilde{p}_k q$$
    where $\{\tilde{p}_i\}$ denotes the Lindahl prices for the public good.
  - Full income measure:
    $$\rho_k := C_k + \tilde{w}_f t_f + \tilde{w}_m t_m,$$
    where ($\tilde{w}_f, \tilde{w}_m$) are ‘after-tax’ marginal wage rates
Poverty and cash welfare
Intra-household allocation-based child poverty measures

- How has levels of child poverty changed over the last 20 years?

- Calculation
  - Take two measures of child resources
  - Calculate the 30th and 50th percentiles of distribution in 1993-95
  - How many children under this threshold in 2004-08?
  - Answer: approximately 45% and 65% for the 30th and 50th percentiles respectively

Increase in child poverty of 15 percentage points in sole parent households
How has levels of child poverty changed over the last 20 years?

Calculation

- Take two measures of child resources
- Calculate the 30th and 50th percentiles of distribution in 1993-95
- How many children under this threshold in 2004-08?

Answer: approximately 45% and 65% for the 30th and 50th percentiles respectively

Increase in child poverty of 15 percentage points in sole parent households
Poverty and cash welfare
Intra-household allocation-based child poverty measures

- How has levels of child poverty changed over the last 20 years?

- Calculation
  - Take two measures of child resources
  - Calculate the 30th and 50th percentiles of distribution in 1993-95
  - How many children under this threshold in 2004-08?
  - Answer: approximately 45% and 65% for the 30th and 50th percentiles respectively

Increase in child poverty of 15 percentage points in sole parent households
Poverty and cash welfare
Intra-household allocation-based child poverty measures

- How has levels of child poverty changed over the last 20 years?

- Calculation
  - Take two measures of child resources
  - Calculate the 30th and 50th percentiles of distribution in 1993-95
  - How many children under this threshold in 2004-08?
  - Answer: approximately 45% and 65% for the 30th and 50th percentiles respectively

Increase in child poverty of 15 percentage points in sole parent households
Model and estimates

Mother takes TANF

♦ Budget constraints: A’B’C’ AFDC, ABB’C’ TANF, ABC no welfare.
Model and estimates

Mother takes TANF

Mother doesn’t take TANF

◊ Budget constraints: A’B’C’ AFDC, ABB’C’ TANF, ABC no welfare.
Model and estimates

- 20 per cent of sample on AFDC (1993-95)

Mother takes TANF  
Mother doesn’t take TANF

◊ Budget constraints: A’B’C’ AFDC, ABB’C’ TANF, ABC no welfare.
Model and estimates

- 20 per cent of sample on AFDC (1993-95)
- 9 per cent can get TANF while working 30 hours

Mother takes TANF

Budget constraints: A’B’C’ AFDC, ABB’C’ TANF, ABC no welfare.
Model and estimates

- 20 per cent of sample on AFDC (1993-95)
- 9 per cent can get TANF while working 30 hours
- only 2 per cent do

Mother takes TANF

Mother doesn’t take TANF

Budget constraints: A’B’C’ AFDC, ABB’C’ TANF, ABC no welfare.
Model and estimates

- Alternative policies to encourage work, increase return from working (e.g. wage subsidy)

Mother takes TANF

◊ Budget constraints: AB’ wage subsidy, AB no wage subsidy.
Counterfactuals

- With the model we can:
  - Consider changes to welfare different from those observed historically
  - Value resources at decentralised prices

- To quantify the value of welfare we ask the following question:

  How much money do we need to give the mother (child) to make them as well off under the counterfactual, when the baseline is in place.
Counterfactuals

- With the model we can:
  - Consider changes to welfare different from those observed historically
  - Value resources at decentralised prices

- To quantify the value of welfare we ask the following question:

*How much money do we need to give the mother (child) to make them as well off under the counterfactual, when the baseline is in place.*
Methodology

- Counterfactuals considered (sample 1993-2008):
  - replace TANF with AFDC (1995 parameters in real values)
  - replace TANF with free childcare
  - replace TANF with wage subsidy ($1)
  - replace TANF with wage subsidy (wage floor $11.60)
Methodology

- Counterfactuals considered (sample 1993-2008):
  - replace TANF with AFDC (1995 parameters in real values)
  - replace TANF with free childcare
  - replace TANF with wage subsidy ($1)
  - replace TANF with wage subsidy (wage floor $11.60)
Methodology

- Counterfactuals considered (sample 1993-2008):
  - replace TANF with AFDC (1995 parameters in real values)
  - replace TANF with free childcare
  - replace TANF with wage subsidy ($1)
  - replace TANF with wage subsidy (wage floor $11.60)
Counterfactuals considered (sample 1993-2008):

- replace TANF with AFDC (1995 parameters in real values)
- replace TANF with free childcare
- replace TANF with wage subsidy ($1)
- replace TANF with wage subsidy (wage floor $11.60)
Methodology

- Counterfactuals considered (sample 1993-2008):
  - replace TANF with AFDC (1995 parameters in real values)
  - replace TANF with free childcare
  - replace TANF with wage subsidy ($1)
  - replace TANF with wage subsidy (wage floor $11.60)
Counterfactuals

- Those that switch from TANF to AFDC – 63% of additional spending goes to children

<table>
<thead>
<tr>
<th></th>
<th>$C_V_f$</th>
<th>$C_V_k$</th>
<th>net cost</th>
<th>pass thru.</th>
<th>recipients</th>
</tr>
</thead>
<tbody>
<tr>
<td>Switch from TANF to AFDC</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

*Received benefits under:*

- AFDC: 59.1
- AFDC only
- TANF and AFDC
Counterfactuals

- Those that switch from TANF to AFDC – 63% of additional spending goes to children

<table>
<thead>
<tr>
<th></th>
<th>$C V_f$ ($/wk)</th>
<th>$C V_k$ ($/wk$)</th>
<th>net cost ($/wk)</th>
<th>pass thru. %</th>
<th>recipients %</th>
</tr>
</thead>
<tbody>
<tr>
<td>Switch from TANF to AFDC</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Received benefits under:

- **AFDC**
  - $59.1$
  - $36.9$

- AFDC only

- TANF and AFDC
Counterfactuals

- Those that switch from TANF to AFDC – 63% of additional spending goes to children

<table>
<thead>
<tr>
<th></th>
<th>$C V_f$ ($/wk)</th>
<th>$C V_k$ ($/wk)</th>
<th>net cost ($/wk)</th>
<th>pass thru. %</th>
<th>recipients %</th>
</tr>
</thead>
<tbody>
<tr>
<td>Switch from TANF to AFDC</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Received benefits under:</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>AFDC</td>
<td>59.1</td>
<td>36.9</td>
<td>135.7</td>
<td></td>
<td></td>
</tr>
<tr>
<td>AFDC only</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>TANF and AFDC</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
Counterfacturals

- Those that switch from TANF to AFDC – 63% of additional spending goes to children

<table>
<thead>
<tr>
<th></th>
<th>$CV_f$ ($/wk)</th>
<th>$CV_k$ ($/wk)</th>
<th>net cost ($/wk)</th>
<th>pass thru.</th>
<th>recipients</th>
</tr>
</thead>
<tbody>
<tr>
<td>Switch from TANF to AFDC</td>
<td></td>
<td></td>
<td></td>
<td>27.2</td>
<td></td>
</tr>
</tbody>
</table>

*Received benefits under:*

- AFDC
  - 59.1
  - 36.9
  - 135.7
  - 27.2

- AFDC only

- TANF and AFDC
Counterfactuals

- Those that switch from TANF to AFDC – 63% of additional spending goes to children

<table>
<thead>
<tr>
<th></th>
<th>CV_f ($/wk)</th>
<th>CV_k ($/wk)</th>
<th>net cost ($/wk)</th>
<th>pass thru. %</th>
<th>recipients %</th>
</tr>
</thead>
<tbody>
<tr>
<td>Switch from TANF to AFDC</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Received benefits under:</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>AFDC</td>
<td>59.1</td>
<td>36.9</td>
<td>135.7</td>
<td>27.2</td>
<td>22.3</td>
</tr>
<tr>
<td>AFDC only</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>TANF and AFDC</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
## Counterfactuals

- Those that switch from TANF to AFDC – 63% of additional spending goes to children

<table>
<thead>
<tr>
<th></th>
<th>$CV_f$/wk</th>
<th>$CV_k$/wk</th>
<th>net cost $/wk</th>
<th>pass thru. %</th>
<th>recipients %</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Switch from TANF to AFDC</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><em>Received benefits under:</em></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>AFDC</td>
<td>59.1</td>
<td>36.9</td>
<td>135.7</td>
<td>27.2</td>
<td>22.3</td>
</tr>
<tr>
<td>AFDC only</td>
<td>62.6</td>
<td>41.1</td>
<td>163.3</td>
<td>25.2</td>
<td>17.5</td>
</tr>
<tr>
<td>TANF and AFDC</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
Counterfacturals

- Those that switch from TANF to AFDC – 63% of additional spending goes to children

<table>
<thead>
<tr>
<th></th>
<th>$\text{CV}_f$</th>
<th>$\text{CV}_k$</th>
<th>net cost</th>
<th>pass thru.</th>
<th>recipients</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>($/\text{wk})</td>
<td>($/\text{wk})</td>
<td>($/\text{wk})</td>
<td>%</td>
<td>%</td>
</tr>
<tr>
<td><strong>Switch from TANF to AFDC</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Received benefits under:</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>AFDC</td>
<td>59.1</td>
<td>36.9</td>
<td>135.7</td>
<td>27.2</td>
<td>22.3</td>
</tr>
<tr>
<td>AFDC only</td>
<td>62.6</td>
<td>41.1</td>
<td>163.3</td>
<td>25.2</td>
<td>17.5</td>
</tr>
<tr>
<td>TANF and AFDC</td>
<td>46.2</td>
<td>21.4</td>
<td>34.9</td>
<td><strong>61.2</strong></td>
<td>4.8</td>
</tr>
</tbody>
</table>
## Alternatives to TANF

<table>
<thead>
<tr>
<th></th>
<th>CV&lt;sub&gt;f&lt;/sub&gt; ($/wk)</th>
<th>CV&lt;sub&gt;k&lt;/sub&gt; ($/wk)</th>
<th>pass through</th>
<th>recipients</th>
<th>net cost</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Childcare:</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>CDCTC</td>
<td>18.2</td>
<td>10.1</td>
<td>70.1</td>
<td>24.3</td>
<td>14.4</td>
</tr>
<tr>
<td>Free childcare</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Counterfactual:</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>CA</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>CB</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>CC</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Full sample of recipients of either programme.
## Alternatives to TANF

<table>
<thead>
<tr>
<th>Childcare:</th>
<th>( CV_f ) ($/wk)</th>
<th>( CV_k ) ($/wk)</th>
<th>pass through %</th>
<th>recipients %</th>
<th>net cost %</th>
</tr>
</thead>
<tbody>
<tr>
<td>CDCTC</td>
<td>18.2</td>
<td>10.1</td>
<td>70.1</td>
<td>24.3</td>
<td>14.4</td>
</tr>
<tr>
<td>Free childcare</td>
<td>61.4</td>
<td>50.2</td>
<td>68.8</td>
<td>29.8</td>
<td>72.9</td>
</tr>
</tbody>
</table>

### Counterfactual:

- CA
- CB
- CC

Full sample of recipients of either programme.
Alternatives to TANF

▶ CA: TANF to free childcare.

<table>
<thead>
<tr>
<th></th>
<th>( CV_f ) ($/wk)</th>
<th>( CV_k ) ($/wk)</th>
<th>pass through</th>
<th>recipients</th>
<th>net cost</th>
</tr>
</thead>
<tbody>
<tr>
<td>Childcare</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>CDCTC</td>
<td>18.2</td>
<td>10.1</td>
<td>70.1</td>
<td>24.3</td>
<td>14.4</td>
</tr>
<tr>
<td>Free childcare</td>
<td>61.4</td>
<td>50.2</td>
<td>68.8</td>
<td>29.8</td>
<td>72.9</td>
</tr>
<tr>
<td>Counterfactual:</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>CA</td>
<td>39.6</td>
<td>34.0</td>
<td>90.2</td>
<td>36.8</td>
<td>37.6</td>
</tr>
</tbody>
</table>

Full sample of recipients of either programme.
Alternatives to TANF

- CB: TANF to wage subsidy.

<table>
<thead>
<tr>
<th></th>
<th>$CV_f$ ($/wk)</th>
<th>$CV_k$ ($/wk)</th>
<th>pass through</th>
<th>recipients</th>
<th>net cost</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Childcare:</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>CDCTC</td>
<td>18.2</td>
<td>10.1</td>
<td>70.1</td>
<td>24.3</td>
<td>14.4</td>
</tr>
<tr>
<td>Free childcare</td>
<td>61.4</td>
<td>50.2</td>
<td>68.8</td>
<td>29.8</td>
<td>72.9</td>
</tr>
<tr>
<td><strong>Counterfactual:</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>CA</td>
<td>39.6</td>
<td>34.0</td>
<td>90.2</td>
<td>36.8</td>
<td>37.6</td>
</tr>
<tr>
<td>CB</td>
<td>16.4</td>
<td>14.3</td>
<td>130.6</td>
<td>84.0</td>
<td>11.0</td>
</tr>
<tr>
<td>CC</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Full sample of recipients of either programme.
# Alternatives to TANF

- **CC**: TANF to minimum wage.

<table>
<thead>
<tr>
<th></th>
<th>$CV_f$ ($/wk)</th>
<th>$CV_k$ ($/wk$)</th>
<th>pass through</th>
<th>recipients</th>
<th>net cost</th>
</tr>
</thead>
</table>

**Childcare:**

<p>| | | | | | |</p>
<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>CDCTC</td>
<td>18.2</td>
<td>10.1</td>
<td>70.1</td>
<td>24.3</td>
<td>14.4</td>
</tr>
<tr>
<td>Free childcare</td>
<td>61.4</td>
<td>50.2</td>
<td>68.8</td>
<td>29.8</td>
<td>72.9</td>
</tr>
</tbody>
</table>

**Counterfactual:**

<p>| | | | | | |</p>
<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>CA</td>
<td>39.6</td>
<td>34.0</td>
<td>90.2</td>
<td>36.8</td>
<td>37.6</td>
</tr>
<tr>
<td>CB</td>
<td>16.4</td>
<td>14.3</td>
<td>130.6</td>
<td>84.0</td>
<td>11.0</td>
</tr>
<tr>
<td>CC</td>
<td>70.1</td>
<td>54.9</td>
<td>80.7</td>
<td>56.0</td>
<td>68.0</td>
</tr>
</tbody>
</table>

Full sample of recipients of either programme.
Conclusions

- Consider replacing TANF with AFDC (1995)
- Policy recipients:
  - mothers $60 p/w better off
  - children $40 p/w better off
- 30 per cent of spending on AFDC/TANF passes through to children
Conclusions

- Consider replacing TANF with AFDC (1995)
- Policy recipients:
  - mothers $60 p/w better off
  - children $40 p/w better off
- 30 per cent of spending on AFDC/TANF passes through to children
Conclusions

- Work requirements distort allocation of mothers’ time
  - reduce home production
  - hurts children who care a lot about home production
  - child poverty in sole parent families has increased by 15 percent

- Consider replacing TANF with alternatives: free childcare, wage subsidy, minimum wage
  - at least twice as much home production per dollar spent
  - higher rates of pass through to children e.g. minimum wage 100 per cent pass through
Conclusions

- Work requirements distort allocation of mothers’ time
  - reduce home production
  - hurts children who care a lot about home production
  - child poverty in sole parent families has increased by 15 percent

- Consider replacing TANF with alternatives: free childcare, wage subsidy, minimum wage
  - at least twice as much home production per dollar spent
  - higher rates of pass through to children e.g. minimum wage 100 per cent pass through
Conclusions

- Work requirements distort allocation of mothers’ time
  - reduce home production
  - hurts children who care a lot about home production
  - child poverty in sole parent families has increased by 15 percent

- Consider replacing TANF with alternatives: free childcare, wage subsidy, minimum wage
  - at least twice as much home production per dollar spent
  - higher rates of pass through to children e.g. minimum wage 100 per cent pass through
Conclusions

- Work requirements distort allocation of mothers’ time
  - reduce home production
  - hurts children who care a lot about home production
  - child poverty in sole parent families has increased by 15 percent

- Consider replacing TANF with alternatives: free childcare, wage subsidy, minimum wage
  - at least twice as much home production per dollar spent
  - higher rates of pass through to children e.g. minimum wage 100 per cent pass through
Decline in welfare participation

Source: CPS. Sole mothers without a college degree.
Increase in labour supply
Hours worked per week

Source: CPS. Sole mothers without a college degree.
Increase in labour supply

Participation

Source: CPS. Sole mothers without a college degree.
Decline in home production

Housework

Source: AHTUS/ATUS. Sole mothers without a college degree.
Decline in home production
Food away from home

Source: CE. Sole mothers without a college degree.
Decline in home production
Food at home

<table>
<thead>
<tr>
<th>Period</th>
<th>Parent income percentile</th>
</tr>
</thead>
<tbody>
<tr>
<td>1991−95</td>
<td>0</td>
</tr>
<tr>
<td>1996−99</td>
<td>-500</td>
</tr>
<tr>
<td>2000−03</td>
<td>-1000</td>
</tr>
<tr>
<td>2004−07</td>
<td>-1500</td>
</tr>
<tr>
<td>2008−10</td>
<td>-2000</td>
</tr>
</tbody>
</table>

♦ Source: CE. Sole mothers without a college degree.