The Extensive Margin of Labor Supply

- A consensus that extensive margin responses can be sizable, at least for some groups

- Where does this consensus originate from?
  - Early labor supply literature (Heckman 1993)
  - Macro business cycle literature (Hansen 1985; Rogerson 1988)
  - Labor supply literature studying EITC reform (Eissa & Liebman 1996; Meyer & Rosenbaum 2001)

- A meta study by Chetty et al. (2013) puts the extensive margin elasticity at 0.25
The Earned Income Tax Credit (EITC)

- A means-tested transfer conditional on positive earnings and children

- The largest cash support program in the US

- A large literature studies the labor supply effects of the EITC, particularly on single mothers
  - Most of this work exploits the federal EITC expansions in the 1980s and 1990s

- Most researchers seem to agree that the EITC expansions led to sizable extensive margin responses
EITC Schedule in 2018

<table>
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<tr>
<th>Earnings (USD)</th>
<th>0 children</th>
<th>1 child</th>
<th>2 children</th>
<th>3+ children</th>
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EITC Maximum Credit Over Time

Maximum Annual Credit (2018 USD)

Year

0 children

1 child

2 children

3+ children

Tax Reduction Act of 1975

TRA86

OBRA90

OBRA93

ARRA

Maximum Annual Credit (2018 USD)
Contribution

- I reappraise the impact of the EITC on extensive margin labor supply for single mothers

- What’s new?
  - Long-run perspective
  - Analysis of all state and federal reforms
  - Event study approach applied to all reforms
  - New analysis of confounders
  - Analysis of model uncertainty
Data and Descriptives
Data

- Current Population Survey (CPS)
  - Basic monthly files and March supplements
  - 50-year period (1968-2018)

- Measures of extensive margin labor supply:
  1. Weekly Employment (Baseline)
  2. Weekly Participation
  3. Annual Employment
  4. Annual Participation

- Analysis Samples:
  1. All Single Women (Baseline)
  2. Low-Educated Single Women
  3. Single Women With Low Predicted Earnings
# Descriptive Statistics

## Single Mothers

<table>
<thead>
<tr>
<th></th>
<th>All</th>
<th>Low Education</th>
<th>Low Predicted Earnings*</th>
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<td>Annual Employment Rate</td>
<td>0.73</td>
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<td>Earnings</td>
<td>22,186</td>
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<td>Number of Children</td>
<td>1.79</td>
<td>1.89</td>
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<td>Age of Youngest Child</td>
<td>7.51</td>
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<td>High School &amp; Below</td>
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<td>Observations</td>
<td>1,787,348</td>
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* Bottom Quartile of Predicted Earnings
The EITC and the Extensive Margin: The Long View
Labor Force Participation of Single Women
With and Without Children

Year
68 70 72 74 76 78 80 82 84 86 88 90 92 94 96 98 00 02 04 06 08 10 12 14 16 18
Participation (%)
50 60 70 80 90 100

With Children
Without Children
Labor Force Participation of Single Women
With and Without Children

50 years of relative stability, apart from these 5 years

Participation (%)

Year

With Children
Without Children

50 60 70 80 90 100

68 70 72 74 76 78 80 82 84 86 88 90 92 94 96 98 00 02 04 06 08 10 12 14 16 18

With Children
Without Children
Labor Force Participation of Single Women
With and Without Children

50 years of relative stability, apart from these 5 years

With Children
Without Children

Year
Participation (%)
Labor Force Participation of Single Women
With and Without Children

With Children
Without Children

Year

68 70 72 74 76 78 80 82 84 86 88 90 92 94 96 98 00 02 04 06 08 10 12 14 16 18

Participation (%) 50 60 70 80 90 100

Tax Reduction Act of 1975
TRA86 OBRA90 OBRA93 ARRA
Labor Force Participation of Single Women
With and Without Children

Year

Participation (%)
Labor Force Participation of Single Women
With and Without Children

Tax Reduction Act of 1975
TRA86
OBRA90
OBRA93 PRWORA
ARRA
State Welfare Waivers

With Children
Without Children

Year
Participation (%)
Labor Force Participation of Single Women
With and Without Children

Unemployment Rate

Year

With Children
Without Children
Unemployment Rate

Tax Reduction Act of 1975
TRA86
OBRA90
OBRA93 PRWORA
ARRA

State Welfare Waivers

50
60
70
80
90
100

68 70 72 74 76 78 80 82 84 86 88 90 92 94 96 98 00 02 04 06 08 10 12 14 16 18

Participation (%)
Labor Force Participation of Single Women
By Number of Children

Tax Reduction Act of 1975
TRA86
OBRA90
OBRA93
ARRA

Participation (%)

Year

0 children
1 child
2 children
3+ children

Different Outcomes (All)
Different Outcomes (Low Ed)
Different Outcomes (Low Pred Earnings)
Labor Force Participation of Single Women
By Number of Children

- Tax Reduction Act of 1975
- TRA86
- OBRA90
- OBRA93
- ARRA

Much larger increase for those with 3+ kids

Participation (%)

Year

0 children 1 child 2 children 3+ children
Labor Force Participation of Single Women
By Number of Children

- Tax Reduction Act of 1975
- TRA86
- OBRA90
- OBRA93
- ARRA

But no increase here for those with 3+ kids

Participation (%)

Year

0 children
1 child
2 children
3+ children
Labor Force Participation of Single Women
By Number of Children

Participation (%) by Year and Number of Children

- 0 children
- 1 child
- 2 children
- 3+ children

And no increase here either

Tax Reduction Act of 1975
TRA86
OBRA90
OBRA93
ARRA
The extensive margin increases for single mothers in 1994-99 are massive and follows the 1993 reform, BUT:

▶ Why are there no clear effects of any other reform?

▶ How do we reconcile the puzzling patterns across family sizes?

▶ How do we separate EITC effects from confounders?
  ▶ The business cycle
  ▶ State and national welfare reform
  ▶ Changes in social norms and stigma
Event Studies of Federal EITC Reforms
Event Study Specification

DiD comparing single women with and without children:

\[
P_{imt} = \alpha_j \cdot Year_{j=t} + \beta \cdot Kids_i + \sum_{j \neq -1} \gamma_j \cdot Year_{j=t} \cdot Kids_i + X_i \phi + \eta \cdot U_{st} + \theta \cdot U_{st} \cdot Kids_i + \nu_{imt},
\]

Where

- \( P_{imt} \) is an indicator for an individual \( i \) working in month \( m \) of year \( t \)
- \( X_i \) is a vector of demographic controls
- \( U_{st} \) is the demeaned unemployment rate for state \( s \) in year \( t \)
- I use linked March and monthly CPS files after 1989, March files alone before 1989
Event Studies of Individual Reforms
Weekly Employment, All Single Women, With Controls

1975 Reform

TRA1975
3-Year Effect = 0.33 (1.61)

1986 and 1990 Reforms

TRA1986
OBRA1990
3-Year Effect (86) = -0.70 (1.03)
3-Year Effect (90) = -0.39 (1.04)

1993 Reform

OBRA1993
PRWORA
3-Year Effect = 1.29 (0.49)

2009 Reform

ARRA
3-Year Effect = -3.01 (1.14)
Event Studies of Individual Reforms
Weekly Employment, Bottom Half of Predicted Earnings, With Controls

1975 Reform

TRA1975

3-Year Effect = 0.05 (2.36)

1986 and 1990 Reforms

TRA1986

3-Year Effect (86) = -0.86 (1.57)

3-Year Effect (90) = -0.23 (1.59)

1993 Reform

OBRA1993

3-Year Effect = 1.72 (0.74)

2009 Reform

ARRA

3-Year Effect = -2.65 (1.48)
Stacked Event Studies (Without 1993)

Weekly Employment, With Controls

All Single Women

Reform

3-Year Effect = -1.12 (0.74)

Impact on Employment (pp)

Event Time

Bottom Half of Predicted Earnings

Reform

3-Year Effect = -1.15 (1.07)

Impact on Employment (pp)

Event Time
Three-Year Effects by Decile of Predicted Earnings

Weekly Employment

-15
-10
-5
0
5
10
15

DID Coefficient (pp)

Decile of Predicted Earnings

1 2 3 4 5 6 7 8 9 10

All Reforms
All Reforms Except 1993

Annual Employment
Model Uncertainty
Effects of Federal Reforms Across All Specifications

▶ Reform experiments:
  ▶ All reforms stacked, all reforms stacked apart from 1993

▶ Sample, outcome, and controls:
  ▶ Samples: All single women, low-educated, bottom half of predicted earnings, bottom quartile of predicted earnings
  ▶ Outcomes: Weekly employment, annual employment, weekly participation, annual participation
  ▶ Controls: No controls, basic demographic controls, rich demographic controls, rich demographic & unemployment controls

▶ In total there are 432 estimates
Effects of Federal Reforms Across All Specifications

Distribution of Reduced-Form Effects

- Mean (Other) = -0.32
- Mean (1993) = 4.02

Distribution of Elasticities

- Mean (Other) = -0.04
- Mean (1993) = 0.63

Elasticity Calculations

\( \frac{32}{111} \)
### Specification Curve

#### Sample
- All Single Women
- Low Education
- Bottom Half of Pred Earnings
- Bottom Quartile of Pred Earnings

#### Outcome
- Weekly Employment
- Annual Employment
- Weekly Participation
- Annual Participation

#### Controls
- Raw Data
- Basic Demographics
- Rich Demographics
- Rich Demo and Unemployment

#### Reform
- 1975
- 1986
- 1990
- 2009
- All Reforms Stacked Without 1993

#### Raw Data

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<th>Sample</th>
<th>Outcome</th>
<th>Controls</th>
<th>Reform</th>
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<td>All Reforms Stacked Without 1993</td>
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Elasticities Across All Specifications vs Prior Estimates

Mean Elasticity: $\bar{\lambda} = -0.04$

- Kleven (Mean)
- Eissa-Liebman (All)
- Eissa-Liebman (Low Ed)
- Schanzenbach-Strain (All)
- Schanzenbach-Strain (Low Ed)
Event Studies of State EITC Reforms
Synthetic Control Approach

- 30 states have implemented EITC supplements
- For each state with an EITC supplement, a synthetic control state is created from those without a supplement
- Use state EITC introductions:
  - All Reforms
    - Drop states with very small sample sizes, states where other tax changes offset the EITC, and state reforms that are too recent
  - Ten largest reforms
- Match on pre-reform variables:
  - Match on outcomes in event years -5,...,-1
Event Study Specifications

**Difference-in-Differences** comparing states with and without EITC reforms, conditional on having children:

\[
P_{st} = \sum_j \alpha_j \cdot Event_{j=t} + \beta \cdot Treat_s + \sum \gamma_j \cdot Event_{j=t} \cdot Treat_s + \nu_{st}
\]

**Triple-Differences** comparing states with and without EITC reforms and single women with and without children:

\[
P_{kst} = \sum_j \alpha_j \cdot Event_{j=t} + \beta \cdot Kids_k + \gamma \cdot Treat_s + \delta \cdot Kids_k \cdot Treat_s \\
+ \sum_{j \neq -1} \zeta_j \cdot Event_{j=t} \cdot Kids_k + \sum_{j \neq -1} \eta_j \cdot Event_{j=t} \cdot Treat_s \\
+ \sum_{j \neq -1} \theta_j \cdot Event_{j=t} \cdot Kids_k \cdot Treat_s + \nu_{kst}
\]

where \( Event_{j=t} \) are event time indicators and \( Treat_s \) is an indicator for being a treatment state.
Stacked Event Studies: All Reforms
Weekly Employment, All Single Women

**Difference-in-Differences:**
Treated vs Control States (With Kids)

**Triple-Differences:**
Treated vs Control States (With vs Without Kids)
Stacked Event Studies: Ten Largest Reforms
Weekly Employment, All Single Women

**Difference-in-Differences:**
Treated vs Control States (With Kids)

- 3-Year Effect = -1.25

**Triple-Differences:**
Treated vs Control States (With vs Without Kids)

- 3-Year Effect = -1.51

Low Pred Earnings  Annual Employment (All)  Annual Employment (Low Pred Earnings)
Model Uncertainty
Effects of State Reforms Across All Specifications

- **Reform experiments:**
  - All state reforms stacked, ten largest state reforms stacked

- **Sample, outcome, and specification:**
  - Samples: All single women, low-educated, bottom half of predicted earnings, bottom quartile of predicted earnings
  - Outcomes: Weekly employment, annual employment, weekly participation, annual participation
  - Specification: Difference-in-differences and triple-differences

- In total there are **64 estimates**
Effects of State Reforms Across All Specifications

Distribution of Reduced-Form Effects

- Mean = -0.39

Distribution of Elasticities

- Mean = -0.18
Dissecting the 1990s
Dissecting the 1990s
Simulated Responses
Simulated Responses

- Static model with constant extensive margin elasticity $\varepsilon$

- Employment effect in year $t$, $\Delta P_t$, equals

\[
\Delta P_t = \varepsilon \cdot \frac{\Delta (1 - \tau_t)}{1 - \tau_{93}} \cdot P_{93}
\]

Where

- $\Delta (1 - \tau_t)$ is the reform-induced change in the average net-of-tax rate in year $t$ relative to the pre-reform year, 1993

- $\tau_{93}$ and $P_{93}$ are baseline levels in the pre-reform year
Actual DiD vs Simulated Responses
Weekly Employment

All Single Women

Actual DiD

Explained by EITC ($\epsilon = .25$): 13%
Explained by EITC ($\epsilon = .50$): 27%

Bottom Half of Predicted Earnings

Actual DiD

Explained by EITC ($\epsilon = .25$): 10%
Explained by EITC ($\epsilon = .50$): 19%
Lessons: Simulated Responses

- Even under sizable elasticities, the EITC explains a minor part of the extensive margin increases in the 1990s.

- At an extensive margin elasticity of 0.25 (0.5):
  - The EITC explains 13% (27%) across all single mothers, and 10% (19%) for single mothers with low predicted earnings.

- For any reasonable elasticity, the extensive margin increases following the 1993 tax reform are driven mostly by confounding non-tax factors.
Dissecting the 1990s:
Was Welfare Reform Big Enough?
Was Welfare Reform Big Enough?

Define **employment+welfare rate**: 

- Fraction of single mothers who are employed and/or on AFDC/TANF

EITC and welfare reform affect this outcome differently:

- Welfare reform pushes people from welfare into work or into searching for work $\rightarrow$ employment+welfare rate should stay constant or decrease
- EITC reform attracts people from all non-working states $\rightarrow$ employment+welfare rate should increase
Adding AFDC/TANF Caseloads for Single Women
With and Without Children

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<th>Year</th>
<th>Employment Rate (%)</th>
<th>Employment with Kids</th>
<th>Employment without Kids</th>
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AFDC/TANF Caseload

Year

Employment with Kids
Employment without Kids
Employment+Welfare Rate with Kids

OBRA93
PRWORA
Event Study of Employment + Welfare Rate
With vs Without Children

By Number of Children
Lessons: Employment+Welfare Rate

- The year-to-year extensive margin increases correspond to the year-to-year AFDC/TANF caseload reductions
  - Employment+welfare rate does not respond
  - This holds in every subsample

- What do we learn from this?
  - AFDC/TANF changes were large enough to explain what happened in the 1990s
  - If the EITC had any effect, it attracted women only from AFDC/TANF and not from any other non-work state
  - Such asymmetry of EITC effects is puzzling, but expected in the case of AFDC/TANF effects
Dissecting the 1990s:
Event Studies by Number of Children
DiD by Number of Children

Weekly Employment, All Single Women

Impact on Employment (pp)

Year

1 vs 0 Kids
DiD by Number of Children
Weekly Employment, All Single Women

Impact on Employment (pp)

Year

1 vs 0 Kids
2 vs 0 Kids
DiD by Number of Children
Weekly Employment, All Single Women

Impact on Employment (pp)

Year

1 vs 0 Kids
2 vs 0 Kids
3 vs 0 Kids
DiD by Number of Children
Weekly Employment, All Single Women

Impact on Employment (pp)

Year

1 vs 0 Kids
2 vs 0 Kids
3 vs 0 Kids
4+ vs 0 Kids

Demographic Controls
Annual Employment
Lessons: Effects by Number of Children

- A fanning-out by number of children
  - Extensive margin effects are strictly increasing in the number of children
  - The spread is relatively small between 1 and 2 children (where the EITC split is large), and very large between the other family sizes (where the EITC difference is small/zero)

- Consistent with welfare reform, but not EITC reform
Dissecting the 1990s: Heterogeneity by Welfare Treatment Intensity
DiD Event Study by Welfare Treatment Intensity

Specification:

\[ P_{imt} = \alpha \cdot Post_t + \sum_j \beta_j \cdot Welfare_{j=c} + \sum_j \gamma_j \cdot Post_t \cdot Welfare_{j=c} \]

\[ + \eta \cdot U_{st} + \theta \cdot U_{st} \cdot Kids_i + \lambda_s + X_i \phi + \nu_{imt} \]

Where \( Welfare_{j=c} \) is an indicator for welfare treatment category \( c \):

- Age of youngest child
- Predicted AFDC probability based on demographics (dummies for age of woman, number of children, age of youngest child, race, state)
By Age of Youngest Child
Pre-Reform AFDC Participation Predicts Post-Reform Drop in Participation

Slope = 0.69
Effects of the EITC by Age of Youngest Child
Weekly Employment, All Single Women

Raw Data

With Controls

Impact on Employment (pp)

Age of Youngest Child

3-Year Employment Effect
10-Year Employment Effect
10-Year Welfare Drop
By Probability of AFDC Participation
Pre-Reform AFDC Participation Predicts Post-Reform Drop in Participation

Slope = 0.74
Effects of the EITC by Prob. of AFDC Participation
Weekly Employment, All Single Women

Raw Data

With Controls

Annual Employment
Lessons: Effects by Welfare Treatment Intensity

- Extensive margin effects align closely with welfare treatment

- **Age of youngest child:**
  - Age of youngest child is a strong predictor of welfare treatment
  - No 3-year effects for single mothers whose youngest child is older than six

- **Probability of AFDC participation:**
  - Pre-reform AFDC probability is a strong predictor of welfare treatment
  - No 3-year effects in the bottom four deciles of AFDC probability
Dissecting the 1990s: Welfare Waivers
Waiver vs Non-Waiver States

- **Waiver types:** time limits, work requirements, family caps, JOBS exemptions, JOBS sanctions, and earnings disregards

- **38 states** approved statewide welfare waiver legislation between 1992-96

- **States without statewide waiver legislation:**
  - Alabama, Alaska, District of Columbia, Kansas, Kentucky, Louisiana, Nevada, New Mexico, New York, Oklahoma, Pennsylvania, Rhode Island, and Wyoming

- Run DiD event studies separately for waiver and non-waiver states
Waiver vs Non-Waiver States
Weekly Employment, All Single Women

Non-Waiver Effect (3-Year) = 1.04 (0.96)

Different Outcomes/Samples

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Lessons: Welfare Waivers

- Employment effects between 1994-96 (after EITC reform, but before federal welfare reform) can be explained by welfare waivers and business cycles
  - Controlling for business cycles, non-waiver states did not see any statistically significant employment increase for single mothers between 1994-96

- After the implementation of PRWORA in 1997, non-waiver states begin to catch up to waiver states and converge to the same long-run effect
  - The series for non-waiver states look like an event study for PRWORA
Conclusions
Conclusions

- The consensus view on the EITC and the extensive margin is fragile

- What happened with single mothers in America in the 1990s?
  - A historic shift in the labor market equilibrium
  - Not the EITC, but welfare reform aided by a strong economy

- Fits with behavioral ideas:
  - EITC knowledge is limited
  - Welfare reform was salient:
    Big debate, instant treatment, ordeals, enforcement

- Welfare culture/norms?
Appendix
Predicted Earnings Regression

Earnings regression:

\[ Y_i = \alpha_a + \beta_n + \gamma_y + \delta_e + \zeta_r + \lambda_s + \nu_i \]

Where the RHS includes fixed effects for age of the woman \( a \), number of children \( n \), age of youngest child \( y \), education \( e \), race \( r \), and state \( s \)

- Run regression on the sample of working single women
- Predict earnings for workers and non-workers
- Select different quantiles of predicted earnings within each year
Earnings Distribution
Single Mothers

First EITC Kink
Avg. EITC Exhaustion

Fraction EITC Eligible:
All Single Mothers: 73.3%
Low Education: 83.2%
Low Pred. Earnings: 93.6%

Earnings Net of First EITC Kink

Density

Back
Labor Force Participation of Single Women
With and Without Children, All Single Women

Weekly Participation

Annual Participation

Weekly Employment

Annual Employment

50 years of relative stability, apart from these 5 years
Labor Force Participation of Single Women
With and Without Children, **Low-Educated Single Women**

**Weekly Participation**

- **With Children**: 20.7pp
- **Without Children**: 17.1pp

50 years of relative stability, apart from these 5 years

**Annual Participation**

- **With Children**: 16.6pp
- **Without Children**: 10.7pp

50 years of relative stability, apart from these 5 years

**Weekly Employment**

- **With Children**: 20.8pp
- **Without Children**: 19.4pp

50 years of relative stability, apart from these 5 years

**Annual Employment**

- **With Children**: 14.2pp
- **Without Children**: 11.9pp

50 years of relative stability, apart from these 5 years

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Labor Force Participation of Single Women
With and Without Children, Bottom Half of Predicted Earnings

Weekly Participation

Annual Participation

Weekly Employment

Annual Employment

50 years of relative stability, apart from these 5 years
Labor Force Participation of Single Women
By Number of Children, All Single Women

Weekly Participation

Annual Participation

Weekly Employment

Annual Employment
Labor Force Participation of Single Women
By Number of Children, Low-Educated Single Women

Weekly Participation

Annual Participation

Weekly Employment

Annual Employment

Tax Reduction Act of 1975
TRA86
OBRA90
OBRA93
ARRA
Labor Force Participation of Single Women
By Number of Children, Bottom Half of Predicted Earnings

Weekly Participation

Year
0 Children 1 Child 2 Children 3+ Children

Annual Participation

Year
0 Children 1 Child 2 Children 3+ Children

Weekly Employment

Year
0 Children 1 Child 2 Children 3+ Children

Annual Employment

Year
0 Children 1 Child 2 Children 3+ Children
Event Studies of Individual Reforms
Weekly Employment, All Single Women, Without Controls

1975 Reform

TRA1975
3-Year Effect = -0.71 (1.38)

1986 and 1990 Reforms

TRA1986
3-Year Effect (86) = -1.03 (1.07)
3-Year Effect (90) = -0.35 (1.07)

OBRA1990

1993 Reform

OBRA1993
3-Year Effect = 3.06 (0.51)

PRWORA

2009 Reform

ARRA
3-Year Effect = -3.55 (1.07)
Event Studies of Individual Reforms
Annual Employment, All Single Women, With Controls

1975 Reform

TRA1975

3-Year Effect = 1.89 (1.45)

1986 and 1990 Reforms

TRA1986

3-Year Effect (86) = 1.09 (0.96)

OBRA1990

3-Year Effect (90) = -1.84 (0.98)

1993 Reform

OBRA1993

3-Year Effect = 2.66 (0.96)

PRWORA

2009 Reform

ARRA

3-Year Effect = -0.58 (1.86)

Weekly Employment (With Controls)
Event Studies of Individual Reforms
Annual Employment, All Single Women, Without Controls

1975 Reform

TRA1975

3-Year Effect = -0.42 (1.23)

1986 and 1990 Reforms

TRA1986

3-Year Effect (86) = 1.50 (0.98)
3-Year Effect (90) = 0.00 (0.98)

OBRA1990

1993 Reform

OBRA1993

3-Year Effect = 4.39 (0.98)

PRWORA

2009 Reform

ARRA

3-Year Effect = -1.25 (1.70)

Weekly Employment (With Controls)
Event Studies of Individual Reforms
Weekly Employment, Bottom Half of Predicted Earnings, Without Controls

1975 Reform

1986 and 1990 Reforms

1993 Reform

2009 Reform

Weekly Employment (With Controls)
Event Studies of Individual Reforms
Annual Employment, Bottom Half of Predicted Earnings, With Controls

1975 Reform

1986 and 1990 Reforms

1993 Reform

2009 Reform

Weekly Employment (With Controls)
Event Studies of Individual Reforms
Annual Employment, Bottom Half of Predicted Earnings, Without Controls

1975 Reform

1986 and 1990 Reforms

1993 Reform

2009 Reform

Weekly Employment (With Controls)
Stacked Event Studies (Without 1993)
Weekly Employment, Without Controls

All Single Women

3-Year Effect = -1.77 (0.68)

Impact on Employment (pp)
Event Time

Bottom Half of Predicted Earnings

3-Year Effect = -0.76 (0.96)

Impact on Employment (pp)
Event Time

Weekly Employment (With Controls)
Stacked Event Studies (Without 1993)
Annual Employment, With Controls

All Single Women

3-Year Effect = 0.80 (0.85)

Weekly Employment (With Controls)

Bottom Half of Predicted Earnings

3-Year Effect = 2.03 (1.19)
Stacked Event Studies (Without 1993)

Annual Employment, Without Controls

**All Single Women**

3-Year Effect = -0.06 (0.77)

**Bottom Half of Predicted Earnings**

3-Year Effect = 0.92 (1.06)
Three-Year Effects by Decile of Predicted Earnings

Annual Employment

Weekly Employment
Elasticity Calculation

▶ Extensive Margin Elasticity:

\[ \varepsilon \equiv \frac{\Delta P/P}{\Delta (1 - \tau)/(1 - \tau)} \]

Where

▶ \( \Delta P/P \) is the percent effect of the tax reform on employment/participation

▶ \( \Delta (1 - \tau)/(1 - \tau) \) is the percent effect of the tax reform on the average net-of-tax rate

▶ \( \tau \) includes federal taxes, state taxes, and federal insurance contributions (FICA), but not the welfare system

▶ \( \tau \) is calculated based on setting earnings conditional on working equal to the first kink of the federal EITC for each family size
Stacked Event Studies: All Reforms
Weekly Employment, Bottom Half of Predicted Earnings

**Difference-in-Differences:**
Treated vs Control States (With Kids)

**Triple-Differences:**
Treated vs Control States (With vs Without Kids)
Stacked Event Studies: All Reforms
Annual Employment, All Single Women

**Difference-in-Differences:**
Treated vs Control States (With Kids)

3-Year Effect = 1.37

**Triple-Differences:**
Treated vs Control States (With vs Without Kids)

3-Year Effect = 1.72
Stacked Event Studies: All Reforms
Annual Employment, Bottom Half of Predicted Earnings

**Difference-in-Differences:**
Treated vs Control States (With Kids)

3-Year Effect = 1.90

**Triple-Differences:**
Treated vs Control States (With vs Without Kids)

3-Year Effect = 1.38

Back
Stacked Event Studies: Ten Largest Reforms
Weekly Employment, Bottom Half of Predicted Earnings

Difference-in-Differences:
Treated vs Control States (With Kids)

Triple-Differences:
Treated vs Control States (With vs Without Kids)
Stacked Event Studies: Ten Largest Reforms
Annual Employment, All Single Women

Difference-in-Differences:
Treated vs Control States (With Kids)

Triple-Differences:
Treated vs Control States (With vs Without Kids)
Stacked Event Studies: Ten Largest State Reforms
Annual Employment, Bottom Half of Predicted Earnings

**Difference-in-Differences:**
Treated vs Control States (With Kids)

![Graph showing the difference-in-differences between treated and control states with kids.]

3-Year Effect = 1.38

**Triple-Differences:**
Treated vs Control States (With vs Without Kids)

![Graph showing the triple-differences between treated and control states with and without kids.]

3-Year Effect = 1.10
Actual DiD vs Simulated Responses by Family Size
Weekly Employment, All Single Women

1 vs 0 Children
- Explained by EITC ($\varepsilon = .25$): 13%
- Explained by EITC ($\varepsilon = .50$): 26%

2 vs 0 Children
- Explained by EITC ($\varepsilon = .25$): 17%
- Explained by EITC ($\varepsilon = .50$): 34%

3 vs 0 Children
- Explained by EITC ($\varepsilon = .25$): 10%
- Explained by EITC ($\varepsilon = .50$): 19%

4+ vs 0 Children
- Explained by EITC ($\varepsilon = .25$): 5%
- Explained by EITC ($\varepsilon = .50$): 10%
Actual DiD vs Simulated Responses by Family Size
Weekly Employment, Bottom Half of Predicted Earnings

1 vs 0 Children

Explained by EITC ($\varepsilon = .25$): 11%
Explained by EITC ($\varepsilon = .50$): 23%

2 vs 0 Children

Explained by EITC ($\varepsilon = .25$): 11%
Explained by EITC ($\varepsilon = .50$): 23%

3 vs 0 Children

Explained by EITC ($\varepsilon = .25$): 7%
Explained by EITC ($\varepsilon = .50$): 15%

4+ vs 0 Children

Explained by EITC ($\varepsilon = .25$): 5%
Explained by EITC ($\varepsilon = .50$): 10%
Event Study of Employment+Welfare Rate
By Number of Children

With vs Without Children
1 vs 0 Children
2 vs 0 Children
3+ vs 0 Children

Impact (pp)
Year
Employment
Employment+Welfare Rate

OBRA93
PRWORA

-10 0 5
-5 0 5
0 0 5
5 0 5
10 0 5
15 0 5
20 0 5

89 90 91 92 93 94 95 96 97 98 99 00 01 02 03

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DiD By Number of Children
Annual Employment, All Single Women

Weekly Employment

1 vs 0 Kids
2 vs 0 Kids
3 vs 0 Kids
4+ vs 0 Kids

OBRA93 PRWORA

Year

Impact on Employment (pp)

89 90 91 92 93 94 95 96 97 98 99 00 01 02 03

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Effects of the EITC by Age of Youngest Child

Annual Employment, All Single Women

Raw Data

With Controls

Impact on Employment (pp)

Age of Youngest Child

3-Year Employment Effect

10-Year Employment Effect

10-Year Welfare Drop

Weekly Employment
Effects of the EITC by Prob. of AFDC Participation
Annual Employment, All Single Women

Raw Data

With Controls

Weekly Employment
Waiver vs Non-Waiver States
Varying the Outcome and Sample

Weekly Employment, All

Annual Employment, All

Weekly Employment, Low Pred Earnings

Annual Employment, Low Pred Earnings

Baseline
Use of Loaded Language

Welfare Queen

State Welfare Waivers

Deserving vs Undeserving Poor

State Welfare Waivers

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A Picture Is Worth A Thousand Words