

Are there Returns to Experience at Low-Skill Jobs?  
Evidence from Single Mothers in the United States over the 1990s

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## Introduction

- Many economic policies seek to promote self-sufficiency amongst low-income individuals
  - Design incentives to provide benefits & encourage work
  - Individuals will reap the rewards of work experience in the form of higher wages and enhanced job opportunities
  - Transition off of government assistance and to self-sufficiency

## Introduction

- Evidence on returns to experience
  - Do wages increase with experience?
  - Altonji & Shakotko 1987, Topel 1991, Altonji & Williams 2005
- Are returns similar across high-skill and low-skill individuals?
- Loeb & Corcoran 2001, Gladden & Taber 2000: even amongst low-education individuals, wages increases with experience
- Burtless 1995, Card & Hyslop 2005, Dustman & Meghir 2005 indicate lower returns to experience for low-skill individuals

## Introduction

- This project: examine returns to work experience due to policy changes in US over the 1990s
  - Policy changes to encourage transition from welfare to work
  - Largest policy-induced change in work experience
  - Permanent change in incentives (Canadian SSP provided temporary incentives for employment)

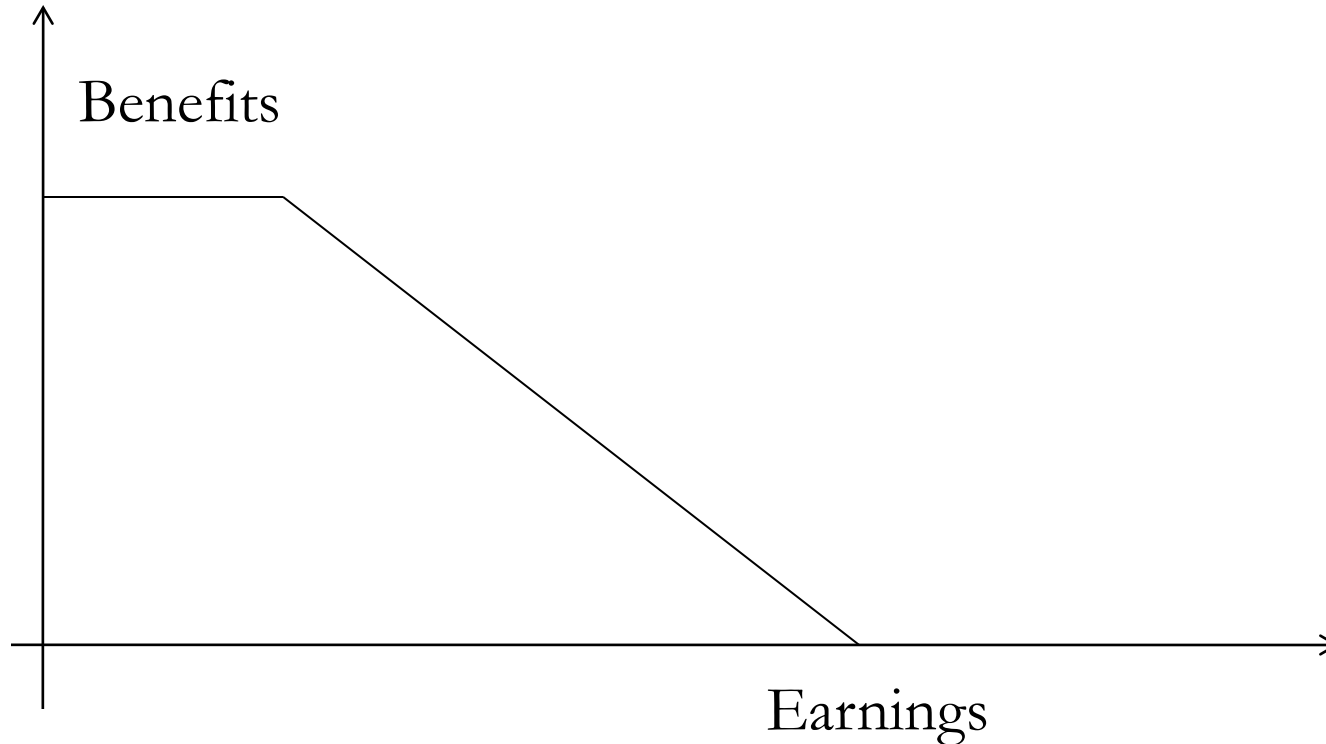
## Introduction

- Motivating thought experiment:
  - Consider a single mother with 10 year-old child in 2000
  - Compare to single mother with 10 year-old child in 1990
  - Because of policy changes, 2000 mother has completed more employment over the child's first 10 years
  - What are the returns to this policy-induced experience? Are real wages for the 2000 mother higher than real wages for the 1990 mother?
- Previous research suggests relatively high returns ( $\geq 7\%$ ) for welfare recipients (Light and Ureta 1995, Ferber and Waldfogel 1998, Lynch 2001, Grogger 2005)
- Overall, results show low returns to experience for single mothers

## Outline

- Background
  - Policy Changes
  - Single Mothers Employment and Welfare Use and the Age Structure of Children
- Empirical Analysis
  - Estimation Strategy: Synthetic Cohorts
  - Graphical Evidence
  - Regression Analysis
  - Discussion

## Background: Pre-Reform (1980s, early 1990s)



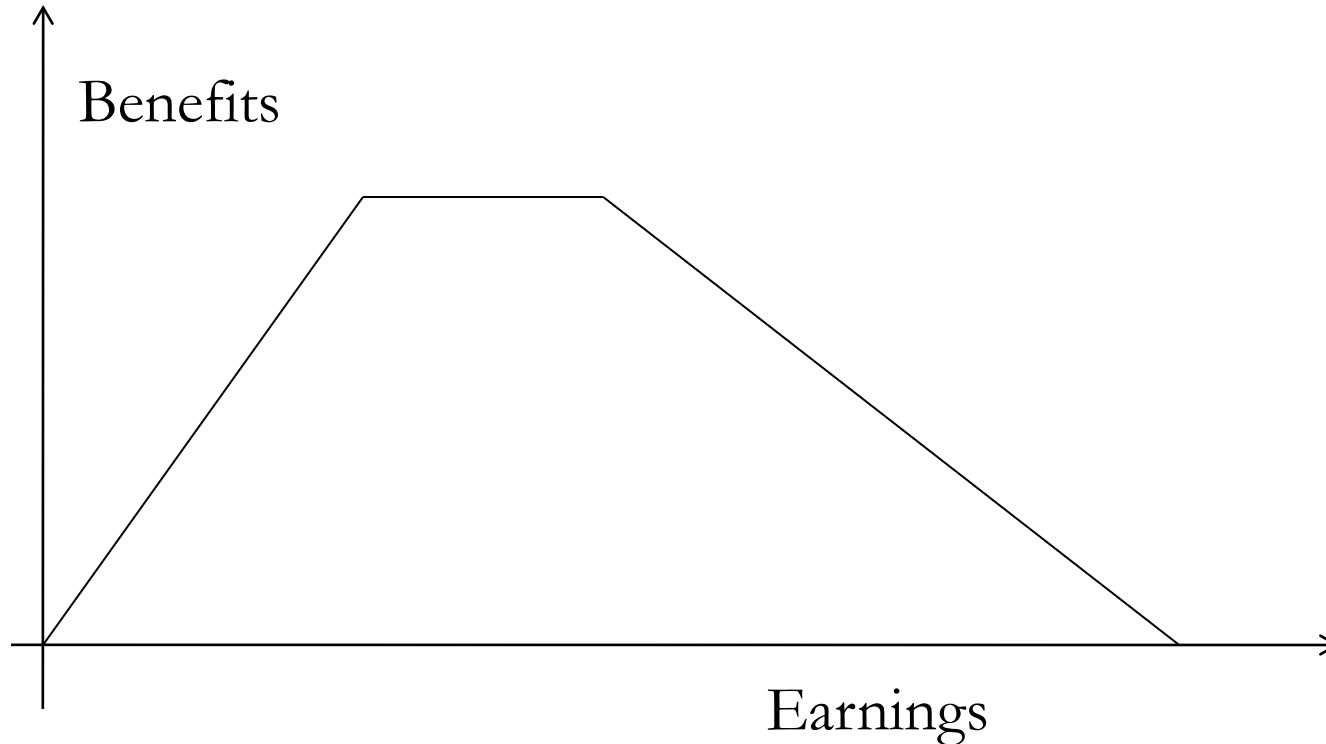
- AFDC & Food Stamps: cash payments to families with (school-age) children whose parents are absent or unemployed
- Benefits phased out with earnings → implicit tax rate on earnings
  - Concerns regarding disincentives for work

## Background: Policy Changes

- JOBS90: states required to provide education, training & employment programs for AFDC recipients
- AFDC waivers:
  - Between 1993 & 1996, states given waivers from federal AFDC program to experiment with program changes
    - Work training requirements (27 states)
    - Time Limits (24 states)
- PRWORA 1996: (97) replaced AFDC with TANF, state block grants
- EITC Expansions:
  - TRA86: expanded benefits by 50%
  - OBRA90: expanded by 50%, phased-in over 3 years 1991-94
  - OBRA93: expanded by 50%, phased-in over 3 years 1994-96



## Background: Post-Reform (late 1990, 2000s)



- Emphasis on incentives to encourage work
  - 0 benefits for individuals with no earned income
  - Negative marginal tax rate in phase-in region
- Single mothers faced different policy environment after the policy changes in mid-1990s, had different employment histories than single mothers prior to the mid-1990s

## Single Mothers' Employment, Welfare Use & Age Structure of Children

- Strategy to estimate return to experience will exploit policy-induced variation in employment by age of youngest child
- Ideally, use individual-level longitudinal data over this time period
  - Panels with appropriate sample sizes and ability to identify age of youngest child are not available
  - Use repeated cross-sectional data from Current Population Survey, 1980-2010
    - Supplemental analysis using short panels from Survey of Income and Program Participation

Table 1: Summary Statistics for Never Married Mothers

| Survey Year | N    | % Non-white | Fraction with $\leq 12$ years of Schooling | Median Mother's Age | Fraction with Age of Youngest Child $\leq 5$ | Fraction in Full-time Employment in Previous Year | Median Wage, CPI-adjusted |
|-------------|------|-------------|--|---------------------|--|---|---------------------------|
| 1990        | 1447 | 0.613       | 0.773                                      | 27                  | 0.655  | 0.345   | 10.378                    |
| 1995        | 1722 | 0.546       | 0.678                                      | 28                  | 0.650  | 0.347   | 9.403                     |
| 2000        | 1712 | 0.515       | 0.635                                      | 28                  | 0.605  | 0.488   | 10.296                    |
| 2005        | 3009 | 0.497       | 0.612                                      | 28                  | 0.617  | 0.454   | 10.915                    |
| 2010        | 3324 | 0.451       | 0.563                                      | 29                  | 0.601  | 0.408   | 11.218                    |

Notes: Data from IPUMS CPS. The sample is restricted to never married mothers between ages 19 and 44. See Table A1 for sample restriction details. Median weeks worked and median wage are conditional on employment. Wages are CPI-adjusted to 2009 dollars. Wages are computed as total wage and salary income divided by the product of weeks worked and usual hours worked per week.

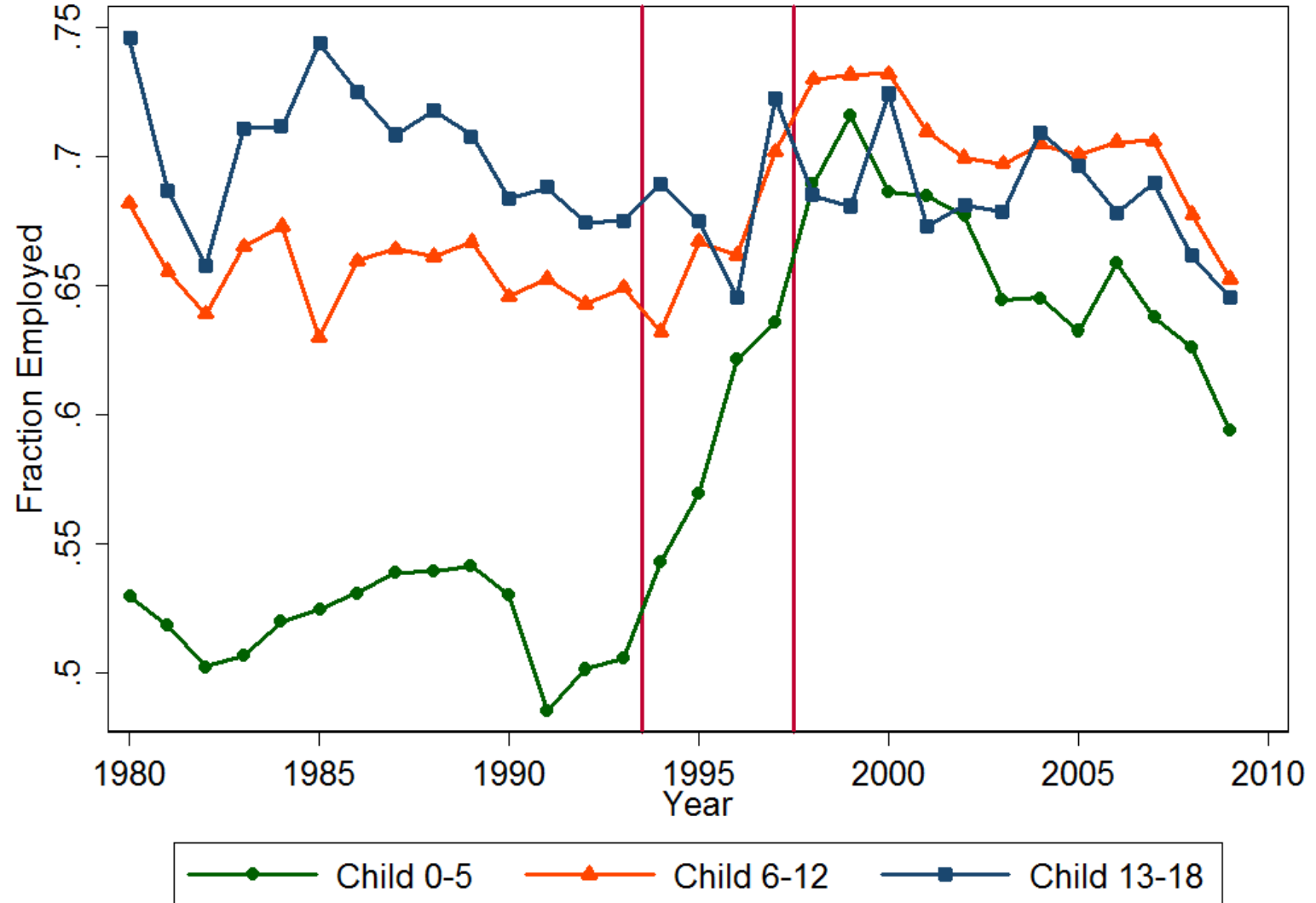
## Single Mothers' Employment, Welfare Use & Age Structure of Children

- Follow methodology from Meyer (2010) to illustrate variation in employment and welfare use by age of youngest child

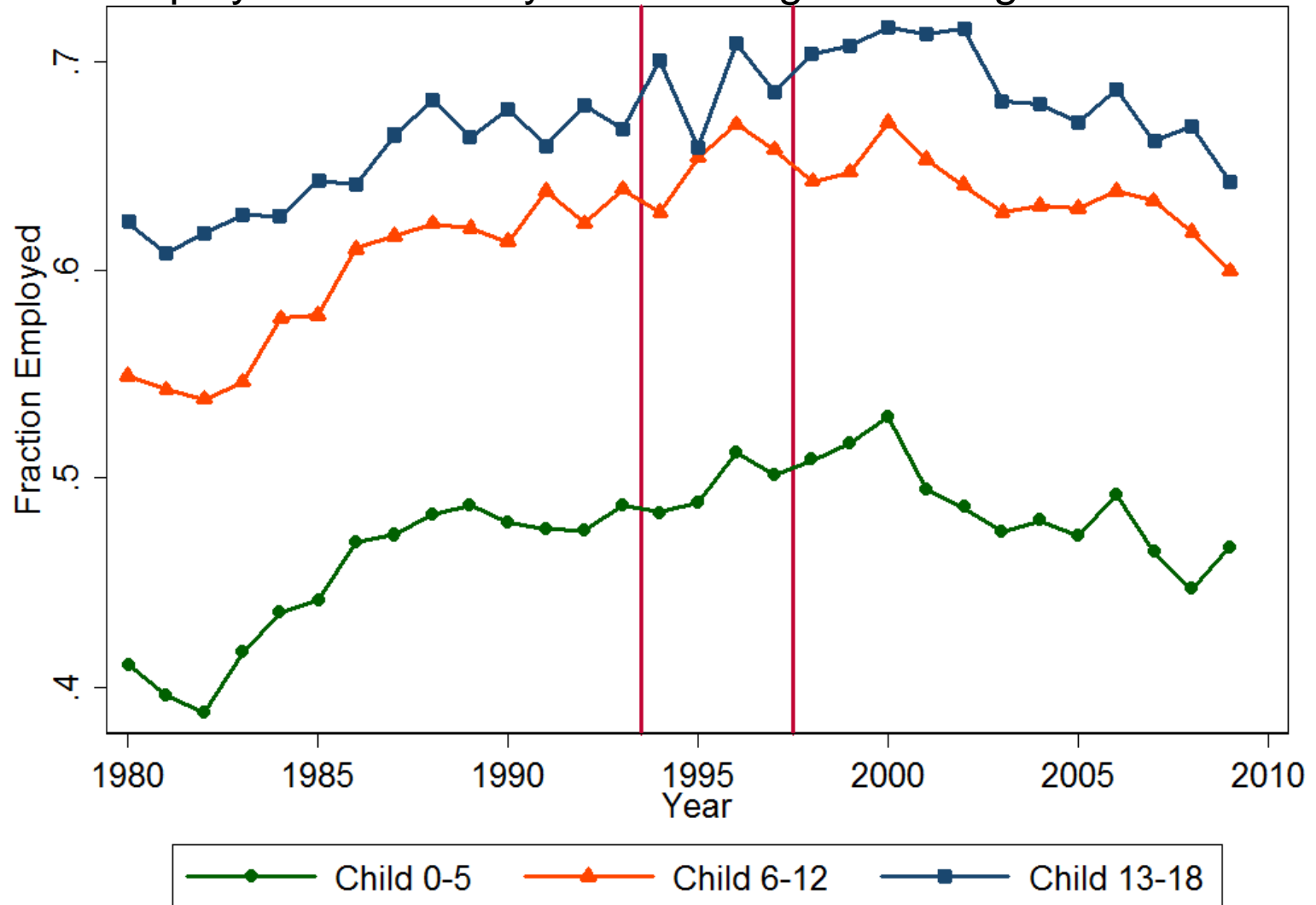
$$E_i = \sum_{a=\leq 5, 6-12, 13-18} \sum_{t=1980}^{2010} \gamma_{n,t} 1(\text{year}_i = t) * 1(\text{yngch}_i = a) + \delta X_i + \varepsilon_i.$$

- $E_i$  = employment indicator
- $\text{yngch}_i$  = age group of mother's youngest child (0-5, 6-12, 13-18)
- $X_i$  = (demeaned) covariates: dummies for marital status (divorced, widowed, never married), race, age, education, number of kids

# Single Mothers' Employment Rates by Year and Age of Youngest Child



# Education $\leq 12$ years, Married Mothers Employment Rates by Year and Age of Youngest Child



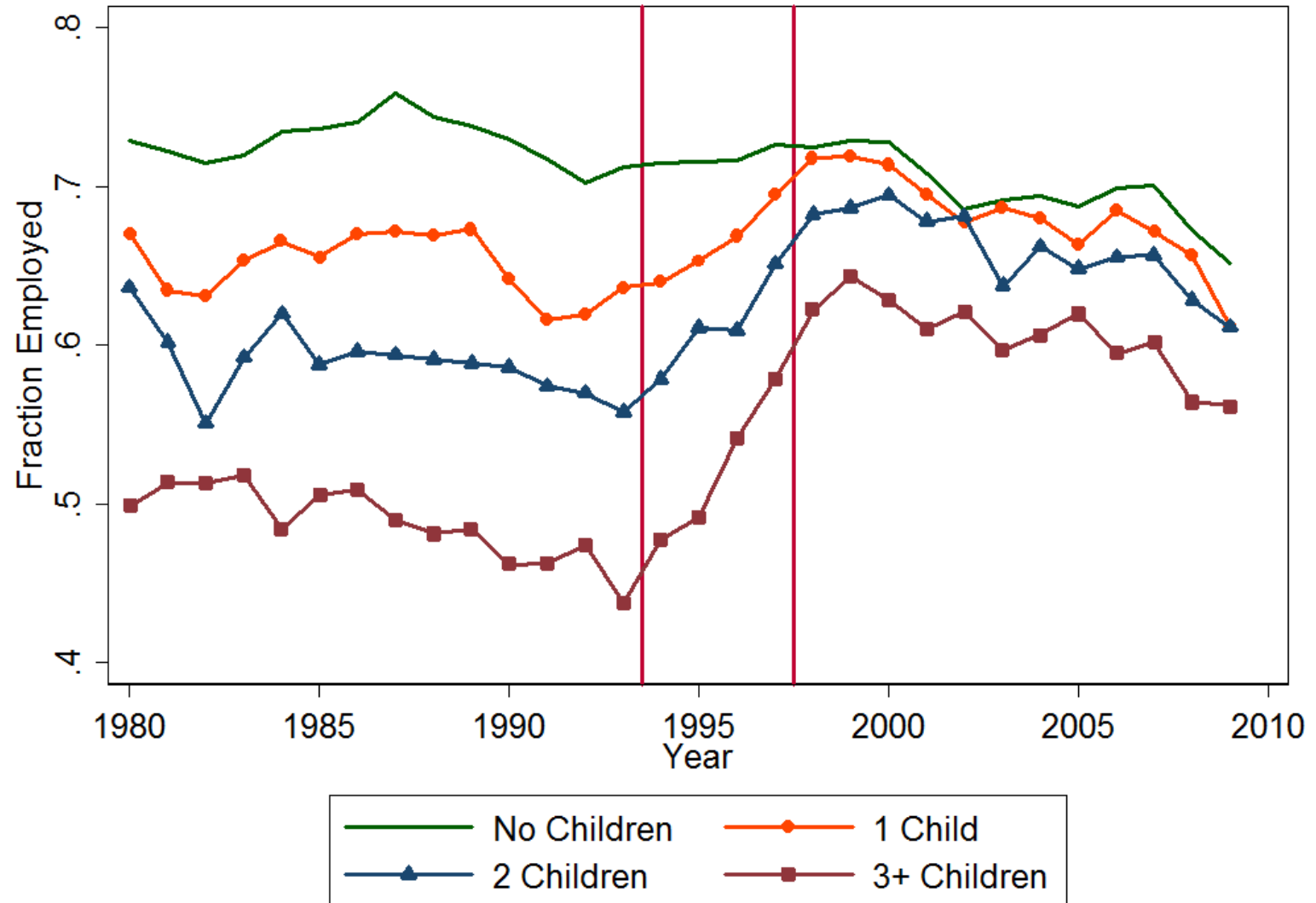
## Single Mothers' Employment, Welfare Use & Age Structure of Children

- Many previous papers have examined single mothers' employment patterns by number of children
- General strategy: exploit variation in benefits based on number of children to estimate labor supply effects of policy changes
  - Eissa & Liebman 1996
  - Ellwood 2000
  - Meyer & Rosenbaum 2001, 2000
  - Eissa & Hoynes 2004, 2006
  - Grogger, Karoly and Klerman 2002
  - Grogger & Karoly 2005

$$E_i = \sum_{n=0,1,2,\geq 3} \sum_{t=1980}^{2010} \gamma_{n,t} 1(\text{year}_i = t) * 1(\text{Nkids}_i = n) + \delta X_i + \varepsilon_i.$$

- $X_i$  = dummies for marital status (divorced, widowed, never married), race, age, education

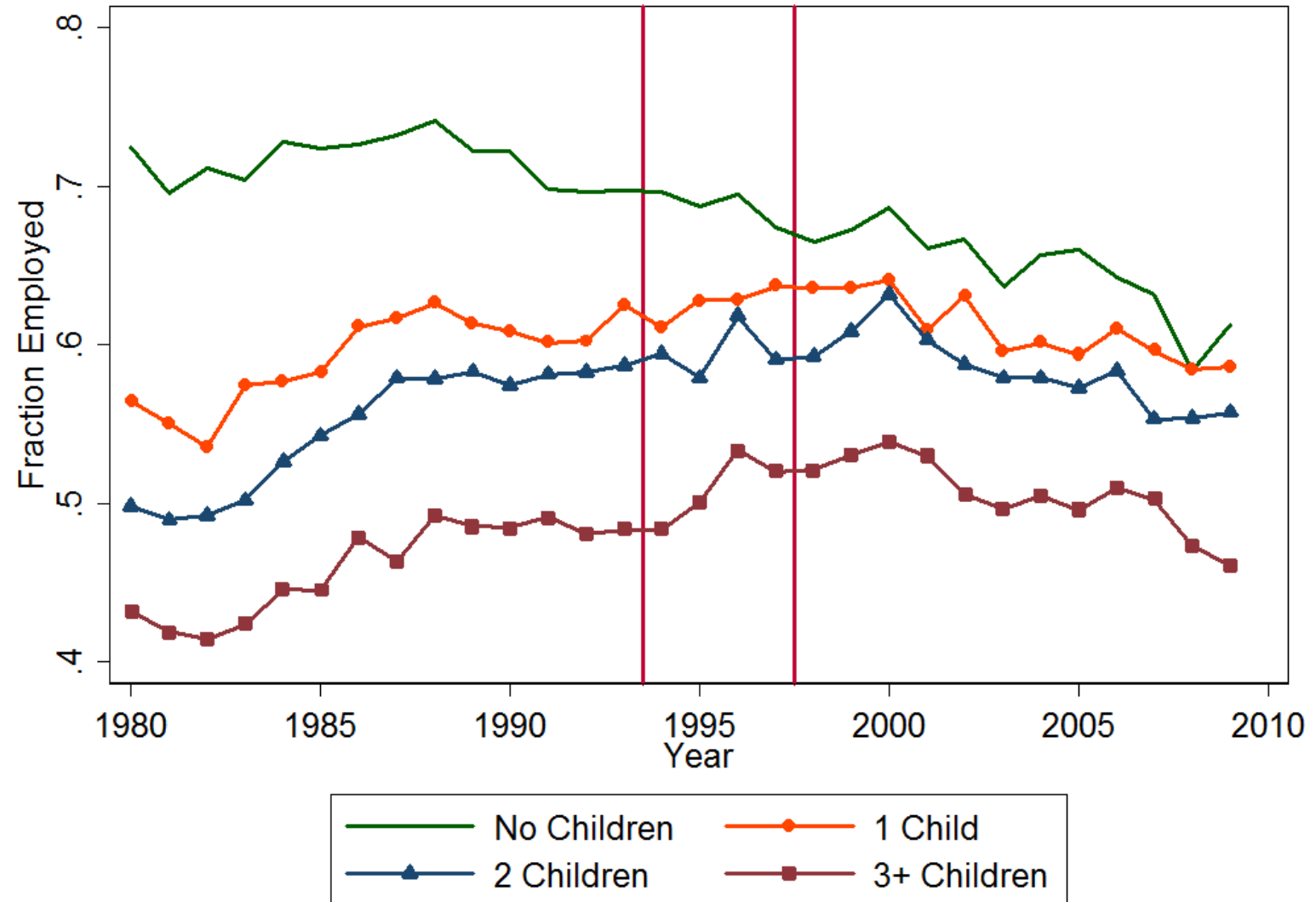
# Single Mothers' Employment Rates by Year and Number of Children, With Controls



See Meyer (2010)



# Married Mothers' Employment Rates by Year and Number of Children, With Controls & Education $\leq 12$



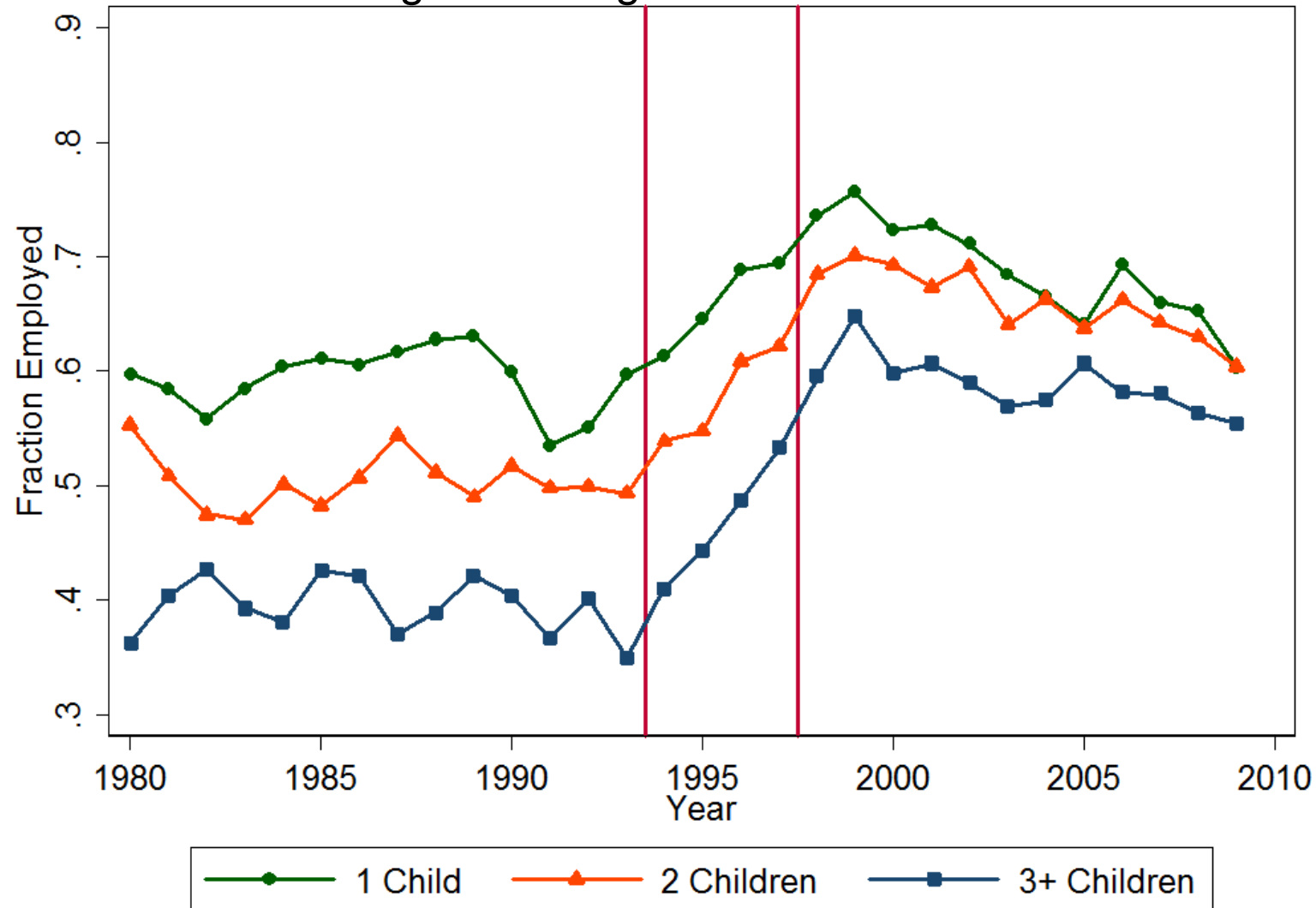
See Meyer (2010)

## Single Mothers' Employment, Welfare Use & Age Structure of Children

- Heterogeneity in employment changes based on age of the mother's youngest child is robust to including interactions with number of children

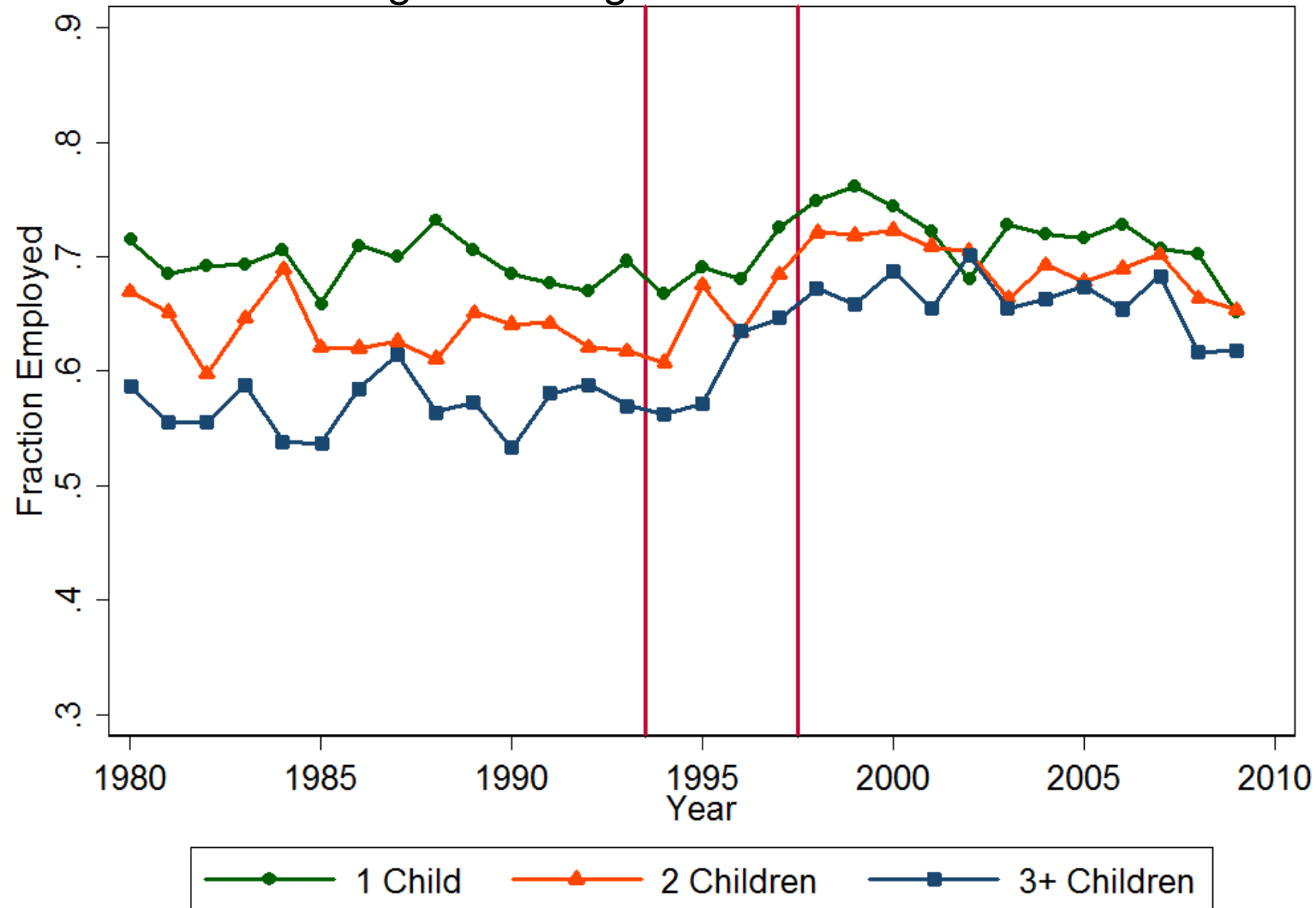
$$E_i = \sum_{a=\leq 5, 6-12, 13-18} \sum_{n=0, 1, 2, \geq 3} \sum_{t=1980}^{2010} \gamma_{n,t} 1(\text{year}_i = t) * 1(Nkids_i = n) * 1(\text{yngch}_i = a) + \delta X_i + \varepsilon_i.$$

# Single Mothers' Employment Rates by Year and Number of Children Age of Youngest Child = 0-5



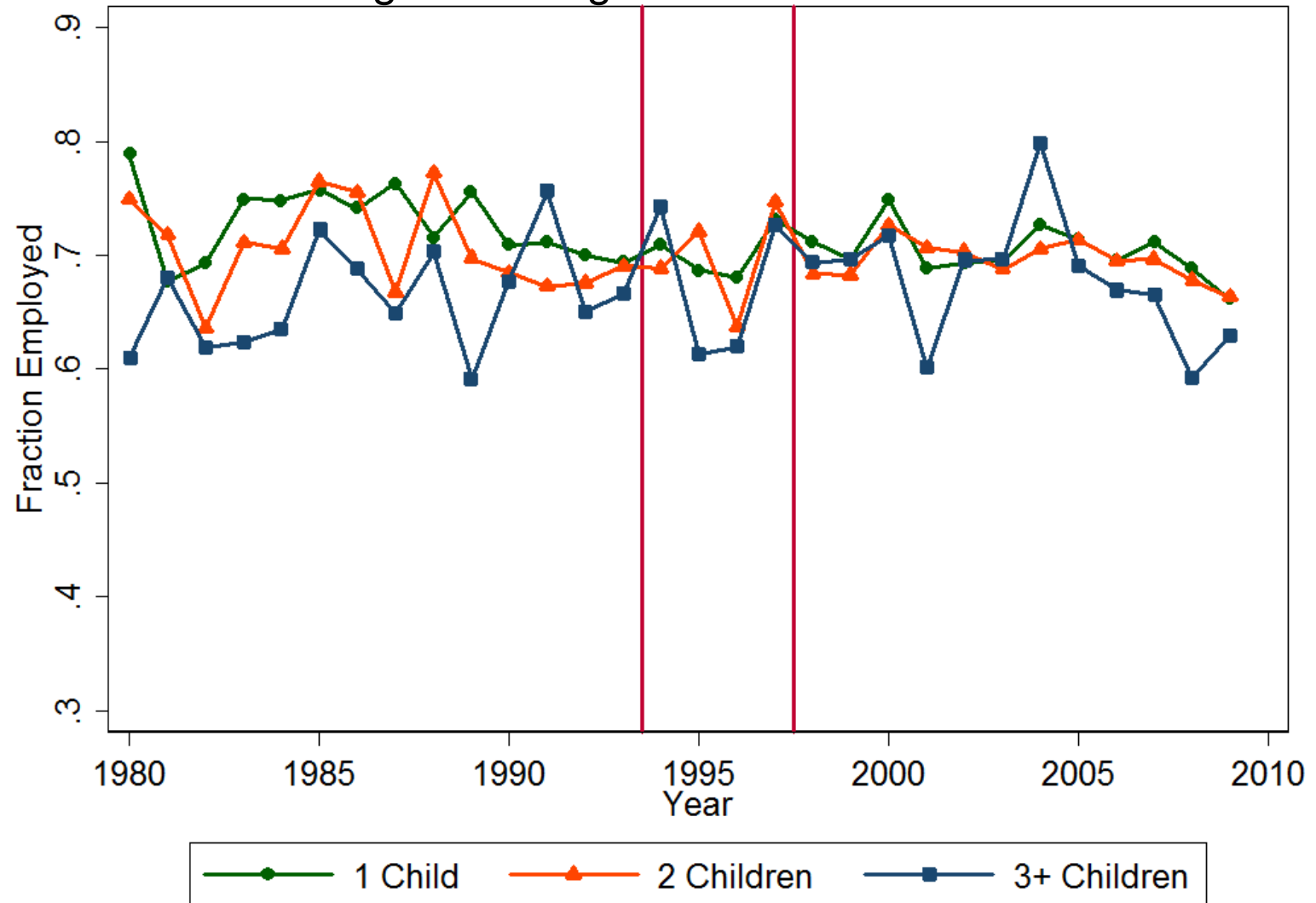
# Single Mothers' Employment Rates by Year and Number of Children

## Age of Youngest Child = 6-12



# Single Mothers' Employment Rates by Year and Number of Children

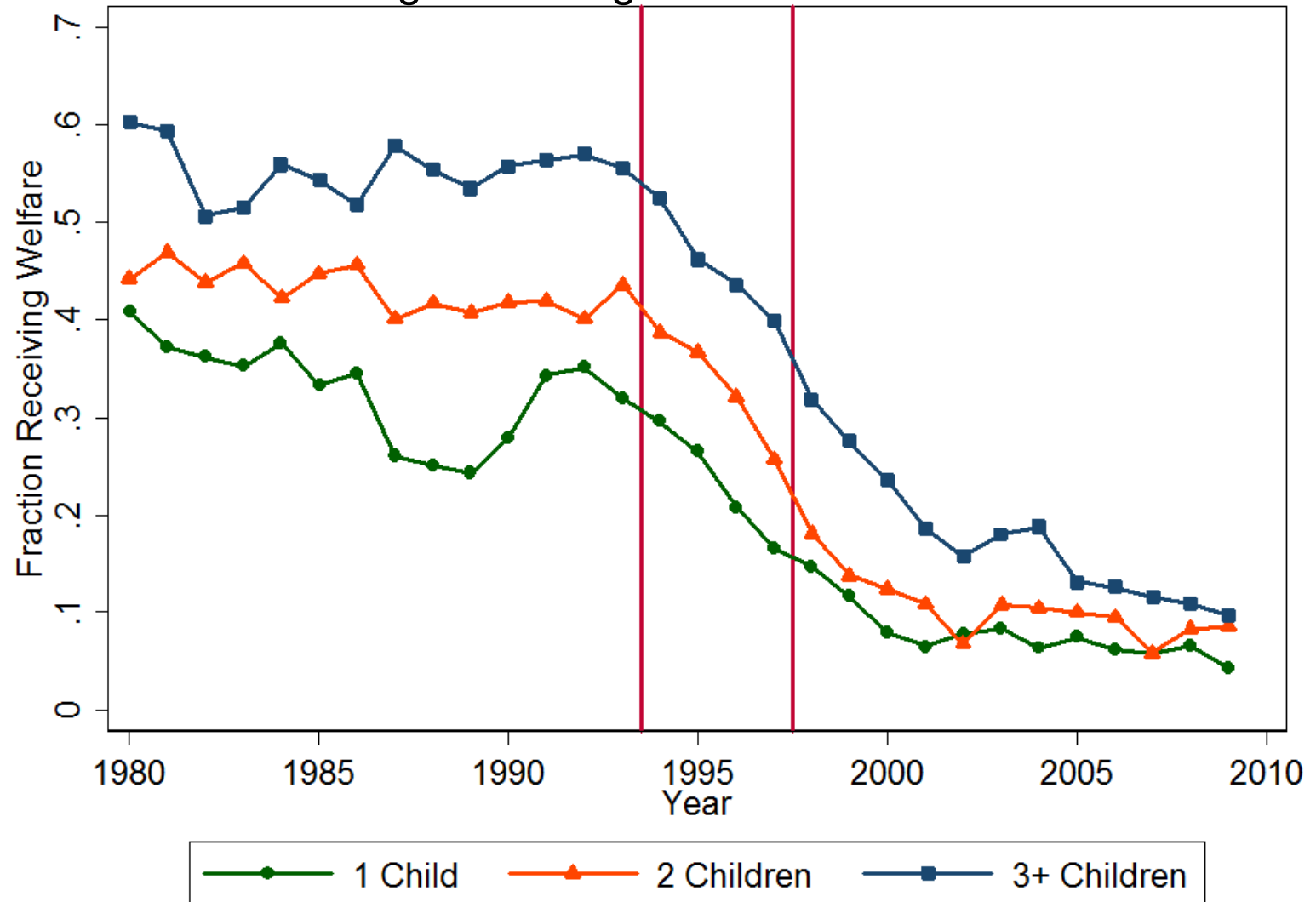
Age of Youngest Child = 13-18



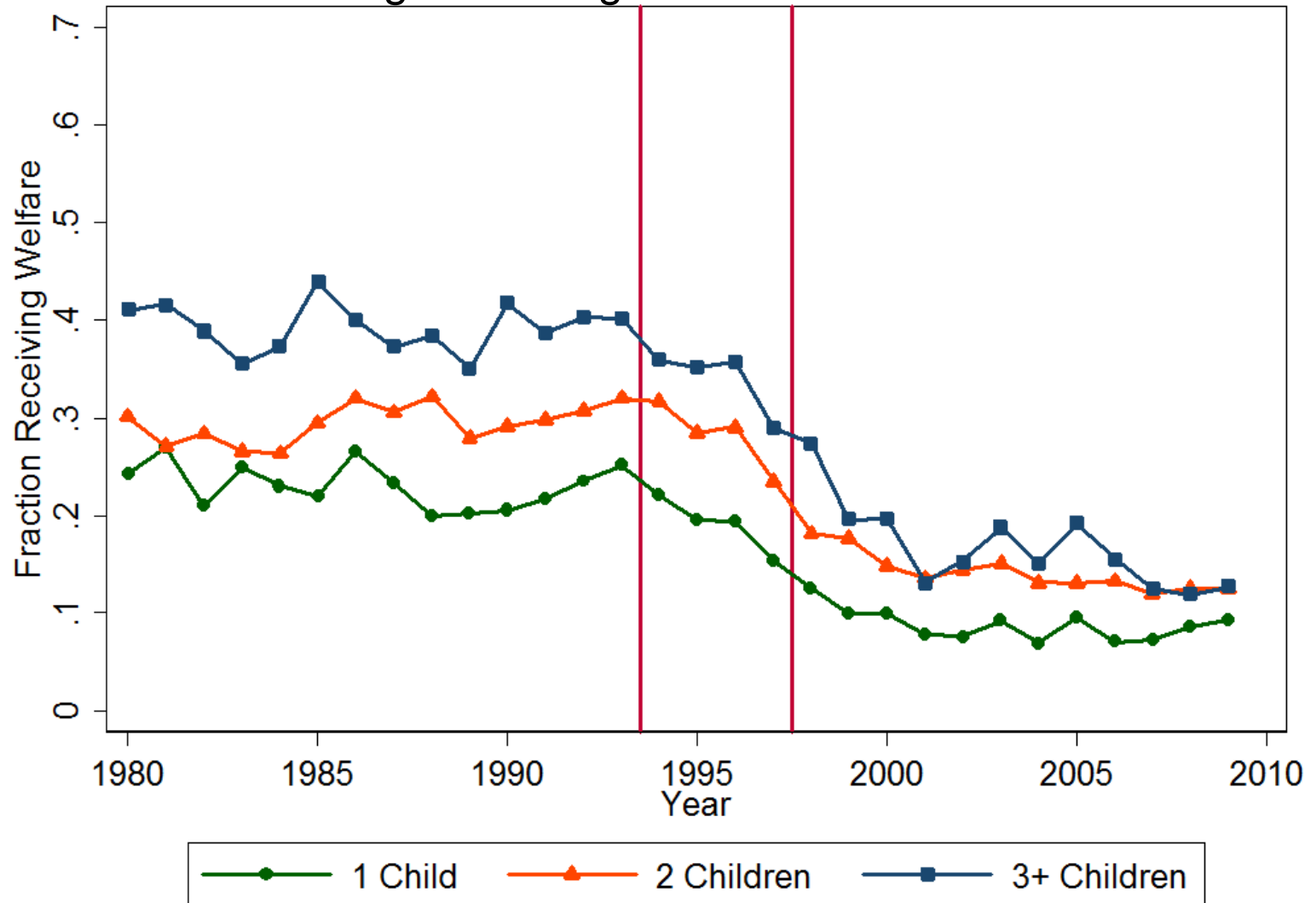
## Single Mothers' Employment, Welfare Use & Age Structure of Children

- Why were single mothers with young children differentially affected?
  - Need to care for young children raises opportunity cost of work
  - Mothers with young children had high rates of welfare use

# Single Mothers' Welfare Use by Year and Number of Children Age of Youngest Child = 0-5



# Single Mothers' Welfare Use by Year and Number of Children Age of Youngest Child = 6-12





# Single Mothers' Welfare Use by Year and Number of Children Age of Youngest Child = 13-18

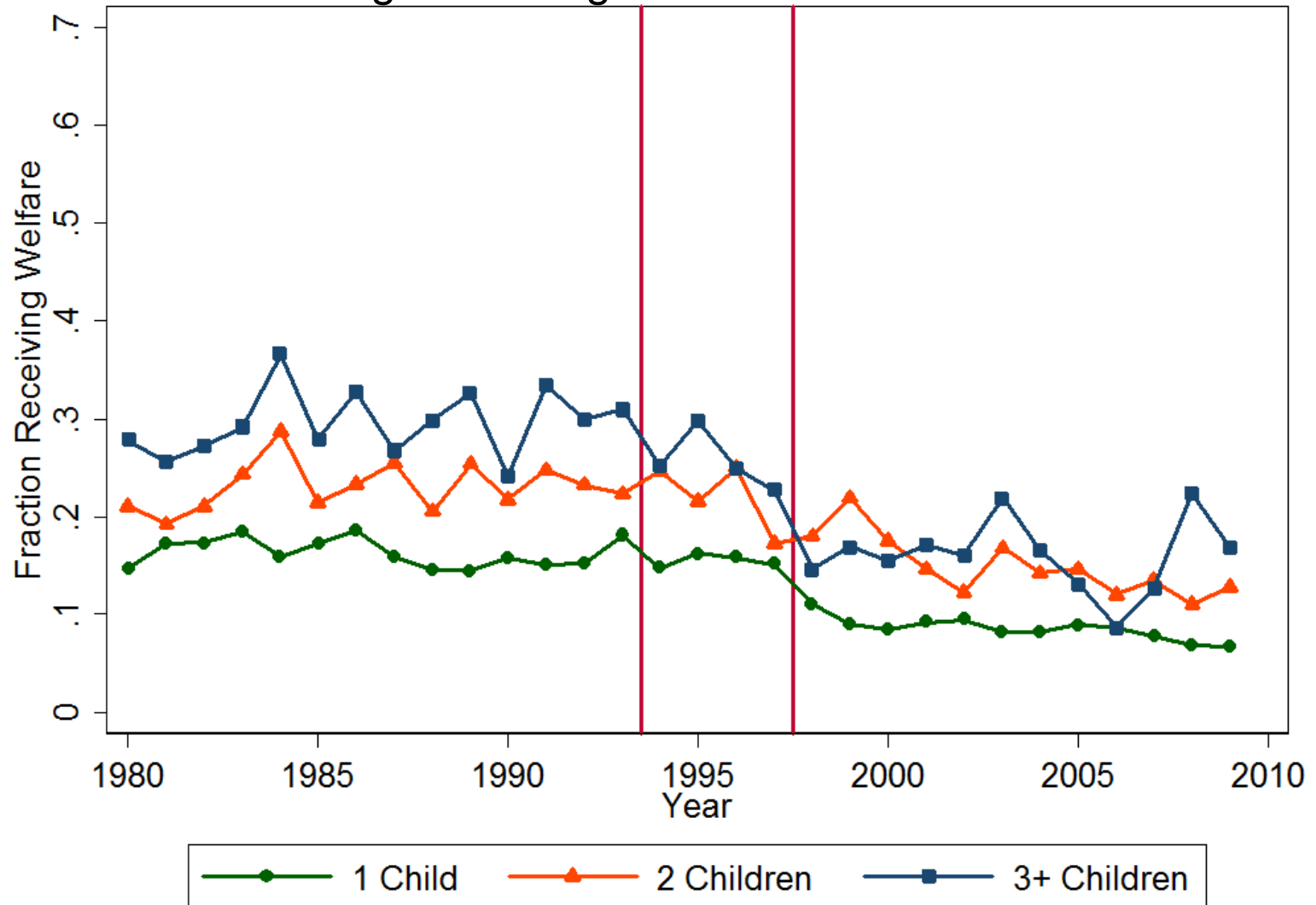


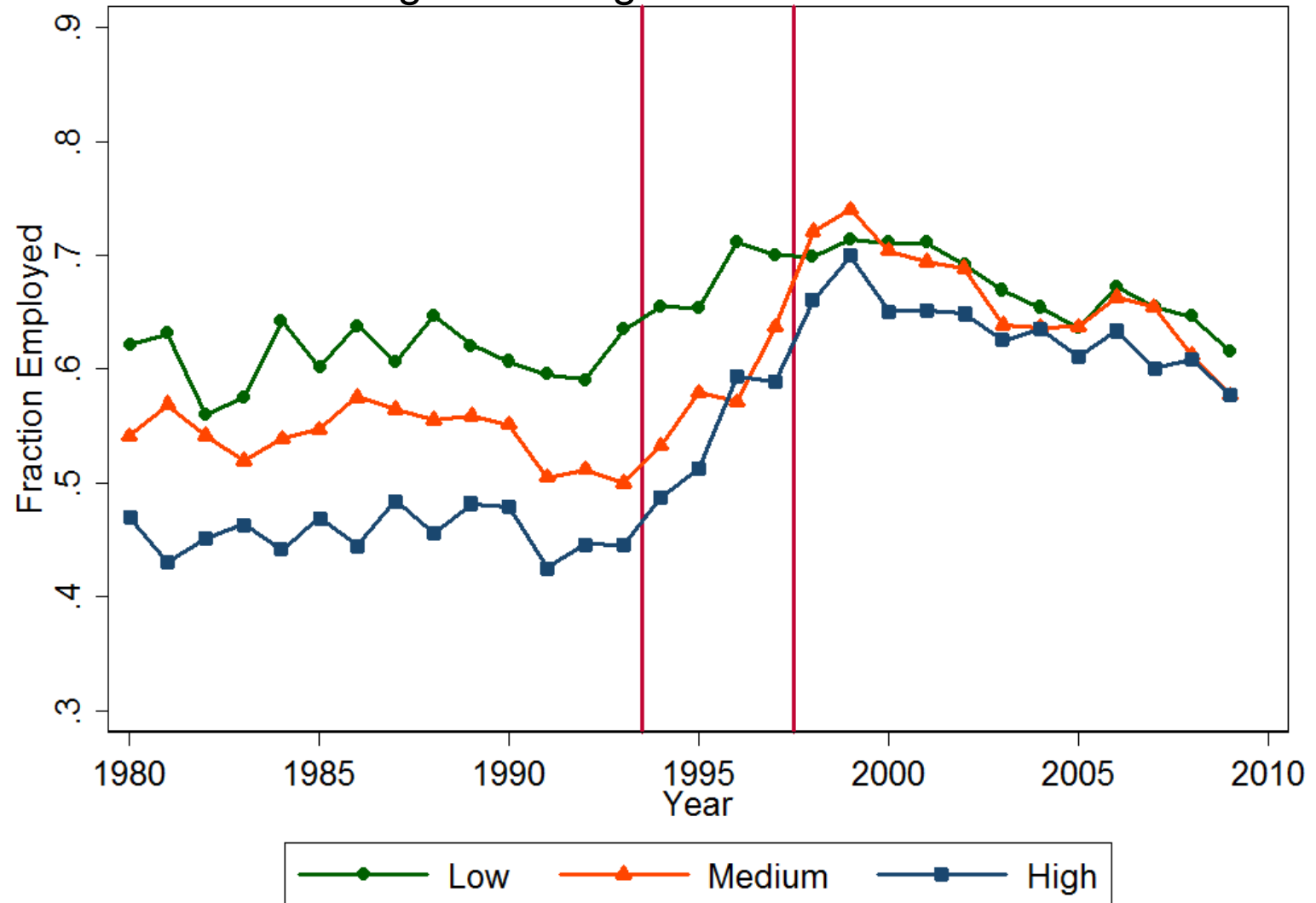
Table A2. State Welfare Use Amongst Single Mothers, 1991-1993

| Ranking | State                | Fraction Receiving Welfare | N   |
|---------|----------------------|----------------------------|-----|
| 1       | Nevada               | 0.136                      | 110 |
| 2       | Alabama              | 0.155                      | 193 |
| 3       | Idaho                | 0.173                      | 104 |
| 4       | Virginia             | 0.183                      | 115 |
| 5       | Texas                | 0.212                      | 628 |
| 14      | North Carolina       | 0.255                      | 436 |
| 15      | Kansas               | 0.257                      | 136 |
| 16      | Florida              | 0.265                      | 578 |
| 16      | Oklahoma             | 0.265                      | 136 |
| 24      | Mississippi          | 0.308                      | 237 |
| 25      | Hawaii               | 0.309                      | 94  |
| 26      | New Jersey           | 0.311                      | 440 |
| 33      | Wisconsin            | 0.338                      | 151 |
| 34      | District of Columbia | 0.345                      | 177 |
| 35      | Tennessee            | 0.355                      | 169 |
| 36      | Oregon               | 0.359                      | 103 |
| 37      | California           | 0.363                      | 998 |
| 39      | Ohio                 | 0.373                      | 528 |
| 40      | Pennsylvania         | 0.384                      | 411 |
| 41      | Illinois             | 0.392                      | 556 |
| 44      | Michigan             | 0.399                      | 541 |
| 46      | Massachusetts        | 0.425                      | 388 |
| 47      | West Virginia        | 0.447                      | 123 |
| 48      | Minnesota            | 0.450                      | 111 |
| 49      | New York             | 0.455                      | 876 |
| 50      | Vermont              | 0.466                      | 73  |
| 51      | Rhode Island         | 0.483                      | 87  |

Notes: N refers to the total number of observations (i.e. including welfare recipients and non-recipients) within each state.

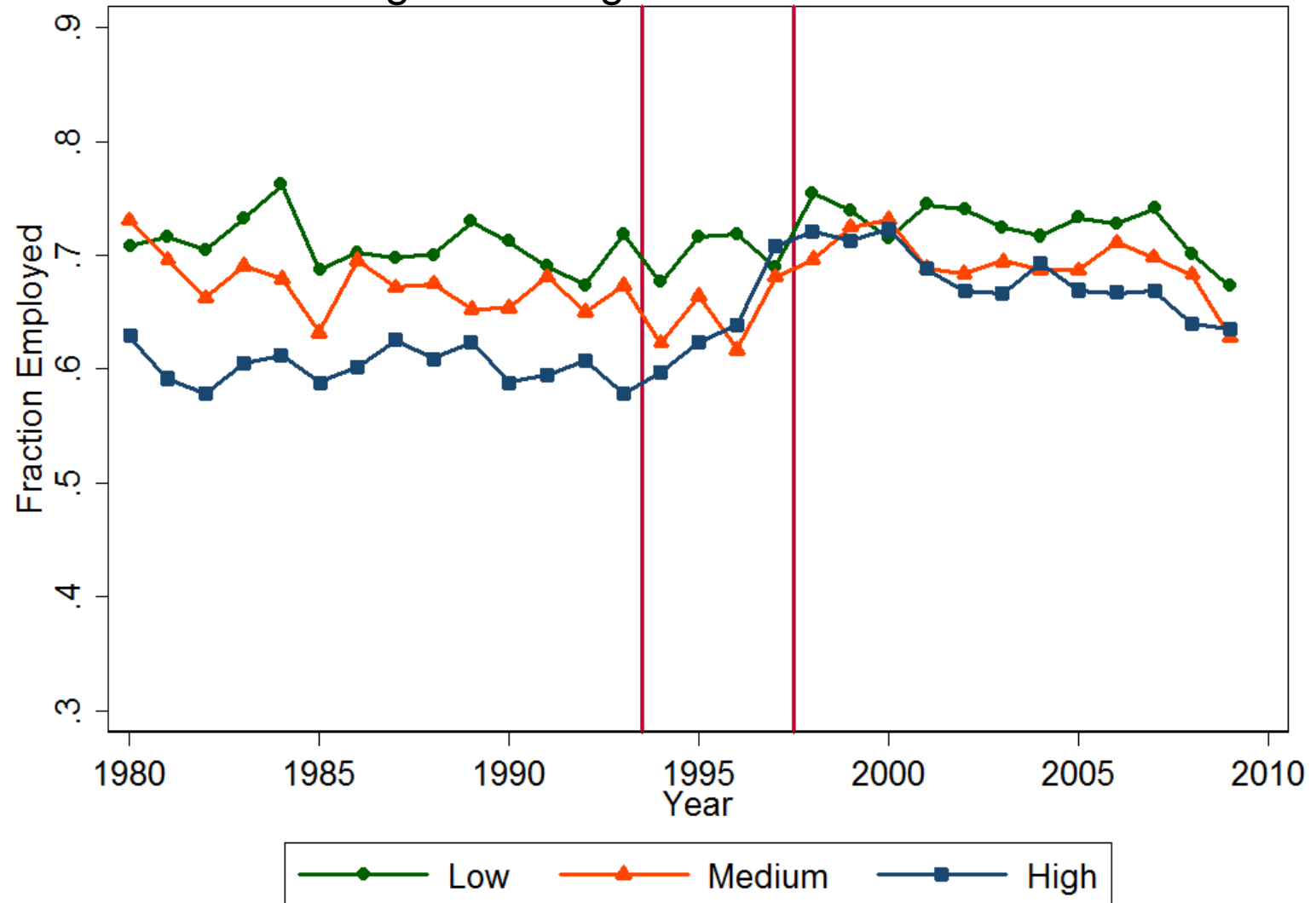
# Single Mothers' Employment Rates by Year and State Welfare Use (1991-93)

## Age of Youngest Child = 0-5

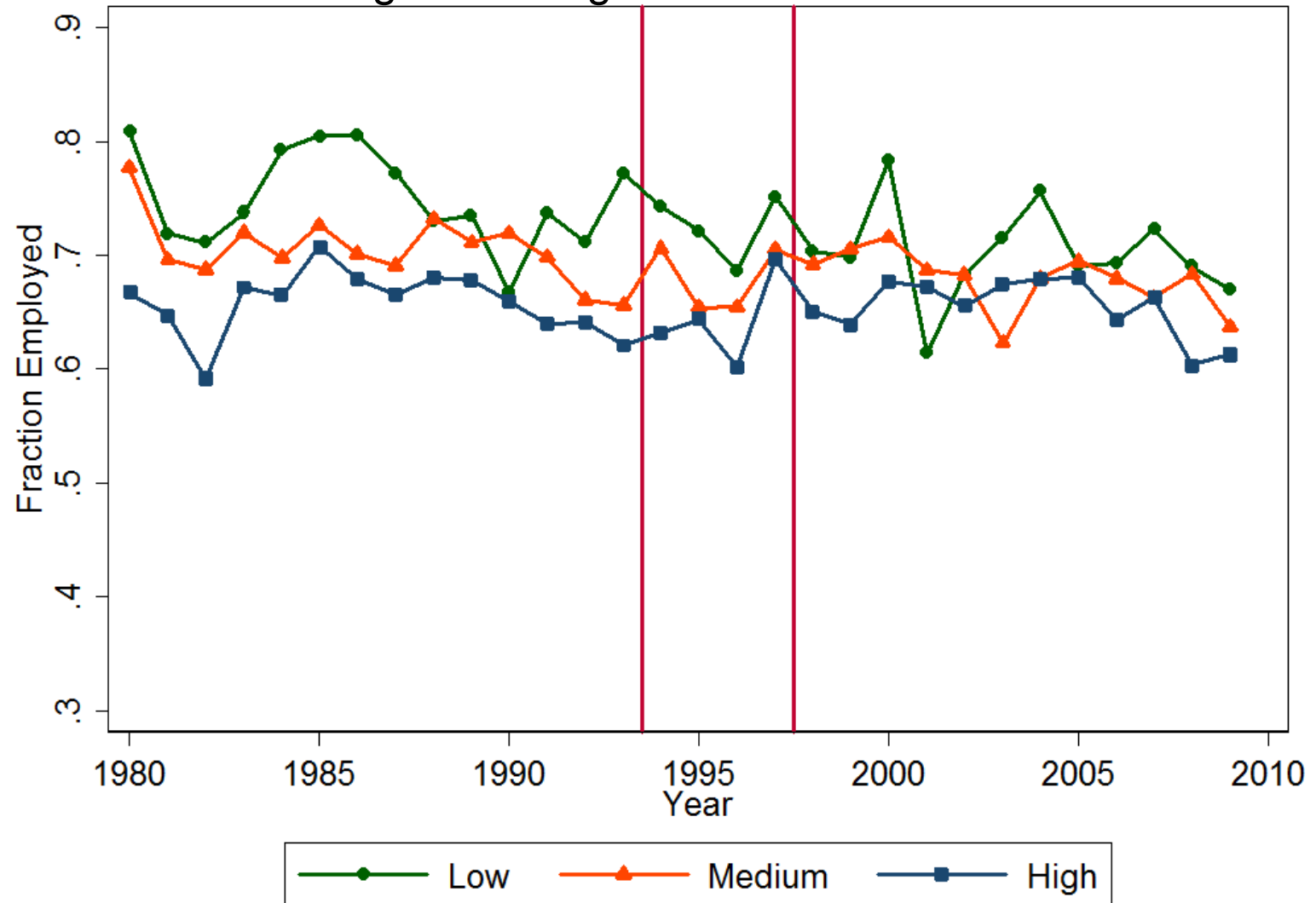


# Single Mothers' Employment Rates by Year and State Welfare Use (1991-93)

## Age of Youngest Child = 6-12



# Single Mothers' Employment Rates by Year and State Welfare Use (1991-93) Age of Youngest Child = 13-18



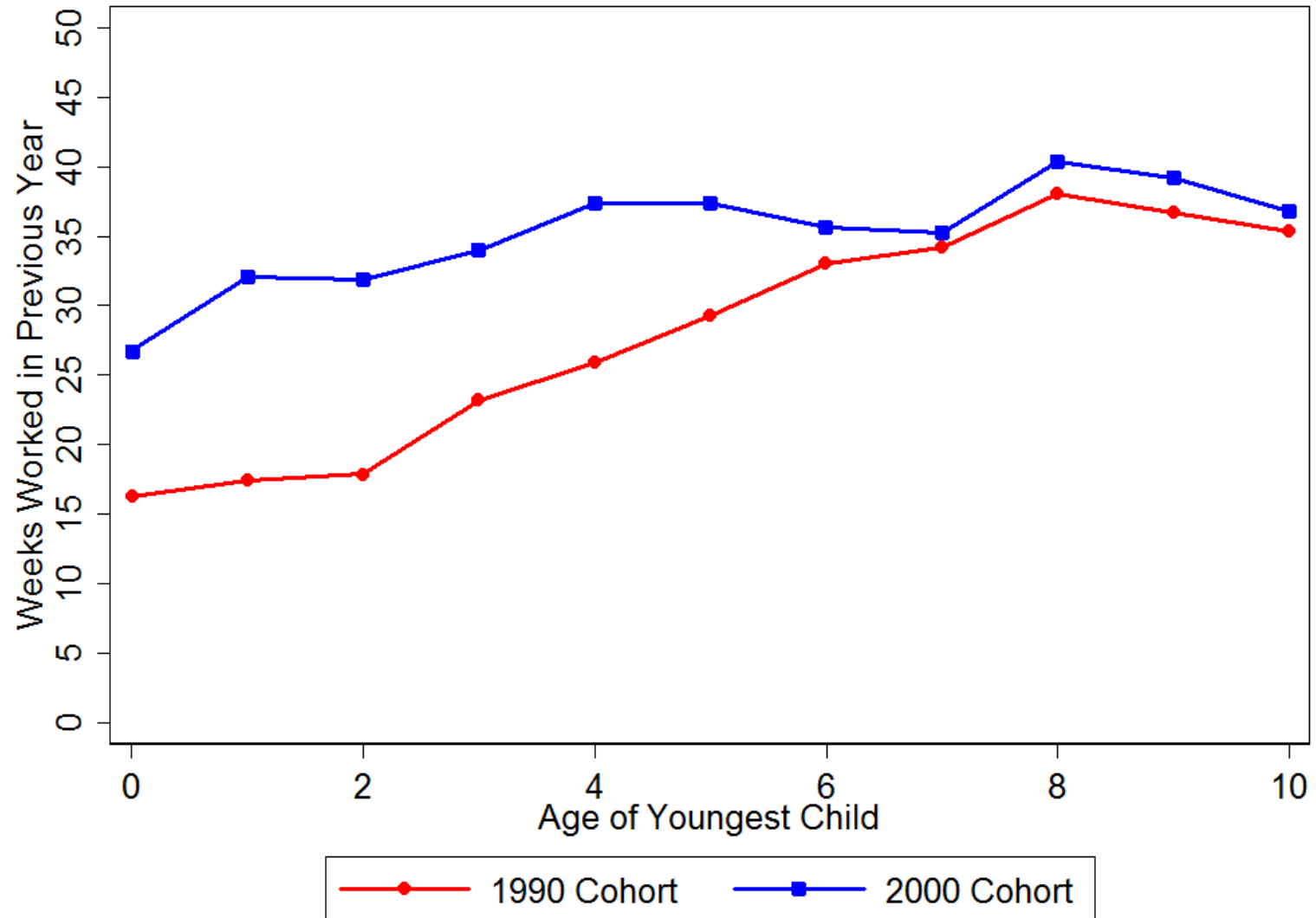
## Estimation Strategy: Synthetic Cohorts

- Synthetic cohorts of single mothers based on birth year of mother's youngest child
- Cells based on cohort ( $c$ ) and age of the youngest child ( $a$ )
- Within each cell, compute average weeks worked
- For each cohort:  $Expr$  = cumulative experience = cumulative sum of weeks worked over the age of the youngest child

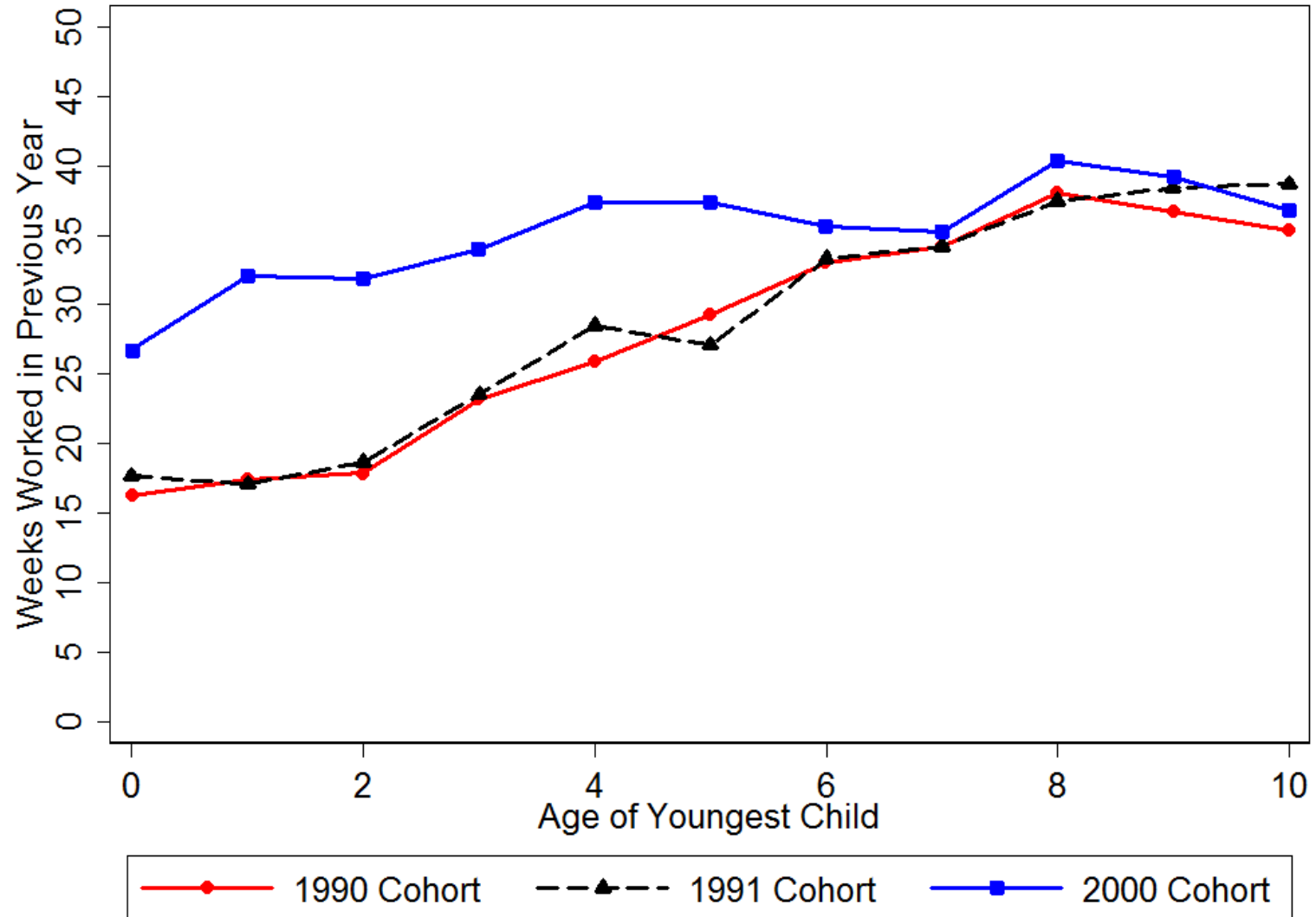
$$y_{c,a} = \beta_0 + \beta_1 Expr_{c,a} + \delta_a + \varepsilon_{c,a}$$

- $y_{c,a}$  = wage residuals using 4<sup>th</sup> order polynomial in mother's age and dummies for calendar year, marital status, race, education, age of the eldest child, number of kids and birth cohort of the youngest child

# Weeks Worked by Youngest Child's Birth Cohort

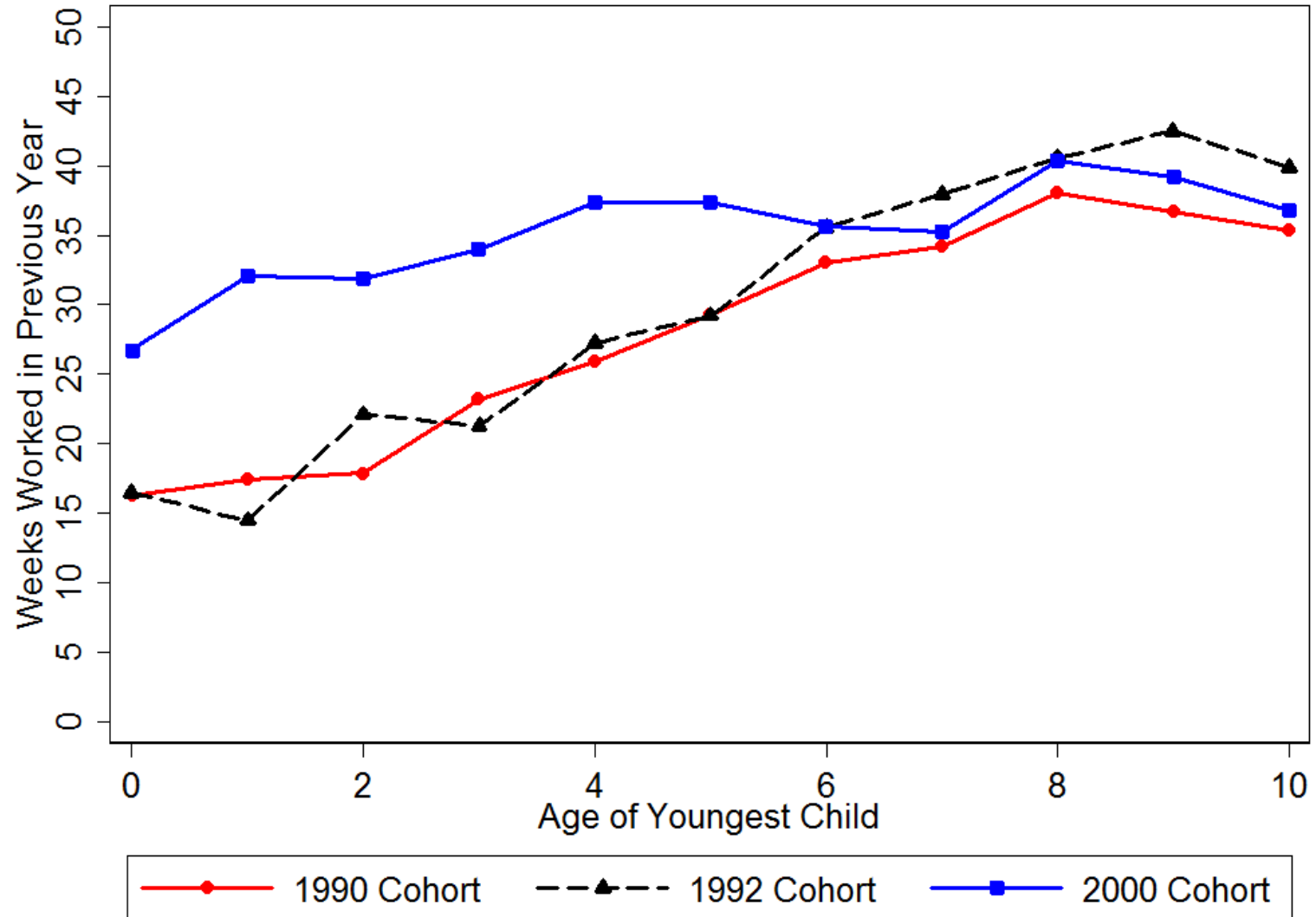


# Weeks Worked by Youngest Child's Birth Cohort

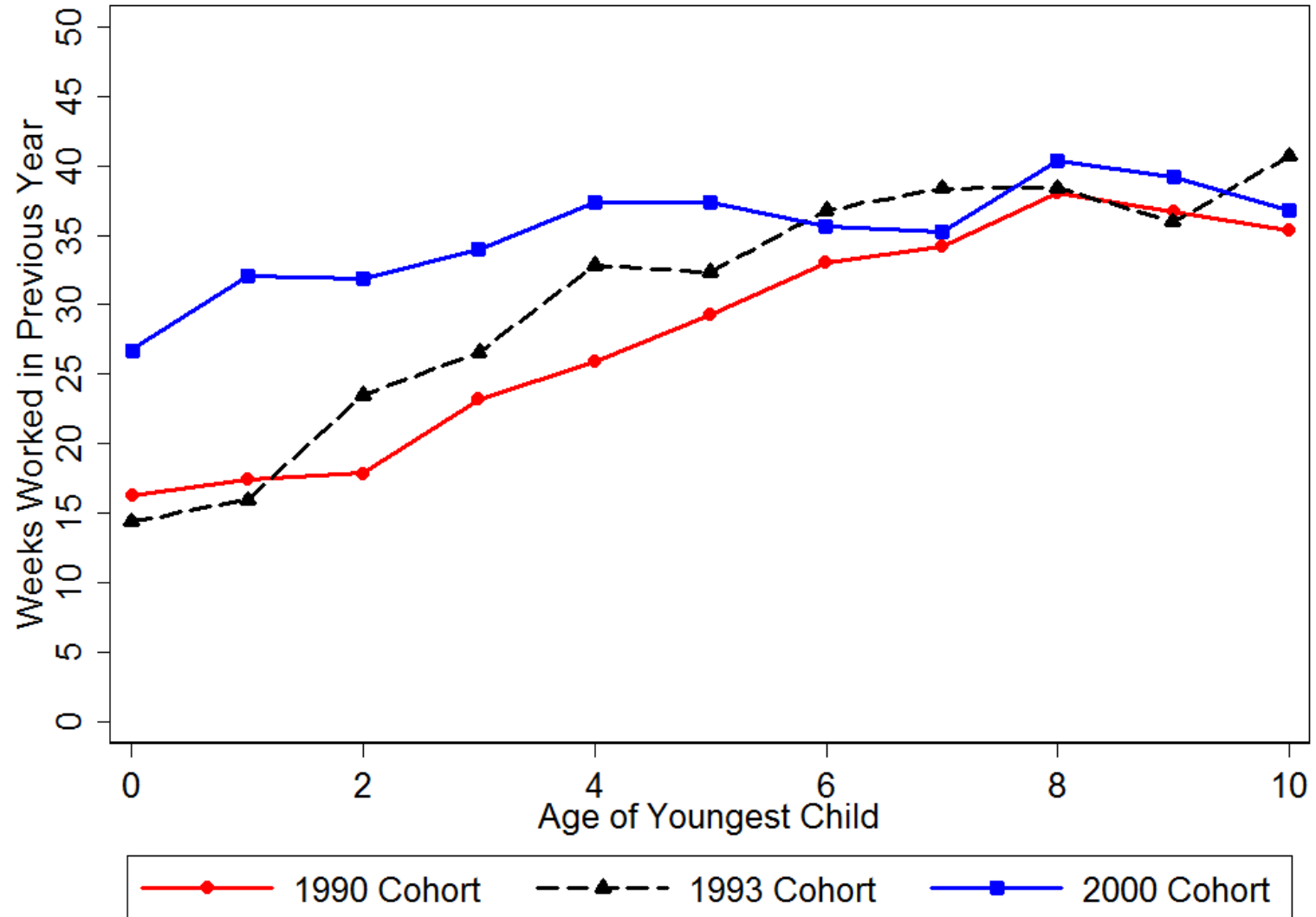




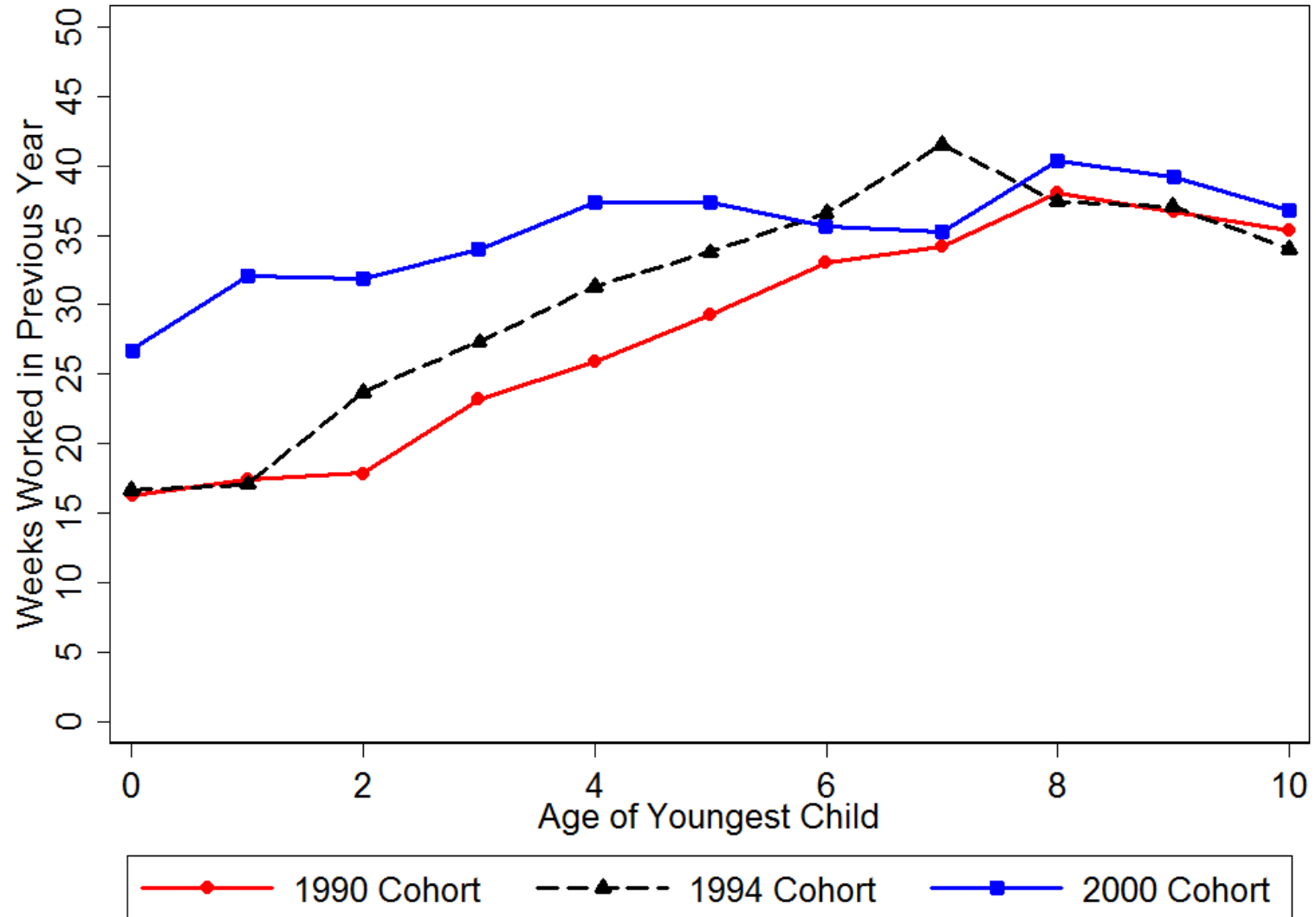
# Weeks Worked by Youngest Child's Birth Cohort



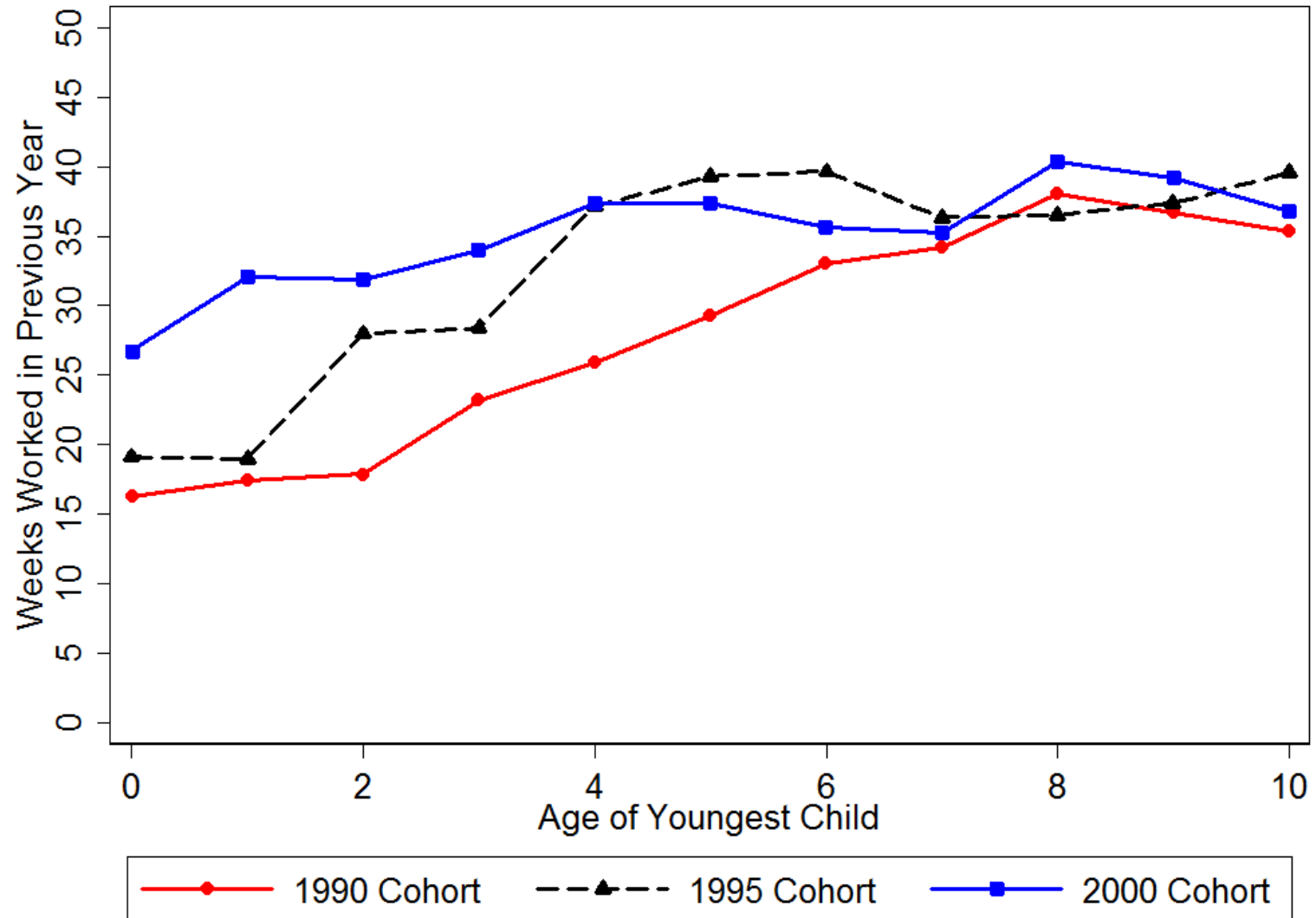
# Weeks Worked by Youngest Child's Birth Cohort



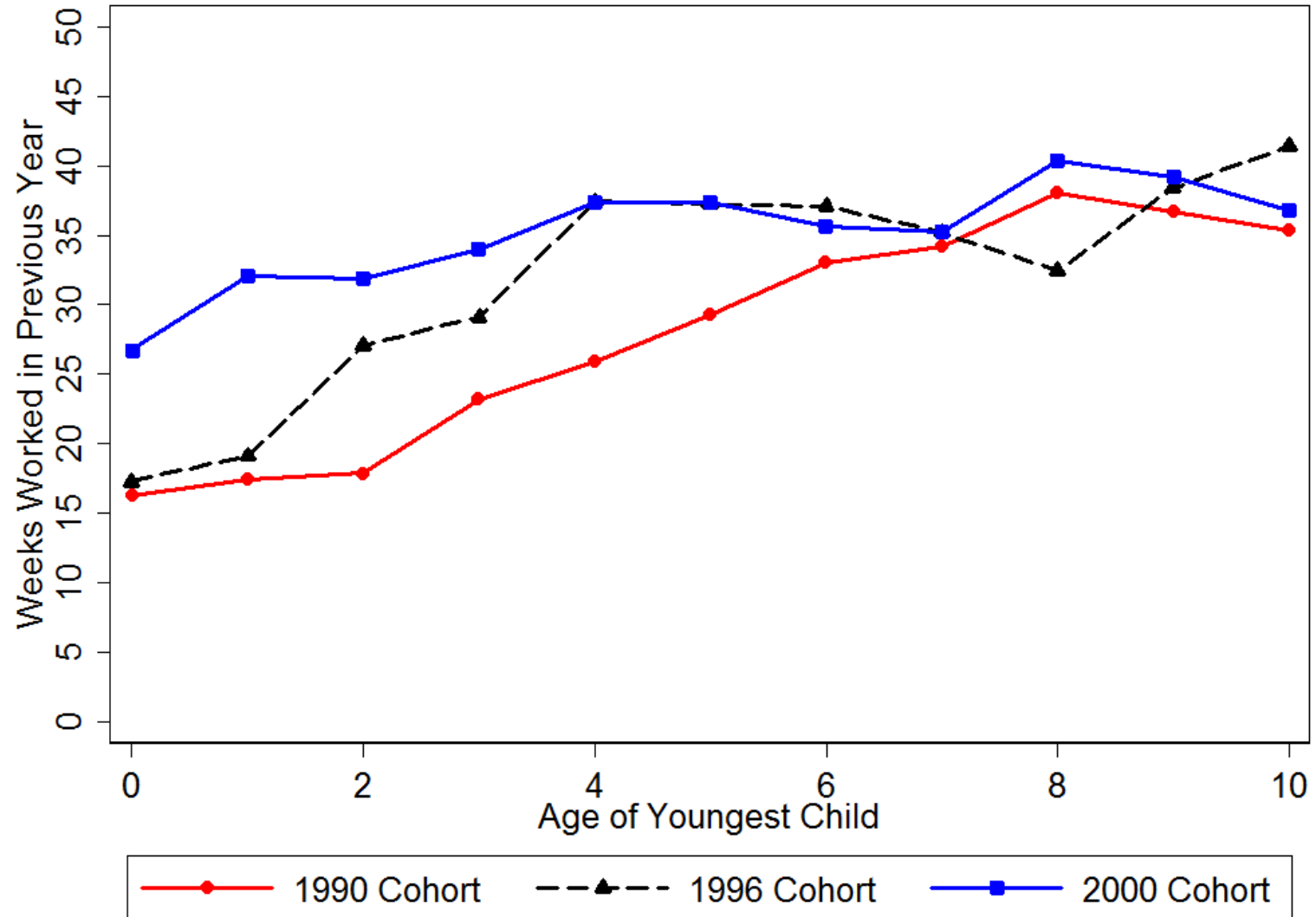
# Weeks Worked by Youngest Child's Birth Cohort



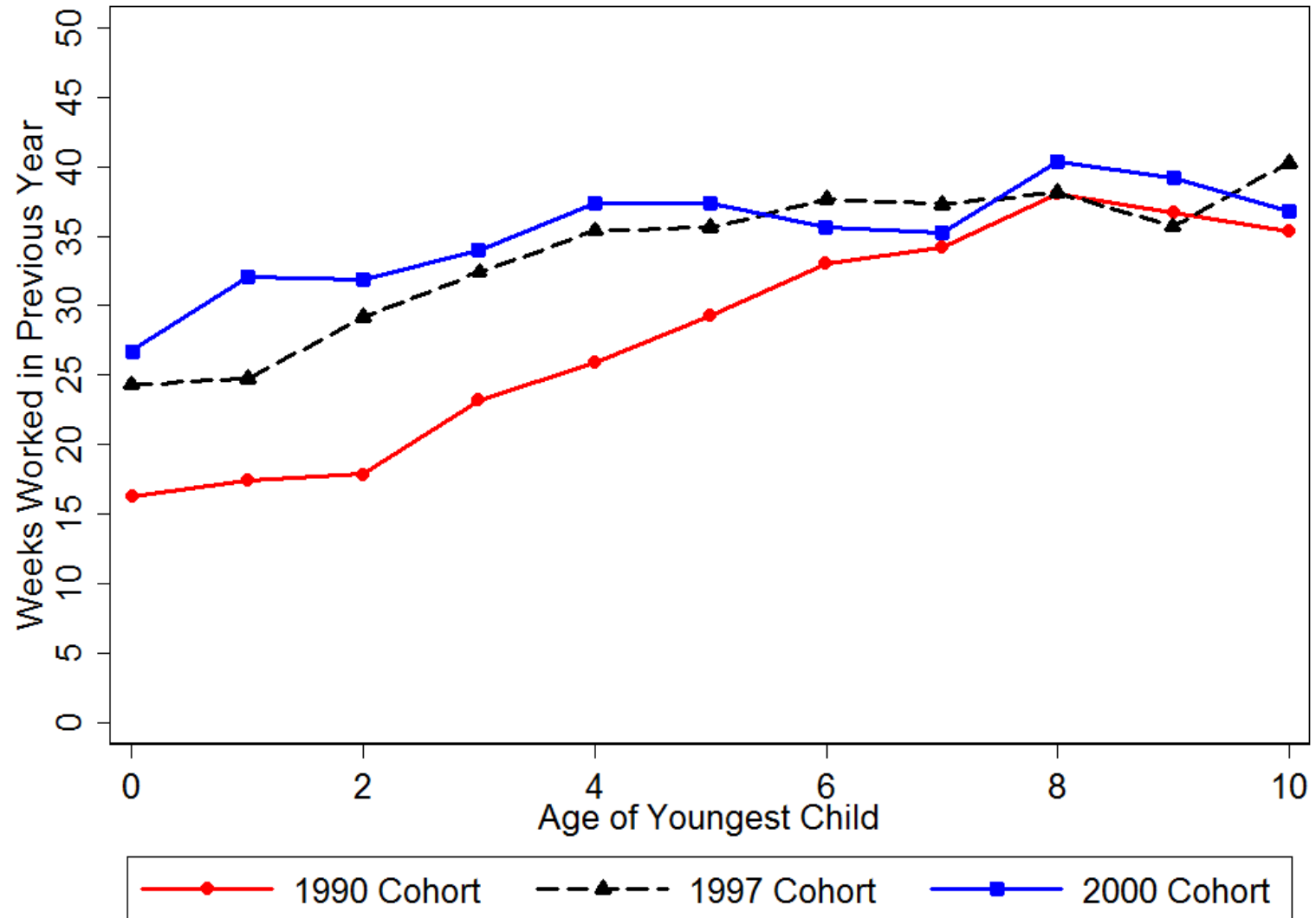
# Weeks Worked by Youngest Child's Birth Cohort



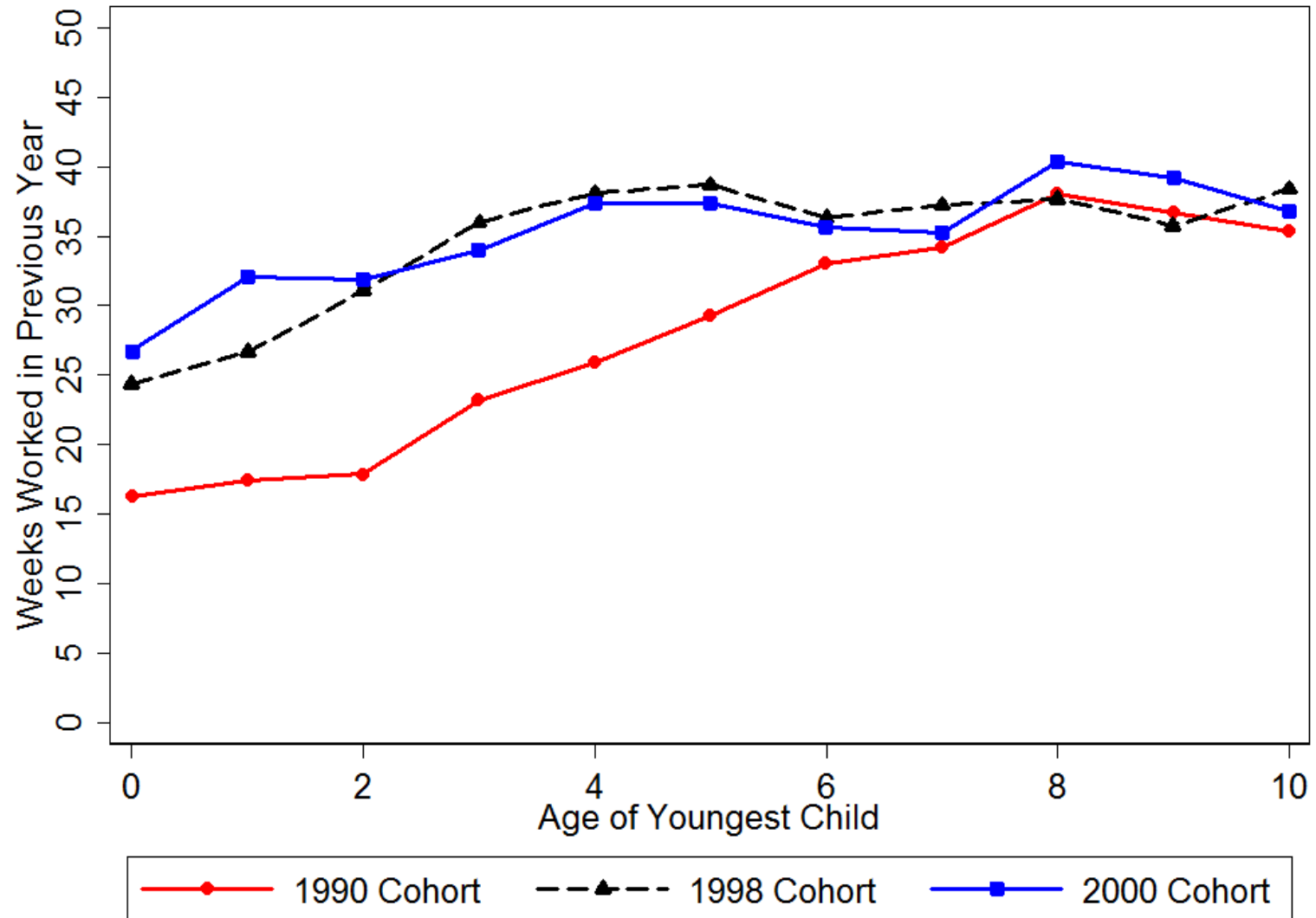
# Weeks Worked by Youngest Child's Birth Cohort



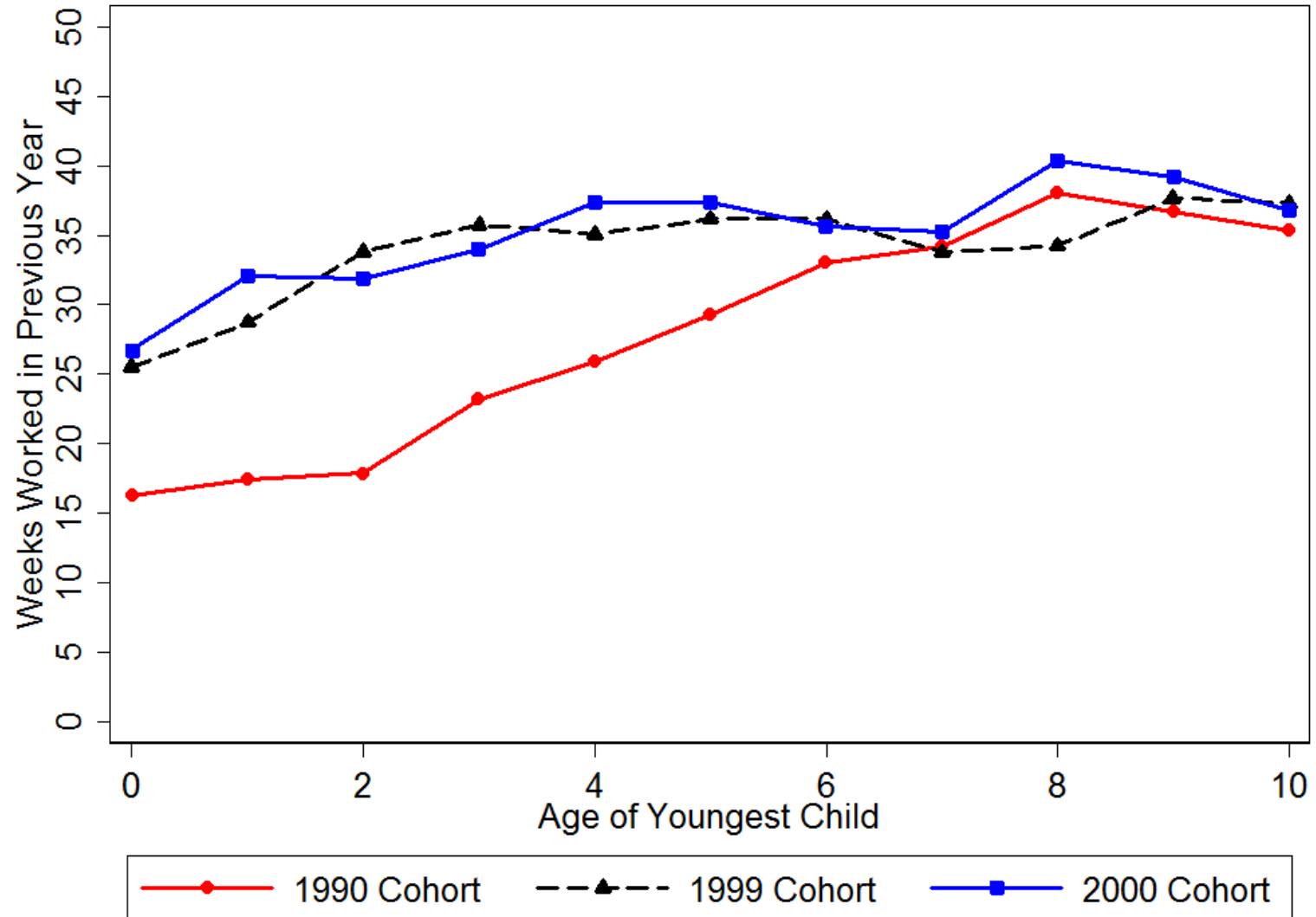
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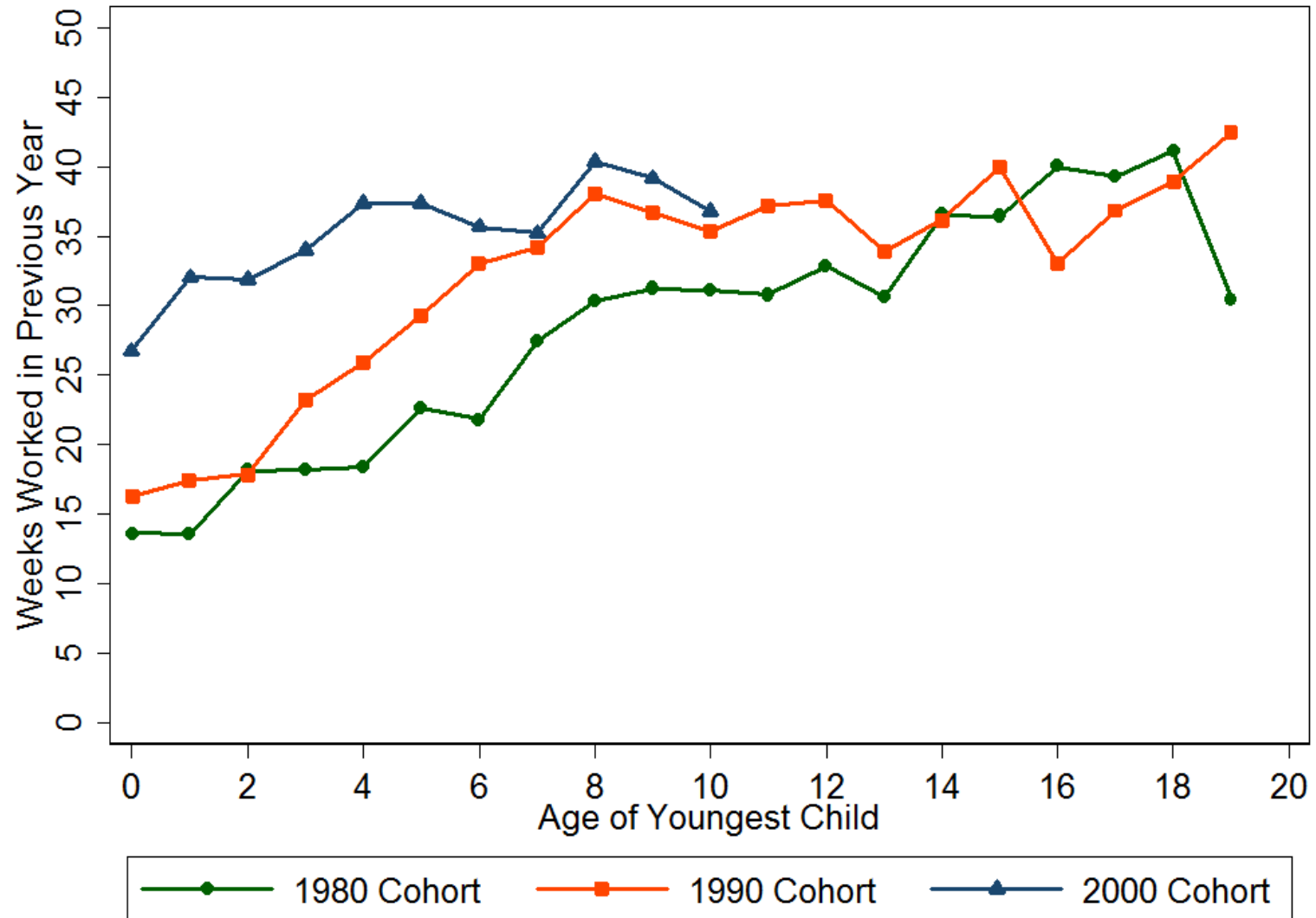


# Weeks Worked by Youngest Child's Birth Cohort

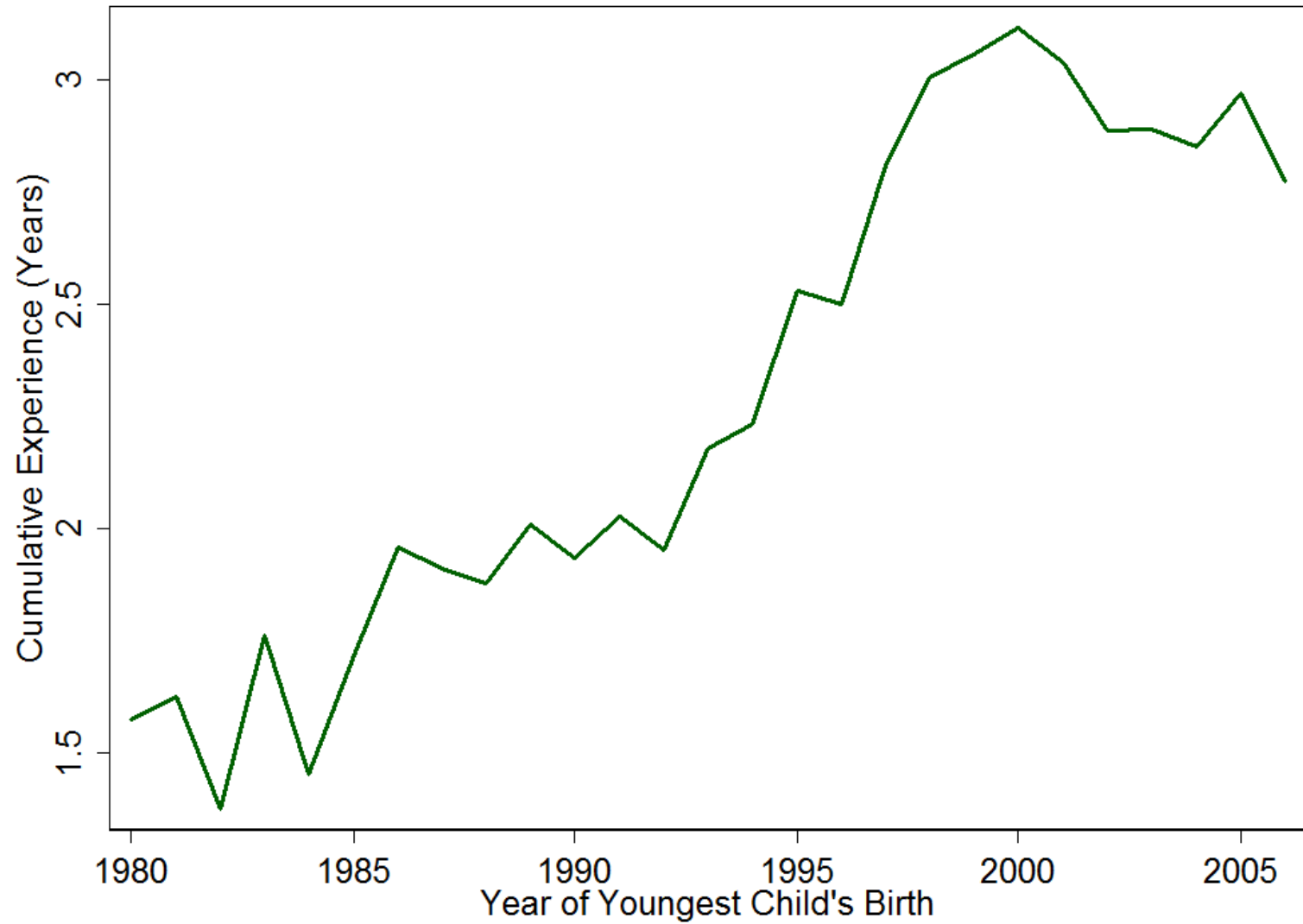




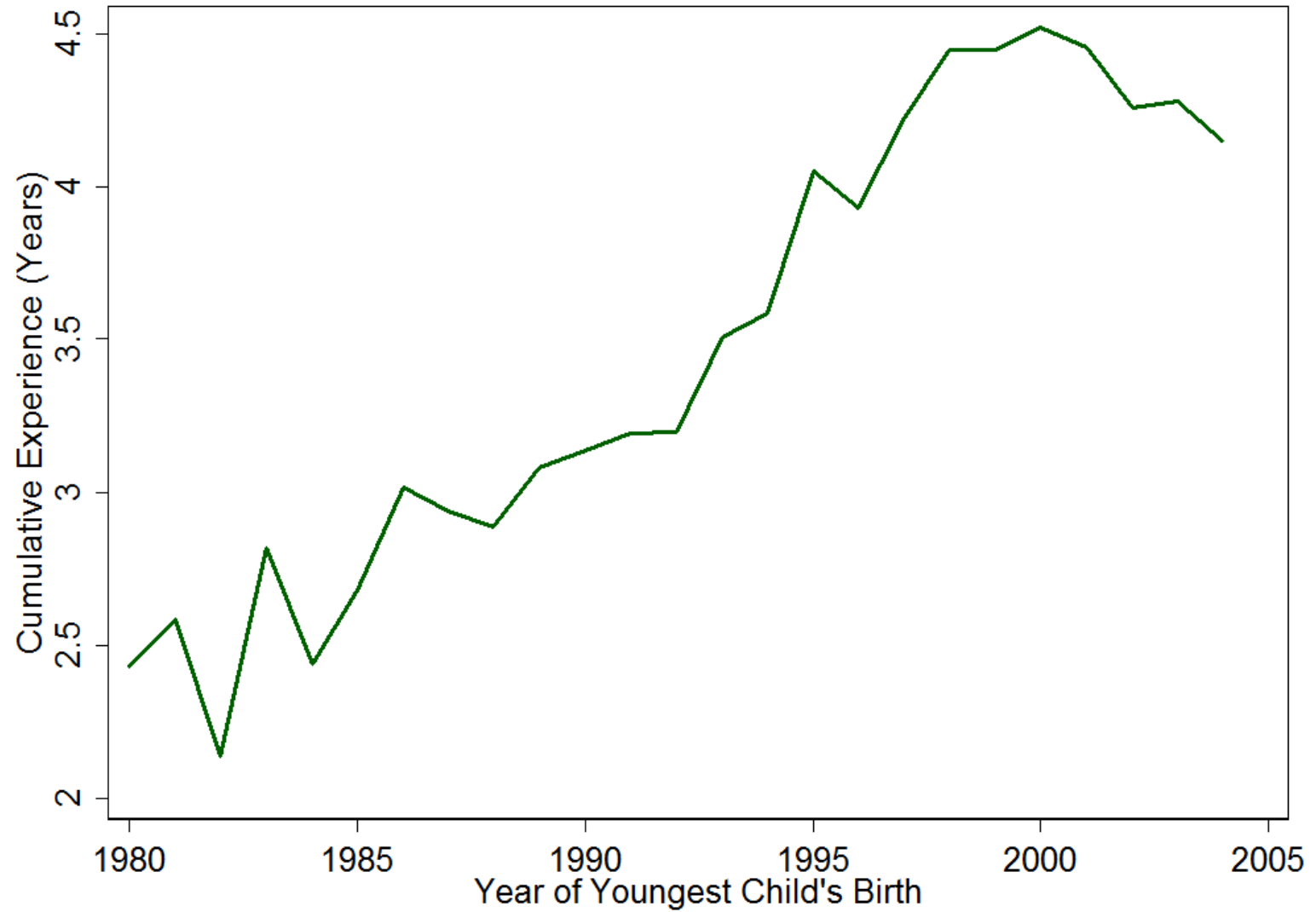
# Weeks Worked by Youngest Child's Birth Cohort, Full Age Profile



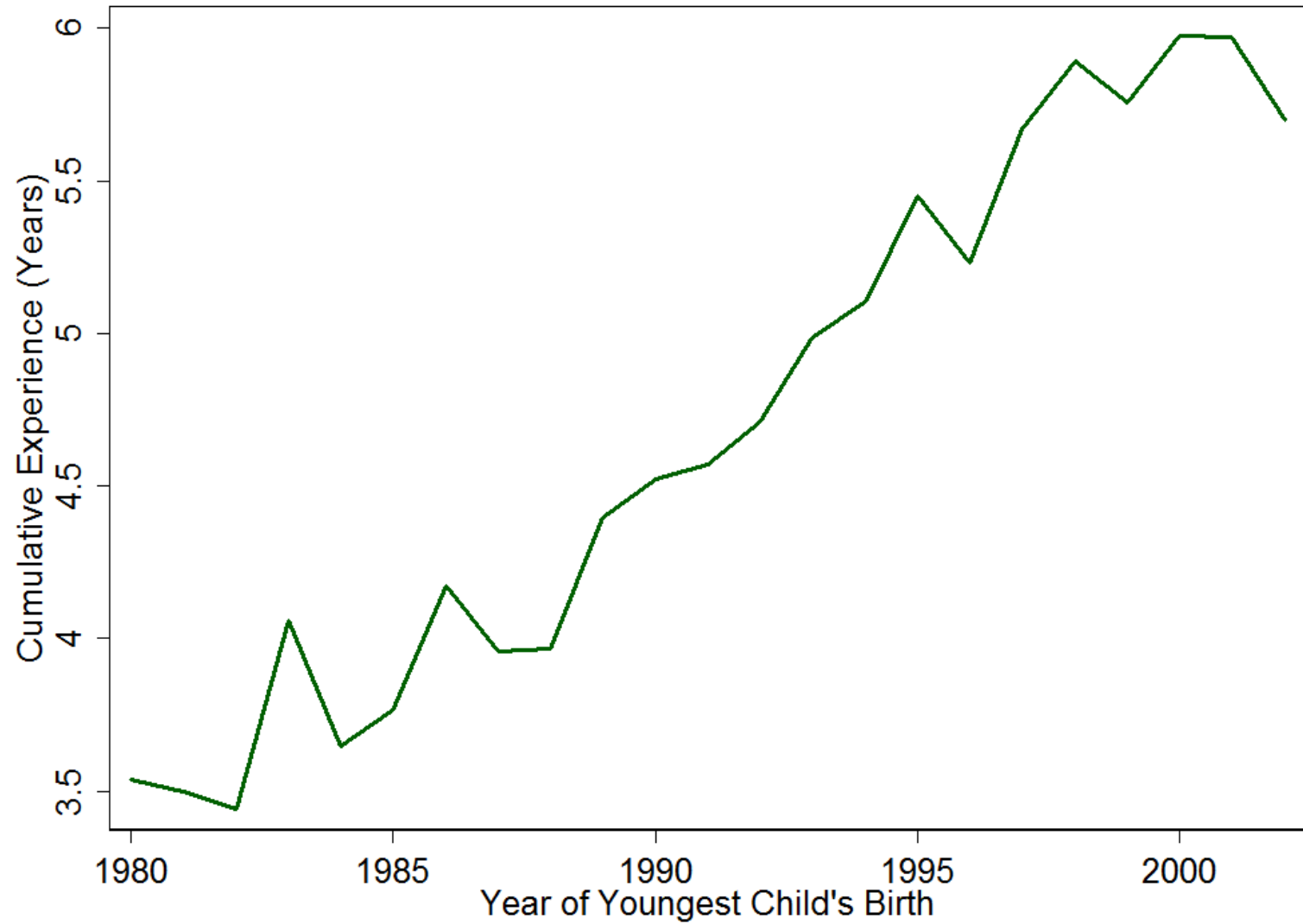
# Cumulative Experience by Birth Cohort, Youngest Child's Age = 4



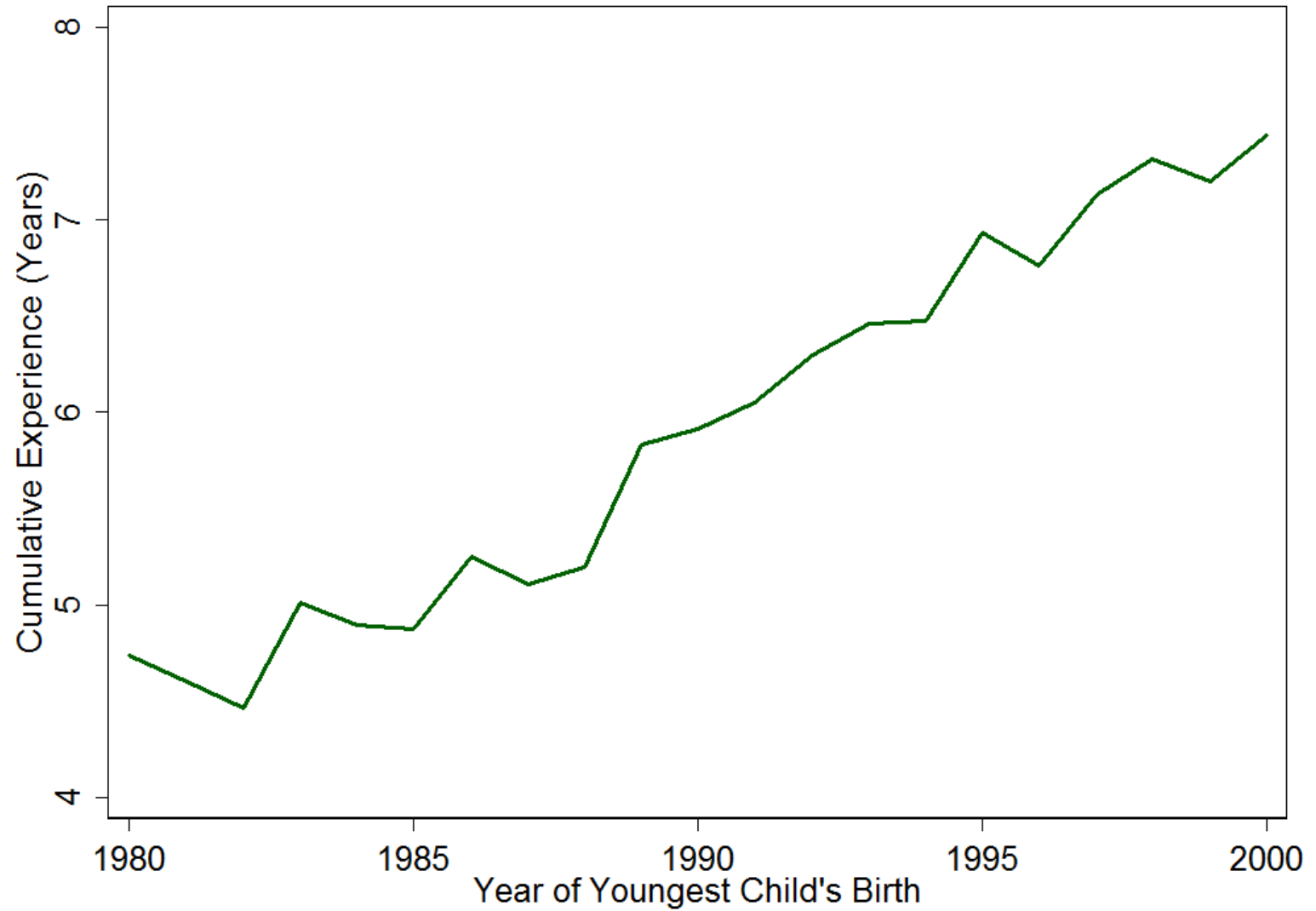
# Cumulative Experience by Birth Cohort, Youngest Child's Age = 6



# Cumulative Experience by Birth Cohort, Youngest Child's Age = 8

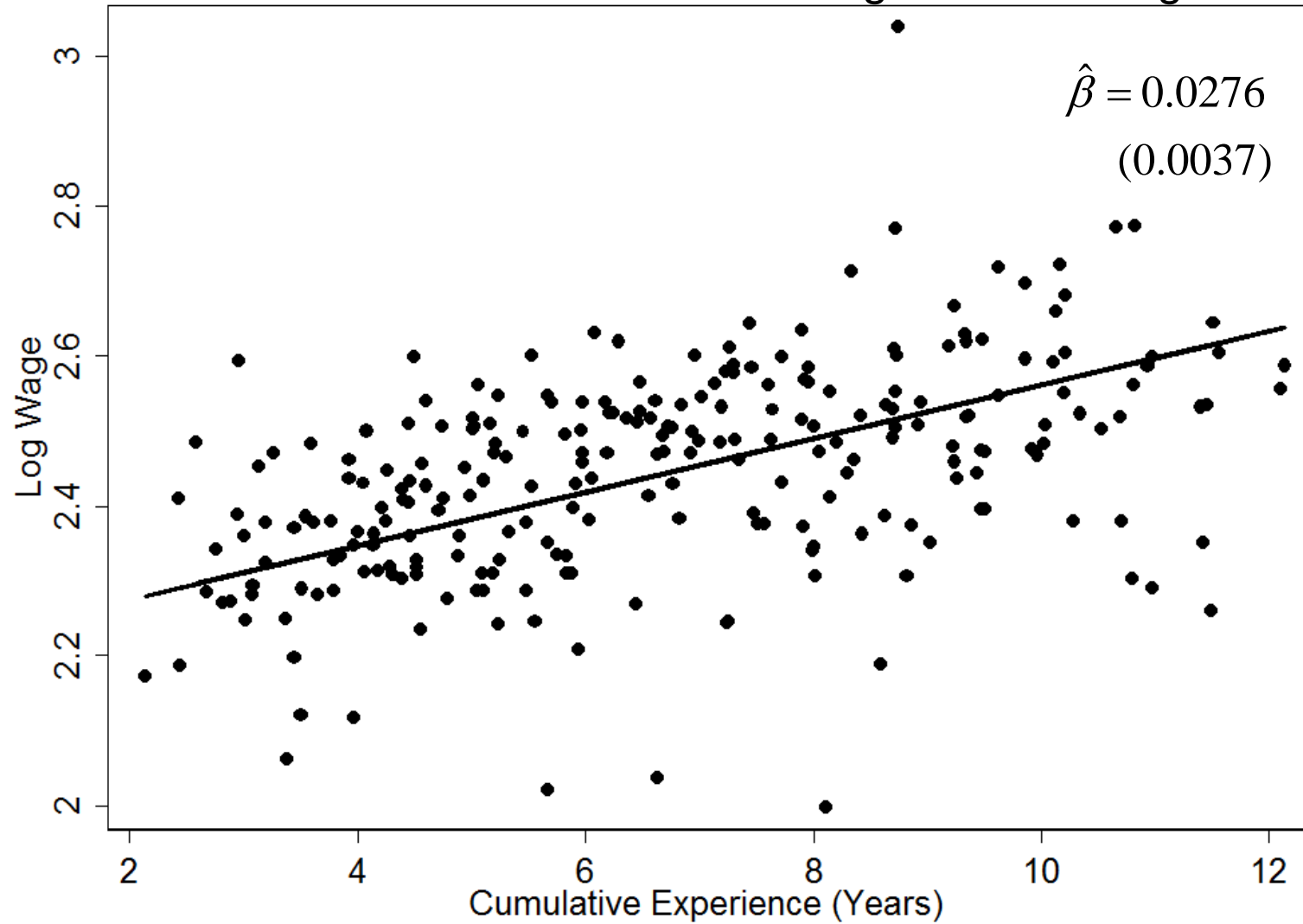


# Cumulative Experience by Birth Cohort, Youngest Child's Age = 10



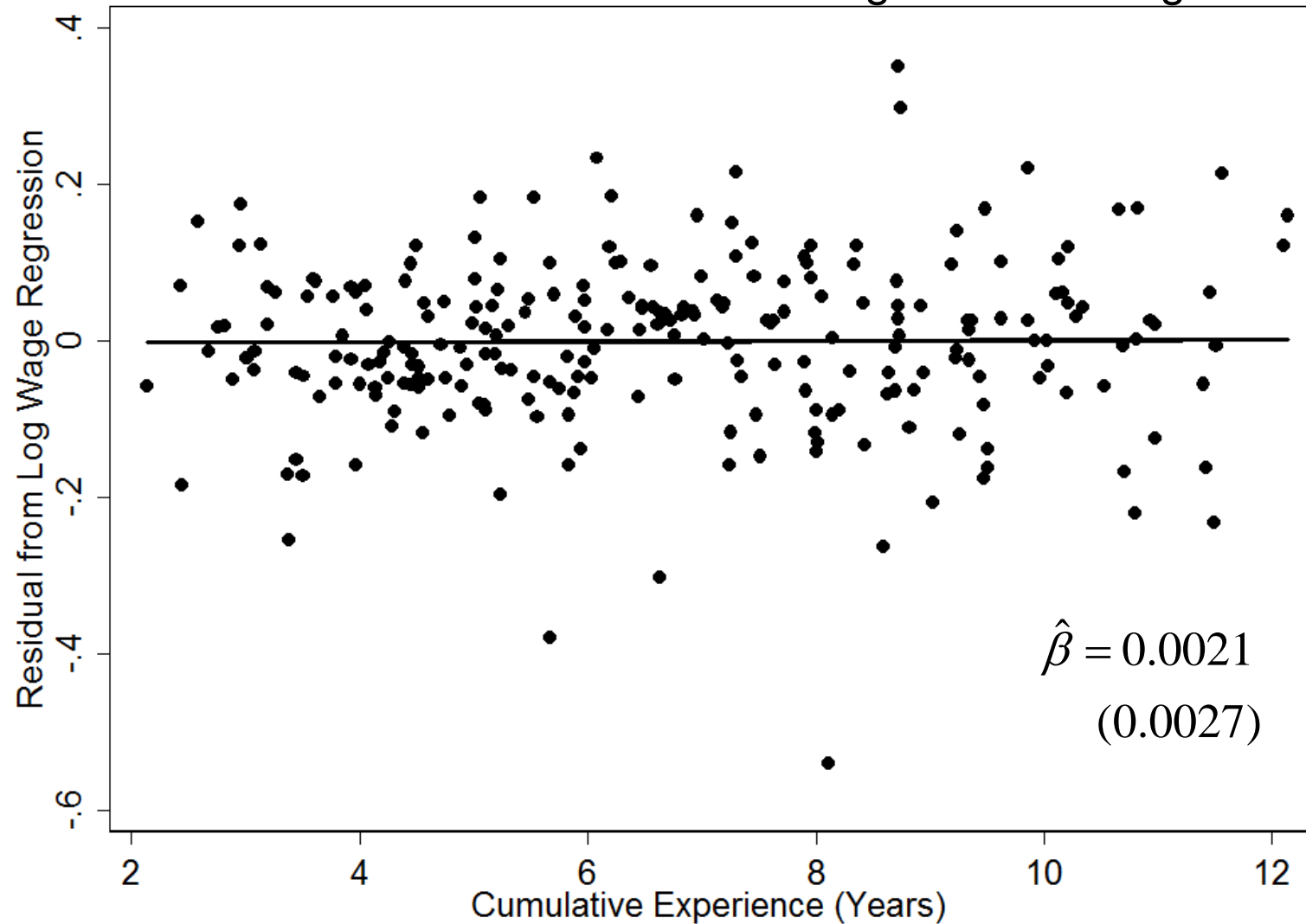
# Wages vs. Experience, No Controls

Observations = Cells based on Cohort and Age of the Youngest Child



# Wage Residuals vs. Experience

Observations = Cells based on Cohort and Age of the Youngest Child



Note: wage residuals computed using 4<sup>th</sup> order polynomial in mother's age and dummies for calendar year, marital status, race, education, age of the eldest child, number of kids and birth cohort of the youngest child

## Discussion

- Evidence based on occupation and industry characteristics:
  - Post-reform single mothers with young children moved into similar jobs as pre-reform employed single mothers
  - Post-reform single mothers with older children and more work experience are in the same types of jobs as single mothers pre-reform single mother with older children
- Overall, no strong evidence of large positive returns to experience





## Single Mothers' Employment, Welfare Use & Age Structure of Children

- Heterogeneity in employment changes based on age of the mother's youngest child is robust to including interactions with number of children

$$E_i = \sum_{a=\leq 5, 6-12, 13-18} \sum_{n=0, 1, 2, \geq 3} \sum_{t=1980}^{2010} \gamma_{n,t} 1(\text{year}_i = t) * 1(\text{Nkids}_i = n) * 1(\text{yngch}_i = a) + \delta X_i + \varepsilon_i.$$

- On average, age of the youngest child decreases as number of children increases
- Intuitively, single mothers with more children tend to continue having children rather than starting to have children early

# Distribution of Youngest Child's Age by Number of Children

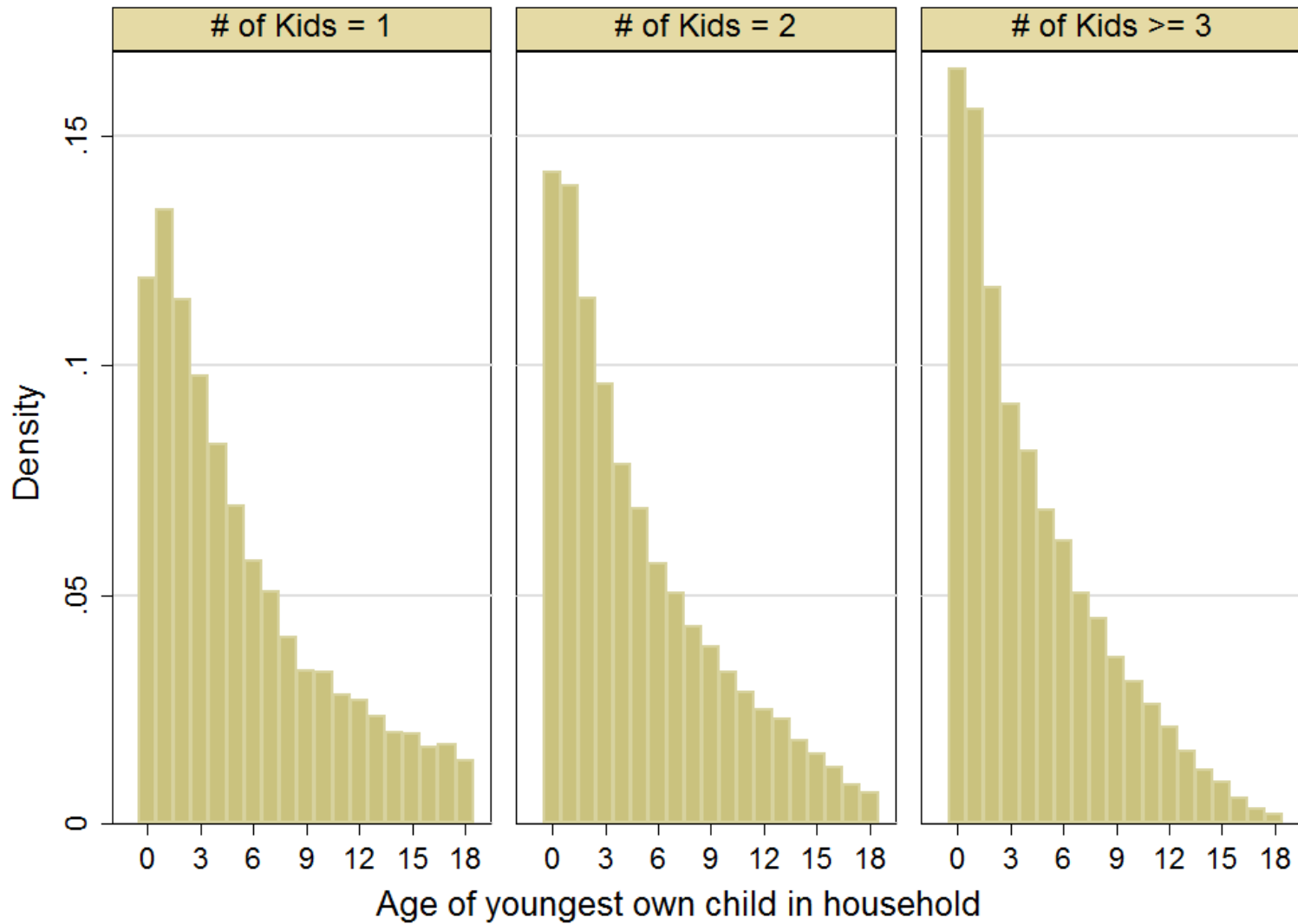


Table 2: Wages vs. Experience

Panel A: Full Sample

|                | yingch $\leq$ 18     | 6 $\leq$ yngch $\leq$ 18 | 6 $\leq$ yngch $\leq$ 12 | 13 $\leq$ yngch $\leq$ 18 |
|----------------|----------------------|--------------------------|--------------------------|---------------------------|
| Expr           | 0.00378<br>(0.00340) | 0.00575<br>(0.00643)     | 0.00892<br>(0.00722)     | -0.00296<br>(0.0130)      |
| Observations   | 418                  | 247                      | 154                      | 93                        |
| R <sup>2</sup> | 0.052                | 0.075                    | 0.026                    | 0.108                     |

Panel B: Education  $\leq$  12 years

|                | yingch $\leq$ 18     | 6 $\leq$ yngch $\leq$ 18 | 6 $\leq$ yngch $\leq$ 12 | 13 $\leq$ yngch $\leq$ 18 |
|----------------|----------------------|--------------------------|--------------------------|---------------------------|
| Expr           | 0.00424<br>(0.00434) | 0.00517<br>(0.00857)     | 0.00744<br>(0.0123)      | -0.00129<br>(0.0152)      |
| Observations   | 418                  | 247                      | 154                      | 93                        |
| R <sup>2</sup> | 0.041                | 0.053                    | 0.009                    | 0.089                     |

Panel C: States with High Pre-Reform Welfare Use

|                | yingch $\leq$ 18     | 6 $\leq$ yngch $\leq$ 18 | 6 $\leq$ yngch $\leq$ 12 | 13 $\leq$ yngch $\leq$ 18 |
|----------------|----------------------|--------------------------|--------------------------|---------------------------|
| Expr           | 0.00436<br>(0.00531) | 0.000282<br>(0.00934)    | 0.00178<br>(0.0102)      | -0.00390<br>(0.0173)      |
| Observations   | 417                  | 246                      | 154                      | 92                        |
| R <sup>2</sup> | 0.037                | 0.048                    | 0.028                    | 0.077                     |

Notes: All regressions are based on cells created based on the youngest child's birth cohort and the age of the youngest child. "yingch" denotes age of the youngest child. Standard errors clustered by child's birth cohort.

Table 3: Employment vs. Experience

Panel A: Full Sample

|                | yingch $\leq$ 18      | 6 $\leq$ yngch $\leq$ 18 | 6 $\leq$ yngch $\leq$ 12 | 13 $\leq$ yngch $\leq$ 18 |
|----------------|-----------------------|--------------------------|--------------------------|---------------------------|
| Expr           | 0.000777<br>(0.00450) | -0.00444<br>(0.00641)    | -0.0125<br>(0.00759)     | 0.0177<br>(0.0138)        |
| Observations   | 418                   | 247                      | 154                      | 93                        |
| R <sup>2</sup> | 0.192                 | 0.149                    | 0.122                    | 0.109                     |

Panel B: Education  $\leq$  12 years

|                | yingch $\leq$ 18     | 6 $\leq$ yngch $\leq$ 18 | 6 $\leq$ yngch $\leq$ 12 | 13 $\leq$ yngch $\leq$ 18 |
|----------------|----------------------|--------------------------|--------------------------|---------------------------|
| Expr           | 0.00426<br>(0.00480) | 0.00129<br>(0.00725)     | -0.00414<br>(0.00881)    | 0.0167<br>(0.0162)        |
| Observations   | 418                  | 247                      | 154                      | 93                        |
| R <sup>2</sup> | 0.173                | 0.143                    | 0.104                    | 0.101                     |

Panel C: States with High Pre-Reform Welfare Use

|                | yingch $\leq$ 18     | 6 $\leq$ yngch $\leq$ 18 | 6 $\leq$ yngch $\leq$ 12 | 13 $\leq$ yngch $\leq$ 18 |
|----------------|----------------------|--------------------------|--------------------------|---------------------------|
| Expr           | 0.00361<br>(0.00520) | -0.00244<br>(0.00738)    | -0.0144<br>(0.00778)     | 0.0308<br>(0.0150)        |
| Observations   | 418                  | 247                      | 154                      | 93                        |
| R <sup>2</sup> | 0.109                | 0.086                    | 0.070                    | 0.072                     |

Notes: All regressions are based on cells created based on the youngest child's birth cohort and the age of the youngest child. "yingch" denotes age of the youngest child. Standard errors clustered by child's birth cohort.

Table 4: Wages vs. Experience

Panel A: Youngest Child's Birth Cohort  $\geq 1985$ 

|                | ynrch $\leq 18$      | 6 $\leq$ ynrch $\leq 18$ | 6 $\leq$ ynrch $\leq 12$ | 13 $\leq$ ynrch $\leq 18$ |
|----------------|----------------------|--------------------------|--------------------------|---------------------------|
| Expr           | 0.00282<br>(0.00493) | 0.00604<br>(0.0106)      | 0.00299<br>(0.0115)      | 0.0181<br>(0.0206)        |
| Observations   | 323                  | 182                      | 119                      | 63                        |
| R <sup>2</sup> | 0.046                | 0.068                    | 0.023                    | 0.123                     |

## Panel B: Youngest Child's Birth Cohort = 1980-1998

|                | ynrch $\leq 18$      | 6 $\leq$ ynrch $\leq 18$ | 6 $\leq$ ynrch $\leq 12$ | 13 $\leq$ ynrch $\leq 18$ |
|----------------|----------------------|--------------------------|--------------------------|---------------------------|
| Expr           | 0.00507<br>(0.00429) | 0.00399<br>(0.00627)     | 0.00917<br>(0.00787)     | -0.00667<br>(0.0132)      |
| Observations   | 340                  | 226                      | 133                      | 93                        |
| R <sup>2</sup> | 0.054                | 0.061                    | 0.020                    | 0.092                     |

Panel C: Number of kids  $\geq 2$ 

|                | ynrch $\leq 18$      | 6 $\leq$ ynrch $\leq 18$ | 6 $\leq$ ynrch $\leq 12$ | 13 $\leq$ ynrch $\leq 18$ |
|----------------|----------------------|--------------------------|--------------------------|---------------------------|
| Expr           | 0.00147<br>(0.00534) | 0.00313<br>(0.00821)     | 0.00936<br>(0.00933)     | -0.0212<br>(0.0198)       |
| Observations   | 415                  | 244                      | 154                      | 90                        |
| R <sup>2</sup> | 0.048                | 0.024                    | 0.029                    | 0.031                     |

Notes: All regressions are based on cells created based on the youngest child's birth cohort and the age of the youngest child. "ynrch" denotes age of the youngest child. Standard errors clustered by child's birth cohort.

## Estimation Strategy: Synthetic Cohorts

- Examine changes in relative wages and relative experience

$$y^{group1}_{c,a} - y^{group2}_{c,a} = \beta_0 + \beta_1 (Expr^{group1}_{c,a} - Expr^{group2}_{c,a}) + \delta_a + \varepsilon_{c,a}.$$

- Control groups
  - Single mothers increase experience relative to married, education  $\leq 12$  years mothers
  - Single mothers in high pre-reform welfare use states increase experience relative to single mothers in low pre-reform welfare use states

Table 5: Comparisons Across Groups

Panel A: Comparing Single Mothers and Married Mothers with Education  $\leq 12$  Years

|                | yngch $\leq 18$       | $6 \leq$ yngch $\leq 18$ | $6 \leq$ yngch $\leq 12$ | $13 \leq$ yngch $\leq 18$ |
|----------------|-----------------------|--------------------------|--------------------------|---------------------------|
| Expr           | -0.00258<br>(0.00570) | -0.00124<br>(0.0108)     | -0.00767<br>(0.0138)     | 0.0225<br>(0.0231)        |
| Observations   | 323                   | 182                      | 119                      | 63                        |
| R <sup>2</sup> | 0.000                 | 0.000                    | 0.003                    | 0.012                     |

Panel B: Comparing High Welfare-Use States and Low Welfare-Use States

|                | yngch $\leq 18$     | $6 \leq$ yngch $\leq 18$ | $6 \leq$ yngch $\leq 12$ | $13 \leq$ yngch $\leq 18$ |
|----------------|---------------------|--------------------------|--------------------------|---------------------------|
| Expr           | -0.0118<br>(0.0124) | 0.0111<br>(0.0230)       | -0.0192<br>(0.0272)      | 0.0246<br>(0.0579)        |
| Observations   | 416                 | 245                      | 154                      | 91                        |
| R <sup>2</sup> | 0.001               | 0.001                    | 0.002                    | 0.002                     |

Notes: All regressions are based on cells created based on the youngest child's birth cohort and the age of the youngest child. "yngch" denotes age of the youngest child. Standard errors clustered by child's birth cohort. For the comparisons between married and single mothers in Panel A, we focus on youngest child's birth cohort equal to 1985 and beyond.



Table 6. Occupation & Industry Characteristics of Employed Single Mothers, Youngest Child Ages 0 through 5

Observed between 1990 and 1993 (N = 2249)

| Ranking | Occupation  | Fraction in Occupation |
|---------|---|------------------------|
| 1       | Cashiers  | 0.100                  |
| 2       | Nursing aides, orderlies, and attendants                              | 0.050                  |
| 3       | Secretaries   | 0.048                  |
| 4       | Waiter/waitress   | 0.040                  |
| 5       | Salespersons, n.e.c.  | 0.038                  |
| 6       | Housekeepers, maids, butlers, stewards, and lodging quarters cleaners | 0.031                  |
| 7       | Cooks, variously defined  | 0.028                  |
| 8       | Child care workers  | 0.025                  |
| 9       | Assemblers of electrical equipment                                    | 0.022                  |
| 10      | Janitors  | 0.020                  |

Observed between 1998 and 2001 (N = 3602)

| Ranking | Occupation  | Fraction in Occupation |
|---------|---|------------------------|
| 1       | Cashiers  | 0.084                  |
| 2       | Nursing aides, orderlies, and attendants                              | 0.059                  |
| 3       | Salespersons, n.e.c.  | 0.041                  |
| 4       | Waiter/waitress   | 0.036                  |
| 5       | Secretaries   | 0.029                  |
| 6       | Cooks, variously defined  | 0.029                  |
| 7       | Receptionists   | 0.027                  |
| 8       | Customer service reps, investigators and adjusters, except insurance  | 0.026                  |
| 9       | Teacher's aides   | 0.025                  |
| 10      | Housekeepers, maids, butlers, stewards, and lodging quarters cleaners | 0.019                  |

Notes: N refers to the total number of observations in the specified sample period; this number is the used as the denominator when computing the fractions in each occupation. Ranking is based on the fraction in each occupation or industry; the most frequent occupations are assigned the lowest numerical rankings. Occupation categories are based on the 1990 basis categories and industry classifications are based on the 1950 basis categories.

Table 6. Occupation & Industry Characteristics of Employed Single Mothers, Youngest Child Ages 0 through 5

Observed between 1990 and 1993 (N = 2247)

| Ranking | Industry  | Fraction in Industry |
|---------|---|----------------------|
| 1       | Eating and drinking places                          | 0.120                |
| 2       | Medical and other health services, except hospitals | 0.083                |
| 3       | Educational services                                | 0.068                |
| 4       | Miscellaneous business services                     | 0.060                |
| 5       | Hospitals   | 0.058                |
| 6       | Food stores, except dairy products                  | 0.048                |
| 7       | General merchandise stores                          | 0.038                |
| 8       | Hotels and lodging places                           | 0.037                |
| 9       | Federal public administration                       | 0.029                |
| 10      | Banking and credit agencies                         | 0.024                |

Observed between 1998 and 2001 (N = 3601)

| Ranking | Industry  | Fraction in Industry |
|---------|---|----------------------|
| 1       | Eating and drinking places                          | 0.114                |
| 2       | Medical and other health services, except hospitals | 0.095                |
| 3       | Educational services                                | 0.087                |
| 4       | Miscellaneous business services                     | 0.081                |
| 5       | Food stores, except dairy products                  | 0.045                |
| 6       | General merchandise stores                          | 0.043                |
| 7       | Hospitals   | 0.039                |
| 8       | Banking and credit agencies                         | 0.034                |
| 9       | Welfare and religious services                      | 0.031                |
| 10      | Hotels and lodging places                           | 0.025                |

Table 7. Occupation & Industry Characteristics of Employed Single Mothers, Youngest Child Ages 13 through 18

Observed between 1990 and 1993 (N = 360)

| Ranking | Occupation  | Fraction in Occupation |
|---------|---|------------------------|
| 1       | Nursing aides, orderlies, and attendants                              | 0.078                  |
| 2       | Secretaries   | 0.064                  |
| 3       | Housekeepers, maids, butlers, stewards, and lodging quarters cleaners | 0.047                  |
| 4       | Assemblers of electrical equipment                                    | 0.042                  |
| 5       | Textile sewing machine operators                                      | 0.036                  |
| 6       | Cooks, variously defined  | 0.036                  |
| 7       | Cashiers  | 0.028                  |
| 8       | Janitors  | 0.025                  |
| 9       | Packers, fillers, and wrappers  | 0.022                  |
| 10      | Bookkeepers and accounting and auditing clerks                        | 0.022                  |

Observed between 2007 and 2010 (N = 1124)

| Ranking | Occupation  | Fraction in Occupation |
|---------|---|------------------------|
| 1       | Nursing aides, orderlies, and attendants                              | 0.085                  |
| 2       | Housekeepers, maids, butlers, stewards, and lodging quarters cleaners | 0.044                  |
| 3       | Secretaries   | 0.042                  |
| 4       | Cooks, variously defined  | 0.036                  |
| 5       | Cashiers  | 0.035                  |
| 6       | Supervisors and proprietors of sales jobs                             | 0.031                  |
| 7       | Customer service reps, investigators and adjusters, except insurance  | 0.031                  |
| 8       | Child care workers  | 0.026                  |
| 9       | Health aides, except nursing  | 0.019                  |
| 10      | Waiter/waitress   | 0.019                  |

Notes: N refers to the total number of observations in the specified sample period; this number is the used as the denominator when computing the fractions in each occupation. Ranking is based on the fraction in each occupation or industry; the most frequent occupations are assigned the lowest numerical rankings. Occupation categories are based on the 1990 basis categories and industry classifications are based on the 1950 basis categories.

Table 7. Occupation & Industry Characteristics of Employed Single Mothers, Youngest Child Ages 13 through 18

Observed between 1990 and 1993 (N = 360)

| Ranking | Industry  | Fraction in Industry |
|---------|---|----------------------|
| 1       | Educational services                                | 0.108                |
| 2       | Hospitals   | 0.106                |
| 3       | Medical and other health services, except hospitals | 0.083                |
| 4       | Miscellaneous business services                     | 0.058                |
| 5       | Federal public administration                       | 0.044                |
| 6       | Eating and drinking places                          | 0.039                |
| 7       | Banking and credit agencies                         | 0.033                |
| 8       | Apparel and accessories                             | 0.031                |
| 9       | Electrical machinery, equipment, and supplies       | 0.028                |
| 10      | Welfare and religious services                      | 0.025                |

Observed between 2007 and 2010 (N = 1124)

| Ranking | Industry  | Fraction in Industry |
|---------|---|----------------------|
| 1       | Medical and other health services, except hospitals | 0.127                |
| 2       | Educational services                                | 0.107                |
| 3       | Eating and drinking places                          | 0.067                |
| 4       | Hospitals   | 0.063                |
| 5       | Miscellaneous business services                     | 0.051                |
| 6       | Miscellaneous professional and related services     | 0.050                |
| 7       | General merchandise stores                          | 0.035                |
| 8       | Food stores, except dairy products                  | 0.029                |
| 9       | Federal public administration                       | 0.026                |
| 10      | Local public administration                         | 0.026                |

Table 1: Summary Statistics for Never Married Mothers

| Survey Year | N    | % Non-white | Fraction with $\leq 12$ years of Schooling | Median Mother's Age | Fraction with Age of Youngest Child $\leq 5$ | Fraction in Full-time Employment in Previous Year | Fraction in Part-time Employment in Previous Year | Median Wage |
|-------------|------|-------------|--|---------------------|--|---|---|-------------|
| 1990        | 1447 | 0.613       | 0.773                                      | 27                  | 0.655  | 0.345   | 0.073   | 10.378      |
| 1991        | 1571 | 0.597       | 0.781                                      | 28                  | 0.679  | 0.326   | 0.086   | 9.767       |
| 1992        | 1582 | 0.603       | 0.753                                      | 28                  | 0.667  | 0.312   | 0.082   | 9.838       |
| 1993        | 1659 | 0.601       | 0.716                                      | 28                  | 0.664  | 0.306   | 0.095   | 9.254       |
| 1994        | 1757 | 0.579       | 0.680                                      | 28                  | 0.677  | 0.325   | 0.090   | 9.274       |
| 1995        | 1722 | 0.546       | 0.678                                      | 28                  | 0.650  | 0.347   | 0.093   | 9.403       |
| 1996        | 1590 | 0.554       | 0.669                                      | 28                  | 0.645  | 0.352   | 0.098   | 9.378       |
| 1997        | 1736 | 0.525       | 0.658                                      | 28                  | 0.640  | 0.390   | 0.112   | 9.200       |
| 1998        | 1711 | 0.525       | 0.631                                      | 28                  | 0.610  | 0.431   | 0.129   | 9.733       |
| 1999        | 1703 | 0.521       | 0.623                                      | 28                  | 0.611  | 0.479   | 0.122   | 9.865       |
| 2000        | 1712 | 0.515       | 0.635                                      | 28                  | 0.605  | 0.488   | 0.104   | 10.296      |
| 2001        | 3052 | 0.489       | 0.632                                      | 28                  | 0.618  | 0.493   | 0.110   | 10.770      |
| 2002        | 3044 | 0.507       | 0.634                                      | 29                  | 0.590  | 0.489   | 0.113   | 11.123      |
| 2003        | 3129 | 0.493       | 0.612                                      | 28                  | 0.607  | 0.479   | 0.117   | 11.459      |
| 2004        | 2988 | 0.498       | 0.605                                      | 29                  | 0.608  | 0.468   | 0.106   | 11.199      |
| 2005        | 3009 | 0.497       | 0.612                                      | 28                  | 0.617  | 0.454   | 0.114   | 10.915      |
| 2006        | 3084 | 0.494       | 0.584                                      | 29                  | 0.606  | 0.449   | 0.115   | 10.556      |
| 2007        | 3004 | 0.481       | 0.574                                      | 29                  | 0.626  | 0.460   | 0.118   | 10.844      |
| 2008        | 3025 | 0.493       | 0.584                                      | 29                  | 0.609  | 0.465   | 0.117   | 11.055      |
| 2009        | 3147 | 0.468       | 0.560                                      | 29                  | 0.615  | 0.449   | 0.125   | 10.399      |
| 2010        | 3324 | 0.451       | 0.563                                      | 29                  | 0.601  | 0.408   | 0.121   | 11.218      |

Notes: Data from IPUMS CPS. The sample is restricted to never married mothers between ages 19 and 44. See Table A1 for sample restriction details. Median weeks worked and median wage are conditional on employment. Wages are CPI adjusted to 2009 dollars. Wages are computed as total wage and salary income divided by the product of weeks worked and usual hours worked per week.

Table A1: CPS Sample Restrictions, Survey Years 1970-2010

| Sample Restriction   | # of Observations |
|--|-------------------|
| All Women  | 3497473           |
| Never Married Women  | 1446241           |
| Ages 19 through 44   | 349980            |
| # of Own Children > 0  | 61188             |
| Dropping if Age of Oldest Child + 15 > Mother's Age          | 59458             |
| Dropping if Age of Oldest Child + 45 ≤ Mother's Age          | 59458             |
| Dropping if Age of Oldest Child - Age of Youngest Child > 20 | 59429             |

Notes: Data from IPUMS CPS.

Table A2. State Welfare Use Amongst Single Mothers, 1991-1993

| Ranking | State                | Fraction Receiving Welfare | N   |
|---------|----------------------|----------------------------|-----|
| 1       | Nevada               | 0.136                      | 110 |
| 2       | Alabama              | 0.155                      | 193 |
| 3       | Idaho                | 0.173                      | 104 |
| 4       | Virginia             | 0.183                      | 115 |
| 5       | Texas                | 0.212                      | 628 |
| 6       | Georgia              | 0.214                      | 159 |
| 7       | Delaware             | 0.216                      | 125 |
| 8       | Utah                 | 0.234                      | 94  |
| 9       | Arizona              | 0.239                      | 134 |
| 10      | New Mexico           | 0.239                      | 163 |
| 11      | Arkansas             | 0.248                      | 153 |
| 12      | Missouri             | 0.252                      | 135 |
| 13      | South Dakota         | 0.252                      | 115 |
| 14      | North Carolina       | 0.255                      | 436 |
| 15      | Kansas               | 0.257                      | 136 |
| 16      | Florida              | 0.265                      | 578 |
| 16      | Oklahoma             | 0.265                      | 136 |
| 18      | Indiana              | 0.268                      | 157 |
| 19      | Colorado             | 0.271                      | 118 |
| 20      | Iowa                 | 0.278                      | 126 |
| 21      | Montana              | 0.279                      | 147 |
| 22      | Maryland             | 0.283                      | 106 |
| 23      | New Hampshire        | 0.293                      | 75  |
| 24      | Mississippi          | 0.308                      | 237 |
| 25      | Hawaii               | 0.309                      | 94  |
| 26      | New Jersey           | 0.311                      | 440 |
| 27      | Nebraska             | 0.314                      | 105 |
| 28      | South Carolina       | 0.320                      | 181 |
| 29      | Washington           | 0.327                      | 101 |
| 30      | Maine                | 0.330                      | 100 |
| 31      | Alaska               | 0.333                      | 168 |
| 32      | Wyoming              | 0.337                      | 104 |
| 33      | Wisconsin            | 0.338                      | 151 |
| 34      | District of Columbia | 0.345                      | 177 |
| 35      | Tennessee            | 0.355                      | 169 |
| 36      | Oregon               | 0.359                      | 103 |
| 37      | California           | 0.363                      | 998 |
| 38      | Louisiana            | 0.371                      | 167 |
| 39      | Ohio                 | 0.373                      | 528 |
| 40      | Pennsylvania         | 0.384                      | 411 |
| 41      | Illinois             | 0.392                      | 556 |
| 42      | Kentucky             | 0.393                      | 150 |
| 43      | North Dakota         | 0.397                      | 116 |
| 44      | Michigan             | 0.399                      | 541 |
| 45      | Connecticut          | 0.414                      | 87  |
| 46      | Massachusetts        | 0.425                      | 388 |
| 47      | West Virginia        | 0.447                      | 123 |
| 48      | Minnesota            | 0.450                      | 111 |
| 49      | New York             | 0.455                      | 876 |
| 50      | Vermont              | 0.466                      | 73  |
| 51      | Rhode Island         | 0.483                      | 87  |

Notes: N refers to the total number of observations (i.e. including welfare recipients and non-recipients) within each state.