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

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Abstract

Policy changes in the United States in the 1990s resulted in sizable increases in employment rates of single mothers, particularly mothers of young children. As a result, the average single mother whose youngest child turned 6 in 2001 had accumulated an extra year of work experience (33 percent more) than a single mother whose child turned 6 in 1996. This represents the largest policy-induced increase in work experience in recent U.S. history. Drawing on census data from multiple surveys and exploiting variation in experience based on the birth dates of children, we examine returns to experience for single mothers. Graphical analysis illustrates rising experience but little commensurate returns to experience. Despite the increases in experience for affected families, single mothers' real wages and employment have remained relatively unchanged. Regression analysis quantifies these patterns relative to plausible comparison groups and suggests that an additional year of experience increases single mothers' wages rates by less than 2%, a number much lower than previous estimates in the literature.

1. Introduction

A primary motivation for the sweeping changes to America's social insurance system in the 1990s was encouraging work among low-income families. Public health insurance (Medicaid) was extended to families who left welfare for work; the earned income tax credit provided a generous subsidy for low-income working families; and cash welfare was overhauled with stronger work requirements. Beyond the direct effect of increased earned income, it was hoped that low-income households would reap the rewards of work experience in the form of higher wages and enhanced employment opportunities. The magnitude of the returns to experience for this group is of central importance for assessing the long-term benefits or costs of encouraging work among single parents.

A large body of research has documented that the suite of policy changes enacted in the 1990s resulted in a massive transition from welfare to work among single mothers, but less is known about whether this increase in work experience resulted in higher earnings for these individuals. If these women had high returns to experience as suggested by some studies (see Gladden and Taber 2000, Loeb and Corcoran 2001 and Grogger 2009), then the returns to the policy-induced changes in employment during the 1990s should be very large. On the other hand, other studies have suggested zero or relatively low returns to experience for welfare-leavers and other unskilled workers (see Friedlander and Burtless 1995, Card and Hyslop 2005, and Dustmann and Meghir 2005). If this is the case, then the policy changes during the 1990s will have successfully induced increases in employment amongst single mothers, but these individuals will not have had subsequent wage growth or enhanced employment opportunities.

A challenge to identifying the returns to experience in this group arises because welfare reform (and related policies) was implemented nationally and over a compressed time frame. Thus traditional sources of policy-related variation using differences across time or across states are unable to identify the returns to experience. As an alternative, we exploit variation in how welfare reform and related policies affected the employment rates of single mothers based on the ages of their children at the time of welfare reform. Prior to 1996, relatively few single women with children under age 6 worked at all. In contrast, at the same time, most single with older children held a job. When rates of employment among single mothers surged after welfare reform, almost all of the increase occurred among a cohort of women whose children were less than 6 years old; employment (and welfare use) rates of women with older children changed little over the 1990s.[1] As a result, by the time a youngest-child born in 1996 turned 6, on average his mother had worked about 4.2 years—1.1 years more than a mother whose child was born in 1990. This increase in employment and in work experience may be the largest policy-

[1] Because families with more than one child are on average more likely to have a younger child, one implication is that the large differences in employment rates (and changes in employment rates) between parents based on the number of children is virtually eliminated once one controls for the age of youngest children. In other words, mothers of young children increased their labor supply and as a result employment rates of single parents with two children increased relative to parents with only one child largely because multi-child households are more likely to include a young child.

induced increase, measured both in terms of the increase in years of experience and for the size of the population affected.

Using the variation in employment across single mothers based on the age of their youngest child, we estimate the returns to work experience. Because welfare reform differentially impacted single mothers based on the age of their youngest child, single mothers with young children at the time of welfare reform increased their labor supply and subsequently gained more experience relative to single mothers with slightly older children. Accordingly, we identify the returns to experience based on this discontinuous increase in experience among otherwise similar groups. In certain specifications, we augment this analysis using comparisons between states with high and low rates of welfare use prior to welfare reform, and through comparisons to married mothers with similarly-aged children.

Our results suggest that additional years of experience have no discernable effects on the earnings, wages, or employment opportunities of affected single parents. This result is in line with the evidence of Card and Hyslop (2005), which suggested that the temporary employment effects of a welfare experiment in Canada had no long-term effects on labor market outcomes of welfare program participants. Our analysis, however, covers a much larger population, including relatively more skilled single mothers, and concerns a permanent change in policy.

2. Background

A. Policy Changes over the 1990s

We examine the returns to experience of single mothers during the 1990s because this period included significant changes in social policy that dramatically changed patterns of employment of low-income single mothers. Dissatisfaction with rising rates of non-employment and welfare use among single-parent households prompted a vast reorganization of the social safety net in the 1990s. A key theme of this revision was an emphasis on work. A variety of tax, spending, and regulatory provisions were revised to increase the rewards for work or reduce benefits available for non-workers. The most prominent of these changes include the Personal Responsibility and Work Opportunity Reconciliation Act of 1996—otherwise known as welfare reform—which combined time-limited financial or child-care support for working parents with work requirements, and sanctions for non-compliance with program rules; the expansion of the Earned Income Tax Credit (EITC), which subsidizes employment for low-income parents; the expansion of public health insurance to the children of working low-income parents; as well as other provisions like increases in the minimum wage.

During the period of these policy changes, single-parent families' employment and welfare use changed dramatically. Annual rates of welfare participation among single mothers recorded in the March Current Population Survey fell from 33 percent in 1993 to 11 percent in 2000. Administrative data show that the welfare rolls fell from 5.0 million families and 14.2 million individuals in 1993 to 2.2 million families and 5.8 million

individuals by 2000 (U.S. Department of Health and Human Services 2004). Over the same period, employment among single mothers increased rapidly; between 1993 and 1999, annual employment rates rose from 69 percent to 83 percent.

A large literature finds that policy changes played a central role in the decline in welfare use and increases in employment among single parents experienced in the 1990s (for examples, see Bell 2001, Blank 2002, and Grogger, Karoly, and Klerman 2002, Grogger and Karoly 2005, Meyer and Sullivan 2004). A consistent conclusion of this literature is that the tax and welfare changes enacted over the 1990s sharply increased the employment of single mothers and cut welfare rolls. Moreover, while some welfare-related policies were revised earlier in the 1990s using welfare "waivers," these changes produced relatively minor changes in aggregate welfare use (Looney 2006). By far the largest changes in welfare use and employment began in relatively short period starting in 1994 and accelerated sharply following the 1996 passage of "welfare reform."

The fact that the largest policy changes occurred at roughly the same time (the largest EITC expansions were phased in between 1993 and1996; welfare reform was implemented over an 18 month period starting in late 1996) meant that single parents experienced a rapid increase in employment starting in roughly 1994. This means that single parents prior to the mid-1990s experienced a very different policy environment and resulted in different employment histories. However, the fact that these increases were primarily policy-driven implies that the changes in employment—and resulting gains in work experience—were in large part exogenous.

B. Single Mothers' Employment and Welfare Use and the Age Structure of Children

The changes in employment (and welfare use) observed over the 1990s were not uniform across the population and instead varied widely based on the characteristics of families. For example, employment rates increased more for families with multiple children. A number of studies have examined heterogeneity in these changes based on number of children for a single mother and have used identification strategies based on differences in the number of children to estimate the effects of the Earned Income Tax Credit, the size of which varies based on a worker's earnings, tax filing status and number of children.

We focus on heterogeneity based on the age of the mother's youngest child since this latter dimension of heterogeneity is relevant for our strategy to estimate the returns to experience. The age of a youngest child is important to maternal labor supply because the need to care for young children raises the opportunity cost of work. These costs are economically important. For example, Gelbach (2002) finds that the availability of publicly provided kindergarten for single mothers whose youngest child is 5 increases labor supply by between 6 and 24 percent and reduces use of public assistance by 10 percent.

Such costs may be an important reason why mothers with young children are less likely to work than mothers with older children and why they had among the highest rates of welfare use of any group. As a result, these mothers were particularly affected by the changes in welfare and related policies during the 1990s.

Our examination of the returns to experience among single parents relies on a comparison of families based on the ages of their children and requires information on employment, welfare use, and income. Returns to experience are ideally measured using individual longitudinal data spanning the entire period in question, but panels of an appropriate size to focus on single parents and to differentiate children based on age are unavailable. The CPS provides the largest readily available sample of single parents over the relevant time frame, and we draw primarily on the March CPS annual demographic file from 1980 to 2010. Each year, this sample includes between 1400 and 3400 never-married mothers with children under age 18 (see Table 1). These women tend to be low-skill—more than half never finish high school—are more likely to be non-white, and more than half have a child under age five. Over the 1990s, the fraction of these mothers working full time rose from a low of 31 percent in 1992 to almost 50 percent in 2000. Over the same period, among working parents, the median wage trended up from $9.83 to $10.30.

To illustrate these trends in employment and welfare use amongst single mothers, we first follow methodology from Meyer (2010) to examine heterogeneity based on the age of the mother's youngest child. Specifically, we estimate the following regression specification

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

In this specification, E_i is an employment indicator equal to 1 if individual i is employed and 0 otherwise. The variable X_i denotes individual-level control variables; these control variables are (demeaned) dummies for marital status, race, number of kids, age and education. In addition to the control variables, we regress the employment indicator on a set of year dummies interacted with dummies for age groups of the mother's youngest child ($yngch_i$).

Figure 1A presents a plot of the estimated $\gamma_{a,t}$ coefficients from estimating the above regression for single mothers. For comparison, Figure 1B presents a similar plot of the estimated coefficients from estimating a separate regression using married mothers with less than or equal to 12 years of schooling. These figures illustrate noticeable increases in employment rates for single mothers during the mid-1990s. The plots highlight the effects of policies targeted at single mothers specifically since no noticeable effects are detected for plausibly comparable, unaffected or untargeted groups such as married mothers with less than or equal to 12 years of schooling. Furthermore, Figure 1A highlights a particularly significant increases in employment amongst single mothers with young children (ages less than or equal to five) as employment rates for this group increased from roughly 0.55 in 1990 to 0.70 in 2000.

Note, however, that employment rates of women with older children change by much less over the same time period. For example, among women whose youngest child was between 13 and 18 years old, average employment rates fluctuated around 70 percent

through the 1980s and early 1990s—and then continued to remain roughly in the same range through the 2000s. One implication of this pattern is that the policy changes of the 1990s appear to have precipitated few employment effects among single mothers with older children.

As mentioned above, previous research has emphasized heterogeneity in single mothers' increases in employment based on number of children. We demonstrate that the heterogeneity based on age of the mother's youngest child is robust to considering number of children. To illustrate this point, we first present figures based on number of children and then examine figures based on number of children and age of the mother's youngest child.

We follow methodology from Meyer (2010) to examine heterogeneity based on the number of children. Specifically, we estimate the following regression specification

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

In this specification, E_i is an employment indicator equal to 1 if individual i is employed and 0 otherwise. The variable X_i denotes individual-level control variables; these control variables are (demeaned) dummies for marital status, race, age and education. In addition to the control variables, we regress the employment indicator on a set of year dummies interacted with dummies for the woman's number of children ($Nkids_i$).

Figure 2A presents a plot of the estimated $\gamma_{n,t}$ coefficients from estimating the above regression for single women. For comparison, Figure 2B presents a similar plot of the estimated coefficients from a separate regression using married women with 12 or fewer years of schooling. These figures are based on Figure 2 from Meyer (2010). As emphasized by Meyer, the plots show noticeable increases in employment amongst single mothers during the mid-1990s. Similar to Figure 1, the plots highlight the effects of policies targeted at single mothers specifically since no noticeable effects are detected for plausibly comparable, unaffected or untargeted groups such as single women without children.

We next turn to examining trends in single mothers' employment based on age of the mother's youngest child and number of children. In particular, we estimate the following regression specification,

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

This specification is similar to the one above except that the coefficients on the year and number of kids interactions are further decomposed using interactions with the age of the youngest child. The variable $yngch_i$ denotes the age of the youngest child for mother i, and we group the child's age into the following categories: 0 through 5, 6 through 12 and 13 through 18. This grouping allows us to look at mothers with young children who have yet to start formal schooling at age 6.

Figure 3A through C plot the estimated coefficients from this specification with the age-of-youngest-child decomposition. The plots indicate that most of the increase in employment amongst single mothers came from single mothers with young children. Specifically, for every number of children, Figure 3C shows no noticeable changes in employment rates for single mothers with relatively old children. In contrast, for any number of children, Figure 3A shows noticeable increases in employment rates of single mothers with relatively young children.

Figure 44 presents evidence to demonstrate that welfare use was particularly high amongst single mothers with young children. In particular, we present evidence on single mothers' welfare use by number of kids and the age of the youngest child by estimating the same regression as above but replacing the employment indicator with a welfare use indicator (i.e. the left-hand side variable is W_i which is equal to 1 if individual i receives welfare and 0 otherwise). Figure 4A demonstrates that for any number of children, women with young children had relatively high pre-reform (i.e. pre-1994) welfare use rates and significant reductions in welfare use at the time of the policy changes in the mid-1990s. By contrast, Figures 5B and C illustrate that the changes were more modest amongst single mothers with older children.

We next examine heterogeneity in single mothers' employment trends based on pre-reform welfare use. For each state, we calculate the fraction of single mothers between 1991 and 1993 who receive welfare. We rank all states and divide them into low, medium, and high pre-reform welfare-use groups. Table 2 presents the groups and each state's fraction of single mothers receiving welfare. States ranked 1 through 15 are grouped into the low category, 16 through 35 into the medium category, and 36 and higher into the high category. The fraction of single mothers receiving welfare is roughly 0.36 or higher amongst those in the high welfare-use states. Using this grouping, we estimate the following regression specification

$$E_i = \sum_{a=\leq 5,6-12,13-18} \sum_{g=low,medium,high} \sum_{t=1980}^{2010} \gamma_{t,g,a} 1(year_i = t) * 1(state\_welfare_i = g) * 1(yngch_i = a) + \delta X_i + \varepsilon_i.$$

In this specification, $state\_welfare_i$ is a variable that captures the pre-reform state welfare-use group for individual i's state.

Figure 5 presents plots of the estimated coefficients using the state welfare-use decomposition. Consistent with Figure 1, Figures 5A through C indicate that the largest changes in employment are amongst women with relatively young children. Furthermore, Figure 5A indicates that, even amongst single mothers with relatively young kids, the changes in employment were largest amongst those mothers who were in states with relatively high pre-reform welfare use.

Overall, Figures 1 through 5 indicate that, while previous studies highlight increases in employment amongst single mothers with more children, these increases in employment are generally driven by increases amongst women with young children. Moreover, even when examining heterogeneity based on pre-reform welfare use, the most dramatic

increases in employment are amongst mothers with young children in states with high pre-reform welfare use. We highlight the variation in employment based on the age of the youngest child since the empirical analysis below exploits this variation to estimate the returns to work experience completed over the youngest child's lifetime.

3. Empirical Analysis

A. Estimation Strategy: Synthetic Cohorts

The fact that the largest changes in employment for single mothers occurred among those with younger children and that those increases occurred proximately to the implementation of welfare reform indicates that some women accumulated more work experience than others because of these policy changes. We use these policy-induced differences in work experience to identify the labor market return to experience in this population. The strategy is based on using synthetic cohorts to follow single mothers over time and measure their accumulated work experience.

We create synthetic cohorts for single mothers based on the birth year of their youngest child. For example, consider single mothers who are observed in 1990 with a youngest child of age 1. Based on the age of the youngest child, these mothers are categorized into the 1989 child birth cohort. To follow these mothers over time, we follow the child birth cohort over time. Specifically, we construct a profile for single mothers with children born in 1989 using single mothers who are observed in 1991 with a youngest child of age 2, then single mothers who are observed in 1992 with a youngest child of age 3, and so on. Thus, using repeated cross-section data from the CPS, we are able to create a synthetic panel dataset based on the birth cohort and age of the youngest child.

Once the synthetic cohorts are created, we calculate cumulative work experience for each cohort of single mothers at each observed age of the youngest child. First, in each cohort-age cell, we calculate the average number of weeks worked. Second, we calculate cumulative work experience by summing the average weeks worked over all younger ages in the cohort. Finally, we estimate the return to experience using this measure of experience in the following regression specification:

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

In this specification, the subscripts c and a denote the birth cohort of the mother's youngest child and the age of the youngest child respectively, δ_a denotes fixed effects for the age of the youngest child, $y_{c,a}$ denotes the mean residualized log wage for a given cohort c and a given age a, and $\varepsilon_{c,a}$ denotes the error term.

In the regression specification above, the coefficient of interest is β_1; this coefficient captures the return to experience. Intuitively, the return to experience reflects the percentage change in average hourly wages given a one-year increase in completed work experience over the youngest child's lifetime, holding other covariates in the wage equation constant. The identification of this coefficient is based on the assumption that

variation in the cohort-level experience measure is independent from the error term $\varepsilon_{c,a}$ because it is driven by exogenous policy changes over the 1990s.[2]

We use a residualized log wage measure in the synthetic cohort regressions so that we can net out wage differences that are correlated with other covariates. To obtain the wage residuals, we first restrict the sample to unmarried mothers and calculate the hourly wage for each individual using total annual wage and salary income divided by the product of total weeks worked in the year and the usual hours per week. Next, we pool the repeated cross-sections to estimate the following regression specification:

$$Y_i = \alpha_0 + \alpha' X_i + u_i$$

where the subscript *i* denotes the individual, *Y* denotes the log hourly wage and the vector *X* represents a rich set of individual-level covariates. Specifically, the covariates are a 4th order polynomial in mother's age and dummies for calendar year, race, education, age of the eldest child, age of the youngest child and number of kids. After estimating this regression, we obtain the residuals, $\hat{u}_i = Y_i - \hat{\alpha}_0 - \hat{\alpha}' X_i$. Lastly, as with the experience measure, we collapse the data into cells based on birth cohort and age of the youngest child; within each cell, we calculate the mean of the residual to obtain $y_{c,a}$. In addition to looking at wage outcomes, we look at employment outcomes. To do this, we set Y_i equal to an individual-level indicator for employment and then follow similar steps to calculate employment residuals so that $y_{c,a}$ captures the mean of the employment residual.

While we initially collapse the data into cells based on the youngest child's birth year and age, we also consider cells based on additional covariates. For example, we examine results that include race and number of kids as additional covariates to create the outcome and experience cells. When calculating experience with these additional covariates, we sum average weeks-worked over the age of the youngest child within each cohort-race-and-number-of-kids cell. Similarly, the outcomes are computed as the means of the residuals within these finer cells. By including additional covariates when creating the cells, we can potentially estimate more accurate cohort measures; however, this comes at a cost as the additional covariates also create the possibility that some cells may have few or zero observations. Qualitatively, the results do not change significantly when using these additional covariates to create the synthetic cohorts. We also consider several sample restrictions, none of which lead to substantially different results. For example, we

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[2] We have also examined results using a more formal first stage regression with the following specification

$$wkswork_i = \gamma_0 state_i + \gamma_1 year_i + \gamma_2 welfare\_reform_i * yngch_i + v_i$$

In this specification, the *i* subscript refers to the individual, *state* and *year* denote dummies for the corresponding variables, and *v* denotes the error term. The key terms in this specification are the interactions between dummies for the age of the youngest child, denoted by *yngch*, and a welfare reform indicator, denoted by *welfare_reform*. This indicator is equal to 1 if the individual is observed after her state implemented any welfare reform (including state-level time limits or waivers, or federal welfare reform). Thus, the *welfare_reform* indicator varies across states and years. The coefficients on the interactions therefore reflect policy variation in weeks-worked across different ages of the youngest child. Using this estimated first stage, we obtain predicted values for weeks worked and then use these predicted values to calculate the synthetic cohort measure of experience. Similar to the results presented below, we do not find significant returns to experience using this more formal two-stage analysis.

present some results below in which we only use unmarried mothers with less than or equal 12 years of schooling to create the synthetic cohorts.

Since we are not able to track individual mothers over time, measurement error is an inherent concern with the synthetic cohorts. In particular, the composition of a cohort is not consistent across age-of-youngest-child cells, as some women in each youngest-child-birth-year cohort go on to have additional children. For example, a woman who has a child in 1991 and another in 1994 will appear in the 1991 youngest-child-birth-year cohort in 1991, 1992, and 1993, but then will drop out of this cohort and appear in the 1994 youngest-child-birth-year cohort in later years. This issue will only bias the estimates of β_1 if the fertility rate changed during the 1990s. Hao and Cherlin (2004) and Joyce, Kaestner, and Korenman (2002) find relatively small effects of welfare reform on fertility decisions; in a review article, Blank (2007) concludes that welfare reform had little or no overall effect on single mothers' fertility decisions. We also address this measurement issue by repeating our analysis with a sample limited to single mothers with two or more children, since a greater fraction of these women have completed childbearing than the overall population of single mothers.

Our estimation strategy may also suffer from selection bias in the wage equation. Since wages are only observed for working single mothers and since the policy changes may have induced more low-skilled single mothers to enter the labor market, the estimation of the wage equation may lead to biased estimates of the wage residuals. To address this concern, we present results in which we exclude observations when the youngest child is relatively low. Given that employment rates of women with older children is relatively constant over time, by focusing on observations in which the youngest child's age is relatively high, we use only observations with roughly constant probabilities of employment to estimate the wage equation. Intuitively, one might be concerned comparing average wages of single mothers with a newborn child in 1990 to average wages of single mothers with a newborn child in 2000 because a larger fraction of the mothers in 2000 work and the additional workers may have relatively low wages that reduce the average wage. However, it is more plausible to compare averages wages of single mothers with a youngest child of age 10 in 1990 and average wages of single mothers with a youngest child of age 10 in 2000; the fractions of mothers who are employed and the average weeks worked are roughly the same across these groups and hence the ability characteristics of these working single mothers are plausibly similar.

B. Graphical Evidence

Before presenting the regression results, we present graphical evidence to illustrate the estimation strategy and main results. Figure 7A illustrates employment profiles over the youngest child's age for different cohorts of single mothers. In particular, following the strategy for creating synthetic cohorts described in the last section, single mothers are grouped into cohorts based on the birth year of their youngest child. For each cohort of single mothers, the employment profiles are constructed by calculating the fraction employed by the age of the youngest child, Figure 7B presents similar employment

profiles using the average number of weeks worked by age of the youngest child for different cohorts of single mothers.

We highlight two features of these plots. First, the profiles for different cohorts of single mothers converge by age 6 of the youngest child. Second, the employment and weeks-worked profiles differ noticeably across cohorts. In particular, roughly 30% of single mothers with a newborn child in 1990 were employed, whereas about 50% of single mothers with a newborn child in 2000 were employed. These plots are consistent with the earlier figures in indicating that most of the employment increases amongst single mothers over the 1990s was amongst single mothers with young children. The evidence from these employment profiles is consistent with the intuition that the policy changes over the 1990s led some single mothers to start working when their children were relatively young rather than waiting until their children were older and starting school. The policy changes may not have been successful at getting single mothers who were not planning on working to start work.

Following the estimation strategy, we next compute the synthetic cohort measure of cumulative experience by calculating the cumulative values from the weeks worked employment profiles in Figure 7B. Specifically, for a given cohort of single mothers, we calculate cumulative experience at a given age of the youngest child by summing average weeks worked over all younger ages of the youngest child. Figure 8 presents plots of cumulative experience by cohorts at different ages of the youngest child. The plot at age 4 highlights that, on average, single mothers with a youngest child of age 4 in 2000 had roughly 50% more completed experience than similar mothers in 1990. The age-4 plot also highlights the discrete changes in employment for these single mothers in the mid-1990s. The plots at older ages of the youngest child illustrate more linear increases in cumulative experience since these mothers with older children gradually spend more time in the post-policy-change (i.e. post-1995) environment. For example, consider single mothers with a youngest child of age 10. Single mothers in the 1990, 1991 and 1992 cohorts have spent, respectively, 4, 5, and 6 years in the post-1995 environment.

The last piece of graphical evidence plots mean wages against cumulative experience. The slope of this relationship reflects the return to experience. Within each cohort-age-of-youngest-child cell, we compute mean log wages. Figure 9A plots mean log wages (vertical axis) against cumulative experience (horizontal axis). A linear regression using this cell-level data indicates a return to experience of about 2.8%. Figure 9B presents a similar plot using, as the vertical axis variable, cell means of residuals from regressing log wages on calendar year and demographic control variables. This plot illustrates a main result of the analysis: after netting out differences in wages that are correlated with other control variables, higher cumulative experience does not appear to be associated with higher wages.

C. Regression Analysis

This section presents the results from estimating the regression specification described in the estimation strategy. We present the first set of regression results in Table 2. These

results present the returns to experience using wage residuals as the outcome. Panel A presents results using all single mothers, Panel B presents results using only single mothers with less than or equal to 12 years of schooling and Panel C presents results using only single mothers in high, pre-reform (1991-1993) welfare-use states. We focus on these latter two subgroups since the policy changes over the 1990s may have particularly affected women in these groups. The different columns in Table 2 present results when excluding observations at relatively low ages of the youngest child. As described above, these exclusions are meant to address selection bias, by comparing groups with similar employment rates and average weeks worked.

The estimated returns to experience in Table 2 are all statistically indistinguishable from zero. Moreover, the point estimates represent economically insignificant returns to experience and the standard errors are sufficiently small so that a return of 2% or higher can be rejected in many cases. Table 3 presents results using employment residuals as the outcome variable. The results are similar to those in Table 2 in that no statistically or economically significant returns to experience are detected. Thus, the additional completed work experience for single mothers in later child birth cohorts does not appear to be associated with higher wage rates or higher employment probabilities.

In Tables 4 and 5, we focus on wage residuals and examine the robustness of the regression results using different sample restrictions and comparison groups. In Table 4, we restrict the sample to focus on specific cohorts that may be more comparable to one another (Panels A and B). We also present results that focus on single mothers with two or more children since these women are more likely to have completed their child bearing and hence there may be less measurement error in the synthetic cohorts. As with the previous results, we do not detect economically or statistically significant returns to experience.

In Table 5, we consider differences between single mothers and married mothers with less than or equal to 12 years of schooling and differences between single mothers in high pre-reform welfare-use states and those in low pre-reform welfare use states. For these regressions we calculate cohort-age cells for each of the groups and then compute differences in the cells between the two groups. The regressions are based on the cell-level differences between the two groups,

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

In this case, the return to experience reflects the impacts of a one year increase in relative experience on relative wages. Intuitively, since single mothers increased their employment relative to married, high-school-educated married mothers, one would expect a change in the relative wage difference between these groups if there is a return to the additional work experience. Similarly, since single mothers in high pre-reform welfare-use states increased their employment relative to single mothers in low pre-reform welfare-use states, one would expect a change in relative wage rates if there is a return to the additional work experience. Overall, the results in Table 5 are consistent with the results in the earlier tables. While the standard errors are slightly larger than those in the previous tables, no significant returns to experience are detected.

D. Discussion

The graphical evidence and regression estimates from the previous sections indicate relatively low returns to experience for single mothers. In this section, we present evidence on single mothers' occupation and industry characteristics. First, we examine the occupation and industry characteristics of employed single mothers with young children before the policy changes in the 1990s. We compare these characteristics to the corresponding characteristics for employed single mothers with young children after the policy changes. This comparison presents evidence on whether single mothers who increased their employment after the policy changes moved into the same types of jobs in which previous working single mothers were employed. Second, we examine the occupation and industry characteristics of employed single mothers with older children prior to the policy changes. We compare these characteristics to the corresponding characteristics for recently employed single mothers with older children. This comparison presents evidence on whether single mothers who have increased their completed work experience following the policy changes have similar job characteristics as the earlier employed single mothers with less completed work experience.

Table 6 presents tabulations on occupation and industry characteristics for single mothers with young children (age of the youngest child between zero and five). We focus on the set of single mothers observed just prior to the policy changes (from 1990 through 1993) and just after the policy changes (from 1998 through 2001). For the these single mothers prior to the policy changes, the five most common occupations are cashiers, nurses, secretaries, wait staff and salespersons; these occupations cover roughly 27.6% of this group of single mothers. The four most common industries are restaurants, health services, education services and business services; these industries cover roughly 33.1% of this group of single mothers. For the single mothers with young children just after the policy changes, the tabulations are similar to those prior to the policy changes. The five most common occupations are the same before and after the policy changes and they account for a similar share of employed single mothers with young children (24.9% for the post-reform group). The four most common industries are also the same following the policy changes and they account for roughly 37.7% of the group of single mothers following the policy changes. This evidence suggests that single mothers who were induced to enter the labor market following the policy changes in the mid-1990s entered jobs that were similar to previously employed single mothers with young children.

Table 7 presents tabulations on occupation and industry characteristics for employed single mothers with older children (age of the youngest child from 13 through 18). These tabulations are similar in spirit to those in Table 6 in that the occupation and industry characteristics for single mothers with older children in the pre-reform years are generally similar to those for employed single mothers with older children in the post-reform years. Specifically, nurses, secretaries and cleaners are amongst the most common occupations for single mothers with older children both pre- and post-reform; health-related services, education services, and restaurants are amongst the most common industries. These statistics suggest that, relative to the pre-reform single mothers with less experience,

recent single mothers with older children have more completed work experience but similar occupation and industry characteristics.

4. Conclusions

This paper presents evidence on the returns to experience for single mothers. Policy changes in the United Sates in the 1990s led to significant increases in employment of single mothers, particularly those with young children at the time of the changes. As a result, single mothers with young children at the time of these policy changes gained more experience than those with slightly older children. Accordingly, we identify the returns to experience based on this discontinuous increase in experience among otherwise similar groups. Overall, our results suggest that additional years of experience have had no discernable effects on the earnings, wages, or employment opportunities of affected single parents.

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Table 1: Summary Statistics for Never Married Mothers

Survey Year	N	% Non-white	Fraction with ≤12 years of Schooling	Median Mother's Age	Median # of Own Children	Fraction with Age of Youngest Child ≤ 5	Median Age of Youngest Child	Median Age of Eldest Child	Fraction in Full-time Employment in Previous Year	Fraction in Part-time Employment in Previous Year	Median Weeks Worked	Median Wage
1990	1447	0.613	0.773	27	1	0.655	3	6	0.345	0.073	52	10.378
1991	1571	0.597	0.781	28	1	0.679	3	6	0.326	0.086	52	9.767
1992	1582	0.603	0.753	28	1	0.667	3	6	0.312	0.082	52	9.838
1993	1659	0.601	0.716	28	1	0.664	3	6	0.306	0.095	52	9.254
1994	1757	0.579	0.680	28	1	0.677	3	6	0.325	0.090	52	9.274
1995	1722	0.546	0.678	28	1	0.650	4	6	0.347	0.093	52	9.403
1996	1590	0.554	0.669	28	1	0.645	3	6	0.352	0.098	52	9.378
1997	1736	0.525	0.658	28	1	0.640	4	6	0.390	0.112	52	9.200
1998	1711	0.525	0.631	28	1	0.610	4	7	0.431	0.129	52	9.733
1999	1703	0.521	0.623	28	1	0.611	4	7	0.479	0.122	52	9.865
2000	1712	0.515	0.635	28	1	0.605	4	7	0.488	0.104	52	10.296
2001	3052	0.489	0.632	28	1	0.618	4	7	0.493	0.110	52	10.770
2002	3044	0.507	0.634	29	1	0.590	4	7	0.489	0.113	52	11.123
2003	3129	0.493	0.612	28	1	0.607	4	7	0.479	0.117	52	11.459
2004	2988	0.498	0.605	29	1	0.608	4	7	0.468	0.106	52	11.199
2005	3009	0.497	0.612	28	1	0.617	4	7	0.454	0.114	52	10.915
2006	3084	0.494	0.584	29	1	0.606	4	7	0.449	0.115	52	10.556
2007	3004	0.481	0.574	29	1	0.626	4	7	0.460	0.118	52	10.844
2008	3025	0.493	0.584	29	1	0.609	4	7	0.465	0.117	52	11.055
2009	3147	0.468	0.560	29	1	0.615	4	7	0.449	0.125	52	10.399
2010	3324	0.451	0.563	29	1	0.601	4	7	0.408	0.121	52	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 2: Wages vs. Experience

Panel A: Full Sample

	yngch ≤ 18	6 ≤ yngch ≤ 18	6 ≤ yngch ≤ 12	13 ≤ yngch ≤ 18
Expr	0.00378	0.00575	0.00892	-0.00296
	(0.00340)	(0.00643)	(0.00722)	(0.0130)
Observations	418	247	154	93
R^2	0.052	0.075	0.026	0.108

Panel B: Education ≤ 12 years

	yngch ≤ 18	6 ≤ yngch ≤ 18	6 ≤ yngch ≤ 12	13 ≤ yngch ≤ 18
Expr	0.00424	0.00517	0.00744	-0.00129
	(0.00434)	(0.00857)	(0.0123)	(0.0152)
Observations	418	247	154	93
R^2	0.041	0.053	0.009	0.089

Panel C: States with High Pre-Reform Welfare Use

	yngch ≤ 18	6 ≤ yngch ≤ 18	6 ≤ yngch ≤ 12	13 ≤ yngch ≤ 18
Expr	0.00436	0.000282	0.00178	-0.00390
	(0.00531)	(0.00934)	(0.0102)	(0.0173)
Observations	417	246	154	92
R^2	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. "yngch" denotes age of the youngest child. Standard errors clustered by child's birth cohort.

Table 3: Employment vs. Experience

Panel A: Full Sample

	yngch ≤ 18	6 ≤ yngch ≤ 18	6 ≤ yngch ≤ 12	13 ≤ yngch ≤ 18
Expr	0.000777	-0.00444	-0.0125	0.0177
	(0.00450)	(0.00641)	(0.00759)	(0.0138)
Observations	418	247	154	93
R^2	0.192	0.149	0.122	0.109

Panel B: Education ≤ 12 years

	yngch ≤ 18	6 ≤ yngch ≤ 18	6 ≤ yngch ≤ 12	13 ≤ yngch ≤ 18
Expr	0.00426	0.00129	-0.00414	0.0167
	(0.00480)	(0.00725)	(0.00881)	(0.0162)
Observations	418	247	154	93
R^2	0.173	0.143	0.104	0.101

Panel C: States with High Pre-Reform Welfare Use

	yngch ≤ 18	6 ≤ yngch ≤ 18	6 ≤ yngch ≤ 12	13 ≤ yngch ≤ 18
Expr	0.00361	-0.00244	-0.0144	0.0308
	(0.00520)	(0.00738)	(0.00778)	(0.0150)
Observations	418	247	154	93
R^2	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. "yngch" 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 ≥ 1985

	yngch ≤ 18	6 ≤ yngch ≤ 18	6 ≤ yngch ≤ 12	13 ≤ yngch ≤ 18
Expr	0.00282	0.00604	0.00299	0.0181
	(0.00493)	(0.0106)	(0.0115)	(0.0206)
Observations	323	182	119	63
R^2	0.046	0.068	0.023	0.123

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

	yngch ≤ 18	6 ≤ yngch ≤ 18	6 ≤ yngch ≤ 12	13 ≤ yngch ≤ 18
Expr	0.00507	0.00399	0.00917	-0.00667
	(0.00429)	(0.00627)	(0.00787)	(0.0132)
Observations	340	226	133	93
R^2	0.054	0.061	0.020	0.092

Panel C: Number of kids ≥ 2

	yngch ≤ 18	6 ≤ yngch ≤ 18	6 ≤ yngch ≤ 12	13 ≤ yngch ≤ 18
Expr	0.00147	0.00313	0.00936	-0.0212
	(0.00534)	(0.00821)	(0.00933)	(0.0198)
Observations	415	244	154	90
R^2	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. "yngch" denotes age of the youngest child. Standard errors clustered by child's birth cohort.

Table 5: Comparisons Across Groups

Panel A: Comparing Single Mothers and Married Mothers with Education ≤ 12 Years

	yngch ≤ 18	6 ≤ yngch ≤ 18	6 ≤ yngch ≤ 12	13 ≤ yngch ≤ 18
Expr	-0.00258	-0.00124	-0.00767	0.0225
	(0.00570)	(0.0108)	(0.0138)	(0.0231)
Observations	323	182	119	63
R^2	0.000	0.000	0.003	0.012

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

	yngch ≤ 18	6 ≤ yngch ≤ 18	6 ≤ yngch ≤ 12	13 ≤ yngch ≤ 18
Expr	-0.0118	0.0111	-0.0192	0.0246
	(0.0124)	(0.0230)	(0.0272)	(0.0579)
Observations	416	245	154	91
R^2	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 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 = 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

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

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	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 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	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

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

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 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 Reveiving 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

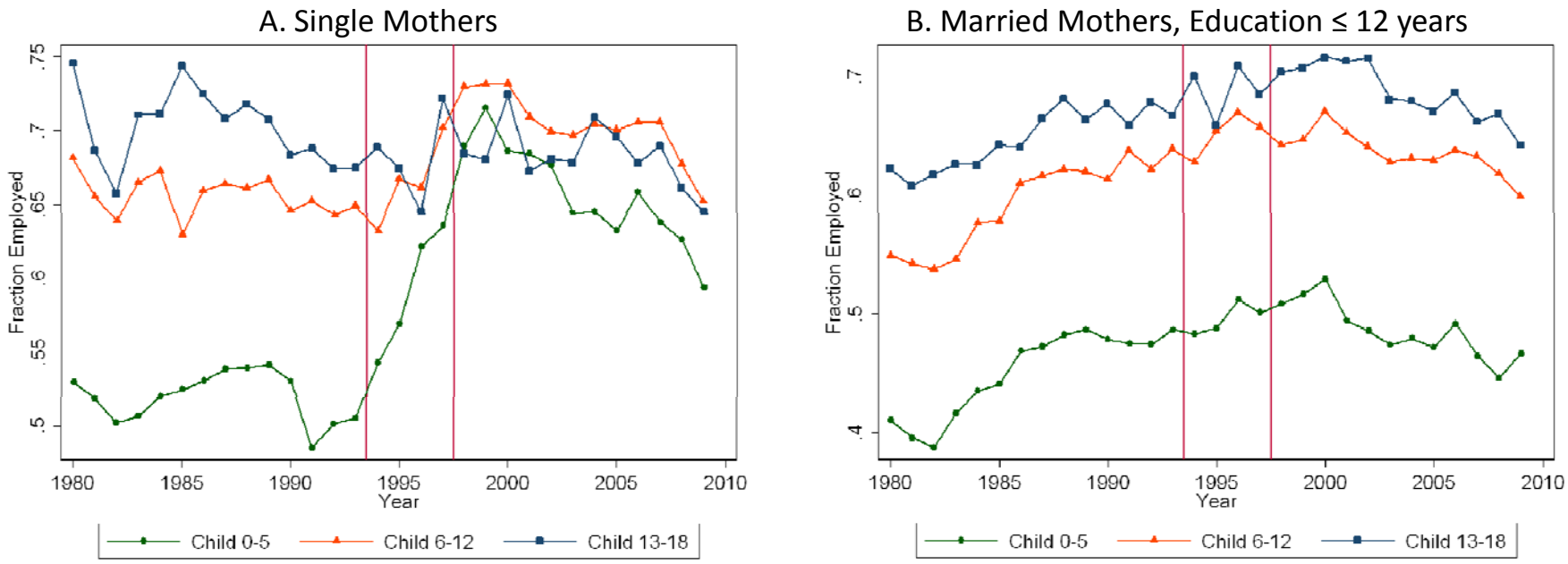
Notes: N refers to the total number of observations (i.e. including welfare recipients and non-recipients) within each state.

Table A3: Summary Statistics for Married Mothers with Education ≤ 12 years

Survey Year	N	% Non-white	Median Mother's Age	Median # of Own Children	Fraction with Age of Youngest Child ≤ 5	Median Age of Youngest Child	Median Age of Eldest Child	Fraction in Full-time Employment in Previous Year	Fraction in Part-time Employment in Previous Year	Median Weeks Worked	Median Wage
1990	8731	0.114	33	2	0.487	6	11	0.3847235	0.168	52	10.8108
1991	8504	0.113	34	2	0.497	6	11	0.3894112	0.159	52	10.9395
1992	7668	0.116	34	2	0.489	6	11	0.3971679	0.163	52	10.7624
1993	7296	0.117	34	2	0.484	6	11	0.3955291	0.157	52	10.77203
1994	6670	0.120	34	2	0.493	6	11	0.3857902	0.164	52	10.70128
1995	6385	0.129	34	2	0.480	6	11	0.3979913	0.163	52	10.7335
1996	5526	0.117	35	2	0.473	6	11	0.4042106	0.159	52	10.8207
1997	5494	0.125	35	2	0.468	6	11	0.427467	0.157	52	10.95188
1998	5306	0.130	35	2	0.470	6	11	0.4219533	0.152	52	11.30382
1999	5114	0.130	35	2	0.465	6	11	0.425013	0.152	52	11.38252
2000	5067	0.129	35	2	0.450	6	11	0.4306519	0.151	52	11.1375
2001	8511	0.132	35	2	0.471	6	11	0.4375257	0.144	52	11.52604
2002	8139	0.138	35	2	0.471	6	11	0.4108084	0.142	52	11.64487
2003	7860	0.143	35	2	0.479	6	11	0.3957504	0.146	52	11.91762
2004	7385	0.145	35	2	0.476	6	11	0.3878039	0.138	52	11.43936
2005	6857	0.143	35	2	0.487	6	11	0.3792515	0.146	52	11.46049
2006	6625	0.136	35	2	0.493	6	11	0.386779	0.131	52	11.56361
2007	6342	0.145	35	2	0.507	5	11	0.401703	0.130	52	11.49947
2008	5884	0.152	35	2	0.501	5	11	0.3867446	0.127	52	11.44193
2009	5670	0.145	35	2	0.484	6	11	0.374725	0.134	52	11.20655
2010	5416	0.157	35	2	0.495	6	11	0.3636186	0.136	52	11.53845

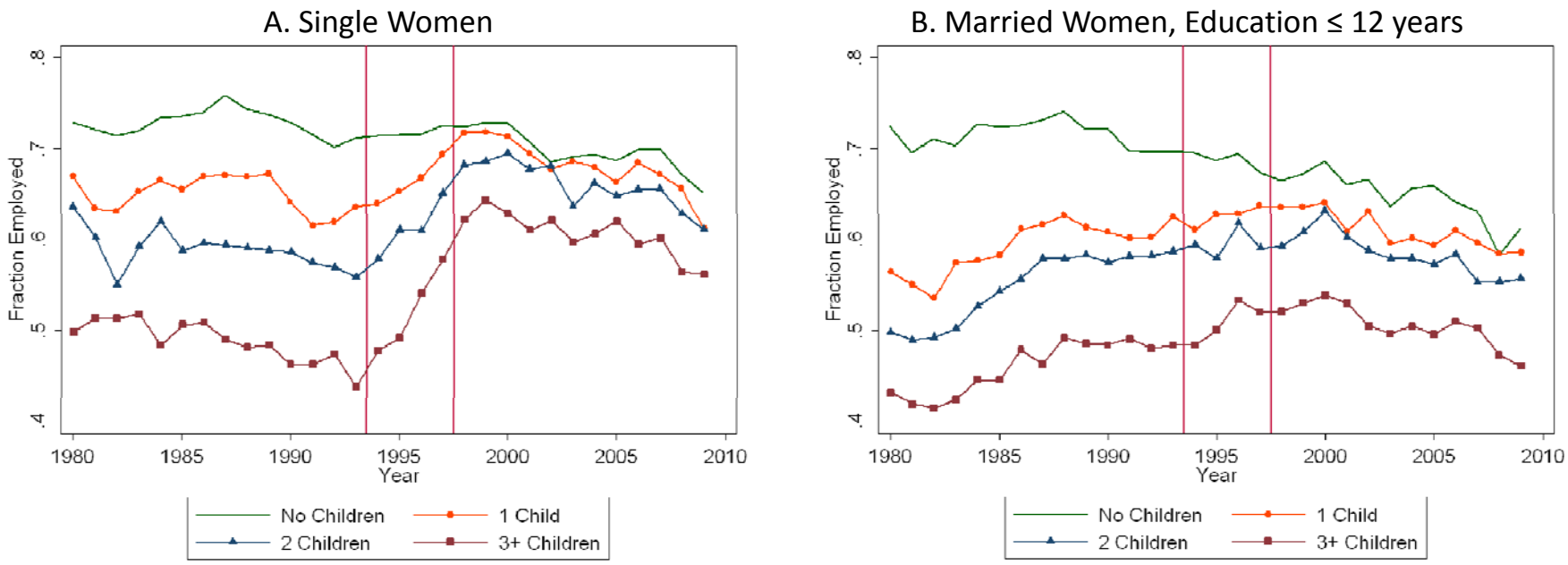
Notes: Data from IPUMS CPS. The sample is restricted to married (spouses present) mothers between ages 19 and 44.A3 Median weeks worked and median wage are conditional on employment. Wages are CPI adjusted to 2009 dollars. Wages are computed as total wage and salary income divided by the product of weeks worked and usual hours worked per week.

Fig. 1. Mothers' Employment Rates by Year, Marital Status and Age of Youngest Child



Notes: Using IPUMS CPS data, the figures are constructed by regressing an employment indicator on control variables and year dummies interacted with age of the youngest child. The control variables include dummies for marital status, race, age, education, and number of kids. In the case of single mothers, marital status is restricted to divorced, widowed, or never married; in the case of married mothers, marital status is restricted to married – spouse present or married – spouse absent. Mother's age is restricted to ages 19 through 44. The figure plots the estimated coefficients on the year dummies interacted with number of kids. Vertical lines mark 1993.5 and 1997.5.

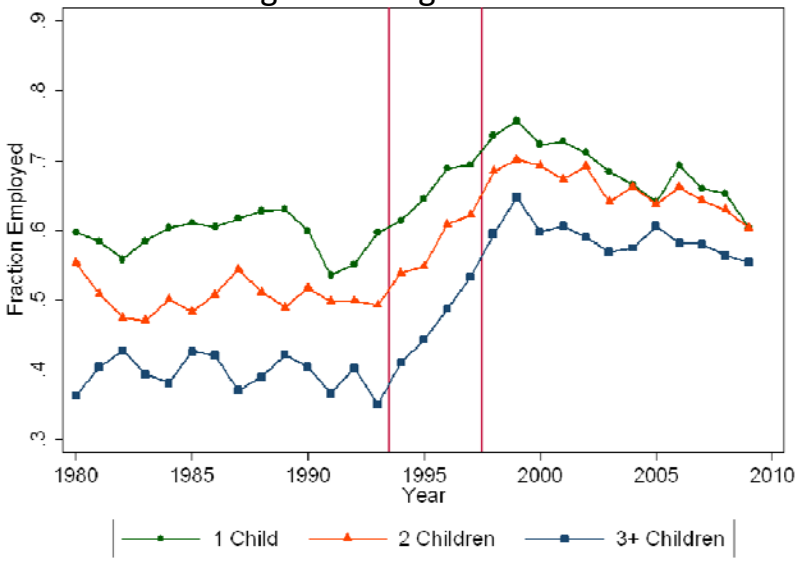
Fig. 2. Mothers' Employment Rates by Year, Marital Status and Number of Children



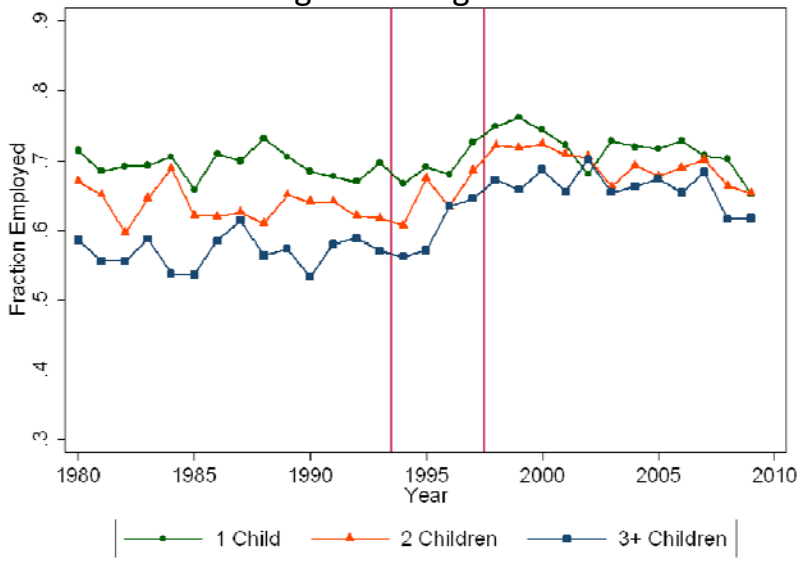
Notes: These figures are based on Figure 2 from Meyer (2010). Using IPUMS CPS data, the figures are constructed by regressing an employment indicator on control variables and year dummies interacted with number of kids. The control variables include dummies for marital status, race, age, and education. In the case of single mothers, marital status is restricted to divorced, widowed, or never married; in the case of married mothers, marital status is restricted to married – spouse present or married – spouse absent. Mother's age is restricted to ages 19 through 44. The figure plots the estimated coefficients on the year dummies interacted with number of kids. Vertical lines mark 1993.5 and 1997.5.

Fig. 3. Single Mothers' Employment Rates by Year, Age of Youngest Child and Number of Kids

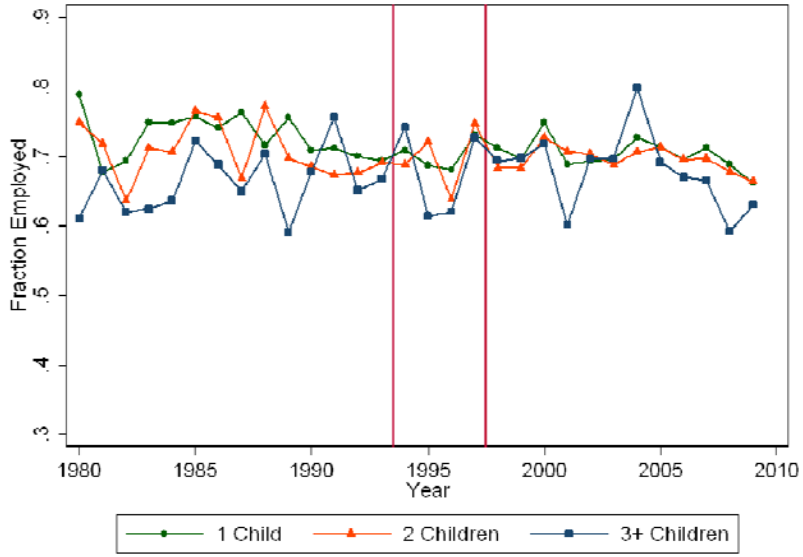
A. Age of Youngest Child ≤ 5



B. 6 ≤ Age of Youngest Child ≤ 12



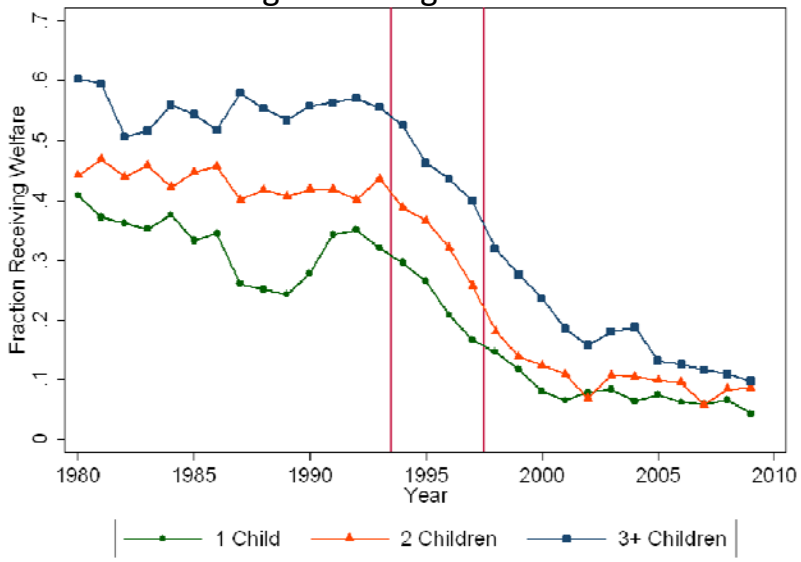
C. 13 ≤ Age of Youngest Child ≤ 18



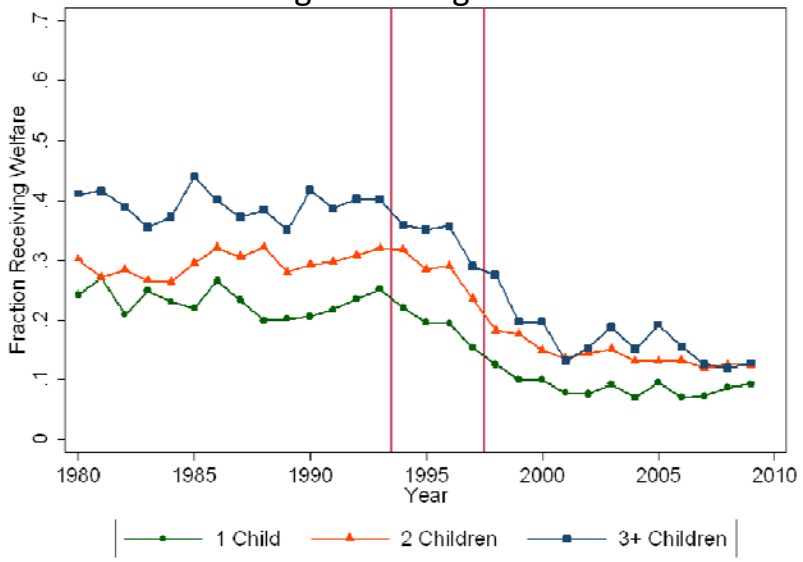
Notes: Please see notes for Figures 1 and 2 for additional details.

Fig. 4. Single Mothers' Welfare Receipt by Year, Age of Youngest Child and Number of Kids

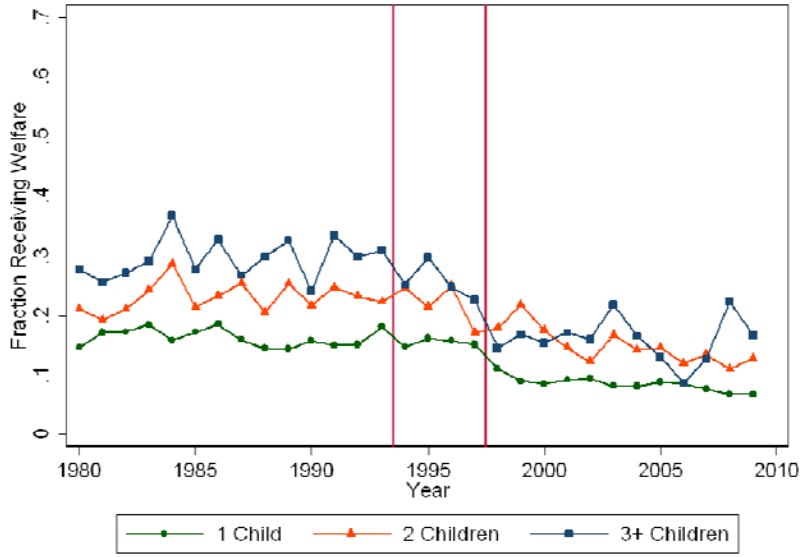
A. Age of Youngest Child ≤ 5



B. 6 ≤ Age of Youngest Child ≤ 12

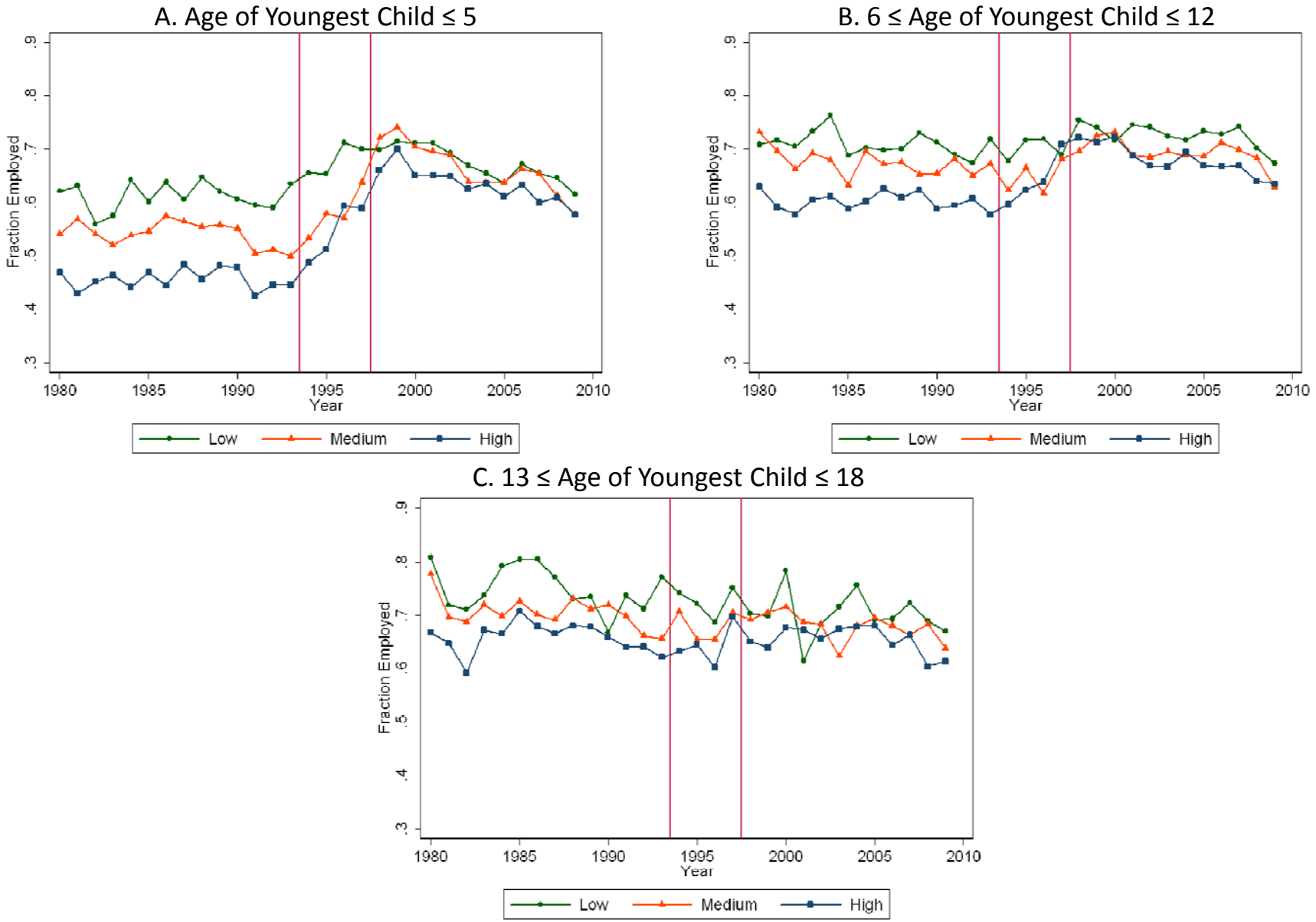


C. 13 ≤ Age of Youngest Child ≤ 18



Notes: Please see notes for Figures 1 and 2 for additional details.

Fig. 5. Single Mothers' Employment Rates by Average State Welfare Use in 1991-1993

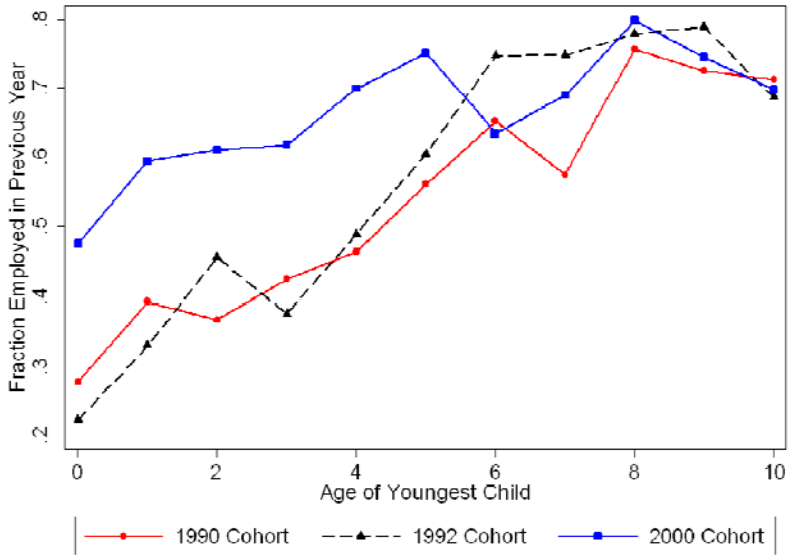


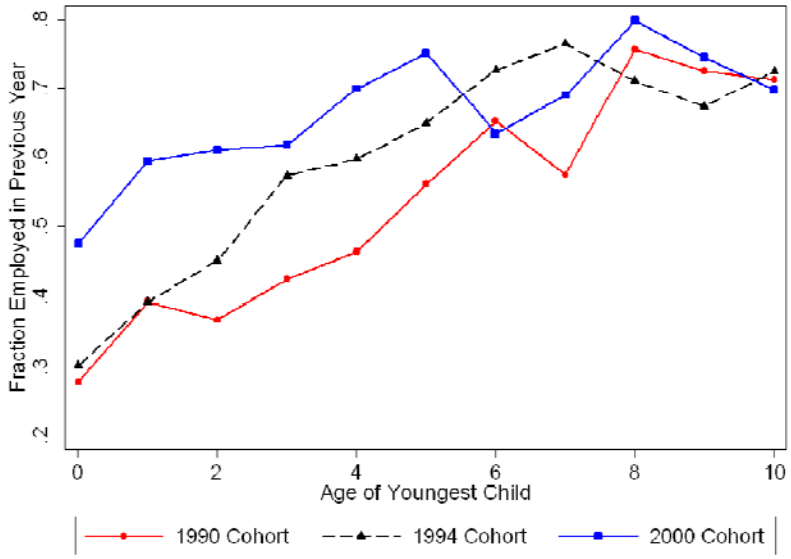
Notes: Vertical lines mark 1993.5 and 1997.5. These figures plot dummies from the following regressions. Within each group of state welfare use, we regress an employment indicator on year dummies interacted with dummies for age of the youngest child and dummies for marital status (separated, divorced, never married), race, mother's age, education, and number of kids. The figures plot the coefficients on the year dummies interacted with the age of the youngest child dummies. State Welfare use is computed via the following steps. First, within each state, we compute the fraction of individuals observed between 1991 and 1993 who receive welfare benefits. Second, we rank states based on the average welfare use between 1991 and 1993. The "Low" groups consists of individuals in the 15 lowest welfare use states; the "High" group consists of individuals in the 15 highest welfare use states; the middle group consists of individuals in the remaining states. For the Low states, welfare use ranges from roughly 14% to 26% n1gle mothers; for the High group, welfare use ranges from roughly 35% to 48%. Table A2 lists the specific states in each group.

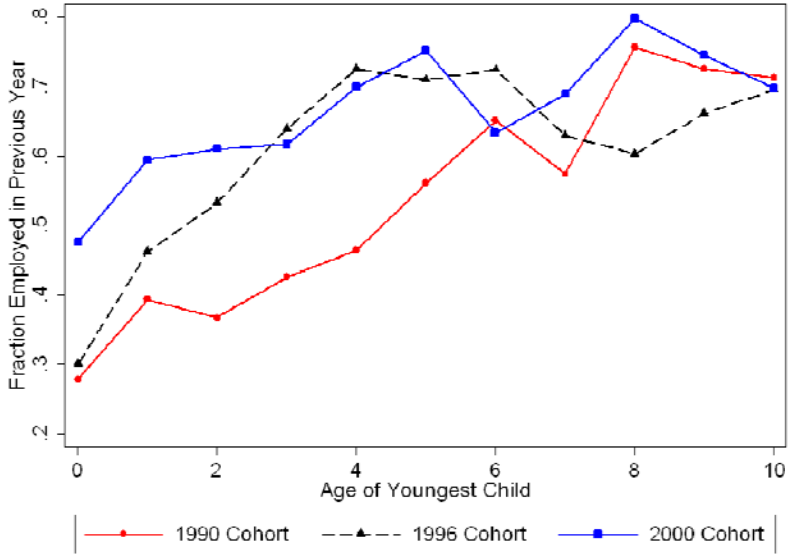
Slide 5

n1 changed from "10% to 25%"
nplotkin, 8/20/2012

Fig. 6A. Employment by Age of Youngest Child, Birth Cohorts 1990-2000







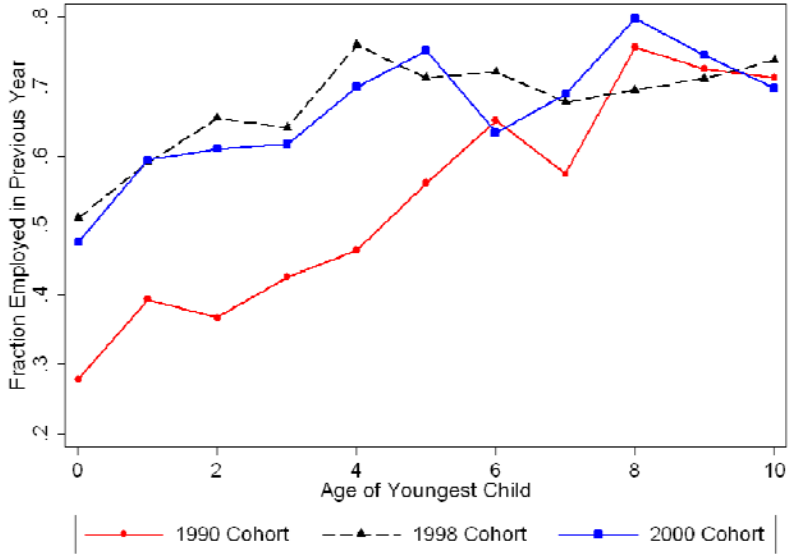
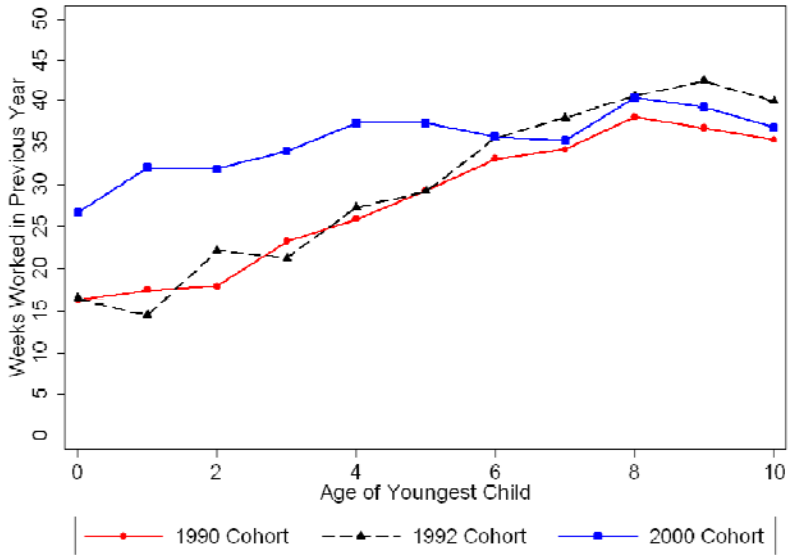
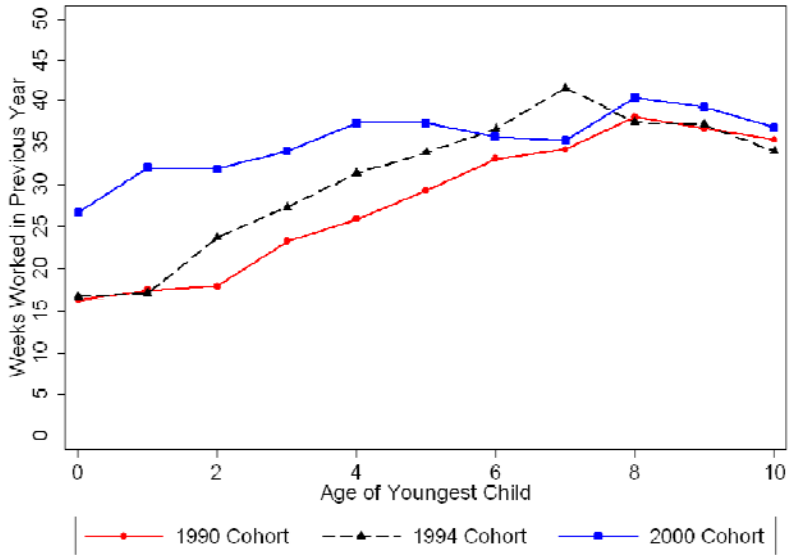
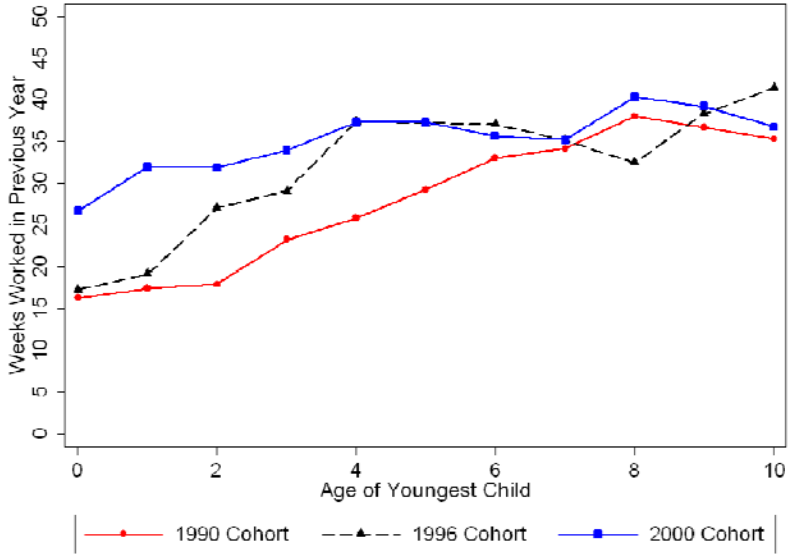


Fig. 6B. Weeks Worked by Age of Youngest Child, Birth Cohorts 1990-2000







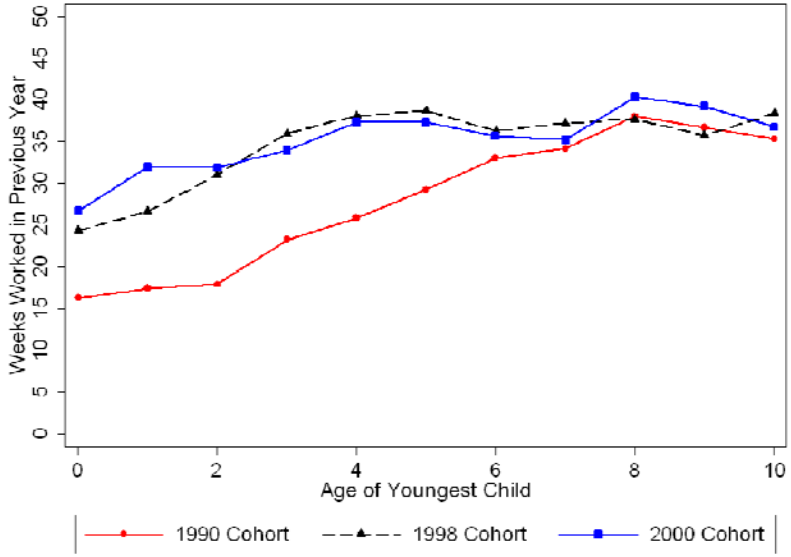
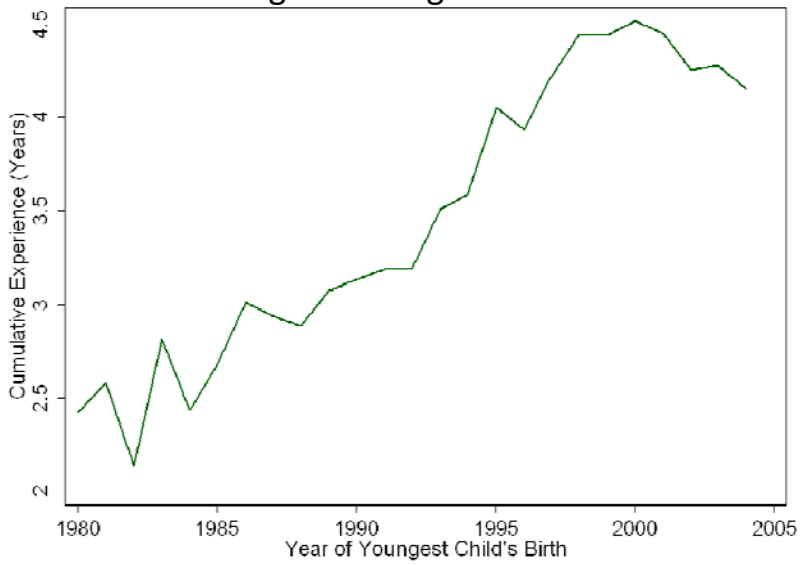


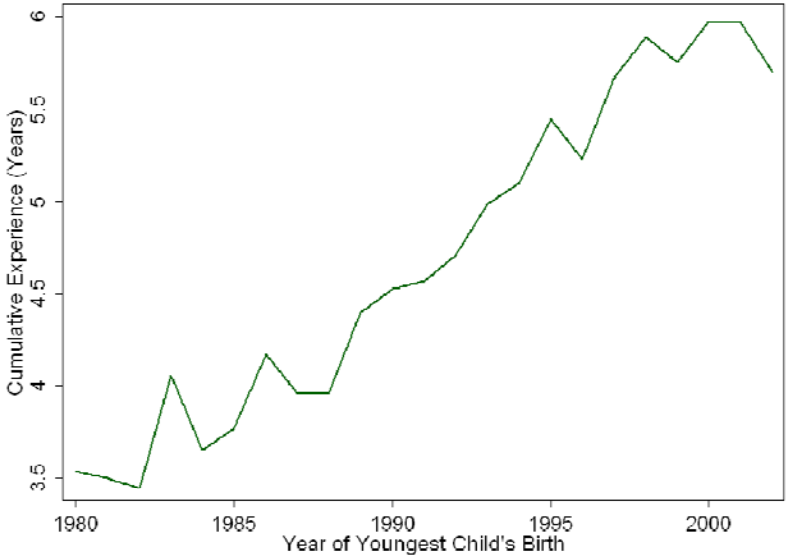
Fig. 7. Cumulative Experience by Birth Cohort and Age of Youngest Child

A. Age of Youngest Child = 4

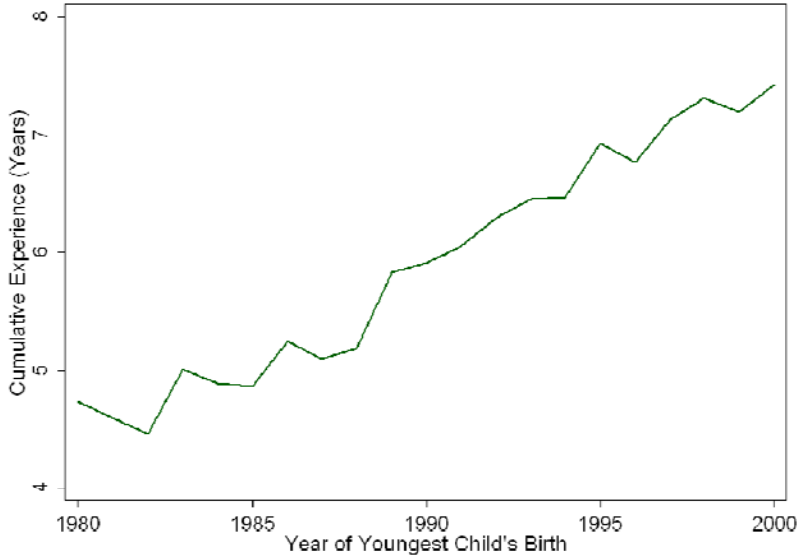
B. Age of Youngest Child = 6



C. Age of Youngest Child = 8



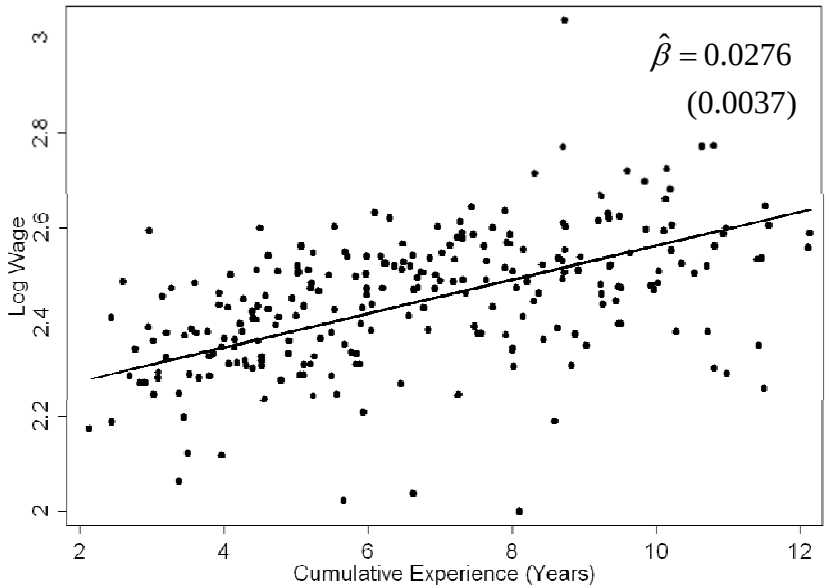
D. Age of Youngest Child = 10



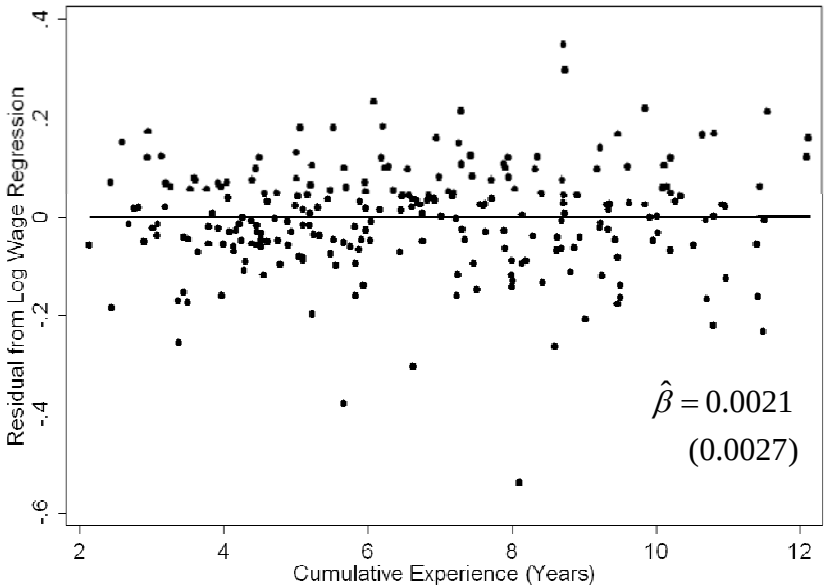
Notes: Within a given birth cohort, cumulative experience is calculated by summing experience (average weeks worked) over age of the youngest child.

Fig. 8. Wages by Experience

A. Without Controls



B. With Controls



Notes: The sample is restricted to never-married mothers between ages 19 and 44 and with children age 18 or younger. Wage residuals are computed by regressing log wages on a 4th order polynomial in mother's age and dummies for calendar year, race, education, number of kids, age of the eldest child and age of the youngest child. Using cells computed at the cohort and age-of-the-youngest-child level, the slope coefficients, denoted by β, are estimated by regressing log wages or the wage residuals on experience (cumulative weeks worked). Cells with the age of the youngest child ≤ 5 are excluded. Standard errors for the estimated slope coefficients are clustered at the cohort level; the standard errors are shown in parentheses below the estimated coefficients.