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MAKING SINGLE MOTHERS WORK:
RECENT TAX AND WELFARE POLICY AND ITS EFFECTS

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Making Single Mothers Work: Recent Tax and Welfare Policy and its Effects

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ABSTRACT

We describe the enormous changes in social and tax policy in recent years that have encouraged work by single mothers. We document the changes in federal and state income taxes, AFDC and Food Stamp benefits, Medicaid, training and child care programs. We describe the quantitative importance of these changes and their timing. We also describe how these changes differed across states and show how they affected families with different numbers and ages of children and with different family incomes. We then examine whether the changes in employment rates over time for different demographic groups and states are consistent with a causal effect of these policies on employment. We use multiple comparison groups and two datasets over a long time period. The results support the more structural findings in Meyer and Rosenbaum (1999a) of substantial EITC effects on employment as well as the findings in Eissa and Liebman (1996) and Ellwood (1999).

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1. Introduction

In recent years, there have been enormous changes in many of the tax and transfer programs that affect single mothers. These changes have dramatically increased the incentive to work. Between 1984 and 1996, real dollars received through the Earned Income Tax Credit (EITC), which go primarily to working families with children, increased more than ten-fold. Likewise, between 1984 and 1995 the number of children receiving Medicaid increased 77 percent, while the number of covered adults with dependent children increased 36 percent. These Medicaid expansions primarily affected non-welfare families with incomes near the poverty line, making work more attractive for low-income single mothers. Since 1993, nearly every state has experimented with changes in its welfare programs, often under waivers of the existing program rules. Many of these changes have imposed work requirements, time limits, or other measures that encourage single mothers to work. Finally, there have been recent increases in child care funding and job training for single mothers. These program changes combined to greatly increase the incentive for single mothers to enter the workforce.

At the same time, there was a substantial increase in the employment of single mothers. The annual employment of all single mothers increased by about nine percentage points between 1984 and 1996, while that for single mothers with children under six increased thirteen and one-half percentage points. Nearly all of this increase occurred after 1991. We should emphasize that all of these changes took place before the “elimination of welfare as we know it” under the Personal Responsibility and Work Opportunity Reconciliation Act of 1996 (PRWORA).

This paper has two objectives. The first is to describe in detail the major tax and welfare policy changes affecting the employment of single mothers during the 1984 to 1996 period leading up to PRWORA. Many papers have described one element of these changes, but no past work has described in detail the larger pattern of policy change. We describe the federal EITC, state EITCs, and other federal and state tax changes. We describe the effects of changes in many aspects of AFDC, Food Stamps, and Medicaid including: changes in AFDC benefits levels, earnings disregards and benefit reduction rates; the expansions of Medicaid coverage to low-income non-AFDC children; and the recent flurry of welfare waivers. We also discuss the effects of changes in child care and training programs during this period. Because PRWORA changed many features of welfare in ways that are

difficult to characterize, we end our analysis in 1996.

The second objective of the paper is to examine whether the changes in employment rates over time for different demographic groups and states are consistent with a causal effect of these policies on employment. These comparisons provide a transparent way of examining the plausibility of the structural findings of Meyer and Rosenbaum (1999a).¹ Meyer and Rosenbaum found that the main explanation for the increase in single mothers' employment in recent years was the EITC expansions. Smaller roles were found for welfare benefit cuts, welfare waivers, and changes in child care and training. While a structural approach has advantages (that will not be elucidated here), transparency is not one of them. With many influences interacting to produce the variables, combined with some functional form assumptions, it is hard to see what leads to the structural coefficient estimates. This paper provides simple comparisons that examine whether it is plausible that the EITC was the main source of the employment changes, and examines the plausibility of alternative hypotheses.

2. Policy Changes that Affected Labor Supply

We describe the major policy changes between 1984 and 1996 that affected the labor supply of single mothers.² For each policy or program, we first provide some brief background information and outline the major changes between 1984 and 1996 (see Figure 1 for a time line depicting these changes). Next, we describe how and when the policies affected different groups. Finally, we analyze the theoretical effects of these changes on the choice of whether or not to work.

The summary measures that we use to describe the policy changes capture their overall effects on the budget sets of single women. We calculate the taxes and welfare benefits of single women at thirty different earnings levels and then average these values to get an overall effect for each policy that

¹ Related work by Bishop (1998) and Ellwood (1999) examines the effects of the EITC on employment and other outcomes. Eissa and Liebman (1996) examine the EITC changes that were part of the Tax Reform Act of 1986.

² We do not try to examine every government program that affects single women and their families. Other relevant programs we omit include public and subsidized housing, child support enforcement, food and nutrition programs other than Food Stamps, and Supplemental Security Income.

we examine.³

2.1 The EITC and Federal and State Income Taxes

In recent years, the most important change for single mothers in the financial incentive to work has probably come from the Earned Income Tax Credit.⁴ EITC credits increased fifteen-fold from \$1.6 billion in 1984 to a projected \$25.1 billion in 1996. Single mothers received about two thirds of these EITC dollars (1996 Green Book, pp. 808-9).⁵ In 1996 a single woman with two children who earned less than \$8,890 (the phase-in range) received a 40 percent credit on dollars earned, up to a maximum of \$3,556. Because the credit is refundable and a mother of two with those earnings was not subject to any federal income tax (due to the standard deduction and personal exemptions), she would have received a check from the IRS for the credit amount. With additional earnings up to \$11,610 the credit amount did not change. Additional earnings beyond \$11,610 and up to \$28,495 (the phase-out range) resulted in a reduction in the credit by 21.06 percent of the additional earnings, until the credit was reduced to zero at earnings of \$28,495. This credit schedule meant that a woman with two children earning between \$5,000 and just under \$19,000 received at least a \$2,000 credit.

The current EITC is the result of several legislative changes (summarized in Figure 1) which greatly expanded the EITC after 1984. Between its beginning in 1975 and the passage of the Tax Reform Act of 1986 (TRA86) the EITC was small and the credit amounts did not keep up with inflation. Beginning with the TRA86, the EITC was expanded in a number of dimensions.

First, credit rates, phase-in ranges and phase-out ranges were increased considerably. For example, for a mother of one child in 1984, the credit rate was 10 percent for earnings up to the end of the phase-in range at \$5,000, implying a maximum credit of \$500. In 1987 the credit rate rose to 14

³ The assumptions and data used in these calculations are described in Meyer and Rosenbaum (1999a). See Table 1 for the average values of the policy variables at various earnings levels. Note that for single mothers we compute policy variables for each year using the sample of single mothers from the entire 1984-1996 sample. This approach accounts for changes in policies, but holds constant over time each state's distribution of family sizes and child ages.

⁴ See Liebman (1998) for a history of the EITC and a survey of many of the key economic issues.

⁵ Most of the remaining dollars are received by married taxpayers.

percent on earnings up to \$5,080, implying a maximum credit of \$851. In 1988 the beginning and end of the phase-out range were increased by about \$3,000. The credit parameters were then unchanged in real terms for several years, but beginning in 1991 the credit rates rose in small steps, up to 18.5 percent in 1993. In 1994 and 1995 there were large increases in the credit rates, to 26.3 and 34.0 percent respectively, though the phase-in range was reduced. The resulting maximum credit for a mother of one child was \$2,094 in 1995.

Second, in 1991 the credit was expanded to provide a larger credit for families with two or more children, and families with very young children. The increment to the maximum credit for a second child was small through 1993, never exceeding \$77. But, beginning in 1994 the difference began to rise sharply; it rose to \$490 in 1994, \$1,016 in 1995, \$1,404 in 1996. From 1991 through 1993, there were also small refundable credits for child health insurance premiums and for children under one.⁶

Third, prior to 1991 children generally had to be claimed as dependents in order to be qualifying children, which required that the taxpayer provide more than half of their support. This requirement meant that low income mothers who received more in AFDC than in earnings would not qualify for the EITC. Since 1991, to qualify the taxpayer must have a child under nineteen or a full-time student under twenty-four who lived with the taxpayer for more than half of the year, regardless of who supported them.⁷

Fourth, the relationship of the EITC with other programs has changed over time. Prior to October 1984, the EITC was counted as earned income in AFDC and Food Stamp calculations at the time it was earned. Between October 1984 and October 1989, it was counted at the time it was received, thereby typically affecting AFDC and Food Stamp benefits only when the tax return check was received. Since October 1989, the EITC has not counted as income in AFDC calculations (except for the gross income test). Effective January 1991, the EITC was not counted at all in most

⁶ In 1993 (the last year of these credits), total credit received for child health insurance premiums were 0.46 billion dollars and for children under one were 0.76 billion dollars, while the value of the basic credit was 14.3 billion dollars (U.S. Department of the Treasury, SOI, 1994).

⁷ Beginning in 1994, childless taxpayers could receive a small credit.

means-tested programs including AFDC, Food Stamps, and Medicaid.⁸ By not counting the EITC in these means-tested programs, these reforms have increased its value for very low income women.

We should note that there were other changes in federal income taxes during this period that affected single women. In particular, in 1987 the personal exemption was increased by \$820 and in 1988 the standard deduction for household heads rose by \$1,860. These changes, in conjunction with the many changes in EITC credit rates, phase-in and phase-out ranges, make it hard to picture the changes in taxes at various earnings levels. To aid this evaluation, we plot in Figure 2 the difference in take home pay (earnings minus federal income taxes plus the EITC) between a woman with two children and a woman with no children for various pre-tax earnings levels in 1984, 1988, 1992, and 1996.⁹ We focus on the difference between a woman with two children and a childless woman because comparisons between single women with and without children are used in our analysis of employment trends below.¹⁰

Figure 2 illustrates several important aspects of the EITC expansions. First, between 1984 and 1988, single mothers of two with earnings between \$10,000 and \$20,000 experienced increases in take home pay (relative to single women without children) that ranged from \$500 to \$1,500.¹¹ Thus, the reward to working increased substantially for single mothers relative to single childless women. Most of this increase was due to large increases in both the maximum credit and the earnings level before the credit phase-out began. Between 1988 and 1990, tax and EITC parameters were adjusted only for inflation, so the take home pay difference remained the same. Between 1990 and 1992, the moderate increase in the credit rate is evident.

The most striking feature of Figure 2 is the effect of the 1994-1996 expansions, which dwarfed

⁸ Beginning in 1997, some states chose to count the EITC in benefit calculations for their welfare programs.

⁹ Note that Figure 2 only illustrates differences in take home pay due to federal income taxes and the EITC. Other programs and work expenses, especially child care expenses, would need to be taken into account to fully characterize differences in take home pay between single women with and without children.

¹⁰ Changes over time in this difference were almost entirely due to changes in taxes paid (or credits received) by single mothers as can be seen in Panel 1 of Table 1. The taxes paid by single women without children hardly changed between 1984 and 1996, especially for earnings levels between \$10,000 and \$20,000.

¹¹ Unless noted, all dollar amounts are in 1996 dollars, indexed by the PCE deflator.

their predecessors, particularly for women with two or more children.¹² For example, the take home pay difference for women with \$7,500 of earnings increased only about \$600 between 1984 and 1993, but increased over \$1,500 between 1993 and 1996. Unlike the earlier expansions, those since 1993 dramatically increased the take home pay difference for very low income women (earnings under \$10,000) due to large increases in the credit rate and maximum credit. Thus, these EITC expansions sharply increased over a short period of time the reward for working, particularly for women with two or more children.

As well as federal income tax changes, there were changes in state income taxes, including state EITCs. By 1994, seven states had their own EITCs. The largest five of these states with credits introduced them during the period we examine. All of the state EITCs were set as a fraction of the federal EITC and thus increased when it did.¹³ Four states had refundable tax credits (Minnesota, New York, Wisconsin, and Vermont), while three other states had non-refundable credits (Iowa, Maryland, and Rhode Island). The size of these credits range from Iowa's nonrefundable credit set at 6.5 percent of the federal EITC (a maximum of \$231 in 1996) to Wisconsin's refundable credit, which in 1996 was set at 43 percent of the federal EITC for families with three or more children (a maximum of \$1,529). There were other state income tax changes during our sample period that reduced taxes for single mothers. More than a dozen states increased their personal exemption, increased their child credit, added a higher standard deduction or added a separate tax schedule for household heads. Quantitatively, though, these changes were not nearly as important as the institution and expansion of state EITCs.

To summarize these changes in federal and states taxes, we calculate the average taxes a single mother would pay if she worked. We call this quantity Income Taxes if Work. We obtain this average by integrating taxes over the earnings distribution for single women averaged over the 1984-1996

¹² Figure 2 does not incorporate the small credit, instituted beginning in 1994, available to taxpayers without qualifying children who were 25 and older. This credit is incorporated in the tax variable used in the empirical work below.

¹³ Wisconsin used a slightly different rule, but only in 1994.

period.¹⁴ We use this earnings distribution to calculate several other variables below. To illustrate the changes in the Income Taxes if Work variable over time, in Figure 3 we plot its mean for single women with zero, one, and two or more children by year from 1984-1996. Figure 3 and Appendix Table 1 indicate that the taxes of a typical single mother with one child fell about one thousand dollars over the 1984-1996 period. About forty percent of that fall occurred by 1990 and about sixty percent in the last six years. For a single mother with two or more children, the fall was almost nineteen hundred dollars, with over fifty-five percent of that fall occurring in the last three years. Over the same 1984-1996 period, the taxes paid by a single woman with no children rose slightly. Overall, the taxes paid by a single mother fell \$1,607 between 1984 and 1996 relative to that of a single childless woman. Almost all of the fall was due to federal tax changes. Only \$38 was due to state taxes, with all but \$7 of this due to state EITCs. However, in the seven states with state EITCs the role of state taxes was much greater. In these jurisdictions, state EITCs accounted for a \$221 drop in the taxes of single mothers relative to single women without children.

The theoretical effect of the EITC expansions on the annual participation decision of single parents is unambiguously positive. Since the EITC expansions have increased the after-tax return to work at all earnings levels, work is unambiguously more attractive.

2.2 AFDC and Food Stamps

The two programs most commonly thought of as welfare are Aid to Families with Dependent Children (AFDC) and Food Stamps.¹⁵ We discuss Food Stamps along with AFDC because nearly 90 percent of AFDC recipients also receive Food Stamps (U.S. House of Representatives, Green Book, 1996). Both of these programs are large relative to other means-tested programs, but neither has grown much since 1984. Real spending on AFDC benefits fell slightly from \$21.7 billion to \$20.4 billion between 1984 and 1996, even though the number of recipients increased by fifteen percent from

¹⁴ We use separate distributions for women with and without children calculated from March CPS earnings from the years 1984-1996.

¹⁵ With the passage of the Personal Responsibility and Work Opportunity Reconciliation Act of 1996 (PRWORA), AFDC has been replaced by welfare block grants to states under the Temporary Assistance to Needy Families (TANF) program. See Blank (1997) for an overview of the likely effects of this new legislation.

10.9 million to 12.6 million. Food Stamp program expenditures increased by over 35 percent during this same period from \$20.0 billion to \$27.3 billion, though most of this increase was due to the number of recipients rising from 20.9 million to 25.5 million. Even if some measures of overall spending did not change a great deal, there have been changes in the benefits and implicit tax rates under these programs over time, and in recent years there has been experimentation with many other features of these programs. Before describing these recent changes, it is useful to summarize how the programs work.

The AFDC program provides cash payments to families with children who have been deprived of support due to the absence or unemployment of a parent. The Food Stamp program provides low-income households with coupons to purchase food. AFDC program parameters are set by the states, while most Food Stamp parameters are the same in all states. Nevertheless, because of the interaction of the eligibility and benefit calculations of the two programs, there are inter-state differences in the Food Stamps received for people in similar situations.

Eligibility and benefit calculations under the two programs follow roughly similar rules. A monthly benefit or guarantee that varies with family size is provided to recipients with no income. After an initial *earnings exemption* (earnings which result in no benefit reduction), benefits are reduced by the amount of the additional income times a fraction, called the *implicit tax rate*, until benefits are zero and the family is no longer eligible for the program. The full details of the calculations are quite involved.

There are several things that one should note about the calculations. First, there are complicated interactions between the two programs, because the Food Stamp program counts AFDC benefits as income in its benefit calculations (but the AFDC program does not count Food Stamp amounts as income in its benefit calculations). This rule implies that in states with sufficiently high AFDC benefits there is an implicit Food Stamp tax rate applied to the first dollar of earnings, while in other states initial earnings result in no benefit reduction. This rule also implies that for some states the Food Stamp implicit tax rate will fall when earnings are sufficiently high that AFDC benefits have been reduced to zero. Second, state AFDC programs differ in their earnings exemptions and implicit tax

rates, though this point is not widely understood.¹⁶ For example, since October 1989, in most states the earnings exemption for AFDC has been \$120 during the first four months of work, \$120 again during months five through eight, and \$90 thereafter, but in Mississippi the earnings exemptions have been \$372, \$288, and \$258, respectively. Furthermore, in most states the AFDC implicit tax rate is 0.67 during the first four months of work and 1.00 thereafter, but 0.40 and 0.60, respectively, in Mississippi. Third, the implicit tax rates can be substantial. Once AFDC and Food Stamp disregards are exhausted, a typical implicit tax rate is 0.71.

To illustrate these calculations, Figure 4 presents the 1995 benefit schedules for AFDC, Food Stamps, and Medicaid for women with two children in Alabama, Mississippi, and Pennsylvania. These states have been chosen to highlight the difficulty with the common approach of measuring the combined effect of AFDC and Food Stamps using only the combined maximum benefit.¹⁷ Measuring the AFDC and Food Stamp programs using the combined maximum benefit ignores these interstate differences in earnings exemptions and implicit tax rates, which are likely to be important for working AFDC recipients or those considering work. For example, in 1995 a woman with two children who works part-time (80 hours per month) at a low wage (\$5 per hour) receives \$355 per month in combined AFDC and Food Stamp benefits in Mississippi, but only \$295 in Food Stamps only in Alabama, even though the maximum benefit is higher in Alabama (\$468) than in Mississippi (\$424).¹⁸ Consequently, summarizing these benefit schedules using only the maximum combined benefit completely ignores this large source of variation in state AFDC benefit schedules. Figure 5 shows the time pattern of the mean maximum welfare benefit and the mean benefit if a single mother works

¹⁶ For most states (e.g. Alabama and Pennsylvania), the payment standard (the level of income after disregards at which AFDC benefits are zero) is the same as the maximum benefit. Furthermore, the ratable reduction (the fraction paid to AFDC recipients of the difference between the payment standard and income after disregards) is one, making the AFDC implicit tax rate identical to the benefit reduction rate and the AFDC earnings exemption equal to the earnings disregard. However, in 1996 fifteen states had ratable reductions different than one, maximum benefits different than their payment standards, or both. For example, in Mississippi the ratable reduction equaled 0.60 and the maximum benefit was set at less than a third of its payment standard.

¹⁷ Some research has used the implicit tax rate in addition to the maximum benefit to parameterize AFDC and Food Stamps. See Moffitt (1992a) and Danziger, Haveman, and Plotnick (1981) for excellent reviews of the AFDC literature.

¹⁸ Women are assumed to be in their first four months of work, to have no unearned income, and to claim no child care expenses.

(averaging over the earnings distribution described earlier). Due to cuts in AFDC, the mean maximum combined AFDC and Food Stamp benefit fell about 7 percent over the sample period. Over the same period mean benefits for a working single mother remained roughly constant as implicit tax rates were reduced.

Theory predicts that the AFDC and Food Stamp programs decrease labor supply through both the income effect of the guarantee and the substitution effect of the high implicit tax rates on earnings.

2.3 Medicaid

Medicaid is the biggest and most costly program which aids single mothers and their children. Medicaid expenditures for those not aged or disabled (those remaining are predominately single mothers and their children) totaled \$30.9 billion in 1994, and went to 24.8 million people (U.S. House of Representatives, Green Book, 1996, pp. 897-902). Unlike the Food Stamp program and especially AFDC, Medicaid eligibility has expanded dramatically since 1984, resulting in a more than three-fold increase in Medicaid expenditures (and a 60 percent increase in the caseload) on families with dependent children between 1984 and 1994.

Prior to 1987, Medicaid eligibility for single mothers and their children required receipt of AFDC, except in the special cases of families with very large medical expenses, those receiving Supplemental Security Income (SSI), and those leaving AFDC and receiving transitional Medicaid.¹⁹ In a series of expansions, Medicaid coverage was extended to low income pregnant women and children (again see Figure 1). Beginning in April 1987, states were *permitted* to extend Medicaid coverage to children under age two in families with incomes below 100 percent of the Federal poverty line.²⁰ Subsequently, Medicaid coverage was extended to older children and those in higher income families. In October of 1988, states were *permitted* to cover children under age one in families below 185 percent of the poverty line. Later legislation often replaced state options with state requirements. Hence, since April 1990, states have been *required* to cover all children under six living in families with incomes below 133 percent of the poverty line and since July 1991 all children under nineteen (and

¹⁹ Those with very large medical expenses could receive benefits under the Medically Needy program (Blank, 1989).

²⁰ Medicaid expansions covering children under one typically cover pregnant women for services related to the pregnancy.

born after September 1983) with family incomes below 100 percent of the poverty line. This last provision expands the coverage of poor children each year to those one year older so that in the year 2000 even 17-year-olds will be covered if their family income is below the poverty line.

These rules describe what can be done with Medicaid dollars that are matched by the Federal government. Some states expanded medical coverage for children and sometimes adults with their own funds. Furthermore, the differences across states in the extent to which they took advantage of the permitted coverage options generated large differences in who was covered in different years in different states. Moreover, state AFDC rules interacted with the Medicaid expansions to determine the additional families covered. For example, in Alabama in 1995 (see Figure 4) a family consisting of a woman with two children was eligible for both AFDC and Medicaid provided that the woman's earnings per month were below \$366. Her children born after September 1983 were eligible for Medicaid if the family's monthly income was below 100 percent of the Federal poverty line (about \$1,050). Children under age six were covered if the family's monthly income was below 133 percent of the Federal poverty line (about \$1,400). In a state like Pennsylvania (see Figure 4), the effect of the Medicaid expansions were less dramatic, since families with monthly earnings below \$752 were already eligible for Medicaid due to AFDC receipt. Thus, in states with higher AFDC payment standards, the Medicaid expansions affected a smaller fraction of children.

Medicaid also was extended under transitional Medicaid programs to families who left AFDC. Beginning in October 1984, families who lost AFDC due to the loss of the four-month earnings disregard were granted nine months of Medicaid coverage. Later, as part of the Family Support Act, states were required to extend Medicaid coverage (and provide child care) for twelve months to families who lost AFDC due to increased earnings. During the second six months states have the option to charge fees for child care or to charge premiums or limit available services for Medicaid.

One can summarize the Medicaid expansions by calculating the number of total family members that would be covered if a woman works. Figure 6 shows the steep increase in the number of family members covered under Medicaid if a single mother works. The theoretical effect of Medicaid expansions on the decision to work is unambiguously positive, since those newly covered are those with earnings that would make them ineligible for AFDC. For comparison, we also graph in Figure 6 the

expected number of family members that would be covered under employer provided health insurance if a woman works. For a full description of trends in employer provided health insurance see Meyer and Rosenbaum (1999b).

2.4 AFDC Program Waivers

Under Section 1115 of the Social Security Act, the Secretary of Health and Human Services (HHS) is authorized to waive specified program requirements to allow states to experiment with program changes that are judged to promote the objectives of AFDC. This waiver authority had been rarely used prior to the late 1980s, but its use accelerated during the Bush administration and continued under President Clinton. Between January 1993 and August 1996 HHS approved welfare waivers in 43 states.

While states experimented with changes in nearly every aspect of AFDC, many provisions applied to small parts of states or would not be expected to have a substantial effect on the employment of single mothers. We focus on a few types of waiver provisions that were tried in many states. These provisions strengthened work and training requirements (27 states), set time limits for welfare receipt (24 states), or extended transitional child care or Medicaid benefits for those who leave AFDC (16 states). Some common types of provisions, such as expanded income disregards, have been incorporated in our summary of the AFDC program. Others, such as family caps (which limit the benefits for additional children) or increased resource limits (which loosened the asset restrictions for AFDC eligibility), likely have small or ambiguous effects on employment.

Unlike several other recent studies, we focus on implementation dates of waiver provisions and actual beginning dates of terminations. For illustrative purposes, we also report whether a state had made a major state-wide waiver application in case this indicates a tightening of administrative requirements in a state. In Figure 7 we report the fraction of single women living in states that have applied for or implemented various types of waivers. One can see that very few women were in states that had implemented significant waivers through at least 1994. The fraction of women in states that had made a major waiver application was much higher, 0.22 in 1992 and 0.85 in 1996.

2.5 Training Programs

To focus on the effect of training programs on the probability of work by single mothers, we describe the programs specifically for AFDC applicants and recipients. Participation in these programs was mandatory for AFDC adults, except for women with young children or those who were unable to participate for other reasons such as illness or disability. During the 1980s, the AFDC training program was the Work Incentives (WIN) program. WIN expenditures fell substantially over the early part of our period from \$259 million in 1984 to \$93 million in 1988. In 1988 the Family Support Act was passed, which established a new employment, education, and training program called JOBS (Job Opportunities and Basic Skills Training Program), which began in some states in 1989 and others in 1990. Expenditures quickly rose and were already \$804 million in 1991.

Both programs shared the goal of easing AFDC recipients' transition to employment, but they differed in two key features. First, JOBS exempted fewer women from work or training requirements. WIN exempted mothers who were caring for children under six, while JOBS exempted mothers with children under three or, at state option, a lower age. Second, the services provided differed for the programs. While both programs included as major components job search and appraisals of registrants to assess their training and support service needs, JOBS included a wider range of services. The main service provided under JOBS that was not provided under WIN was high school and post-secondary education, though JOBS also seems to have had a greater emphasis on building job skills and readying people for work. The relative emphasis on particular components of training differ greatly across states and over time.

We construct two summary measures of the character and extent of the JOBS and WIN programs in a state and year. Because educational spending is likely to have a different effect than other spending, we split expenditures into education and other, where the other category is mostly job search and related activities. We scale state expenditures by the size of the AFDC mandatory population. In Figure 8 we display the time pattern of training dollars per mandatory AFDC recipient. The education component of these expenditures rises from 1989 to 1995 and then falls slightly. The other component (mostly job search) falls to a minimum in 1988 and then rises through the end of the sample period.

The effects of these training programs on labor supply likely depends on the mix of services provided and the stringency of the participation requirements. Job search, job placements, improving job skills and readiness should lower job search costs, thereby increasing the level of work for women trainees. On the other hand, even if it has a beneficial long-term effect on wages and/or employment, secondary or post-secondary education may delay entry into the workforce while women take classes, leading to a short-term negative employment effect. In any case, there is much stronger evidence of employment effects from job search assistance than from education, at least in the short-run.²¹ If mandatory training is viewed by some women as an additional cost of AFDC participation, then more extensive training and tighter requirements could also encourage work rather than AFDC participation. We should note that the opposite is also possible, i.e. if the training is thought to be valuable and is provided free to AFDC participants, then welfare participation could rise (Moffitt, 1992b).

2.6 Child Care

The cost and quality of child care is likely to have an important effect on whether a woman works. A large number of Federal and State programs affect the availability and cost of child care.²² Several Federal programs such as the Dependent Care Tax Credit and Title XX Social Services Block Grants have been existence for decades, though have declined in importance in recent years. Another program, Head Start, has not declined in expenditures or enrollment, but is usually part day and serves 3 and 4 year-olds almost exclusively.

The federal role in child care for low income women expanded greatly following the Family Support Act of 1988 and the Omnibus Budget Reconciliation Act of 1990. Four large programs started during this period: AFDC Child Care, Transitional Child Care, At-Risk Child Care, and Child Care and Development Block Grants. We focus on these programs because they are likely to be

²¹ See Gueron and Pauly (1991) and U.S. Department of Health and Human Services (1997) for comparisons of job training programs that emphasize job search (sometimes called the labor force attachment approach) and those that emphasize education (sometimes called the human capital development approach).

²² The Congressional Research Service identified 46 programs operating in 1994 that were related to child care (U.S. House of Representatives, Green Book, 1996, p. 640). Most of the programs were small; 32 of the 46 provided less than \$50 million in annual funding.

particularly important for single mothers. AFDC Child Care is provided to AFDC recipients who are employed or in training. Transitional Child Care is for former AFDC recipients who have just left the program. One cannot receive Transitional Child Care after having been off AFDC for more than 12 months. At-Risk Child Care is for low income families not on AFDC, who need child care to work and are at risk of becoming eligible for AFDC. The Child Care and Development Block Grants program provided funds for child care services for low-income families, as well as for activities to improve the overall quality and supply of child care for all families. Total expenditures on these four new federal programs by state and year are scaled by the number of single women in a state with children under 6. These numbers can be seen in Figure 8 which shows a steep rise in child care expenditures between 1989 and 1992, followed by a slower rise in later years.

2.7 Summarizing the Changes in Work Incentives

Appendix Table 1 provides summary measures of the changes over the 1984-1996 period in the incentives for single mothers to work. Between 1984 and 1996 the annual taxes of working single mothers fell \$1,631 relative to single women without children, while the welfare benefits (AFDC and Food Stamps) of working single mothers rose \$583 relative to non-working single mothers. In other words, the increasing incentive to work due to tax changes was about three times as large as the changes in welfare benefits over this period. Together these changes in taxes and welfare benefits are over 12 percent of the average annual earnings of working single mothers. The changes in average child care benefits and job training were smaller at about \$294 and \$276, respectively. Medicaid coverage for the families of single mothers increased by about 0.31 family members over the 1984-1996 period. This increase primarily affected children and if valued at the average cost of Medicaid coverage for a child during this period (\$1,083), then it implies that changes in Medicaid eligibility increased single mothers' incentive to work by about \$336 between 1984 and 1996. Overall, the policy changes between 1984 and 1996, especially the tax changes, dramatically increased the

incentive for single mothers to work.²³

3. Data

The data used in this paper come from the Current Population Survey (CPS), a nationally representative monthly survey of approximately 60,000 households. We use two types of the CPS data, the March CPS Annual Demographic File and the merged Outgoing Rotation Group (ORG) data. In the CPS, a given household is interviewed for four consecutive months, not interviewed for eight months, and then interviewed for four more consecutive months, after which it permanently leaves the sample. During each interview household members are asked whether they worked last week and their hours worked, as well as many other questions. In the March interviews, individuals are asked to provide detailed retrospective information including hours, disaggregated earnings, and weeks worked during the previous year. The data from these March interviews is called the Annual Demographic File (March CPS). The ORG data come from all twelve months of the year and only include those in their fourth and eighth interviews. These data files allow one to use the full year of data without including the same person twice. Because the ORG includes one-fourth of the observations from each month, it has close to three times as many observations as the March CPS.

The March CPS data are from the 1968-1997 interviews, and therefore provide information on the years 1967-1996. The ORG data are from all twelve months during 1984-1996. We report two different measures of employment: whether a woman worked last week, (the ORG data) and whether a woman worked at all last year (from the March CPS data). Each measure has its advantages. Whether a woman worked last week is probably a better measure of labor supply to use as an input to policy decisions since its average captures the fraction of women working in a given week. This variable will be especially useful if those who move in or out of the work force on the margin work few

²³ Wage changes over this period slightly favored the employment of single women without children relative to single mothers. Hourly wages rose by one percent for single mothers, but increased by six percent for single women without children. Note, however, that the changes in the composition of single mothers working due to their increased employment may have affected these comparisons.

weeks during the year. On the other hand, the EITC unequivocally increases the probability of working at all in a given tax year, but for some could decrease weeks worked. If our goal is to provide a sharp test of theoretical predictions, whether a woman worked last year is a better outcome measure. We report both measures with the expectation that the effects of many of the recent policy changes on the weekly employment measure will be smaller than those for the annual measure.

4. Changes in the Employment and Welfare Receipt

Table 2 summarizes long term patterns in employment, welfare receipt, and single motherhood among those 19-44 using the March CPS.²⁴ We also report the overall U.S. unemployment rate in the last column. The table indicates an increase in the employment rate of single mothers starting in the late 1980s that accelerated in recent years. Between 1984 and 1996 the employment rate of single mothers rose eight and one-half percentage points, with a six percentage point increase after 1990. While we do not discuss hours worked here (see Meyer and Rosenbaum, 1999a), there were even larger percentage increases in hours worked. Prior to the 1984-1996 period, there were some earlier periods when the employment rate of single mothers was high, particularly 1969-70 and 1978-80. Neither of these earlier periods of increase were nearly as pronounced as the recent increase.²⁵ The employment of single mothers appears to be cyclical as their employment tends to rise as the overall unemployment rate falls. However, these two variables do not track each other that closely, as the unemployment troughs of 1973 and 1989 were not associated with substantial employment rate increases for single mothers. The recent rise in the employment of single mothers appears to have little precedent in the past.

Table 2 also shows that the recent increases in employment of single mothers were mirrored by changes in welfare receipt of a similar magnitude and the opposite sign. This pattern is not sufficient to

²⁴ We only report March CPS results here since children were not identified in the ORG data prior to 1984. The ORG data also do not include welfare receipt.

²⁵ Since we have not thoroughly studied the changes in policy during this period (such as the OBRA1981 provisions which discouraged work by welfare recipients), we cannot be much more definitive about these numbers.

conclude whether changes in work incentives, or welfare per se, led to the behavioral changes. With this in mind, it is striking that 1996 is the first year that most women who received welfare also worked during the year.

5. Has the Employment of Other Groups Risen with that of Single Mothers?

To examine if these policy changes are the likely cause of recent changes in the employment of single mothers, we compare the employment trends of single mothers to those of other groups. If the increases in employment were not shared by other groups, it is more likely that policies that affected single mothers, but not others, were responsible.

5.1 Single Mothers vs. Single Women without Children

We begin by comparing the employment rates of single mothers and single women without children.²⁶ In the left panel of Table 3, we report these employment rates during a typical week from the ORG data, and in the right panel we report the rate for work at all during the year from the March data. We report rates for those with and without children and the rate for childless women minus the rate for women with children. We report this difference because many determinants of employment that change over time, in particular wages, might be expected to affect the two groups similarly. However, other determinants of employment, in particular the tax and transfer programs described earlier, specifically affect single mothers.

The employment rates reported in Table 3 show a striking time pattern. In the ORG sample, weekly employment increased by almost six percentage points for single mothers between 1984 and 1996, but declined by 0.75 percentage points for single women without children. In the March CPS, annual employment rose by 8.70 percentage points for single mothers, but declined by over a full percentage point for single women without children over the same time period. Furthermore, nearly all

²⁶ This approach is the one taken by Eissa and Liebman (1996) who use the March CPS data to compare single women with and without children over the 1984 to 1990 period.

of the relative increase in employment for single mothers took place between 1991 and 1996. These results suggest that the rising employment of single mothers was not a result of better work opportunities for all women, since single women without children had slight declines in employment. Moreover, the timing of the increase in employment suggests that policy changes in the 1990s are likely to have played a role.

The changes in employment over time for single mothers compared to those without children might be partly explained by differential changes over time in characteristics such as age and education for single women with and without children. Moreover, business cycles may differentially affect single women with and without children, thereby leading to employment shifts unrelated to policy changes. However, the results are little changed when we account for a wide range of demographic and business cycle characteristics, including the unemployment rate as well as its interaction with whether or not a woman has children.²⁷

5.2 Single Mothers vs. Married Mothers

Table 4 provides a second set of comparisons: single mothers versus married mothers. This comparison is useful because there are policies, such as child care programs and family leave rules, that might be expected to affect mothers, but not those without children. When examining their employment trends, however, one needs to keep in mind that, unlike the rate for single women without children, the employment rate of married women has been rising steadily for nearly a century. The left hand side of Table 4 shows that work in a typical week rose 10.7 percentage points between 1984 and 1996, almost one percentage point a year. Over the longer 1967-1996 period of the March CPS data, work

²⁷ For example, between 1984 and 1996 probit average derivatives indicate that the weekly employment of single mothers relative to single women without children rises 5.4 percentage points without controls and 5.9 percentage points with controls. For annual employment, the corresponding numbers are 7.1 percentage points without controls and 7.3 percentage points with controls. The controls include state, race, ethnicity, age, education, marital status, marital status interacted with a children indicator, the number of children under six and eighteen, the state unemployment rate, the state unemployment rate interacted with a children indicator, (for the March CPS only) controls for pregnancy, central city and unearned income, and (for the ORG only) controls for month and month interacted with a children indicator. See Meyer and Rosenbaum (1999a) Section 5.3 for details.

anytime during the year rose 27.5 percentage points, again almost a percentage point per year. One must somehow abstract from this trend if one is going to use married women as a comparison group for single mothers. First of all, while the employment of single mothers increased after 1984 and accelerated after 1991, the trend increase in the employment rate of married women slowed considerably over this period. This pattern indicates that the forces increasing the employment for single mothers did not have a similar effect on married mothers. Furthermore, in the 1990s the employment of single mothers rose relative to married mothers. Recall from Section 2 that 1991 began a series of years of continuous expansion of the EITC. Between 1991 and 1996 the employment of single mothers rose faster than that of married mothers by 3.2 percentage points in a typical week and 6.6 percentage points during the year.²⁸ Thus, the recent rise in employment of single mothers does not appear to be due to factors which affected all mothers.

5. 3 Single Mothers vs. Black Men

In the top panel of Table 5, single mothers are compared to black men. We examine black men because relatively disadvantaged groups may respond similarly to macroeconomic conditions and other changes in the low-wage labor market. There are only small changes over time in the employment rates for black men, particularly for work at any time in the year from the March CPS. Therefore, again there are large increases in the relative employment rate of single mothers during the 1984-1996 period. Probit equations which control for individual characteristics (we now interact all the controls with being a black man as well as include the main effects) do little to alter the patterns in the 1990s, though they do increase the relative rise in single mothers employment over the full 1984-1996 period. The weekly employment rate of black men in the ORG data is low (only about ten percentage points higher than that of single mothers), thus the constancy of the black male employment rate is not due to a lack of room for it to rise. Overall, changes in the economic conditions affecting

²⁸ The EITC expansions may be partly responsible for the slower growth of married mothers' employment, but the likely impact is small relative to the changes for single mothers. Eissa and Hoynes (1998) conclude that the EITC has reduced the employment of high school dropout single mothers by 1.2 percentage points.

disadvantage groups do not appear to be an explanation for the recent increases in the employment of single mothers.

5. 4 High School Dropout Single Mothers and Single Women without Children

In the bottom panel of Table 5, we compare high school dropout single mothers to high school dropout women without children. High school dropout single mothers are likely to be disproportionately affected by the EITC given their low wages and the recent expansions in the credit for those with the lowest earnings that we saw in Figure 2. Furthermore, the wages and other characteristics of the single women included in this panel are more similar than those in the sample of single women with all levels of education. When we compare work in a typical week over 1984-1996, the employment rate of single mothers rises 9.8 percentage points relative to that of single women without children. For employment anytime during the year, the relative rise is 14.7 percentage points. In both cases, most of the rise occurs in the 1990s. When we control for individual characteristics in a probit equation as described above (we now drop the education controls) the relative increases in single mothers' employment rise by about one-third. However, over the period since 1991, the controls have little effect, barely affecting the large rise in single mothers' employment. Overall, there are particularly large increases in employment for high school dropout single mothers during the period of EITC expansions.

6. Do the Patterns of Employment Change Suggest that Policy Led to the Changes?

As we emphasized in Section 2, the changes in tax and welfare policy in recent years should have particularly affected certain groups. In this section, we examine some of these hypotheses in order to determine which policies were likely responsible for the increases in employment. In the top panel of Table 6 we begin by looking at the employment changes for those with two or more children relative to those with only one child. Recall from Section 2 that the EITC only differed trivially by the number of children until 1994. By 1996, however, the maximum credit for families with two or more children had

risen to \$3,556, while that for one child families had remained constant in real terms since 1994 and was \$2,152. The effect of these EITC changes on expected taxes for women who work can be seen in Figure 3 and Appendix Table 1. Between 1993 and 1996, income taxes when working fell an average of \$1,049 for single mothers with two or more children, but by only \$346 for those with one child.

We see in Table 6 that the employment of single mothers with two or more children was steady or falling through 1993, both on an absolute level and relative to single mothers with one child. Between 1984 and 1993, the employment of single mothers with two or more children minus that for those with one child fell 3.6 percentage points for work in a typical week. For work anytime during the year, the difference in employment fell 6.3 percentage points. Beginning in 1994, this trend reversed sharply with single mothers with two or more children increasing their relative employment. Between 1993 and 1996, the relative employment in a typical week of those with two or more children rose 1.9 percentage points. For work anytime during the year, the increase was a very large 10.2 percentage points. This pattern closely fits what would be expected if the EITC had a substantial causal effect on employment.

Two alternative explanations for this pattern of employment change by number of children are not supported by the evidence. It is possible that a given dollar tax cut could have different quantitative effects on one and two child families, complicating the use of family size as a source of identification. However, the pattern of tax and employment changes are fortuitous in allowing us to distinguish the effect of two vs. one child. The EITC expansions through 1993 cut taxes equally for the two groups and coincided with relative decreases in the employment of single mothers of two or more children, suggesting a smaller per dollar effect on those with two or more children. After 1993, however, the expansions were focused on mothers with two or more children, and it is only then did we see relative increases in the employment of this group. Note that changes in the incremental welfare benefits for additional children are also not a plausible alternative explanation. Over the full 1984 to 1996 period, or the recent 1993 to 1996 period, the difference in welfare benefits between those with one and two children did not change in percentage terms, and the absolute differences in the changes were small.

To examine further whether tax policy was the cause of the employment increase, the bottom

panel of Table 6 compares employment changes in low and high cost of living states.²⁹ A given dollar tax credit amount should be valued more and have a greater behavioral response in states with a low cost of living than in states with a high cost of living. Our calculations indicate that taxes fell \$357 more in real terms between 1984 and 1996 in the low cost of living states.³⁰ Employment rates increase more in the low living cost states through most of the 1984-1996 period, as predicted. However, the employment increase is not focused in the last few years of greatest expansion of the EITC, and is probably larger than is plausible. Nevertheless, the increase does begin in 1988 or 1989 which is roughly consistent (especially with a lagged response) with the longer period of increases in the EITC from 1987 through 1996. We have also examined the change in employment in high and low cost of living states for single mothers relative to those for single women without children. In this case, the changes in employment between the two sets of states are less sharp, particularly for work in a typical week, but they still go in the expected direction. Overall, the cost of living differences are further evidence in favor of a tax effect on employment, though the differences reported in the bottom of Table 6 are probably too large to be purely due to the interaction of living costs and taxes.

In the top panel of Table 7, we continue to probe whether the evidence is consistent with a substantial effect of tax changes on employment. Here we examine the change in employment among single mothers in states that had a state EITC sometime during our sample period compared with those states that never had EITCs. There are seven states with their own EITCs, all of which had enacted their credit by 1994. While this comparison does not use the timing of specific states EITCs, our calculations of average state taxes indicate that state EITCs do not significantly reduce taxes until 1994. In Table 7, there is weak evidence of a small effect of the state EITCs on the employment of single mothers. In the ORG data the relative employment of single mothers rises 2.6 percentage points in EITC states after 1993. In the March data there is little change in EITC states in later years. We also examined employment changes for single mothers minus single childless women in states with their own

²⁹ We divide states into high and low cost of living using the index described in detail in Meyer and Rosenbaum (1999a). This index incorporates housing cost differences across states, using Census data to calculate the price of a standardized apartment in each state.

³⁰ This calculation incorporates the differences in the wage distributions between high and low cost of living states.

EITC relative to non-EITC states. These estimates suggest and one to two percentage point increase in single mothers' employment after 1993 in EITC states. Overall, there is evidence in support of a state EITC effect.

In the bottom panel of Table 7 we examine single mothers with children under six compared to single women without children. For women with young children the increase in employment in the ORG data is even larger than it was for all single mothers: 10.1 percentage points. In the March data the increase in employment is larger still: 13.4 percentage points. As noted earlier, there are only small changes in the employment of single childless women. Since many of the policy changes might be expected to particularly affect mothers of young children³¹, this result is interesting but does not rule out or confirm any particular policy. This contrast also partly reflects the effect of having two or more children, since those with a young child are more likely to have more than one child under 18.

Table 8 provides employment change comparisons for states with different changes in welfare and Medicaid policies. The top panel compares states with large and small increases in the difference in welfare benefits for a woman who works minus those for a woman who does not work. The panel indicates that there was little difference between states with large and small increases in the incentive to work under welfare programs. The employment rate difference between the states was fairly constant over time, though there was a slight dip in the difference in the middle of the 1984-1996 time period. The point estimates indicate a relative increase in employment where the welfare incentives were changed less, but the estimates are not significantly different from zero.

The bottom panel of Table 8 compares states with large Medicaid expansions to those with small expansions in their Medicaid eligibility rules. The panel indicates that employment rose more over the 1984 to 1996 period in states with large Medicaid expansions than in states with small expansions. However, the timing of the employment changes is not very favorable to a causal interpretation of this finding. Medicaid coverage increased the fastest in states with large increases relative to those with

³¹ The changes in the AFDC training programs particularly affected women with young children and the child care programs might be expected to have the largest effects on pre-school children. However, even the changes in welfare and the EITC might have the largest impact on those with young children, if there is a concentration of those close to the work/non-work margin in this group.

small increases during 1986 to 1991 and 1993 to 1996. In the ORG, the employment of single mothers fell in states with large increases relative to those with small increases during both of these periods. In the March CPS, relative employment increased during the first period but fell during the second period.

We also examined states with major statewide welfare applications by 1994. There is a relative increase in both measures of employment for these states, but it appears that the increase in employment began well before the states even applied for the waivers, with the application usually preceding implementation by a year or more.

To assess the relative contribution of changes in different policies in causing the recent employment increases, some form of multivariate analysis is probably the best approach. Such an approach is taken in Meyer and Rosenbaum (1999a) and accounts for differences in multiple policies across states and across families with different numbers and ages of children. That approach also accounts for the exact timing of policy changes. The approach taken in this paper is a complement, not an alternative to this earlier approach.

The EITC might be expected to have a lagged effect on employment if some recipients do not learn about changes in the credit until after they file their taxes or receive a refund. There is some hint that EITC changes have a lagged effect on employment in the overall time pattern of employment changes and in the cost of living results. Meyer and Rosenbaum (1999a) found weak evidence in favor of a lagged effect. In addition, the elasticities in that paper, which are based on a more structured analysis of the data in this paper, are not large relative to those in the literature, and thus may be consistent with imperfect perception of taxes.

7. Are the Comparison Groups Valid?

In this section, we examine whether single mothers and the comparison groups are comparable in a number of dimensions. In particular, we examine the wages of the different groups, ‘ceiling effects’ that could lead to the differential impact of omitted factors on the groups, and the potential endogeneity of single motherhood.

The primary determinant of employment for single mothers and the comparison groups is wages. Figures 9 through 11 show wage histograms for single mothers and comparison groups taken from the March CPS data and averaged over the 1984-1996 period. Figure 9, for single mothers with and without children, shows that while single women without children have higher wages on average, there is a high degree of overlap between the two distributions. Figure 10 shows a similar pattern for the wage distributions of single and married mothers. Figure 11 shows the distributions for single women with and without children after one restricts the sample to those with less than a high school education. The wage distributions for these two groups are almost indistinguishable. Thus, the wage levels of single mothers and the comparison groups, especially once one conditions on education, are quite comparable. One might then ask if there have been disproportionate changes in the wages of single mothers and the comparison groups over time. We focus on single women with and without children since they are our primary comparison group. If the wages of single mothers rose more in recent years than the wages of single women without children, it would provide an alternative explanation for the rise in single mothers' employment. As mentioned in Section 2.7, the reverse is true: the wages of single childless women rose about six percent between 1984 and 1996, while those of single mothers only rose about one percent. A similar pattern holds if one looks at single women without a high school education. Overall, the pattern of wage levels and changes suggests that we are not overstating the rise in single mothers' employment.

Another potential criticism of some of our comparison groups is that their employment rates are so high that it is unreasonable to expect them to respond to changes in economic conditions and other factors in the same way that single mothers do. In our logit estimates, this argument is not compelling because we include as controls the unemployment rate as well as its interaction with being a single mother, which accounts for a differential effect of economic conditions on the two groups. This argument is also not compelling because employment rates are not particularly high for several of our comparison groups, especially for work in a typical week. Married mothers and single mothers have similar employment rates, and the weekly employment of black men is only about ten percentage points higher than the rate for single mothers. Most importantly, in the comparison of low-educated single women with and without children, the employment rates of both groups are not high at all. Only 33

percent of high school dropout single mothers and 48 percent of high school dropout single women without children worked in a typical week. Nevertheless, the relative changes in employment are larger for high school dropouts than that for all single mothers.

Yet another potential criticism is that using variation across women in their marital status and presence of children implicitly assumes that marriage and fertility decisions are exogenous to the policy changes that we examine. The evidence on the effects of policy changes on these decisions is mixed, making the exogeneity assumption more plausible. For example, in her recent review, Hoynes (1997) concludes: “Together this evidence suggests that marriage decisions are not sensitive to financial incentives.” She also argues that: “Overall [the effects of welfare on out-of-wedlock births] are often insignificant, and when they are not, they are small (pp. 129-130).” On the other hand, another recent review, Moffitt (1997), suggests the weight of the evidence implies some effect of welfare benefits on marriage and fertility. The last column of Table 2 reports the fraction of women 19-44 who are single mothers for the years 1967 to 1996. This rate shows a steep increase over the period as it more than triples between 1967 and 1991. In recent years, the rate of increase has slowed, suggesting that the large recent increases in work by single mothers are not due to working women changing their fertility or marriage behavior. However, the appropriate counterfactual rate of single motherhood is unclear. Aggregate data may also hide increases in marriage for some groups and decreases for others. Eissa and Hoynes (1999) conclude that recent tax and welfare changes increased marriage rates for very low income couples, but decreased marriage among those with somewhat higher incomes.³² However, it is unlikely that employment rates are sufficiently different and stable across these groups to lead to a substantial increase in measured employment for single mothers. Overall, it is likely that endogenous single motherhood exerts a small bias on our results.

8. The CPS Redesign

One caveat in interpreting changes in employment during the years 1992 to 1994 is that,

³² On the other hand, Ellwood (1999) finds little or no effect of the EITC and welfare on marriage.

beginning in January 1994, the CPS used a redesigned questionnaire.³³ We assess the extent of any bias is the employment rate of single women due to the redesign using two methods.

First, we take advantage of the fact that in the March CPS reports retrospective employment information, so the redesign first affects the 1993 employment rates. Conversely, for the contemporaneous employment information used in the ORG, the redesign first affects the 1994 rates. We compare the seam in each of these two datasets to unbroken data from the other dataset to provide an estimate of the bias due to the redesign.³⁴ Note that we focus on the difference in differences, i.e. the one year change in the employment rate for single mothers minus the change for single women without children. In Table 9, we compare the 1993-1992 March CPS difference in differences (single mothers minus single women without children) that spans the redesign to that in the unbroken ORG data. This comparison suggests that the redesign has led to an understatement of the increase in single mothers' employment in the March CPS, but the bias is small and insignificant. Similarly, we compare the 1994-1993 ORG difference in differences which spans the redesign to that in the unbroken March CPS data. This comparison suggests that the redesign has led to a substantial understatement of the increase in single mothers' employment in the ORG, though the bias estimate is only marginally significant. Since the changes due to the redesign mostly affected questions from the monthly questionnaire (the basis for the ORG data) rather than those from the supplemental questionnaires (the basis for the March CPS data), it is not surprising that the effects are larger in the ORG.

The second method of estimating the redesign bias exploits the parallel survey of 12,000 households that was conducted using the new collection procedures and questionnaire between July 1992 and December 1993. Table 10 reports comparisons of the difference in differences (single mothers minus single women without children) in the parallel survey to those in the ORG. These estimates suggest a small but insignificant positive bias in the ORG due to the redesign. Hence, this analysis suggests that the redesign resulted in a small *overstatement* of the increase in employment of

³³ For a description of this CPS redesign, see Cohany, Polivka, and Rothgeb (1994), and Polivka and Miller (1998).

³⁴ One caution regarding this procedure is that the March CPS measures annual employment, while the ORG records weekly employment. However, Table 2 indicates that year to year changes in the two surveys tend to be in the same direction and of a similar magnitude, though the March CPS changes tend to be slightly larger.

single mothers in the ORG.³⁵ Overall, these comparisons indicate that the CPS redesign is not the source of the recent employment increases of single mothers.³⁶

9. Conclusions

Between 1984 and 1996, there were enormous changes in many of the tax and transfer programs that affect single mothers. The Earned Income Tax Credit was expanded, welfare benefits were cut, welfare time limits were added and cases were terminated, Medicaid for the working poor was expanded, training programs were redirected, and subsidized or free child care was expanded. All of these changes would be expected to encourage single mothers to work.

These changes were followed by large increases in the employment rates of single mothers. The employment of single mothers in a typical week rose six percentage points, while employment at all during the year rose eight and one-half percentage points. These employment increases were not shared by other low-wage groups such as single women without children, married mothers, or black men. This evidence suggests that policy changes specific to single mothers are likely to be responsible for the recent rise in their employment.

We then examine which policies were the likely cause of the employment increases. There were large relative increases in the employment of single mothers with two or more children beginning in the year when there was a substantially higher EITC for those with two or more children. There were also larger increases in employment in states with a low cost of living, where a given dollar EITC would be expected to have a larger effect. We find some evidence of larger employment increases in states with their own EITCs. We find that states with larger Medicaid expansions had larger employment increases, but the timing of the employment changes fits poorly with that of the policy changes. We also

³⁵ The ORG/ADF difference from the parallel survey may be due to differences between the parallel survey and the regular CPS. In particular, the parallel survey interviewers had lower caseloads, and the interviews were longer and were supervised more carefully.

³⁶ A final source of evidence is the SIPP employment rate change between 1993 and 1994 reported in Liebman (1998). He finds that employment rose 4.5 percentage points over this period. The comparable change in the ORG was 1.8 percentage points, again suggesting that the ORG understates the rise in single mothers employment.

find little evidence for an effect of changes in welfare benefits. However, welfare and Medicaid may be better evaluated in a multivariate structural approach such as that of Meyer and Rosenbaum (1999a). Overall, the findings are supportive of our earlier conclusion that the EITC had a major role in spurring the recent increase in the employment of single mothers.

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APPENDIX: SOURCES OF INFORMATION ON POLICY CHANGES

A. TAX, WELFARE, AND MEDICAID RULES

We obtain the federal income tax schedules from the U.S. Department of the Treasury (Tax Guide, various years). The state tax information was obtained from four sources: the Advisory Committee on Intergovernmental Relations (various years), the Commerce Clearing House (various years), unpublished data from the Center on Budget Policy and Priorities, and Feenberg and Coutts (1993). The AFDC program parameters are obtained from the U.S. Department of Health and Human Services (AFDC Plans, various years) and unpublished data from the Urban Institute. The Food Stamp parameters come from the U.S. House of Representatives (Green Book, various years) and the U.S. Department of Agriculture (Food Stamps, various years). The Medicaid program information is obtained from three sources: the National Governor's Association (MCH Update, various dates), the Intergovernmental Health Policy Project (Medicaid Changes, various years), and the U.S. House of Representatives (Medicaid Source Book, 1988 and 1993).

B. WELFARE WAIVERS

The waiver variables we used are based on our reading of the waiver summaries in General Accounting Office (1997), the U.S. Department of Health and Human Services (Baseline, 1997), and Savner and Greenberg (1997). These sources generally have the implementation dates of waivers. We also consulted American Public Welfare Association (1996), Levine and Whitmore (1998), and U.S. Department of Health and Human Services (Waiver Fact Sheet, 1997).

C. TRAINING AND CHILD CARE PROGRAM CHARACTERISTICS

JOBS/WIN expenditure data come from unpublished U.S. Department of Health and Human Services and U.S. Department of Labor tabulations, and the U.S. House of Representatives (Green Book, various years). Child Care expenditures come from unpublished U.S. Department of Health and Human Service tabulations..

Table 1
Summary Characteristics of Policies Affecting Single Mothers
and Single Women Without Children: 1984, 1988, 1992, 1996

Variable	1984		1988		1992		1996	
	Children	No Children	Children	No Children	Children	No Children	Children	No Children
Annual Federal/State Income Taxes, EITC, and ½ OASDHI								
At \$5,000 Earnings	-165	352	-331	376	-530	408	-1,472	194
At \$10,000 Earnings	96	954	-361	1,356	-687	1,427	-2,032	1,432
At \$15,000 Earnings	1,582	2,075	705	2,589	456	2,687	-533	2,706
At \$20,000 Earnings	2,704	3,325	2,391	3,844	2,335	3,980	1,626	4,009
At \$30,000 Earnings	5,438	6,326	5,368	6,538	5,549	6,666	5,580	6,668
Annual AFDC and Food Stamp Benefits								
At \$0 Earnings	7,705	0	7,603	0	7,464	0	7,089	0
At \$5,000 Earnings	4,856	0	4,940	0	4,866	0	4,619	0
At \$10,000 Earnings	1,977	0	2,059	0	2,078	0	2,013	0
At \$15,000 Earnings	557	0	566	0	654	0	635	0
At \$20,000 Earnings	95	0	95	0	111	0	136	0
Medicaid: Number of Family Members Covered								
At \$0 Earnings	2.65	0.00	2.65	0.00	2.65	0.00	2.65	0.01
At \$5,000 Earnings	2.53	0.00	2.58	0.00	2.54	0.00	2.48	0.01
At \$10,000 Earnings	1.13	0.00	1.50	0.00	1.65	0.00	1.75	0.01
At \$15,000 Earnings	0.34	0.00	0.42	0.00	0.74	0.00	0.88	0.01
At \$20,000 Earnings	0.05	0.00	0.06	0.00	0.29	0.00	0.46	0.01
At \$25,000 Earnings	0.01	0.00	0.01	0.00	0.09	0.00	0.18	0.01
Employer-Provided Health Insurance								
Probability of Coverage	1.31	0.67	1.31	0.65	1.23	0.61	1.25	0.60
Employee HI Costs	248	65	335	87	521	167	612	190
Waivers								
Any Time Limit	0.00	0	0.00	0	0.01	0	0.40	0
Any Terminations	0.00	0	0.00	0	0.00	0	0.20	0
Extended Transitional	0.00	0	0.00	0	0.01	0	0.12	0
Major Waiver Application	0.00	0	0.02	0	0.22	0	0.84	0
Annual Training/Child Care Dollars per Eligible Recipient								
Training - Education	0	0	0	0	104	0	125	0
Training - Other	120	0	37	0	172	0	271	0
Child Care	0	0	0	0	243	0	294	0
Number of Observations	126,750	18,914	126,750	18,612	126,750	19,311	126,750	15,846

Source: The data are from the 1984-1996 Current Population Survey Outgoing Rotation Group File (ORG).

Restrictions: The sample includes 19-44 year-old single women (divorced, widowed, and never married) who are not in school.

Notes: These weighted means are calculated using the characteristics of the ORG sample for the given year for single women without children and for a sample with a fixed distribution of children for single mothers. Women are assumed to be in their first four months of work, to have no unearned income, and to claim no child care expenses. Also, single women with and without children are assumed to file as head of household and single, respectively, and to claim the standard deduction. Taxes and welfare are adjusted for state cost of living differences and all dollar amounts are expressed in 1996 dollars. See text for details.

Table 2
Employment Rates and Welfare Receipt for Single Mothers,
Single Motherhood and Unemployment Rates, 1967-1996

Year	Fraction of Single Mothers, Ages 19-44, Who During the Year:						Single Mothers As Fraction of Women 19-44	National Unemp. Rate
	Worked			Did Not Work		Total Received Welfare		
	Total	No Welfare	Received Welfare	Received Welfare	No Welfare			
1967	0.7426	0.6515	0.0911	0.1320	0.1254	0.2231	0.0400	3.8
1968	0.7369	0.6372	0.0997	0.1362	0.1269	0.2359	0.0396	3.6
1969	0.7581	0.6545	0.1037	0.1312	0.1107	0.2348	0.0431	3.5
1970	0.7597	0.6186	0.1411	0.1480	0.0924	0.2891	0.0468	4.9
1971	0.7335	0.5910	0.1425	0.1719	0.0947	0.3144	0.0509	5.9
1972	0.7207	0.5552	0.1654	0.1809	0.0985	0.3463	0.0562	5.6
1973	0.7223	0.5778	0.1445	0.1845	0.0932	0.3291	0.0591	4.9
1974	0.7310	0.5659	0.1651	0.1818	0.0872	0.3469	0.0652	5.6
1975	0.7251	0.5853	0.1398	0.1985	0.0764	0.3384	0.0742	8.5
1976	0.7320	0.5901	0.1419	0.2104	0.0576	0.3524	0.0772	7.7
1977	0.7446	0.5967	0.1479	0.1999	0.0555	0.3478	0.0831	7.1
1978	0.7735	0.6181	0.1554	0.1624	0.0641	0.3179	0.0842	6.1
1979	0.7871	0.6543	0.1328	0.1601	0.0528	0.2929	0.0905	5.8
1980	0.7699	0.6497	0.1202	0.1679	0.0623	0.2881	0.0939	7.1
1981	0.7387	0.6214	0.1173	0.1882	0.0731	0.3055	0.1026	7.6
1982	0.7069	0.6185	0.0884	0.2131	0.0800	0.3015	0.1072	9.7
1983	0.7140	0.6189	0.0951	0.2090	0.0770	0.3041	0.1090	9.6
1984	0.7322	0.6509	0.0813	0.2066	0.0612	0.2879	0.1155	7.5
1985	0.7302	0.6358	0.0945	0.2036	0.0662	0.2981	0.1123	7.2
1986	0.7310	0.6303	0.1007	0.2051	0.0639	0.3058	0.1144	7.0
1987	0.7382	0.6331	0.1052	0.1885	0.0733	0.2937	0.1136	6.2
1988	0.7482	0.6491	0.0991	0.1943	0.0575	0.2934	0.1173	5.5
1989	0.7577	0.6690	0.0888	0.1811	0.0611	0.2699	0.1159	5.3
1990	0.7591	0.6518	0.1074	0.1806	0.0603	0.2880	0.1191	5.6
1991	0.7428	0.6397	0.1031	0.1934	0.0638	0.2965	0.1261	6.8
1992	0.7387	0.6321	0.1066	0.1924	0.0689	0.2990	0.1256	7.5
1993	0.7511	0.6350	0.1161	0.1852	0.0637	0.3013	0.1310	6.9
1994	0.7907	0.6681	0.1226	0.1470	0.0623	0.2696	0.1286	6.1
1995	0.8072	0.6966	0.1106	0.1254	0.0674	0.2360	0.1306	5.6
1996	0.8191	0.7046	0.1146	0.1107	0.0702	0.2253	0.1335	5.4

Source: The data are from the 1968-1997 March Current Population Survey (March) and are weighted.

Restrictions: The sample includes 19-44 year-old single (divorced, widowed, and never married) mothers (child under 19 or under 24 and a student) who are not in school, disabled, or ill, or who report having positive earned income but zero hours of work.

Notes: *Worked last year* equals one for those who worked in the preceding calendar year, and *received welfare* equals one for those who report receiving public assistance income in the preceding calendar year. *Single mothers as fraction of the women 19-44* gives the fraction of all 19-44 year-old women who satisfy the school, disability, and earnings criteria above who are single mothers. See text for details.

Table 3
Employment Rates, Differences, and Differences in Differences
For Single Women with and without Children, ORG and March CPS

Year	CPS Outgoing Rotation Group, Employed = Worked Last Week				March CPS, Employed = Worked During Year			
	Single Mothers	Single Women w/o Children	Difference	Standard Error	Single Mothers	Single Women w/o Children	Difference	Standard Error
1967	.	.	.	.	0.7426	0.9246	-0.1820	0.0153
1968	.	.	.	.	0.7369	0.9207	-0.1838	0.0155
1969	.	.	.	.	0.7581	0.9120	-0.1539	0.0148
1970	.	.	.	.	0.7597	0.9109	-0.1512	0.0141
1971	.	.	.	.	0.7335	0.9068	-0.1734	0.0143
1972	.	.	.	.	0.7207	0.9136	-0.1930	0.0140
1973	.	.	.	.	0.7223	0.9166	-0.1942	0.0138
1974	.	.	.	.	0.7310	0.9116	-0.1806	0.0131
1975	.	.	.	.	0.7251	0.9298	-0.2047	0.0120
1976	.	.	.	.	0.7320	0.9301	-0.1981	0.0107
1977	.	.	.	.	0.7446	0.9288	-0.1842	0.0103
1978	.	.	.	.	0.7735	0.9267	-0.1532	0.0098
1979	.	.	.	.	0.7871	0.9381	-0.1510	0.0084
1980	.	.	.	.	0.7699	0.9278	-0.1579	0.0084
1981	.	.	.	.	0.7387	0.9415	-0.2028	0.0088
1982	.	.	.	.	0.7069	0.9320	-0.2251	0.0089
1983	.	.	.	.	0.7140	0.9337	-0.2197	0.0087
1984	0.5854	0.8014	-0.2160	0.0059	0.7322	0.9399	-0.2077	0.0083
1985	0.5861	0.8048	-0.2187	0.0058	0.7302	0.9439	-0.2137	0.0083
1986	0.5891	0.8131	-0.2240	0.0057	0.7310	0.9450	-0.2141	0.0082
1987	0.5941	0.8179	-0.2238	0.0056	0.7382	0.9473	-0.2091	0.0081
1988	0.6027	0.8215	-0.2188	0.0058	0.7482	0.9485	-0.2003	0.0084
1989	0.6136	0.8150	-0.2015	0.0058	0.7577	0.9409	-0.1831	0.0080
1990	0.6007	0.8155	-0.2148	0.0056	0.7591	0.9424	-0.1832	0.0079
1991	0.5790	0.8031	-0.2242	0.0056	0.7428	0.9418	-0.1990	0.0079
1992	0.5790	0.7957	-0.2167	0.0057	0.7387	0.9299	-0.1913	0.0081
1993	0.5875	0.7918	-0.2044	0.0057	0.7511	0.9356	-0.1845	0.0080
1994	0.6053	0.7921	-0.1868	0.0057	0.7907	0.9312	-0.1405	0.0078
1995	0.6265	0.7971	-0.1707	0.0058	0.8072	0.9340	-0.1268	0.0080
1996	0.6450	0.7958	-0.1488	0.0060	0.8191	0.9290	-0.1098	0.0079
1996-1984	0.0596	-0.0075	0.0671	0.0084	0.0870	-0.0109	0.0979	0.0114

Sources: The data are from the 1984-1996 Current Population Survey Outgoing Rotation Group File (ORG) and the 1968-1997 March Current Population Survey (March) and are weighted.

Restrictions: Both samples include 19-44 year-old single (divorced, widowed, or never married) women who are not in school. The March sample excludes disabled or ill persons and those with positive earned income but zero hours of work.

Table 4
Employment Rates, Differences, and Differences in Differences
For Single and Married Mothers, ORG and March CPS

Year	CPS Outgoing Rotation Group, Employed = Worked Last Week				March CPS, Employed = Worked During Year			
	Single Mothers	Married Mothers	Difference	Standard Error	Single Mothers	Married Mothers	Difference	Standard Error
1967	.	.	.	.	0.7426	0.4820	0.2606	0.0149
1968	.	.	.	.	0.7369	0.5049	0.2320	0.0151
1969	.	.	.	.	0.7581	0.5022	0.2560	0.0143
1970	.	.	.	.	0.7597	0.5054	0.2543	0.0136
1971	.	.	.	.	0.7335	0.4973	0.2362	0.0139
1972	.	.	.	.	0.7207	0.5105	0.2102	0.0136
1973	.	.	.	.	0.7223	0.5337	0.1886	0.0135
1974	.	.	.	.	0.7310	0.5506	0.1803	0.0128
1975	.	.	.	.	0.7251	0.5474	0.1777	0.0118
1976	.	.	.	.	0.7320	0.5794	0.1526	0.0106
1977	.	.	.	.	0.7446	0.5949	0.1497	0.0103
1978	.	.	.	.	0.7735	0.6270	0.1465	0.0098
1979	.	.	.	.	0.7871	0.6458	0.1413	0.0085
1980	.	.	.	.	0.7699	0.6494	0.1205	0.0085
1981	.	.	.	.	0.7387	0.6633	0.0754	0.0090
1982	.	.	.	.	0.7069	0.6542	0.0528	0.0090
1983	.	.	.	.	0.7140	0.6657	0.0483	0.0088
1984	0.5854	0.5272	0.0582	0.0056	0.7322	0.6836	0.0485	0.0085
1985	0.5861	0.5386	0.0475	0.0056	0.7302	0.6934	0.0368	0.0086
1986	0.5891	0.5563	0.0329	0.0055	0.7310	0.7188	0.0121	0.0085
1987	0.5941	0.5754	0.0186	0.0055	0.7382	0.7288	0.0095	0.0084
1988	0.6027	0.5845	0.0182	0.0057	0.7482	0.7338	0.0144	0.0087
1989	0.6136	0.5946	0.0190	0.0056	0.7577	0.7355	0.0222	0.0082
1990	0.6007	0.6021	-0.0014	0.0054	0.7591	0.7384	0.0207	0.0082
1991	0.5790	0.5999	-0.0210	0.0055	0.7428	0.7465	-0.0038	0.0082
1992	0.5790	0.6051	-0.0261	0.0054	0.7387	0.7431	-0.0045	0.0083
1993	0.5875	0.6085	-0.0210	0.0054	0.7511	0.7523	-0.0012	0.0082
1994	0.6053	0.6299	-0.0247	0.0055	0.7907	0.7580	0.0327	0.0080
1995	0.6265	0.6320	-0.0056	0.0055	0.8072	0.7569	0.0503	0.0082
1996	0.6450	0.6344	0.0106	0.0058	0.8191	0.7571	0.0620	0.0081
1996-1991	0.0661	0.0345	0.0316	0.0080	0.0764	0.0106	0.0658	0.0115
1996-1984	0.0596	0.1073	-0.0476	0.0081	0.0870	0.0735	0.0135	0.0117

Sources: The data are from the 1984-1996 Current Population Survey Outgoing Rotation Group File (ORG) and the 1968-1997 March Current Population Survey (March) and are weighted.

Restrictions: Both samples include 19-44 year-old single (divorced, widowed, or never married) and married (with spouse present) mothers who are not in school. The March sample excludes disabled or ill persons and those with positive earned income but zero hours of work.

Table 5
Employment Rates, Differences, and Differences in Differences, ORG and March CPS
Top Panel: Single Mothers vs. Black Men,
Bottom Panel (HS Dropouts): Single Mothers vs. Single Women without Children

Year	CPS Outgoing Rotation Group, Employed = Worked Last Week				March CPS, Employed = Worked During Year			
	Single Mothers	Black Men	Difference	Standard Error	Single Mothers	Black Men	Difference	Standard Error
1984	0.5854	0.7108	-0.1254	0.0074	0.7322	0.8936	-0.1614	0.0101
1985	0.5861	0.7288	-0.1427	0.0073	0.7302	0.9175	-0.1872	0.0098
1986	0.5891	0.7286	-0.1394	0.0072	0.7310	0.9193	-0.1883	0.0097
1987	0.5941	0.7459	-0.1519	0.0071	0.7382	0.9285	-0.1903	0.0094
1988	0.6027	0.7469	-0.1442	0.0073	0.7482	0.9175	-0.1693	0.0100
1989	0.6136	0.7607	-0.1471	0.0072	0.7577	0.9201	-0.1624	0.0094
1990	0.6007	0.7482	-0.1475	0.0071	0.7591	0.9248	-0.1656	0.0093
1991	0.5790	0.7375	-0.1586	0.0072	0.7428	0.9034	-0.1606	0.0097
1992	0.5790	0.7144	-0.1355	0.0073	0.7387	0.8956	-0.1570	0.0099
1993	0.5875	0.7256	-0.1382	0.0073	0.7511	0.9109	-0.1598	0.0097
1994	0.6053	0.7282	-0.1229	0.0074	0.7907	0.9031	-0.1124	0.0097
1995	0.6265	0.7495	-0.1231	0.0073	0.8072	0.9086	-0.1014	0.0101
1996	0.6450	0.7386	-0.0936	0.0078	0.8191	0.9113	-0.0922	0.0098
1996-1984	0.0596	0.0278	0.0318	0.0107	0.0870	0.0177	0.0693	0.0141
Year	Dropout Single Mothers vs. Dropout Single Women w/o Children				Dropout Single Mothers vs. Dropout Single Women w/o Children			
	Dropout Single Mothers	Dropout Single Women w/o Children	Difference	Standard Error	Dropout Single Mothers	Dropout Single Women w/o Children	Difference	Standard Error
1984	0.3199	0.4876	-0.1678	0.0153	0.4699	0.7446	-0.2747	0.0263
1985	0.3319	0.5019	-0.1700	0.0151	0.4713	0.7646	-0.2933	0.0263
1986	0.3431	0.4909	-0.1478	0.0154	0.4590	0.7444	-0.2854	0.0268
1987	0.3270	0.5371	-0.2101	0.0153	0.4454	0.7438	-0.2984	0.0265
1988	0.3298	0.5173	-0.1875	0.0161	0.4613	0.7520	-0.2907	0.0280
1989	0.3407	0.5209	-0.1802	0.0159	0.4828	0.7160	-0.2332	0.0264
1990	0.3306	0.5179	-0.1873	0.0151	0.4982	0.7341	-0.2360	0.0252
1991	0.3005	0.4875	-0.1871	0.0148	0.4670	0.7166	-0.2496	0.0262
1992	0.3005	0.4766	-0.1761	0.0152	0.4481	0.6524	-0.2043	0.0278
1993	0.3109	0.4539	-0.1430	0.0154	0.4717	0.7110	-0.2392	0.0286
1994	0.3238	0.4316	-0.1079	0.0162	0.5528	0.6937	-0.1409	0.0295
1995	0.3376	0.4470	-0.1094	0.0165	0.5585	0.7169	-0.1584	0.0294
1996	0.3640	0.4335	-0.0695	0.0174	0.5646	0.6919	-0.1273	0.0308
1996-1984	0.0441	-0.0542	0.0983	0.0232	0.0946	-0.0528	0.1474	0.0405

Sources: The data are from the 1984-1996 Current Population Survey Outgoing Rotation Group File (ORG) and the 1985-1997 March Current Population Survey (March) and are weighted.

Restrictions: Both samples include 19-44 year-old persons who are not in school. The March sample excludes disabled or ill persons and those with positive earned income but zero hours of work.

Notes: The top panel compares single mothers to black men. The bottom panel compares single mothers to single women without children, using only those with less than a high school education. See text for details.

Table 6
Employment Rates Differences, and Differences in Differences, ORG and March CPS
Top Panel (Single Mothers): One Child vs. Two or More Children
Bottom Panel (Single Mothers): Low Cost of Living States vs. High Cost of Living States

Year	CPS Outgoing Rotation Group, Employed = Worked Last Week				March CPS, Employed = Worked During Year			
	2+ Children	1 Child	Difference	Standard Error	2+ Children	1 Child	Difference	Standard Error
1984	0.5328	0.6392	-0.1064	0.0101	0.6634	0.8028	-0.1393	0.0151
1985	0.5252	0.6470	-0.1218	0.0100	0.6626	0.8038	-0.1412	0.0153
1986	0.5310	0.6463	-0.1153	0.0099	0.6381	0.8234	-0.1853	0.0150
1987	0.5267	0.6581	-0.1315	0.0098	0.6628	0.8137	-0.1509	0.0150
1988	0.5194	0.6801	-0.1607	0.0101	0.6664	0.8315	-0.1651	0.0153
1989	0.5399	0.6831	-0.1432	0.0100	0.6742	0.8406	-0.1664	0.0145
1990	0.5267	0.6754	-0.1487	0.0096	0.6849	0.8374	-0.1525	0.0143
1991	0.5110	0.6476	-0.1366	0.0097	0.6683	0.8203	-0.1520	0.0144
1992	0.5080	0.6508	-0.1427	0.0096	0.6643	0.8144	-0.1502	0.0146
1993	0.5169	0.6597	-0.1428	0.0096	0.6518	0.8537	-0.2019	0.0141
1994	0.5337	0.6783	-0.1445	0.0097	0.7133	0.8736	-0.1603	0.0137
1995	0.5591	0.6939	-0.1348	0.0097	0.7457	0.8716	-0.1259	0.0141
1996	0.5831	0.7068	-0.1237	0.0101	0.7697	0.8697	-0.1000	0.0138
1993-1984	-0.0159	0.0205	-0.0364	0.0139	-0.0116	0.0509	-0.0626	0.0207
1996-1993	0.0662	0.0471	0.0191	0.0139	0.1179	0.0160	0.1020	0.0198
1996-1984	0.0503	0.0675	-0.0172	0.0143	0.1063	0.0669	0.0394	0.0204
	Low Cost of Living	High Cost of Living	Difference	Standard Error	Low Cost of Living	High Cost of Living	Difference	Standard Error
1984	0.5951	0.5740	0.0211	0.0102	0.7426	0.7203	0.0223	0.0153
1985	0.5963	0.5741	0.0222	0.0101	0.7480	0.7106	0.0374	0.0156
1986	0.5942	0.5834	0.0109	0.0100	0.7461	0.7136	0.0324	0.0153
1987	0.6053	0.5814	0.0239	0.0099	0.7503	0.7255	0.0248	0.0152
1988	0.6135	0.5906	0.0229	0.0103	0.7739	0.7204	0.0535	0.0157
1989	0.6322	0.5932	0.0390	0.0101	0.7909	0.7195	0.0714	0.0148
1990	0.6138	0.5859	0.0280	0.0098	0.7818	0.7342	0.0476	0.0146
1991	0.5948	0.5611	0.0337	0.0098	0.7714	0.7120	0.0594	0.0147
1992	0.5973	0.5589	0.0384	0.0097	0.7625	0.7113	0.0511	0.0149
1993	0.6136	0.5578	0.0558	0.0097	0.7939	0.7002	0.0937	0.0147
1994	0.6326	0.5734	0.0592	0.0098	0.8268	0.7503	0.0765	0.0141
1995	0.6620	0.5864	0.0756	0.0098	0.8494	0.7608	0.0886	0.0144
1996	0.6716	0.6155	0.0560	0.0102	0.8540	0.7801	0.0739	0.0140
1996-1984	0.0765	0.0415	0.0350	0.0144	0.1114	0.0598	0.0516	0.0208

Sources: The data are from the 1984-1996 Current Population Survey Outgoing Rotation Group File (ORG) and the 1985-1997 March Current Population Survey (March) and are weighted.

Restrictions: Both samples include 19-44 year-old single persons who are not in school. The March sample excludes disabled or ill persons and those with positive earned income but zero hours of work.

Notes: The top panel compares single mothers with two children to those with one child. The bottom panel compares single mothers living in low cost of living states to single mothers living in high cost of living states. See text for details.

Table 7
Employment Rates Differences, and Differences in Differences, ORG and March CPS
Top Panel (Single Mothers): State EITC vs. No State EITC
Bottom Panel: Single Mothers with a Child < 6 vs. Single Women without Children

Year	CPS Outgoing Rotation Group, Employed = Worked Last Week				March CPS, Employed = Worked During Year			
	State EITC	No State EITC	Difference	Standard Error	State EITC	No State EITC	Difference	Standard Error
1984	0.5247	0.5953	-0.0706	0.0149	0.6793	0.7412	-0.0619	0.0229
1985	0.5095	0.5988	-0.0893	0.0148	0.6308	0.7477	-0.1169	0.0238
1986	0.5315	0.5991	-0.0676	0.0146	0.6771	0.7400	-0.0630	0.0232
1987	0.5487	0.6016	-0.0530	0.0147	0.6769	0.7488	-0.0720	0.0230
1988	0.5463	0.6125	-0.0662	0.0158	0.6849	0.7598	-0.0749	0.0255
1989	0.5547	0.6235	-0.0688	0.0158	0.6674	0.7718	-0.1044	0.0235
1990	0.5497	0.6085	-0.0589	0.0148	0.6989	0.7686	-0.0697	0.0229
1991	0.5424	0.5846	-0.0422	0.0147	0.6816	0.7535	-0.0719	0.0221
1992	0.5286	0.5871	-0.0585	0.0145	0.6782	0.7481	-0.0699	0.0234
1993	0.5348	0.5958	-0.0611	0.0144	0.6959	0.7592	-0.0633	0.0233
1994	0.5726	0.6101	-0.0376	0.0148	0.7317	0.8000	-0.0683	0.0223
1995	0.5885	0.6325	-0.0440	0.0147	0.7459	0.8174	-0.0714	0.0225
1996	0.6146	0.6500	-0.0354	0.0150	0.7674	0.8276	-0.0603	0.0219
1996-1993	0.0798	0.0542	0.0257	0.0208	0.0715	0.0685	0.0030	0.0320
1996-1984	0.0899	0.0546	0.0352	0.0212	0.0881	0.0864	0.0016	0.0317
	Single Mothers, Child < 6	Single Women w/o Children	Difference	Standard Error	Single Mothers, Child < 6	Single Women w/o Children	Difference	Standard Error
1984	0.4382	0.8014	-0.3632	0.0083	0.6122	0.9399	-0.3277	0.0131
1985	0.4328	0.8048	-0.3720	0.0082	0.5966	0.9439	-0.3474	0.0133
1986	0.4362	0.8131	-0.3770	0.0081	0.6227	0.9450	-0.3223	0.0128
1987	0.4437	0.8179	-0.3742	0.0082	0.6096	0.9473	-0.3377	0.0129
1988	0.4634	0.8215	-0.3581	0.0084	0.6277	0.9485	-0.3207	0.0132
1989	0.4790	0.8150	-0.3360	0.0083	0.6282	0.9409	-0.3127	0.0127
1990	0.4569	0.8155	-0.3586	0.0079	0.6369	0.9424	-0.3055	0.0124
1991	0.4289	0.8031	-0.3743	0.0078	0.6092	0.9418	-0.3326	0.0124
1992	0.4330	0.7957	-0.3627	0.0078	0.6273	0.9299	-0.3027	0.0124
1993	0.4557	0.7918	-0.3362	0.0078	0.6428	0.9356	-0.2929	0.0122
1994	0.4796	0.7921	-0.3125	0.0079	0.6934	0.9312	-0.2378	0.0121
1995	0.5147	0.7971	-0.2825	0.0081	0.7221	0.9340	-0.2119	0.0123
1996	0.5396	0.7938	-0.2543	0.0085	0.7476	0.9290	-0.1813	0.0119
1996-1984	0.1014	-0.0075	0.1089	0.0119	0.1335	-0.0109	0.1464	0.0177

Sources: The data are from the 1984-1996 Current Population Survey Outgoing Rotation Group File (ORG) and the 1985-1997 March Current Population Survey (March) and are weighted.

Restrictions: Both samples include 19-44 year-old single persons who are not in school. The March sample excludes disabled or ill persons and those with positive earned income but zero hours of work.

Notes: The top panel compares single mothers living in states with state EITCs to single mothers living in states without state EITCs. The bottom panel compares single mothers with a child under six to single women without children. See text for details.

Table 8

Employment Rates Differences, and Differences in Differences, ORG and March CPS
Top Panel (Single Mothers): States with Large vs. Small Increases in Welfare Payoff to Working
Bottom Panel (Single Mothers): States with Large vs. Small Increases in Medicaid when Working

Year	CPS Outgoing Rotation Group, Employed = Worked Last Week				March CPS, Employed = Worked During Year			
	Welfare Payoff to Working				Welfare Payoff to Working			
	States with 1996-1984		Difference	Standard Error	States with 1996-1984		Difference	Standard Error
	Large Inc.	Small Inc.			Large Inc.	Small Inc.		
1984	0.5979	0.5725	0.0255	0.0102	0.7600	0.7057	0.0543	0.0153
1985	0.6001	0.5720	0.0281	0.0101	0.7491	0.7108	0.0384	0.0156
1986	0.6007	0.5775	0.0232	0.0100	0.7349	0.7270	0.0079	0.0154
1987	0.5920	0.5961	-0.0041	0.0100	0.7274	0.7489	-0.0215	0.0154
1988	0.6076	0.5978	0.0098	0.0103	0.7550	0.7414	0.0137	0.0157
1989	0.6106	0.6165	-0.0059	0.0102	0.7701	0.7456	0.0245	0.0149
1990	0.6059	0.5952	0.0108	0.0098	0.7650	0.7533	0.0117	0.0147
1991	0.5856	0.5722	0.0134	0.0098	0.7428	0.7428	0.0001	0.0148
1992	0.5862	0.5713	0.0149	0.0098	0.7325	0.7453	-0.0129	0.0149
1993	0.5811	0.5942	-0.0131	0.0097	0.7407	0.7628	-0.0220	0.0147
1994	0.6034	0.6073	-0.0039	0.0098	0.7898	0.7917	-0.0019	0.0142
1995	0.6286	0.6243	0.0043	0.0099	0.8116	0.8029	0.0087	0.0144
1996	0.6543	0.6361	0.0182	0.0103	0.8327	0.8058	0.0270	0.0140
1996-1984	0.0564	0.0637	-0.0073	0.0145	0.0728	0.1001	-0.0273	0.0207
	Medicaid when Working				Medicaid when Working			
	States with 1996-1984		Difference	Standard Error	States with 1996-1984		Difference	Standard Error
	Large Inc.	Small Inc.			Large Inc.	Small Inc.		
	1984	0.5814	0.5888	-0.0074	0.0102	0.7287	0.7353	-0.0066	0.0153
1985	0.5877	0.5847	0.0029	0.0101	0.7330	0.7278	0.0052	0.0156
1986	0.5881	0.5900	-0.0019	0.0100	0.7177	0.7424	-0.0246	0.0154
1987	0.5913	0.5965	-0.0052	0.0099	0.7414	0.7356	0.0057	0.0153
1988	0.6025	0.6028	-0.0003	0.0102	0.7646	0.7344	0.0302	0.0156
1989	0.6227	0.6059	0.0168	0.0101	0.7729	0.7443	0.0285	0.0148
1990	0.6069	0.5952	0.0117	0.0098	0.7768	0.7437	0.0331	0.0146
1991	0.5745	0.5828	-0.0083	0.0098	0.7559	0.7321	0.0238	0.0147
1992	0.5934	0.5672	0.0262	0.0097	0.7490	0.7300	0.0189	0.0149
1993	0.5975	0.5790	0.0186	0.0097	0.7775	0.7293	0.0481	0.0146
1994	0.6124	0.5993	0.0131	0.0098	0.8114	0.7736	0.0378	0.0140
1995	0.6492	0.6070	0.0422	0.0098	0.8327	0.7839	0.0487	0.0143
1996	0.6514	0.6394	0.0120	0.0102	0.8423	0.7988	0.0435	0.0139
1991-1986	-0.0136	-0.0072	-0.0064	0.0140	0.0382	-0.0102	0.0484	0.0213
1996-1993	0.0539	0.0604	-0.0065	0.0141	0.0648	0.0694	-0.0047	0.0201
1996-1984	0.0700	0.0505	0.0194	0.0144	0.1135	0.0635	0.0501	0.0207

Sources: The data are from the 1984-1996 Current Population Survey Outgoing Rotation Group File (ORG) and the 1985-1997 March Current Population Survey (March) and are weighted.

Restrictions: Both samples include 19-44 year-old single mothers who are not in school. The March sample excludes disabled or ill persons and those with positive earned income but zero hours of work.

Notes: The top panel compares states where the difference in welfare when working and not working increased by more or less than \$600 between 1984 and 1996. The bottom panel compares states with large 1996-1984 increases in the number of family members eligible for Medicaid to states with small increases. Large increases are defined as those greater than 0.28 persons. See text for details.

Table 9
Effect of CPS Redesign on the Employment of Single Women
ORG and March CPS Comparisons

	CPS Outgoing Rotation Group,				March CPS	
	Children	No Children	Difference	Standard Error	Children	No Children
Employment Rate (from Table 2)						
1992	0.5790	0.7957	-0.2167	0.0057	0.7387	0.9299
1993	0.5875	0.7918	-0.2044	0.0057	0.7511	0.9356
1994	0.6053	0.7921	-0.1868	0.0057	0.7907	0.9312
Yearly Differences						
1993-1992	0.0085	-0.0039	0.0124	0.0080	0.0125	0.0057
1994-1993	0.0178	0.0003	0.0175	0.0080	0.0396	-0.0044
Effect of Redesign on March CPS (March-ORG, 1993-1992)					0.0040	0.0096
Effect of Redesign on ORG (ORG-March, 1994-1993)					-0.0218	0.0047

Sources: The data are from the 1992-1994 Current Population Survey Outgoing Rotation Group File (ORG) and the 1993-1995 March Current Population Survey (March) and are weighted.

Restrictions: See Table 2 for restrictions.

Table 10
Effect of CPS Redesign on the Employment of Single Women
ORG and Parallel Survey Comparisons

	Children		No Children		Difference	
	Mean	Standard Error	Mean	Standard Error	Mean	Standard Error
1993 Parallel Survey	0.5926	0.0055	0.7915	0.0033	-0.1988	0.0064
1993 ORG	0.5875	0.0048	0.7918	0.0029	-0.2044	0.0057
Effect of Redesign on ORG	0.0052	0.0073	-0.0004	0.0044	0.0055	0.0086

Sources: The data are from the 1993 Current Population Survey Outgoing Rotation Group File (ORG) and the 1993 Current Population Survey Parallel Survey and are weighted.

Restrictions: See Table 1 for restrictions.

Appendix Table 1
Policy Variable Means by Year, 1984-1996 ORG

Variable	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996
Income Taxes when Working in Annual Dollars													
Single mothers with 1 child	1,625	1,577	1,580	1,426	1,157	1,181	1,210	1,083	1,001	955	702	633	609
Single mothers with 2 or more children	1,336	1,287	1,291	986	751	774	808	651	554	501	19	-291	-548
Single women without children	2,719	2,704	2,685	2,953	2,903	2,930	2,968	2,973	2,935	2,934	2,901	2,899	2,907
Welfare Benefits in Annual Dollars													
Welfare benefits when not working	7,705	7,722	7,711	7,626	7,603	7,578	7,610	7,550	7,464	7,298	7,214	7,150	7,089
Welfare benefits when working	1,543	1,591	1,598	1,570	1,567	1,572	1,610	1,596	1,575	1,511	1,500	1,490	1,510
Medicaid Coverage when Working													
Single mothers (no. of family members)	0.769	0.863	0.872	0.875	0.874	0.896	0.957	0.980	0.993	1.010	1.053	1.075	1.081
Single women w/o children (no. of family members)	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.004	0.007	0.007	0.006	0.008
Employer-Provided HI Coverage when Working													
Single mothers (no. of family members)	1.308	1.330	1.288	1.312	1.311	1.332	1.236	1.295	1.234	1.234	1.303	1.285	1.253
Fraction Living in States with Given AFDC Waiver													
Any time limited AFDC benefits	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.011	0.044	0.054	0.144	0.396
Any terminations of AFDC benefits	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.004	0.040	0.196
Extended transitional assistance	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.006	0.028	0.036	0.050	0.118
Major statewide waiver application	0.000	0.000	0.000	0.016	0.016	0.060	0.067	0.093	0.220	0.356	0.538	0.675	0.843
Training and Child Care per Eligible Recipient													
Education training in annual dollars	0	0	0	0	0	15	58	91	104	118	134	150	125
Other job training in annual dollars	120	110	79	49	37	61	125	164	172	190	220	268	271
Child care benefits in annual dollars	0	0	0	0	0	0	38	173	243	255	273	299	294

Source: The data are from the 1984-1996 Current Population Survey Outgoing Rotation Group File (ORG) and are weighted.

Restrictions: The sample includes 19-44 year-old single women (divorced, widowed, and never married) who are not in school.

Notes: These means are calculated for a sample of single mothers with a fixed child distribution, except where indicated, using the characteristics of the ORG sample. Taxes, welfare benefits (AFDC and Food Stamps), and Medicaid when working are weighted averages derived from calculations of taxes and benefits at thirty earnings levels with the weights determined by the earnings distribution for single women. Taxes and welfare benefits are adjusted for state cost of living differences and all dollar amounts are expressed in 1996 dollars. See text for details.

Figure 1
Major Tax and Welfare Policy Changes Affecting Low Income Women, 1984-1997

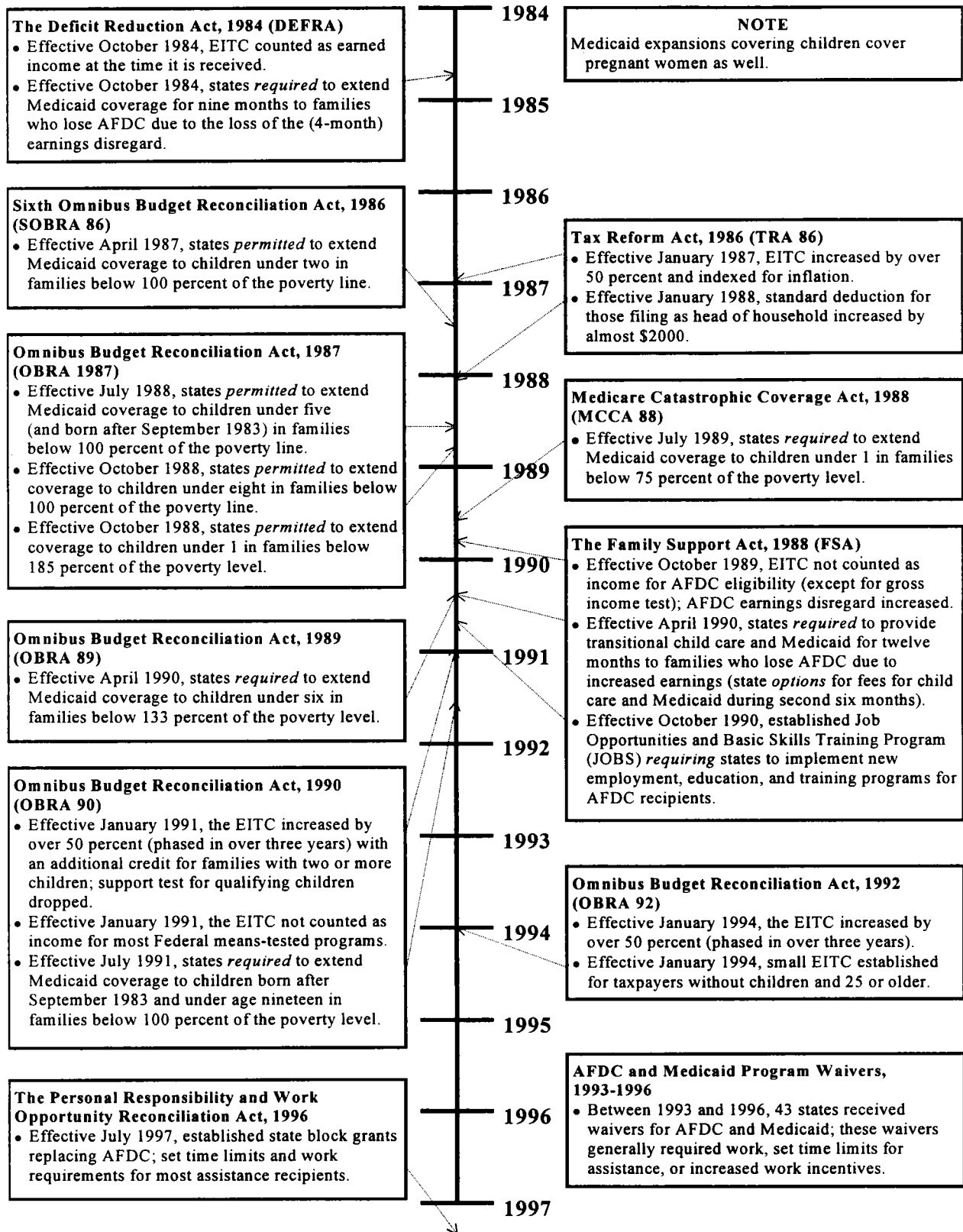
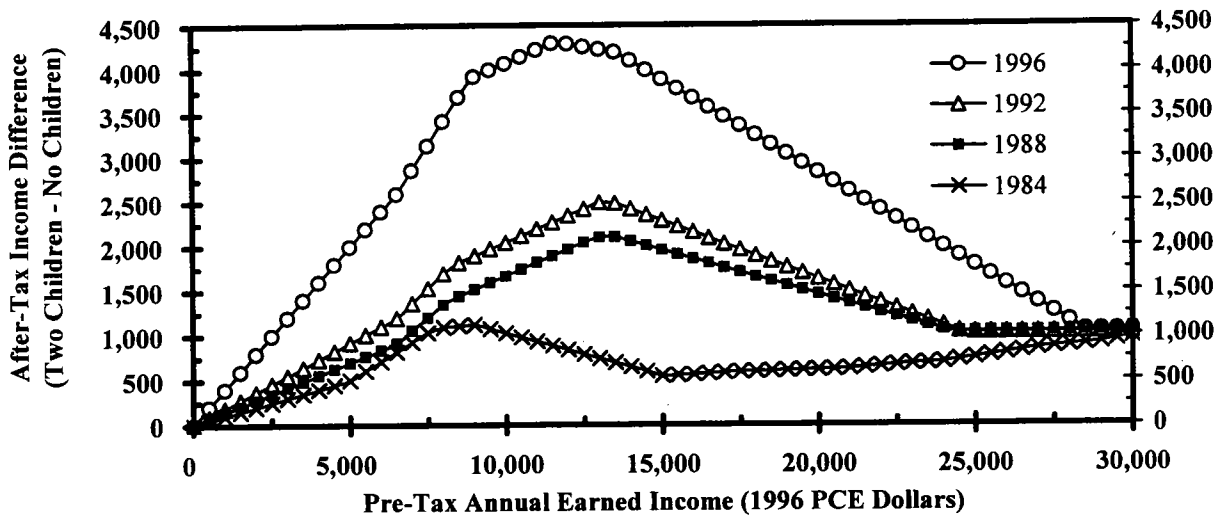
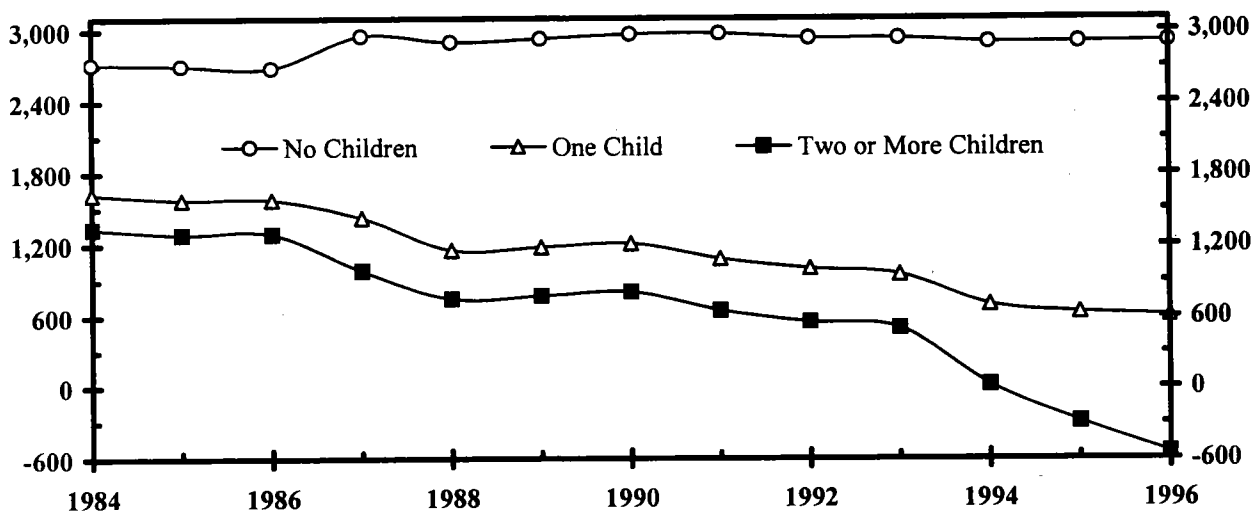


Figure 2
After-Tax Income of a Single Mother with Two Children
Minus a Single Woman Without Children: 1984, 1988, 1992, 1996



Notes: All women are assumed to have only earned income and to take the standard deduction. Single women with children and without children are assumed to file as head of household and single, respectively. *After-tax income* is income after federal taxes or credits.

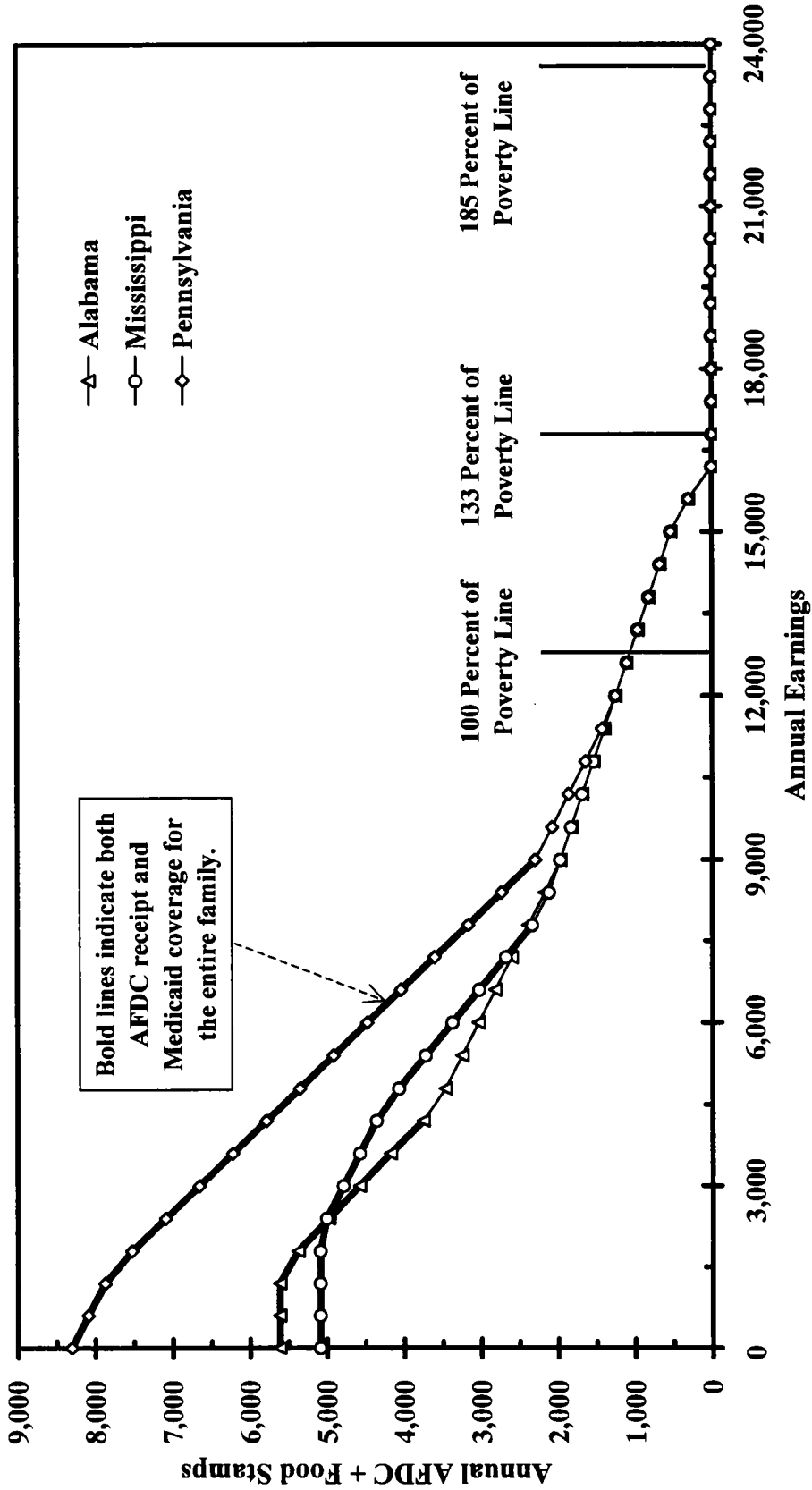
Figure 3
Federal and State Income Taxes when Working for Single Women
With No Children, One Child, and Two or More Children



Source: The data are from the 1984-1996 CPS Outgoing Rotation Group File (ORG).

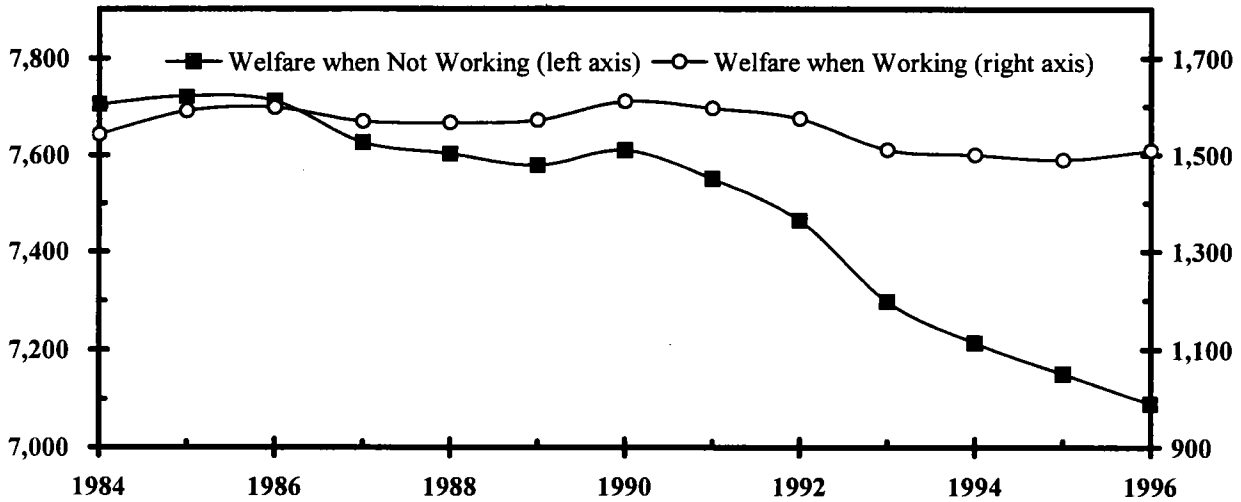
Notes: Taxes include federal and state income taxes, including federal and state EITCs. Dollar amounts are in 1996 PCE dollars.

Figure 4
1995 Benefit Schedules for AFDC, Food Stamps, and Medicaid
 (For Mothers with Two Children in Alabama, Mississippi, and Pennsylvania)



Notes: Women are assumed to be in their first four months of work, to have no unearned income, and to claim no child care expenses. Shelter costs per month are assumed to be at the mean for Food Stamp households in the given state: AL (\$228), MS (\$196), and PA (\$322).

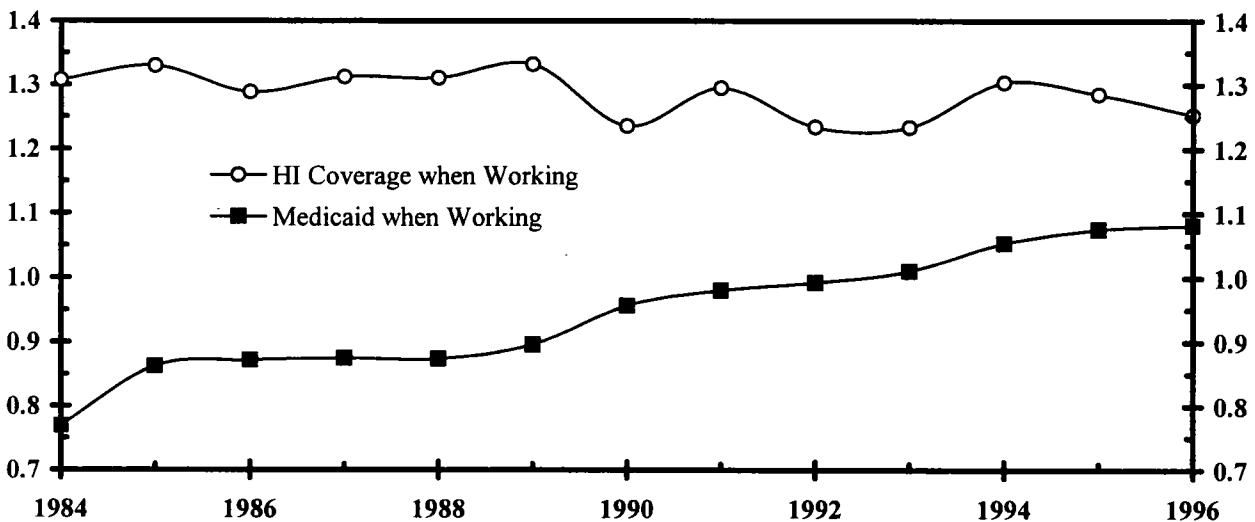
Figure 5
Welfare when Working and Not Working for Single Mothers



Source: The data are from the 1984-1996 CPS Outgoing Rotation Group File (ORG).

Notes: *Welfare Maximum* gives the average AFDC and Food Stamp benefit (in 1996 PCE dollars) when a single mother does not work. *Welfare if Work* gives the average AFDC and Food Stamp benefit (in 1996 PCE dollars) when a single mother works.

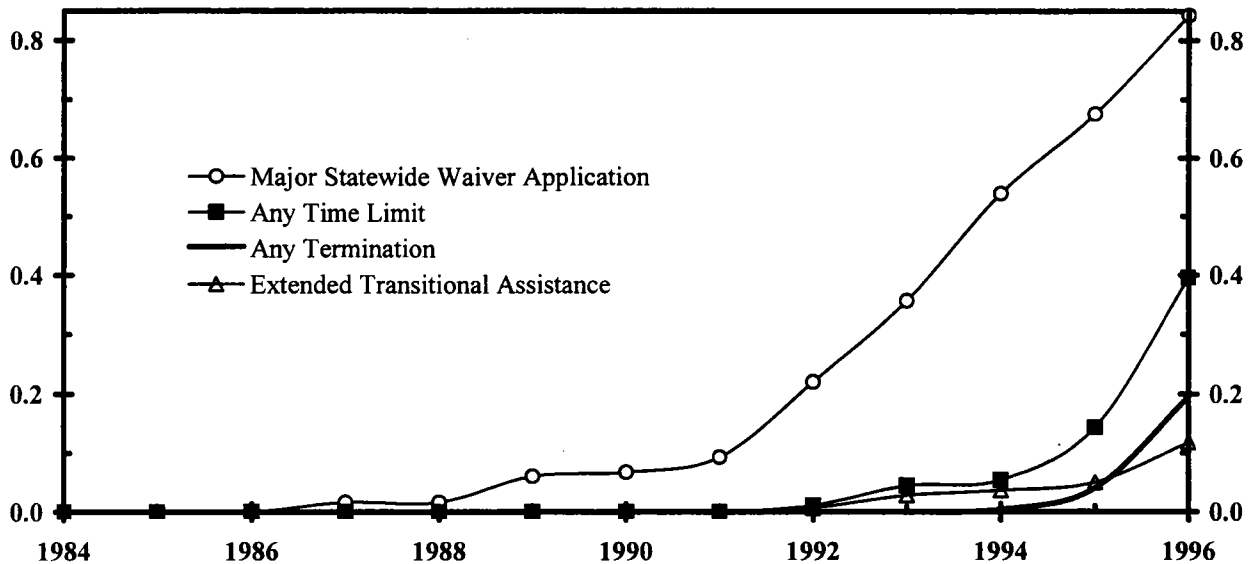
Figure 6
Medicaid and Employer-Provided HI for Single Mothers



Source: The data are from the 1984-1996 CPS Outgoing Rotation Group File (ORG).

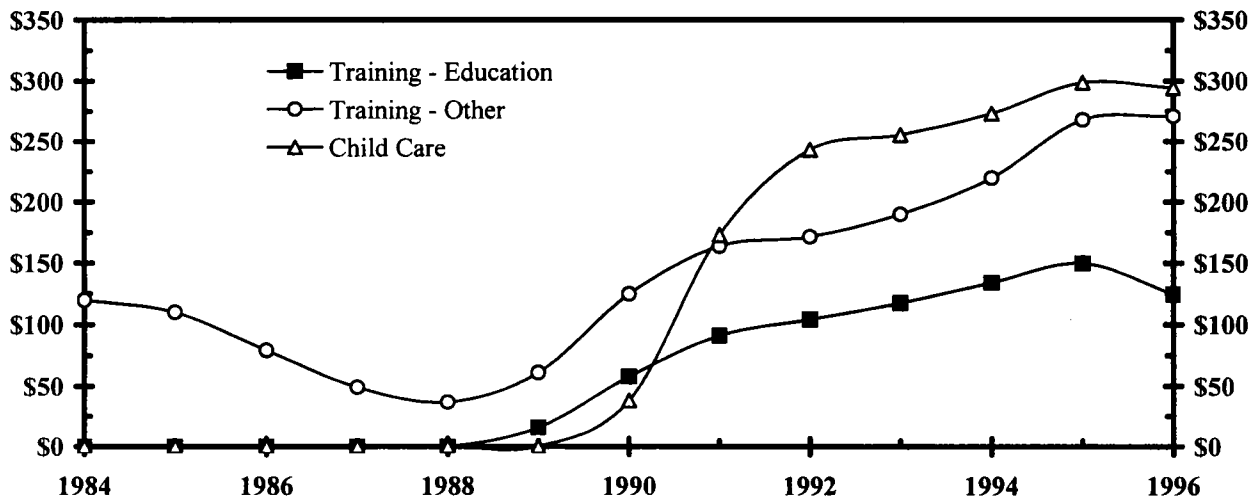
Notes: *Medicaid if Work* gives the value of Medicaid (in family members covered) when a single mother works. *HI Coverage when Working* gives the number of family members covered by employer-provided health insurance coverage when a single mother works.

Figure 7
AFDC Waivers for Single Mothers

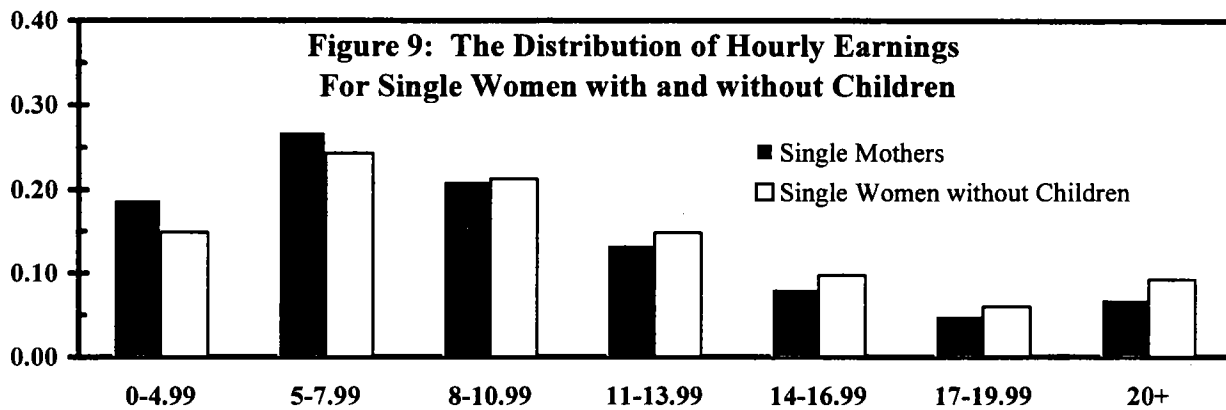


Source: The data are from the 1984-1996 Current Population Survey Outgoing Rotation Group File (ORG).
Notes: The AFDC waiver variables give the fraction of single mothers in states with a given AFDC waiver.

Figure 8
Job Training and Child Care for Single Mothers

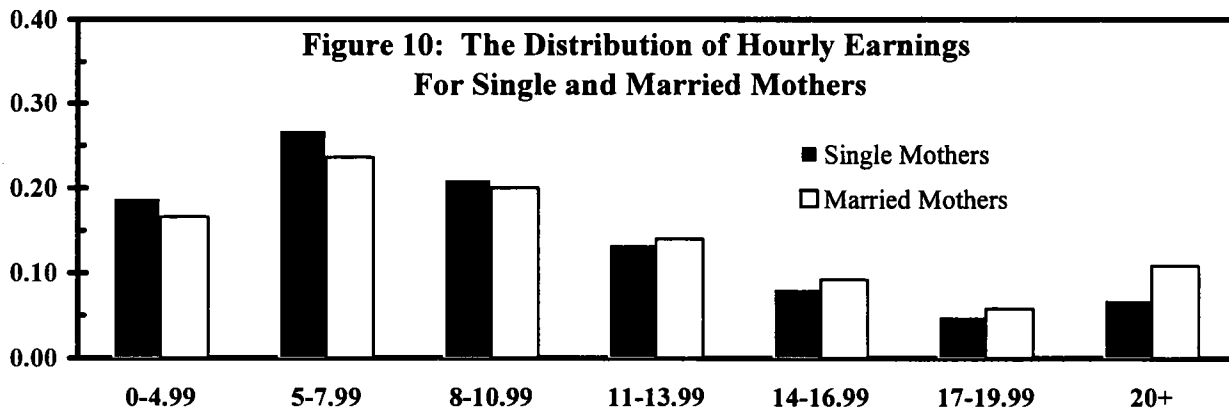


Source: The data are from the 1984-1996 Current Population Survey Outgoing Rotation Group File (ORG).
Notes: The training and child care variables give the average training/child care dollars per eligible single mother.



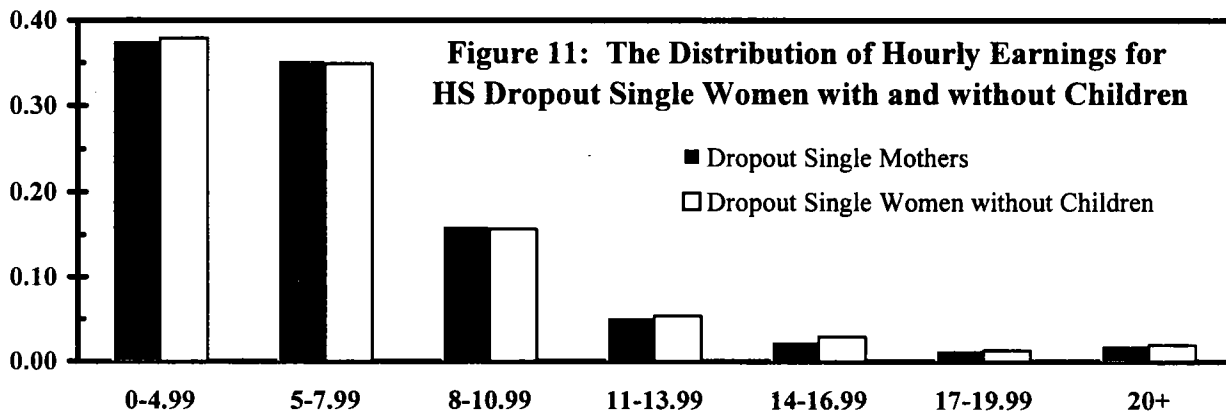
Source: The data are from 1985-1997 March Current Population Survey.

Notes: Hourly wages are expressed in 1996 PCE dollars.



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