WHAT HAS WELFARE REFORM ACCOMPLISHED? IMPACTS ON WELFARE PARTICIPATION, EMPLOYMENT, INCOME, POVERTY, AND FAMILY STRUCTURE

February, 2000

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We thank seminar participants at UC Berkeley, UCLA, Michigan State, and RAND for comments.

Abstract

This paper evaluates the effectiveness of recent welfare reforms, investigating the effects of both state-specific waivers in the early 1990s and the 1996 federal reform legislation. Unlike earlier work, we analyze a wide array of indicators, including welfare participation, labor market involvement, earnings, income and poverty, and family formation. While no single methodology is entirely satisfying, the results in this paper are convincing in part because they are consistent across alternative approaches. We find strong evidence that these policy changes reduced public assistance participation and increased family earnings. The result was a rise in total family income and a decline in poverty. The gains from the 1996 reforms were not as broadly distributed across the distribution of less-skilled women as were the effects of waivers. Waivers also increased labor market involvement among the less-skilled, but the 1996 reforms had little additional impact on work behavior after controlling for economic forces. These policies also appeared to have an impact on family structure.

What Has Welfare Reform Accomplished?
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1. INTRODUCTION

Recent welfare reform efforts have been undertaken for many reasons. The major federal reform legislation passed in 1996 (the Personal Responsibility and Work Opportunity Reconciliation Act or PRWORA) listed four goals: (i) end dependence of needy parents upon government benefits by promoting job preparation, work, and marriage; (ii) aid needy families so that children may be cared for in their homes or those of relatives; (iii) prevent and reduce out-of-wedlock pregnancies and establish goals for preventing and reducing their incidence; and (iv) encourage formation and maintenance of two-parent families. This legislation abolished the Aid to Families with Dependent Children (AFDC) program and replaced it with the Temporary Assistance to Needy Families (TANF) block grant. States and counties, which were given much greater discretion over welfare policy under the block grant, had additional goals, such as reducing poverty and improving child wellbeing.

To date, there is little evidence on how well this broad list of goals is being met. Evaluations of the effectiveness of welfare reforms have been of three types: analyses of the effects of welfare policies on the number of people receiving welfare, i.e., "caseload studies"; analyses of the well being of people who stopped receiving assistance following welfare reform, i.e., "leavers studies"; and estimates of changing work participation among various groups of less-skilled women. Each of these approaches has its limitations and provides at best an incomplete picture of the overall effectiveness of welfare reform. For example, caseload declines provide no information on what is happening to the wellbeing of families who leave welfare (or never enter the program). Work participation estimates provide little information on how income levels among poor families have changed; some families may be working more but lose more in public assistance than they gain in earnings. Studies that follow current and former recipients often face serious problems of attrition bias, and are also limited because they tell us nothing about the people who never even apply for public assistance because of welfare reform. Except for the

leavers' studies, very few of these evaluations use post-1996 data, and instead analyze changes that occurred before national welfare reform was enacted.

This paper provides the most comprehensive evidence available to date on the effectiveness of recent welfare reforms. We look at the impact of both state-specific waivers that were granted in the early 1990s prior to welfare reform and the 1996 federal reform legislation. In order to achieve a more complete picture of how legislative changes have affected low income families, we analyze a wide array of indicators, including welfare participation, participation in the formal labor market, hours and weeks worked, labor market earnings, income, poverty, marital status, and household structure. We pay close attention to the timing of policy changes, and control for other changes in the economic environment. This allows us to make comparative statements about changes in participation (for both welfare and the labor market), changes in economic wellbeing (earnings, income and poverty), and changes in family composition (marital status and household structure). We investigate distributional impacts as well as average changes among the low-skilled population.

We find strong evidence that these policy changes reduced public assistance participation and increased family earnings. The result was a rise in total family income and a substantial decline in poverty among those affected by these reforms. While waivers increased income across the income distribution among less-skilled women, there is some evidence that the 1996 reforms did not create the same income gains among the poorest women. These changes also appeared to have an impact on family structure. The paper begins with a discussion of recent changes in welfare caseloads, the related research literature, and a description of recent policy changes. A series of alternative estimation techniques are then described and used to investigate the impacts of these policy changes.

2. Changes in Welfare Participation and Related Research

The number of people receiving welfare has been declining at record rates. After peaking in 1994, welfare caseloads had dropped 50 percent by June 1999; at that time, just 6.9 million

people representing 2.5 percent of the population were receiving welfare. Not since 1967 has such a small share of the population relied on welfare. Figure 1 shows the change in welfare participation from 1960 (the earliest year readily available) through 1999 (June).

Not only have the declines been large, they have been widespread and continuous. Between 1993 and 1998, all 50 states and the District of Columbia experienced double digit percent reductions in welfare participation, and in most states the declines were unprecedented. Thirty-seven states have experienced caseload declines of at least one-third, and in 23 states the number of participants is currently less than half of what it was in 1993. And although a substantial share of the reduction occurred between 1994 and 1996, in many states the largest declines have occurred more recently. In fact, in 22 states the percentage decline in 1998 (from January to December) was greater than in 1997. In almost all states (45) caseloads were still declining during the final months of 1998.

Two primary factors have been posited to explain the recent caseload changes: the strong labor market, and changes in welfare policy. In 1997, the Council of Economic Advisers (CEA) issued a report using data from 1976 to 1996 to examine the causes of caseload change, with particular attention to the decline in caseloads between 1993 and 1996.[1] A number of subsequent studies examined changes in welfare caseloads during this and earlier periods (Bartik and Eberts, 1998; Blank, 1997; Figlio and Ziliak, 1999; Levine and Whitmore, 1998; Moffitt, 1999; Page, Spetz, and Millar, 1999; Stapelton, 1998; Turner, 1999; Wallace and Blank, 1999; Ziliak, Figlio, Davis, and Connolly, 1997). Although the estimates of the causes of the caseload decline through 1996 vary, most find that roughly 15 percent can be explained by welfare policies (in particular, welfare waivers, which are discussed below) and 30-40 percent can be explained by improved labor market conditions. The only study that has examined the effects of the 1996 reforms on post-1996 caseloads is a 1999 CEA study, which found that one-third of the decline between 1996 and 1998 was due to welfare reform and 8-10 percent was due to improvements in the labor market.

[1] Actually, the caseload decline starts in 1994 and it would be more accurate to focus on 1994-96. The CEA study uses an initial date of 1993 since that was when the Clinton Administration took office.

Coincident with these caseload changes, there have been strikingly large changes in work behavior and earnings, as well as a decline in poverty rates. Figure 2 plots the probability of work and the mean weeks of work among unmarried female family heads with dependent children between 1979 and 1998.[2] Figure 3 plots mean earnings and the poverty rate among the same population.[3] The recent changes in both figures are quite dramatic, and show substantial increases in work and earnings at the same time that poverty has declined.

National estimates also show that the employment of *current* welfare recipients has increased, which is interpreted as a sign of success for welfare reform. Between 1992 and 1997, the share of adult welfare recipients who participated in work activities tripled (Rolston, 1999). Between 1997 and 1998 the state-reported work participation rate for TANF recipients increased from 28.1 to 35.4 (USDHHS, 1999). In figure 4 we present estimates of the employment rate in survey years 1977 through 1999 among women who report participating in welfare during the calendar year prior to the survey. There was a substantial rise in employment among these women beginning in the early 1990s. By 1999 the employment rate was 37 percent, or 17 percentage points higher than the 1990 rate.

Since these changes are occurring at the same time as a booming economy and very low unemployment, it is difficult to say anything about the separate importance of policy on these trends from the simple tabulations depicted in these figures. Evidence of the direct impact of the 1996 policy changes on work behavior, earnings levels, income and family structure, is not readily available. Much of what has been done simply tabulates changes in one or more of these variables among a target population. This work does not do a good job of investigating the overall effects of policy changes on key wellbeing indicators, controlling for other effects.

In a number of states, researchers have tried to track individuals who have left welfare

[2] These changes in labor force participation are even more striking since labor force participation among single women without children has not risen (Blank and Card, 2000).

(voluntarily or through sanctions or time limits). It is hard to know how generalizable these studies are across all states, and many of them suffer from serious methodological problems. (A summary is provided in USGAO, 1999, and in Brauner and Loprest, 1999.) In general, these studies suggest that the majority of persons who have left the rolls are employed at a future date (the number varies from around 55 to 85 percent across studies). Few of these studies explicitly compare post-welfare income with the income they would have received if remaining on aid. The scant evidence available in a few states (based on individuals' assessments of their family income situation) suggests that between one-half and two-thirds report higher incomes post-welfare.[4] The lack of information about those who never enter welfare because of policy changes is a major limitation of these studies.

In contrast to much recent research, which is primarily focused on work and welfare participation, a recent study released by the Center on Budget and Policy Priorities (Primus, et. al., 1999) tabulated changes in earnings and income among single-mother families by income quintile between 1993-95 and 1995-97. The study finds that disposable income fell among the poorest quintile in this population in the 1995-97 period, a result that was widely reported in the popular media as a criticism of the 1996 welfare reform. These data, however, are collected early in the implementation of the 1996 federal reform legislation. The study also makes no effort to separate the effect of legislative and policy changes from other changes in the economic environment.

In short, the research literature to date includes a growing number of studies that focus on trying to explain the determinants of caseload changes. Evidence on the impact of recent policy changes on other variables of concern is much less available and the studies that are available are less reliable and generalizable than one would ideally like. This paper is designed to provide better evidence on a range of important outcomes and their relation to policy changes.

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[3] The data for figures 2 and 3 are calculated from the March CPS, 1980-99. Data for 1980-98 are taken from Table 8 in Blank, Card, and Robins (2000). David Card kindly provided an updated data point from the 1999 data.

[4] Cancian, et. al. (1998) calculate estimated incomes if families had stayed on welfare and compare them to observed income levels, using data from Wisconsin. Their calculations indicate that somewhat more than 50 percent of families have lower post-exit income than pre-exit income.

3. CHANGES IN FEDERAL AND STATE WELFARE POLICIES

Welfare Waivers. Since 1962, the Secretary of Health and Human Services has had the authority to waive federal welfare requirements if a state proposed experimental or pilot programs that furthered the goals of AFDC. Although there were a few waivers granted in the 1980s, it was not until the early to mid-1990s that major, state-wide waivers became widespread.

These waivers varied substantially across states, and in many cases they differed greatly from the rules under AFDC. Some waivers increased the amount of earnings recipients were allowed to keep and still be eligible for welfare. Other waivers expanded work requirements to a larger number of recipients, established limits on the length of time recipients could remain on aid, permitted states to sanction participants who failed to meet work requirements, or allowed states to eliminate benefit increases to families who conceived and gave birth to children while on welfare (the so-called "family cap"). Given the widespread use of waivers (27 states had a major waiver implemented by the time the 1996 legislation was passed) and the degree to which these policies differed from traditional AFDC policy, there is substantial reason to believe that waivers contributed to changes in welfare caseloads and affected the wellbeing of welfare families.

PRWORA and TANF. In August of 1996, President Clinton signed PRWORA into law, dramatically changing federal welfare policy. PRWORA was designed to emphasize self-sufficiency and employment in place of welfare dependency, and it gave states greater flexibility to design and implement programs to achieve these goals. Benefits are time-limited; adults usually cannot receive federal aid for more than 5 years during their lifetime, and some states have chosen to set shorter time limits. Most recipients must also participate in a work activity within two years to continue receiving aid.

Under the Temporary Assistance for Needy Families (TANF) block grant established by PRWORA, federal assistance consists of an annual fixed transfer to each state. Most of the authority to design welfare programs was given over to the states, who are required to have half

of all recipients working by 2002 (40 percent by 2000). As a result, there are now substantial differences in how welfare programs operate across the nation. Some states increase benefits to welfare families who have additional children, while others do not. Some states stop payment of benefits to the entire family at the first instance of their failure to meet work activity requirements, while other states never sanction more than the adult. Some states are much are actively engaged in "diversion" activities, designed to keep people from entering public assistance. And some states allow welfare recipients to keep a substantial portion of their labor market earnings without reducing their welfare payments, while others do not.[5]

4. DATA

This study estimates the effects of welfare policies on a variety of indicators of success using data on adult women from the March Current Population Surveys (CPS) from 1977 through 1999. We are particularly interested in the impact of waivers in the 1992-96 period, and the impact of the 1996 PRWORA legislation in the following years. The analysis consists of a set of reduced form models where the key policy explanatory factors are two indicators: one indicator for whether welfare waivers were in effect in each state in each year, and one indicator for whether TANF was in effect in each state in each year. The outcomes examined include the following:

Welfare participation[6]	Annual family earnings
Employment	Annual family income
Annual weeks worked	Poverty status
Usual weekly hours	Marital status
Annual personal earnings	Household headship status
Annual earnings of other family members	

For all outcomes except marital status and household headship, the variables are reported for the

[5] For more information on differences across state programs, see Gallagher, et. al., (1998).

[6] Estimates of welfare participation using the March CPS have historically been lower than estimates from administrative data. Moreover, recent evidence suggests that under-reporting in the CPS increased beginning around 1993 (Bavier, 1999). One concern is that when a state implemented waivers or TANF the name of their welfare program changed (e.g., AFDC in California became CalWORKS), and the CPS respondent who actually receives welfare may identify welfare by a name other than the one used in the CPS instrument. This pattern would cause a spurious decline in reported welfare participation simply due to increased under-reporting. However, our estimates of the effects of welfare waivers on welfare participation using the CPS lead to the same qualitative conclusions as estimates based on administrative caseloads data (CEA, 1999), suggesting that increased under-reporting may not be a substantial problem for these analyses.

calendar year prior to the survey year. Therefore, actual data is for 1976 through 1998.

Similar to Moffitt (1999), the sample consists of all women 16-54 years old. We do not restrict the sample, for example, to single mothers because there is some evidence that fertility and marital status are effected by welfare policy. However, estimates are reported for women with different education levels, with the expectation that larger effects would be experienced among women with fewer years of schooling because they are most likely to rely on welfare.[7]

There are 959,243 women ages 16-54 in the sample. We choose to collapse the CPS data to the state level by calculating the mean of each outcome within each state, year, education group (less than 12 years, 12 years, and more than 12 years of schooling), and age group (16-25, 26-34, 35-44, 45-54). For weeks worked, hours worked, and all earnings variables, we calculate two sets of means: one set includes the zero values and one set excludes the zero values. Estimates reported in all tables include the zeros, while estimates conditional on positive values are discussed in the text. The resulting data set consists of 14,076 observations (51 states*23 years*4 age groups*3 education groups). The average number of observations within each cell is 71; 93 percent of the cells contain at least 15 observations and 80 percent contain at least 25 observations. The means are calculated using the CPS sampling weights, although the estimates of the effects of welfare policies change very little when the sampling weights are not used to calculate the means.

5. Simple Comparisons Regarding Welfare Waivers

We start by trying to measure the effects of waivers with a number of simple difference-in-difference estimates, comparing the changes in the variables of interest before and after the implementation of waivers (in states that enacted waivers) with changes in those variables over the same time period in states that did not enact waivers. This approach assumes that nonwaiver states provide a reliable comparison group for waiver states (an assumption made by a number of existing papers) and which we return to below. We also compare these effects among more and

[7] Education is a strong predictor of income. Among women without a high school degree, 20 percent are in the bottom decile of the income distribution among all women 16-54; 35 percent are in the bottom quintile of the distribution.

less-educated women, as a specification test, since one might expect that only lower skilled women would have been impacted by state waivers in public assistance programs.

Figures 5a, 6a, and 7a show changes in three key variables -- AFDC participation, work rates, and poverty rates – before and after the implementation of waivers, comparing states that implemented such waivers to states that did not. In states without waivers the "waiver" date is assumed to be equal to the average date that waivers were implemented among those states that had a waiver, which was 1994. These figures are based on the sample of female high school dropouts, the women most likely to be affected by welfare waivers.

Quite contrary to expectations, Figure 5a indicates that states with waivers experienced less of a decline in welfare participation after the implementation of waivers than did states without waivers. Figures 6a and 7a show similar effects for trends in employment and the poverty rate. A simple difference-in-difference calculation between waiver and nonwaiver states pre- and post-waiver implementation does not show a statistically significant difference for any of these three indicators. (Table A.2 shows the difference-in-difference calculation underlying the data in these figures.)

These difference-in-difference comparisons assume that non-waiver states form an adequate control group for waiver states; that is, they assume that conditions in waiver states would, in the absence of waivers, have evolved as they did in non-waiver states. Figures 5a through 7a indicate that this is not an accurate assumption; data trends in waiver and nonwaiver states differed even before the implementation of waivers. As it turns out, waiver states had a worse economy than non-waiver states. Unemployment actually rose slightly in waiver states, while it fell in nonwaiver states; the difference-in-difference estimate of the change in unemployment rates between waiver and nonwaiver states is large (1.33 points) and statistically significant (Table A.2). This means that the economic effects in waiver states (which would have increased participation and reduced work relative to the nonwaiver states) offset waiver effects.

Figures 5b, 6b and 7b provide a somewhat more sophisticated way to compare AFDC participation, work participation and poverty rates among waiver and nonwaiver states. In these figures, the data are calculated from a regression in which the dependent variable is regressed on current and lagged state unemployment rates and current and lagged state employment growth rates. The remaining variation in the data after economic effects have been controlled for is captured by year dummy variables, and it is these dummy variables that are plotted in the three figures.

The results in these alternative figures are strikingly different. Once the economic differences across states are controlled for, waiver and nonwaiver states appear much more similar before the implementation of waivers and there is a noticeable affect of waivers on AFDC usage, work participation and on poverty rates. Simple difference-in-difference calculations (see Table A.2) indicate that AFDC usage and poverty fell significantly faster in waiver states while employment rose significantly faster.

These figures suggest the problems with trying to deduce policy effects from simple tabulations of the data, an approach taken in some of the existing literature. The economic differences between waiver and nonwaiver states make nonwaiver states by themselves an inadequate control group for studying the impact of waivers.

Table 1 estimates the difference-in-difference effects for 11 variables of interest, controlling for unemployment rates and employment growth rates across the states in the same way as we did in figures 5b, 6b and 7b. Pre- and post-waiver estimates are calculated over the two years immediately before and two years immediately after the implementation of waivers (1994 for the nonwaiver states). The top of Table 1 uses the high school dropout sample only. For instance, the first column of Table 1 indicates that AFDC participation fell 2.5 percentage points in waiver states among high school dropouts, but rose by 0.2 percentage points in nonwaiver states, for a statistically significant difference-in-difference estimate of 2.7 percentage points.

In general, the results imply that welfare waivers caused a significant decline in welfare participation and an increase in work participation. Labor market earnings of the women under consideration changed very little, but the difference-in-difference estimates suggest that waivers caused a 4.8 percent increase in total family earnings, largely due to greater increases in the earnings of other family members. Family income increased by 3.2 percent due to waivers, less than the increase in family earnings (because of the decline in welfare income). Neither the income or earnings changes are significant in the difference-in-difference estimates; they are quite large but imprecisely estimated.

Poverty declined by 2.0 percentage points among waiver states, from 33.8 percent to 31.8 percent; the difference-in-difference estimator implies a significant 3.7 percentage point reduction due to waivers. The share of women heading their own household also fell in waiver states, although the estimate is not statistically precise.

As an additional test of the specification, in the bottom half of Table 1 we report the same analysis but for women with 13 or more years of schooling, who we do not expect to be affected by these policy changes. The estimates in Table 1 show that, among more educated women, there are no significant differences in how these variables are changing within waiver states and non-waiver states. These results provide reassurance that the effects estimated among high school dropouts are not spurious.

6. Econometric Estimation Using Time Series of Cross Sections

While the economic controls in Table 1 are clearly useful, they may not entirely satisfy someone who believes that waivers are endogenously determined. For instance, it might be that states whose governors were extremely interested in reforming the welfare bureaucracy were more likely to apply for waivers. But these states might also have been more likely to implement a variety of non-waiver reforms as well, which might also have reduced caseloads. While we cannot fully satisfy the endogeneity argument in our analysis of waiver effects, the econometric

estimates to which we now turn should at least reduce its force, by including a wide variety of additional control variables that hold constant at least some of the underlying economic, demographic, and political differences across states. In addition, we must turn to alternative estimating techniques to study the impact of the 1996 legislation, was implemented nationwide in all states.

6a. Estimation Technique

Our second approach is similar to that of Moffitt (1999), who uses the CPS to examine the effects of welfare waivers on a subset of the outcomes that we investigate. Specifically, regression models are estimated using the aggregated state panel data. The models for the baseline sample take the following form:

$$(1)\ Y_{aest} = Waiver_{st} * Educ * \beta_{eWaiver} + TANF_{st} * Educ * \beta_{eTANF} + \gamma_s + \gamma_t + trend * \gamma_s + Z_{aest} * \beta_z + \varepsilon_{aest}$$

The variables are defined for women in age group *a* and education group *e* who live in state *s* in calendar year *t* as follows:

Y : one of the outcome variables listed above.

Waiver : an indicator variable that takes the value of one if the state in which the woman lived had a major waiver in effect; the indicator is turned off when TANF is implemented in the state.[8] See Table A.1 for the date that waivers were approved and implemented in each state.

TANF : an indicator variable that takes the value of one if TANF was in effect in the state in which the woman lived; the TANF implementation date varies across states, as discussed below.

Educ : indicator variables for education groups: less than 12 years, 12 years, and 13 or more years.

[8] In most cases, the waiver concept became meaningless once TANF was implemented because states were given broad control over their welfare policies. In particular, states could make broad changes in their programs under TANF, whether or not they were continuing a waiver. However, if a state had initiated time limits under a waiver, then participants' time clocks in that state would have been running prior to TANF implementation. As a result, these participants would reach their time limits more quickly than if their clock would have been reset on the date of TANF implementation.

$\gamma_{s:}$	state fixed effects.
$\gamma_{t:}$	year fixed effects.
$trend*\gamma_s$:	linear state-specific time trends.
Z :	a vector of control variables: current and lagged unemployment rate and current and lagged employment growth rate each interacted with each of the three education groups, log maximum AFDC benefit for a family of three interacted with each of the three education groups, education dummies for each of the three groups, year effects interacted with each education group indicator, age (indicator variables for 16-25, 26-34, 35-44, and 45-54), each age indicator interacted with each education indicator, and race (proportion Hispanic and proportion non-Hispanic black)

All estimates use weighted least squares with weights based on the size of the CPS sample used to calculate the means for each year/state/education/age group. All dollar values are expressed in 1998 dollars using the CPI-U-X1.

Welfare policies, in particular $Waiver_{st}$ and $TANF_{st}$ in equation (1), are difficult to categorize and measure, and the pace and intensity of their implementation typically varies across and within states. Most policies were not in effect the entire calendar year that they were implemented. In these cases, fractional values are used that correspond to the share of the calendar year that the policy was in effect.

The most complete attempt to quantify these policies was undertaken by the Council of Economic Advisers (1999) and we use the resulting set of policy variables here. The CEA study relied on experts from the Department of Health and Human Services as well as non-government research institutions to characterize policies as fully as possible. The details of CEA's codification scheme are described in its 1997 and 1999 reports; we provide only an overview here. Table A.1 lists the dates when TANF programs and major welfare waivers were implemented in each state.

Welfare Waivers. For the waiver period, we focus on major waivers that received approval to be implemented state-wide.[9] This includes waivers providing for termination time limits, work requirement time limits, family caps, JOBS exemptions, JOBS sanctions, and the earnings disregard. These are discussed in detail in the appendix to the 1997 CEA Technical Report.

Some of the waivers that were approved for state-wide implementation were initially implemented state-wide, some were implemented in selected areas of the state, while still others began in small regions of the state but were eventually phased in state-wide. Information on the pace of implementation is not available for all states. Therefore, the date that is used to signal implementation is the date that the waiver actually began to be implemented; estimates based on the date the waiver was approved instead of the date of implementation are very similar.[10]

PRWORA & TANF. PRWORA was signed into law in August of 1996, but a given state could not begin its TANF-funded program until that state submitted its TANF plan and it was certified as complete by the federal government. Upon approval, the state could formally implement its TANF plan and begin to draw down federal funds, subject to all of the requirements and restrictions in TANF. The earliest *official* implementation date was September 1996 and the latest was July 1997, when all states were required to begin operating under TANF. However, in some states the initial official plan was simply a placeholder, designed to allow the state to begin to draw down its TANF block grant, and some state policies were not changed until a later date. Therefore, the *actual* implementation date may differ from the *official* date. In particular, specific information was available for five states (California, Mississippi, New Jersey, New York, and Wisconsin) which indicated that the policies most associated with TANF – time limits, work requirements, sanctions – were not implemented until a later date; in these cases, the later date was used to construct the TANF indicator.

[9] In a few instances, waivers were included which were not approved to be implemented state-wide but which nonetheless affected a large share of the state's caseload.

There are other policy factors that may affect the outcomes we examine, including expansions in the Earned Income Tax Credit, the availability of child care, transportation, housing subsidies, or Medicaid coverage. Although our models do not directly examine these factors, state, year, and state-specific time trends are included to capture unobserved factors that may be correlated with the included variables. To the extent that these unobserved factors are largely fixed within the state over time (or change only with a trendline), or if they change across all states at the same time (such as changes in the federal EITC), their effects will be subsumed in the fixed effect coefficients.

6b. Estimates of Equation 1

Table 2 presents the coefficients from estimates of equation (1) using eleven dependent variables relating to welfare participation, work, earnings, income, and family structure. Reported in the table are the $\beta_{eWaiver}$ and β_{eTANF} coefficients, showing the interaction of the waiver and the TANF variables with each of the three educational categories. At the bottom of Table 2 we show the mean levels of the dependent variables among each education group.[11]

Effects of Welfare Waivers

The welfare waiver results in Table 2 confirm the results from the difference-in-difference estimates shown in Table 1. Among all women with less than a high school education, waivers decreased welfare participation by 0.9 percentage points, or about 10 percent. While welfare use declined, the share of women working increased by 2.0 percentage points, which is a modest but sizable increase given that 53 percent of less educated women in the sample worked. The number of annual weeks and weekly hours worked also increased as a result of waivers, by 0.73 weeks and 0.97 hours, respectively. All of these gains are statistically significant. Estimates on the sample of working women only (not shown in the table) find that weeks worked, conditional on working, did not increase, but that hours worked per week did increase by 0.63 (t-statistic of

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[10] The 1997 CEA study used approval dates, while the 1999 CEA study used implementation dates to define the presence of a waiver in a state.

[11] As a robustness check, we have estimated this model interacting the unemployment rate and employment growth rate. We have also dropped all observations based on cells with fewer than 20 cases, and dropped the youngest age group because educational attainment of these younger women may be effected by the policies we examine. The qualitative conclusions on the effects of waivers and TANF do not change in these alternative specifications.

2.36) for this sample.

The women's own annual earnings increased 5.03 percent due to waivers. This gain is due largely to the increase in the share of women working; among those who work, earnings increased by just 1.3 percent and the increase is not statistically significant (t-statistic=0.63). Despite the decline in welfare participation and the modest rise in own earnings, total family income increased by 6.07 percent because of waivers. The increase in family income is driven by a rise in the earnings of other family members (10.32 percent). As a result of the significant increase in family income, poverty declined by 2.36 percentage points, which represents a 9 percent decline in the poverty rate among these women based on its average over the entire sample period (28.7 percent).

The estimates also imply that welfare waivers are responsible for a modest increase in the probability of being married (by 2.39 percentage points) and reduction in the probability of household headship (by 1.71 percentage points).[12] These results suggest that family formation may be influenced by waiver policy, which is one reason why we estimate our models on all women rather than restricting the model only to female household heads.

The effects among more educated women are expected to be much smaller, and they are. In only two cases are effects among these women large or precisely estimated. There is a significant negative effect of waivers on the probability of being married among women with 12 years of schooling. Among the most educated women, waivers are associated with a precisely estimated decrease in the earnings of other family members (which also drives a modest effect on total family earnings), although the magnitude of the effects is relatively small (2.22 percent)

These results indicate that state implementation of waivers had a significant effect on a wide

[12] Our estimates are qualitatively similar to Moffitt (1999); that is, welfare waivers are found to decrease welfare participation and increase weeks and hours worked. However, unlike Moffitt, we find that total family income does rise in response to waivers. In comparisons with Moffitt's analysis, our analyses include data through 1999 instead of 1995, we use the date the waivers were implemented instead of approved, and we use weighted instead of unweighted regressions.

variety of outcome variables, including family formation patterns. The results are robust to alternative specifications, which gives us confidence in these estimates. To the extent that the TANF-funded reforms that started in 1996 implemented sweeping reforms in all states, modeled at least in part on these waiver programs, one would expect that the TANF effects would be as large, if not larger than the waiver effects. We turn to these next.

Effects of TANF

Table 2 shows that TANF had twice as large of an effect on welfare participation (1.90 percentage point decline) as did waivers (0.86 percentage point decline) among high school dropouts. However, unlike waivers, we estimate no significant effects of TANF on work participation, weeks worked, hours worked, own earnings, or family earnings. Restricting the sample to women or families who had earnings, we continue to find no statistically significant effects of TANF on own earnings or family earnings (not shown in the table). Family income does increase by a substantial amount (3.13 percent) as a result of TANF, but the effect is not precisely estimated. There is a significant decline in poverty of 2.24 percentage points.[13]

These results are surprising, since we expected the major system-wide changes implemented by the 1996 legislation to have larger effects than waivers. There are two ways to read these results. It may be that TANF had few effects on behavior and income. But it is also possible that these estimates are unreliable. We have very few post-TANF observations, and most state TANF programs are implemented within a year of each other. With fixed state and year effects in the model, it is difficult to identify the effects of TANF in equation (1). Because of this, we try an alternative approach to estimate the effects of the 1996 reforms.

[13] If one interacts the waiver effects with the TANF effects, both waiver and nonwaiver states show equivalent reductions in caseloads following the implementation of TANF. But changes in earnings, income, and poverty are concentrated in the waiver states. It is not entirely clear how to interpret this however. Iit could reflect the fact that waiver states were able to implement their full TANF programs much more rapidly. It could indicate that programs in waiver states are different in kind from programs in nonwaiver states. Looking at the differences in program characteristics that are readily identifiable, it does appear that nonwaiver states are somewhat more likely to have family caps, have stronger sanction policies, and allow no work exemptions on the basis of age of the youngest child.

7. ALTERNATIVE ESTIMATES OF THE EFFECTS OF PRWORA

There is substantial variation in the timing of waiver implementation. Some states implemented their policies in the early 1990s, while others implemented in the mid-1990s, making identification of waiver effects quite stable. However, all states implemented TANF within a 17-month time period. As a result, identification of the TANF effect is somewhat tenuous given the fact that we are including state and year effects in our model.

7a. Looking at Residual Changes as a Measure of the Impact of PRWORA

As an alternative, we provide estimates of PRWORA effects based on the changes in year effects alone. Using our aggregated state/year/education/age data set for all women 16 to 54 years old, we estimate models of each of our outcomes of interest using the same specification reported in Table 2 except that the policy factors (waiver indicator variable, TANF indicator variable, and maximum AFDC benefit) and state-specific time trends are excluded. That is, the models include: age dummies (16-25, 26-34, 35-44, 45-54), education dummies (<12, =12, >12), age dummies interacted with the education dummies, race (Hispanic, non-Hispanic black), year effects, year effects interacted with education dummies, state effects, current and one-year lagged unemployment rate and employment growth rate, and interactions between education and current and one-year lagged unemployment rate and employment growth rate. The difference in the year effects representing 1995 and 1998 for each education group is an estimate of the effects of PRWORA on that group.[14]

One drawback of such estimates is that our measure of the impact of the 1996 welfare reform includes all year-specific effects that are not controlled for elsewhere in the model, i.e., it interprets all residual changes as the impact of welfare reform. Particularly given the robust economy, we do not believe that we can adequately control for all of its effects in the model, and expect that the comparative year effects between 1995 and 1998 include at least some economic effects as well as policy effects. We deal with this by calculating a difference-in-difference estimator that compares the residual year effects among less educated women with the residual

[14] We compare 1995 and 1998 rather than 1996 and 1998 because some states began to implement TANF in 1996; also there was extensive congressional debate in the spring and summer prior to TANF's enactment which may have affected behavior.

year effects among more educated women. While both groups should benefit from the booming economy, only less educated women should be impacted by welfare policy changes. If less educated women show substantially larger residual changes, this provides at least some evidence consistent with the hypothesis that welfare reform was influencing economic outcomes among this group of women.

These alternative estimates may allow us to get a better handle on the effects of welfare reform. However, they differ in important ways from the estimates of equation (1). This analysis captures all changes not separately controlled for in the model, and attributes it to PRWORA. This means that it would include the effects of other policy changes that occurred outside of the implementation of TANF programs, such as changes in immigrant eligibility for public assistance. In addition, if behavior were effected because of the announcement of policy changes at the federal level or new widely publicized changes in expectations for welfare recipients, then these effects would be included in the "PRWORA effect" as estimated by the residual approach. Alternatively, if the EITC expansions of the early 1990s are causing some of the observed changes over time from 1995 to 1998, then we would attribute some of the EITC effect to PRWORA. This suggests that these estimates are likely to be larger than those from equation (1).

On the other hand, the estimates of TANF effects in equation (1) are relative to AFDC under no waivers, because waivers are controlled for in that model. This alternative approach estimates the effects of post-1995 policy changes relative to the state of world in 1995, and many waivers had been implemented by 1995. This fact would cause the alternative estimate to be smaller than the estimated effects from equation (1). While this makes it theoretically unclear whether one would expect these alternative estimates to be larger or smaller than those in Table 3, we expect that the first effect dominates the second and that these estimates are likely to be larger.

7b. Estimates of PRWORA Using this Alternative Approach

Table 3 contains the alternative estimates of the effects of welfare reform, based on residual

changes in outcome variables before and after the legislation was passed, controlling for other variables. Column (1) in each case includes controls only for demographic variables; column (2) also includes controls for economic variables.

First compare the results without and with economic controls (column 1 versus column 2) for low-skilled women only. In every case, this analysis indicates bigger residual changes in the outcome variables when the economic controls are excluded. For instance, without economic controls, there are significant residual increases in the percent working, weeks worked and hours worked. Once economic controls are included, only weeks of work appears to show a residual increase. Other outcome variables show smaller but still significant residual effects even after economic controls are included. Since we are trying to isolate the effects of policy change, we prefer the estimates in column (2) of Table 3. As expected, the table indicates that the economic expansion had a significant effect on outcomes among less skilled women over this time period and controlling for these effects is important. In fact, much of the increase in labor force participation appears due to the economy.

Focusing just on the estimates in column (2) for less skilled women, Table 3 indicates that there have been large and significant residual changes in welfare participation, weeks of work, earnings and income. For instance, the estimates indicate that welfare participation fell by 4.5 percentage points from 1995 to 1998 among high school dropouts, more than twice the TANF effect estimated in Table 2. Family earnings grew by almost 9 percent, while family income grew by almost 7 percent. Poverty fell by 2 percentage points. While there are no significant effects on marriage in column (2), the percent who head their own household appears to grow by almost 3 percent, a counter-intuitive result.

The difficulties in interpreting these residual changes for less skilled women as policy effects are highlighted by examining the estimated effects among more educated women. Because so few women with more than a high school education receive welfare, it is unlikely that welfare reform substantially altered their employment, earnings, and income. But Table 3 also shows

significant residual changes in welfare use, earnings, income, and family formation among women with more than 12 years of education. If the residual changes over time reported in Table 3 are interpreted as the effect of welfare reform alone, then one would conclude that there were in fact substantial effects among women with more than a high school degree. However, we expect that our economic controls do not fully capture the effects of the economic expansion in the labor market. Unemployment rates and employment growth rates may very inadequately control for the market forces that are increasing work and wages among women at all skill levels, particularly during the years of a record-setting economic expansion.

At the bottom of Table 3 we try to control for omitted economic factors that may be affecting women of all skill levels, by calculating a difference-in-differences estimator of the 1995-98 changes among less skilled women versus more skilled women. While we show comparisons among all three education groups at the bottom of Table 3, we prefer to focus on the difference-in-differences estimator in column (2) between the least skilled (education less than 12 years) and the most skilled (education greater than 12 years). These results indicate that less skilled women show significantly larger declines in welfare, greater increases in family earnings (due to a greater increase in other family members' earnings), and greater declines in poverty. Family income among the least skilled rises faster when compared with the middle education group, but not the most educated. These difference-in-difference estimates also produce a more believable result on family formation, showing that the percent of women heading their own household went up significantly among all groups, but it fell among the least skilled relative to the more skilled. These difference estimates confirm the labor force participation results noted above, indicating that increases in the percent working, weeks worked or hours worked, all appear to be explained by the economy and are not significantly higher among less skilled women than among more skilled women.

Despite the difficulty of identifying an effect of TANF using the approach in Table 2, fairly similar estimates are found in Tables 2 and 3. This is particularly true if one focuses on our preferred estimates, which are the difference-in-difference estimates between the least and most

educated women in Table 3. Neither approach finds a statistically significant or substantively large effect of TANF on work participation, weeks, hours, own earnings, or marriage. The residual difference-in-difference approach leads to precisely estimated effects on five outcomes: welfare participation, family earnings, other family member's earnings, poverty, and headship. Although the estimates of the effects of TANF in Table 2 are not precise for each of these five outcomes, the magnitudes of the effects are quite similar to those found in Table 3. For example, while the residual difference-in-differences approach implies that TANF caused a reduction in welfare participation by 3.3 percentage points, estimates in Table 2 imply a reduction of 1.9 percentage points. Similarly, the difference-in-differences estimates of the effect of TANF on family earnings (3.5 percent), other family member's earnings (6.5 percent), poverty (-1.6 percentage points), and household headship (-2.0 percentage points) are similar to the Table 2 estimates of 3.1 percent, 4.2 percent, -2.2 percentage points, and –1.3 percentage points, respectively.

It is always difficult to interpret residual estimates of the type presented in Table 3. But combined with the model-based estimates, we believe that these results strongly indicate the probability that the policy changes implemented between 1995 and 1998 had a significant impact on outcomes among less skilled women. Even with demographic and economic controls, and in comparison to changes among more skilled women, we find that less skilled women experienced greater declines in welfare use, greater increases in earnings and income, and greater reductions in poverty. [15]

8. DISTRIBUTIONAL EFFECTS

The results in Tables 2 and 3 suggest that the welfare reforms of the 1990s had significant and positive effects on economic outcomes among less-skilled women. Popular discussions of these

[15] An alternative intepretation of the data is that the economic boom is having much greater effects on less skilled women than on more skilled women, a reasonable expectation given that the least skilled are more likely to be unemployed or out of the labor market. However, we allow for this by interacting our economic controls with the education variables. We also believe that unemployment rates probably provide a better control for the effects of the boom on economic behavior among less skilled women (who are more likely to experience unemployment) than among more skilled women. If this is true, the difference estimators may overcontrol for omitted economic variables and underestimate the true residual effects among less skilled women.

changes, however, often argue that some group of people has become worse off, as public assistance income has declined and women are forced to rely more and more on labor market earnings. The only empirical evidence on these distribution effects is provided by Primus, et. al., (1999) who indicate that single mothers in the bottom quintile of the single mother income distribution lost income between 1995 and 1997 (although they gained income over the entire 1993-97 period).

We investigate this issue by looking at the distribution of income among women within our state/year/education/age cells. Tables 2 and 3 indicate that both waivers and the 1996 welfare reforms produced increases in mean income among less-skilled women. In Table 4 we explore these results further by investigating the effects of waivers and TANF on the 20th percentile of the income distribution within each cell, the 50th percentile of the distribution within each cell, and the 20/50 ratio. Part A uses the same estimation technique as Table 2. The results in Part A indicate that among women who are high school dropouts, waivers increased income at the 20th percentile of their cell (9.83 percent) as much as they increased income at the 50th percentile (8.17 percent). There was no change in the 20/50 ratio due to the implementation of waivers. In contrast, the implementation of TANF had no significant effect on the 20th percentile of income among less educated women, even though it significantly increased income at the 50th percentile (7.64 percent). The result is a significant decline in the 20/50 ratio after the implementation of TANF, indicating a widening in the 20-50 gap.

Part B of Table 4 shows the difference-in-differences estimates of the residual changes in family income at different points in the income distribution among more and less skilled women between 1995 and 1998, similar to the estimates in Table 3. The estimates at the 20th percentile are negative and substantial, but they are not precisely estimated. Income at the 50th percentile went up faster among both less and more skilled women, leading to a difference-in-difference estimate of the impact of the 1996 reform that is positive but relatively small and insignificant. (The gain at the 50th percentile among less skilled women appears larger when the comparison group is the middle-educated group rather than the most educated group.) The 20/50 gap

widens among both the least educated and the middle-educated, although the estimate is less precise among women who are high school dropouts.

The results in Table 4 indicate that waivers appear to have had few distribution effects, and the resultant gains occurred even among poorer women. But the post-1996 reforms seem not to have benefited less-skilled women at the bottom of the income distribution. The gains from these policy changes seem concentrated among women at the mean and higher; the 80th percentile showed gains due to TANF of 2.5 percent (not shown in the tables). This suggests that the positive impacts of the 1996 welfare reform, in which the AFDC program was replaced by state-level TANF programs, were not as widespread as were the positive effects of waivers. This is at least consistent with the fact that TANF programs have included much stricter sanctions, stronger diversion activities and greater work-first requirements than waiver-related changes to the AFDC program.

9. CONCLUSIONS

The passage of PRWORA and the implementation of TANF-funded programs constituted the most significant change in welfare policy in decades. This study examines a wide array of indicators to evaluate the period of TANF implementation as well as the period of welfare waivers leading up to the 1996 reforms. Our overall conclusions are that the policy changes of the 1990s reduced caseloads, but also increased income, reduced poverty, and reduced female headship. The waivers of the early 1990s also appeared to increase work behavior, and increased marriage. Changes in other sources of family income were more important than changes in women's own earnings in creating overall income increases, an issue that is worthy of further research attention. The effects of the 1996 welfare reform were less broadly distributed than were the effects of the waiver policies in the early to mid-1990s.

Among female high school dropouts, we find that waivers caused a decline in welfare participation of about 1 percentage point (or 10 percent) and a rise in employment of 2 percentage points (or 3.7 percent). Total family earnings increased by almost 9 percent; this

increase was due largely to a rise in the earnings of other family members and not the woman in question. Family income also increased, but by an amount (6 percent) that is somewhat smaller than the increase in family earnings because welfare income of these women fell. These income changes appear to have benefited less-skilled women across their income distribution. These changes translated into a decline in poverty of 2 percentage points (8 percent). At the same time, we find few important or significant effects among more educated women, who are much less likely to be influenced by changes in welfare policies. We believe this to be a compelling and plausible story. Further analysis needs to examine more closely the rise in the earnings of other family members. This change is most likely related to the observed changes in marital status and headship that we also observe.

Among female high school dropouts, we also find significant policy effects following the passage of the 1996 legislation and the implementation of TANF programs. The welfare participation effects of the 1996 legislation are about twice as large as they are for waivers. This finding is consistent with evidence based on administrative caseload data (CEA, 1999). Policies in the post-1995 period appear to have had few effects on work behavior, however, with ongoing increases in work driven by the economic expansion. But, similar to the effects of waivers, family earnings and family income increased by about 3 to 6 percent due to the 1996 reforms. In contrast to the effects of waivers, these income gains occurred only among women in the middle or upper part of the income distribution among less-skilled women. Poverty appears to have declined by 2 percentage points more than it would have in the absence of policy changes (an effect similar in size to waiver effects on poverty), and household headship also declined. These findings are based on two complementary approaches that analyze the effects of TANF and the 1996 reforms, and lead to similar findings.

The mechanisms through which these TANF programs and state waiver variables affected behavior is still open to debate. It is possible that the effects we are measuring here are entirely due to the specific programmatic elements of the reforms, such as expanded work efforts or increased sanction activity. It is also possible that at least some of these effects occurred more

indirectly, through behavioral shifts that were induced by the publicity and attention given to the fact that states were getting "tough" with welfare recipients. We have replaced the waiver and TANF variables in our estimates with specific policies, such as sanctions, time limits and work requirements. The estimates of these policies were quite sensitive to specification and no consistent patterns emerged. One exception is that full family sanctions appeared to be associated with lower welfare participation, as was the case in CEA (1999). More micro-level information on exactly what was implemented, when and how, will be necessary to track the effectiveness of specific elements of the waivers and the TANF changes.

TANF-funded state programs are still in their infancy. Most of these programs were in existence for only a year or so by the time our available data ends in 1998. Furthermore, many of these new state programs involved major changes in administrative procedures, along with new programs and new program parameters. In many states, TANF-funded programs were in flux throughout the period of these data, in the process of being created, observed, and refined. All of this suggests that it is still early to draw definitive conclusions about the impact of these changes.

Finally, while this study provides evidence about the effects of TANF and welfare waivers on a number of key indicators, there are many other outcomes that need to be examined. These indicators include, for example, child education, health, nutrition, abortion, and teen pregnancy. Information on the impact of policy changes on these other variables will be important in providing a broader evaluation of welfare reform.

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Table 1. Indicators of Success Before and After Waivers, Controlling for Labor Market Conditions
All Women 16-54, by Education

		Pct on AFDC	Pct Working	Weeks Worked	Hours Worked	Log Own Earnings	Log Family Earnings	Log Other Family Earnings	Log Family Income	Pct Poor	Pct Married	Pct Head of Household
High school dropouts												
Waiver states												
	Pre-waiver	0.134	0.513	18.5	16.1	8.211	10.192	9.969	10.354	0.338	0.404	0.248
	Post-waiver	0.109	0.518	18.6	16.0	8.183	10.249	10.045	10.401	0.318	0.397	0.234
	Difference	-0.025*	0.005	0.2	-0.1	-0.028	0.057*	0.071*	0.047*	-0.020*	-0.007	-0.014
Non-waiver states												
	Pre-waiver	0.130	0.508	17.9	15.1	8.039	10.108	9.889	10.296	0.343	0.350	0.253
	Post-waiver	0.132	0.468	16.7	14.8	8.059	10.117	9.876	10.311	0.361	0.355	0.267
	Difference	0.002	-0.040*	-1.2	-0.3	0.020	0.009	-0.013	0.015	0.018	0.005	0.013
Difference-in-Difference		-0.027*	0.045*	1.4	0.3	-0.048	0.048	0.084	0.032	-0.037*	-0.012	-0.027
More than high school degree												
Waiver states												
	Pre-waiver	0.027	0.849	38.1	31.0	9.867	10.902	10.438	11.003	0.070	0.591	0.304
	Post-waiver	0.025	0.850	38.3	31.3	9.897	10.917	10.445	11.017	0.071	0.588	0.331
	Difference	-0.002	0.001	0.2	0.3	0.030	0.015	0.007	0.014	0.002	-0.003	0.028
Non-waiver states												
	Pre-waiver	0.028	0.847	37.8	31.0	9.815	10.832	10.355	10.941	0.082	0.596	0.318
	Post-waiver	0.027	0.843	37.7	31.0	9.882	10.897	10.422	10.998	0.080	0.578	0.361
	Difference	-0.001	-0.004	0.0	0.1	0.067	0.065*	0.067*	0.057*	-0.002	-0.018	0.043
Difference-in-Difference		-0.001	0.005	0.2	0.2	-0.037	-0.050	-0.060	-0.043	0.003	0.015	-0.015

Estimates control for current and lagged state unemployment rate and employment growth rate.
* Indicates statistical significance at the 0.10 level.
Pre- and post-waiver estimates are calculated over two-year periods, and the "waiver" date for the non-waiver states is 1995.

Table 2. Effects of TANF and Welfare Waivers
All Women 16-54

	Pct AFDC	Pct Working	Weeks Worked	Hours Worked	Log Own Earnings	Log Family Earnings	Log Other Family Earnings	Log Family Income	Pct Poor	Pct Married	Pct Head of Household
Waiver*Educ<12	-0.0086*	0.0197*	0.732*	0.966*	0.0503*	0.0873*	0.1032*	0.0607*	-0.0236*	0.0229*	-0.0171*
	(0.0038)	(0.0073)	(0.355)	(0.306)	(0.0225)	(0.0148)	(0.0192)	(0.0132)	(0.0056)	(0.0073)	(0.0070)
Waiver*Educ=12	0.0020	-0.0046	-0.175	-0.014	-0.0060	-0.0155	-0.0219	-0.0062	0.0012	-0.0144*	0.0052
	(0.0031)	(0.0060)	(0.291)	(0.251)	(0.0184)	(0.0121)	(0.0157)	(0.0108)	(0.0046)	(0.0060)	(0.0058)
Waiver*Educ>12	0.0003	-0.0021	0.031	-0.018	-0.0131	-0.0165*	-0.0222*	-0.0114	0.0011	0.0075	-0.0014
	(0.0025)	(0.0049)	(0.239)	(0.206)	(0.0151)	(0.0099)	(0.0129)	(0.0089)	(0.0038)	(0.0049)	(0.0047)
TANF*Educ<12	-0.0190*	0.0151	-0.090	0.011	0.0654	0.0308	0.0416	0.0313	-0.0224*	-0.0004	-0.0133
	(0.0088)	(0.0170)	(0.832)	(0.716)	(0.0526)	(0.0346)	(0.0449)	(0.0310)	(0.0131)	(0.0171)	(0.0165)
TANF*Educ=12	-0.0115*	-0.0041	0.300	-0.020	0.0277	0.0161	0.0045	0.0217	-0.0106	-0.0161	-0.0025
	(0.0077)	(0.0149)	(0.728)	(0.627)	(0.0260)	(0.0303)	(0.0299)	(0.0271)	(0.0115)	(0.0150)	(0.0144)
TANF*Educ>12	0.0058	-0.0241*	-0.377	-0.430	-0.0164	-0.0243	-0.0283	-0.0113	0.0031	0.0034	0.0239*
	(0.0059)	(0.0113)	(0.553)	(0.476)	(0.0350)	(0.0230)	(0.0299)	(0.0206)	(0.0087)	(0.0114)	(0.0110)
Mean of dep variable:											
Education<12	0.105	0.526	18.2	16.3	8.192	10.303	10.112	10.457	0.287	0.425	0.208
Education=12	0.046	0.752	32.2	26.6	9.320	10.611	10.275	10.709	0.126	0.645	0.223
Education>12	0.018	0.837	36.8	30.2	9.784	10.892	10.464	10.991	0.067	0.597	0.280

All models include current and lagged unemployment rate and employment growth rate interacted with each education group, maximum benefit for a family of three interacted with education groups, age dummies (16-25, 26-34, 35-44, 45-54), education dummies, age dummies interacted with education dummies, race (Hispanic, non-Hispanic black), year effects, year effects interacted with education dummies, state effects, and state-specific time trends.
Standard errors in parentheses. Means are weighted by population.
* Indicates statistical significance at the 0.10 level.

Table 3. Policy Effects Calculated as the Residual Change from 1995 to 1998 in Each Outcome by Education Level.

	Pct Welfare		Pct Work		Weeks Worked		Hours Worked		Log Own Earnings	
	(1)	(2)	(1)	(2)	(1)	(2)	(1)	(2)	(1)	(2)
Education<12 Years	-0.050*	-0.045*	0.026*	0.006	1.570*	0.770*	0.883*	0.239	0.145*	0.070*
Education=12 Years	-0.018*	-0.015*	0.015*	0.009	0.979*	0.523	0.792*	0.352	0.082*	0.055*
Education>12 Years	-0.013*	-0.012*	-0.002	0.002	0.418	0.534*	0.241	0.195	0.083*	0.077*
Difference-in-difference										
<12 minus >12	-0.037*	-0.033*	0.028*	0.004	1.152*	0.236	0.642	0.044	0.062*	-0.007
<12 minus =12	-0.032*	-0.030*	0.011	-0.003	0.591	0.247	0.091	-0.113	0.063*	0.015
=12 minus >12	-0.005	-0.003	0.017*	0.007	0.561	-0.011	0.551	0.157	-0.001	-0.022
Include labor market controls?	No	Yes	No	Yes	No	Yes	No	Yes	No	Yes

Column (1): Based on models that include age dummies (16-25, 26-34, 35-44, 45-54), education dummies (<12, =12, >12) age dummies interacted with education dummies, race (Hispanic, non-Hispanic black), year effects, year effects interacted with education dummies, state effects.

Column (2): Same as column (1) but including current and one-year lagged unemployment rate and employment growth rate, and the interaction of each of these factors with the education dummies.

Difference-in-difference estimator is the difference between education groups in the change between 1995 and 1998.

* Indicates statistical significance at the 0.10 level.

Table 3 (Continued). Policy Effects Calculated as the Residual Change from 1995 to 1998 in Each Outcome by Education Level.

	Log Family Earnings		Log Other Family Members' Earnings		Log Family Income		Pct Poor		Pct Married		Pct Head of Household	
	(1)	(2)	(1)	(2)	(1)	(2)	(1)	(2)	(1)	(2)	(1)	(2)
Education<12 Years	0.131*	0.087*	0.136*	0.098*	0.101*	0.066*	-0.036*	-0.020*	-0.018*	-0.012	0.027*	0.027*
Education=12 Years	0.045*	0.024	0.024*	0.006	0.044*	0.026*	0.007	0.013*	-0.021*	-0.022*	0.049*	0.048*
Education>12 Years	0.064*	0.052*	0.049*	0.033*	0.067*	0.055*	-0.005	-0.004	-0.014*	-0.019*	0.046*	0.047*
Difference-in-difference												
<12 minus >12	0.067*	0.035*	0.087*	0.065*	0.034*	0.011	-0.031*	-0.016*	-0.004	0.007	-0.019*	-0.020*
<12 minus =12	0.086*	0.063*	0.112*	0.092*	0.057*	0.040*	-0.043*	-0.033*	0.003	0.010	-0.022*	-0.021*
=12 minus >12	-0.019	-0.028	-0.025	-0.027	-0.023	-0.029*	0.012*	0.017*	-0.007	-0.003	0.003	0.001
Include labor market controls?	No	Yes	No	Yes	No	Yes	No	Yes	No	Yes	No	Yes

Column (1): Based on models that include age dummies (16-25, 26-34, 35-44, 45-54), education dummies (<12, =12, >12) age dummies interacted with education dummies, race (Hispanic, non-Hispanic black), year effects, year effects interacted with education dummies, state effects.

Column (2): Same as column (1) but including current and one-year lagged unemployment rate and employment growth rate, and the interaction of each of these factors with the education dummies.

Difference-in-difference estimator is the difference between education groups in the change between 1995 and 1998.

* Indicates statistical significance at the 0.10 level.

Table 4. Distributional Effects of Welfare Reform on Family Income

Women 16-54 Years Old

Part 4A: Based on equation 1 (Comparable to estimates in Table 2)

	Log 20th Percentile	Log 50th Percentile	20th/50th
Waiver*Educ<12	0.0983*	0.0817*	0.0018
	(0.0283)	(0.0178)	(0.0093)
Waiver*Educ=12	-0.0378	-0.0147	-0.0098
	(0.0232)	(0.0146)	(0.0076)
Waiver*Educ>12	0.0011	-0.0163	0.0096
	(0.0190)	(0.0112)	(0.0062)
TANF*Educ<12	-0.0362	0.0764*	-0.0388*
	(0.0663)	(0.0417)	(0.0217)
TANF*Educ=12	0.0553	0.0267	0.0050
	(0.0580)	(0.0365)	(0.0190)
TANF*Educ>12	-0.0138	-0.0132	-0.0047
	(0.0441)	(0.0277)	(0.0144)
Mean of dep. variable			
Education<12	9.25	10.24	0.391
Education=12	9.84	10.59	0.484
Education>12	10.17	10.85	0.516
Number of observations	14054	14074	14074

Includes all variables also included in Table 2.

Part 4B: Based on residual change from 1995 to 1998 (Comparable to estimates in Table 3)

	Log 20th Percentile	Log 50th Percentile	20th/50th
Education<12	-0.0209	0.0485*	-0.0164
	(0.0355)	(0.0225)	(0.0115)
Education=12	-0.0283	0.0118	-0.0164*
	(0.0277)	(0.0175)	(0.0090)
Education>12	0.0305	0.0369*	-0.0027
	(0.0217)	(0.0137)	(0.0071)
Difference-in-difference			
<12 minus >12	-0.0426	0.0116	-0.0137
<12 minus =12	0.0074	0.0367	-0.0001
=12 minus >12	-0.0588*	-0.0251	-0.0136
Number of observations	14054	14074	14074

Includes all variables also included in Table 3.
Standard errors in parentheses.
* Indicates statistical significance at the 0.10 level.

Table A1. Dates of TANF Implementation and Major Welfare Waivers

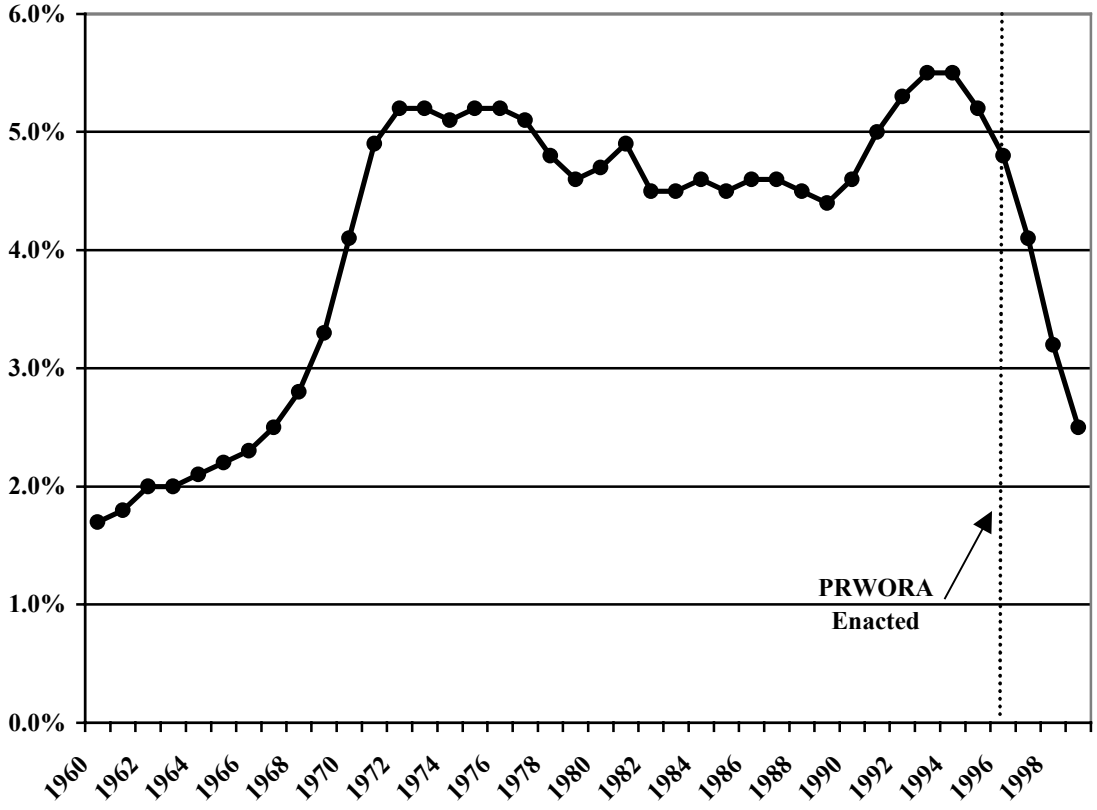
	Date of First Major Waiver		TANF Implementation	
	Approval	Implementation	Official	Actual, if Different from Official
Alabama			November-96	
Alaska			July-97	
Arizona	May-95	November-95	October-96	
Arkansas	April-94	July-94	July-97	
California	October-92	December-92	November-96	January-98
Colorado			July-97	
Connecticut	August-94	January-96	October-96	
Delaware	May-95	October-95	March-97	
DC			March-97	
Florida	June-96		October-96	
Georgia	November-93	January-94	January-97	
Hawaii	June-94	February-97	July-97	
Idaho	August-96		July-97	
Illinois	November-93	November-93	July-97	
Indiana	December-94	May-95	October-96	
Iowa	August-93	October-93	January-97	
Kansas			October-96	
Kentucky			October-96	
Louisiana			January-97	
Maine	June-96		November-96	
Maryland	August-95	March-96	December-96	
Massachusetts	August-95	November-95	September-96	
Michigan	August-92	October-92	September-96	
Minnesota			July-97	
Mississippi	September-95	October-95	October-96	July-97
Missouri	April-95	June-95	December-96	
Montana	April-95	February-96	February-97	
Nebraska	February-95	October-95	December-96	
Nevada			December-96	
New Hampshire	June-96		October-96	
New Jersey	July-92	October-92	February-97	July-97
New Mexico			July-97	
New York			December-96	November-97
North Carolina	February-96	July-96	January-97	
North Dakota			July-97	
Ohio	March-96	July-96	October-96	
Oklahoma			October-96	
Oregon	July-92	February-93	October-96	
Pennsylvania			March-97	
Rhode Island			May-97	
South Carolina	May-96		October-96	
South Dakota	March-94	June-94	December-96	
Tennessee	July-96	September-96	October-96	
Texas	March-96	June-96	November-96	
Utah	October-92	January-93	October-96	
Vermont	April-93	July-94	September-96	
Virginia	July-95	July-95	February-97	
Washington	September-95	January-96	January-97	
West Virginia			January-97	
Wisconsin	June-94	January-96	September-96	September-97
Wyoming			January-97	

Table A2. Indicators of Success Before and After Waivers, With and Without Controlling for Labor Market Conditions
Female High School Dropouts 16-54 Years Old

	Simple Pre-/Post-Waiver Comparison				Controlling for Labor Market Conditions[a]		
	Pct on AFDC	Pct Working	Pct Poor	Unemployment Rate	Pct on AFDC	Pct Working	Pct Poor
Waiver states							
Pre-waiver	0.130	0.525	0.324	6.26	0.134	0.513	0.338
Post-waiver	0.116	0.517	0.318	6.55	0.109	0.518	0.318
Difference	-0.014 *	-0.008	0.006	0.29*	-0.025 *	0.005	-0.020 *
Non-waiver states							
Pre-waiver	0.149	0.493	0.360	6.85	0.130	0.508	0.343
Post-waiver	0.131	0.492	0.347	5.81	0.132	0.468	0.361
Difference	-0.018 *	0.001	-0.013	-1.04 *	0.002	-0.040 *	0.018
Difference-in-Difference	0.004	-0.009	0.019	1.33 *	-0.027 *	0.045 *	-0.037 *

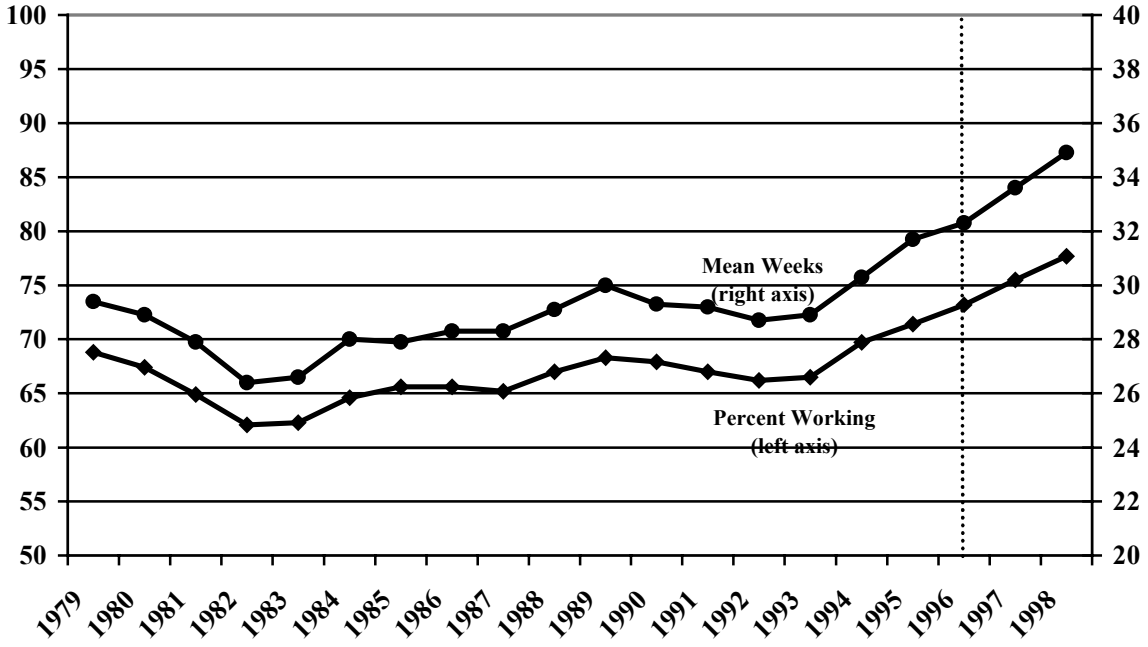
[a]Estimates control for current and lagged state unemployment rate and employment growth rate.
* Indicates statistical significance at the 0.10 level.
Pre- and post-waiver estimates are calculated over two-year periods, and the "waiver" date for the non-waiver states is 1994.

Figure 1. Welfare Recipients as a Percent of Total Population: 1960-1999



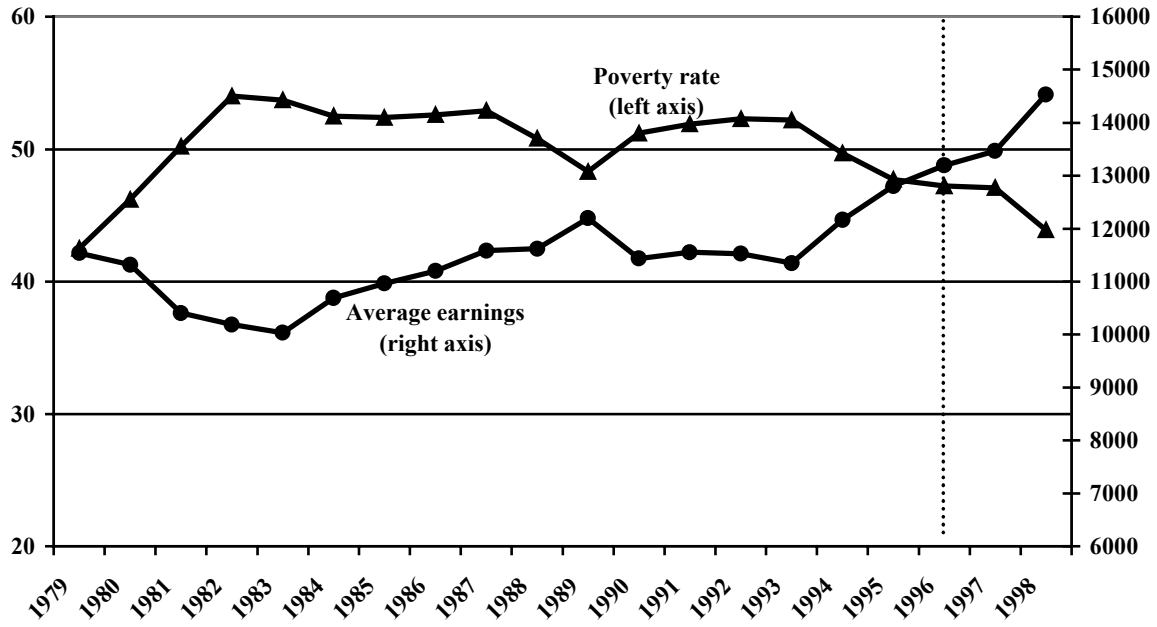
Source: DHHS Administration for Children & Families. 1999 estimate is for June.

Figure 2. Work Participation and Weeks Worked Among Unmarried Female Family Heads with Dependent Children: 1979-1998



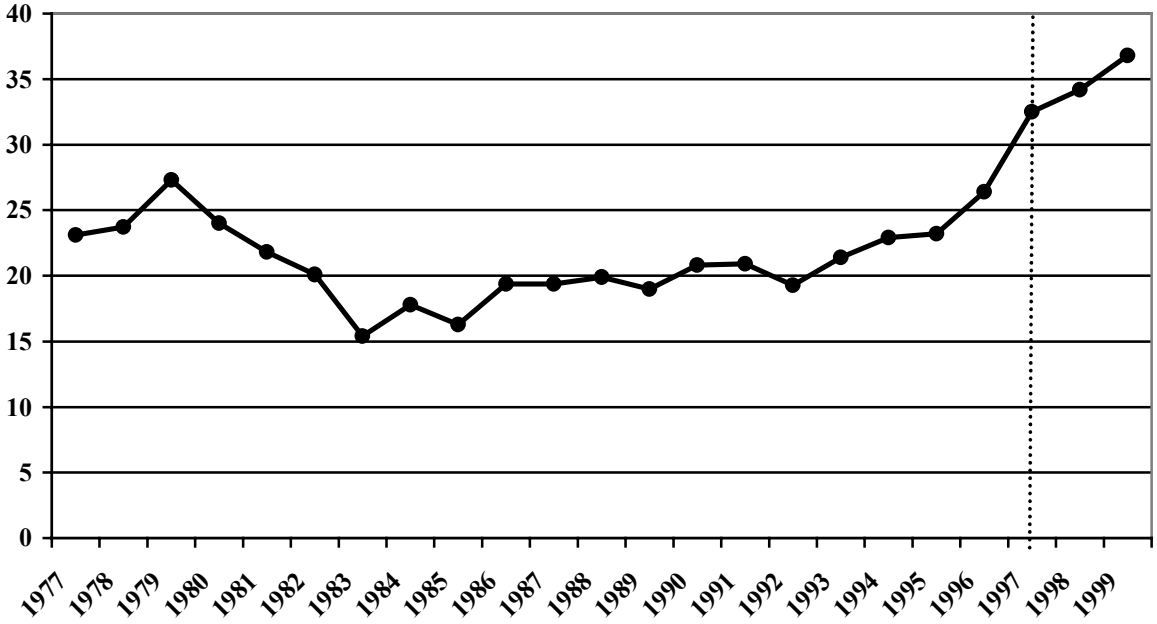
Source: Blank, Card, Robins (2000).

Figure 3. Poverty Rate and Average Earnings Among Unmarried Female Family Heads With Dependent Children: 1979-1998



Source: Blank, Card, Robins (2000).

Figure 4. Share of Women 16-54 Participating in AFDC Last Year Who Were Employed Last Week: 1977-1999



Source: Authors' tabulations using the March CPS.

Figure 5a. Welfare Participation Pre- and Post-Waivers
High School Dropouts -- Without Adjusting for Economic Conditions

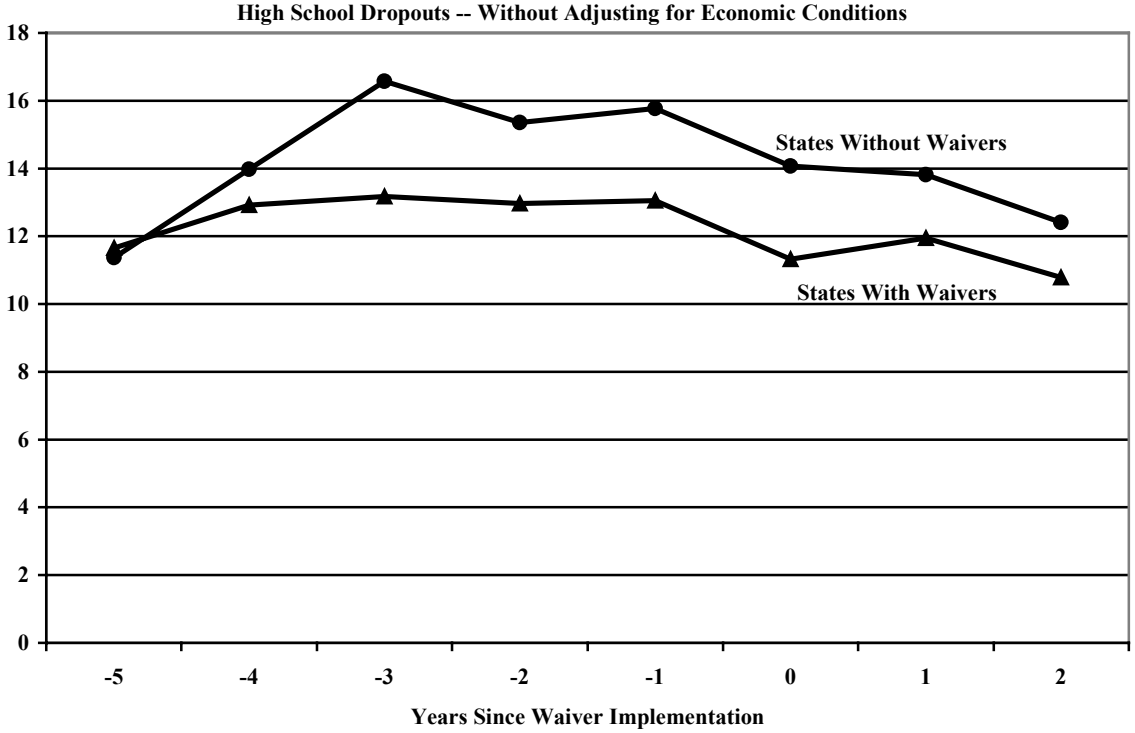
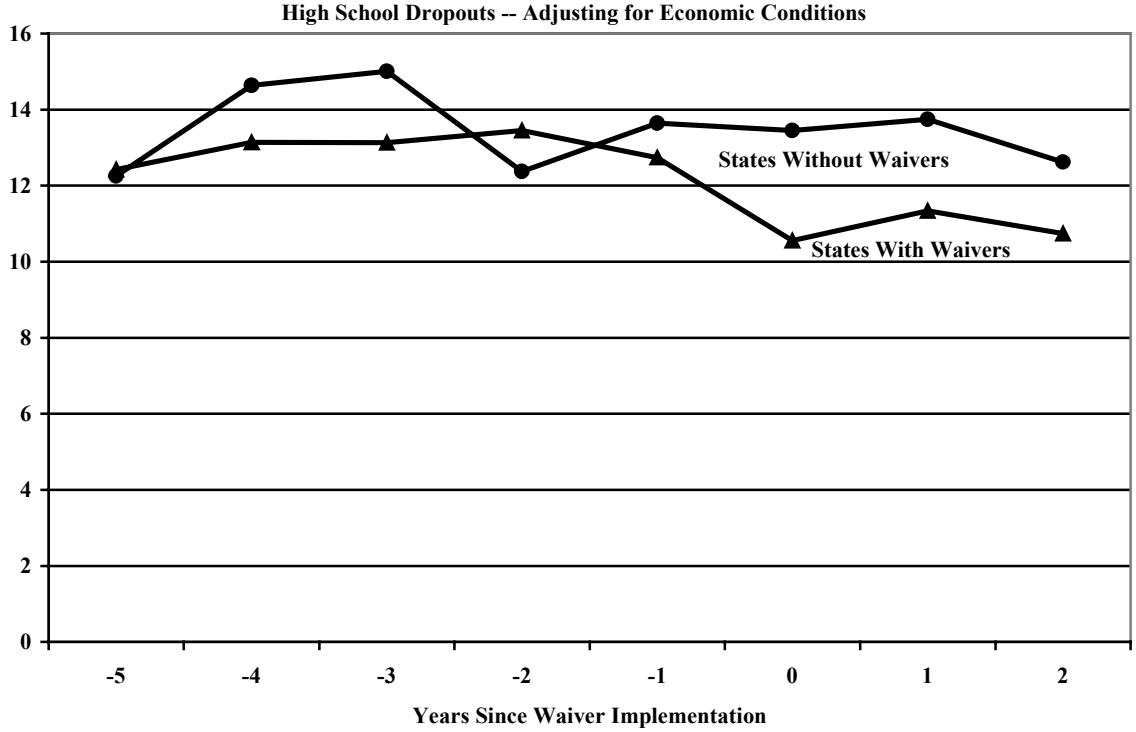


Figure 5b. Welfare Participation Pre- and Post-Waivers
High School Dropouts -- Adjusting for Economic Conditions



Based on regression that controls for current and lagged unemployment rate and employment growth rate.

Figure 6a. Employment Pre- and Post-Waivers
High School Dropouts -- Without Adjusting for Economic Conditions

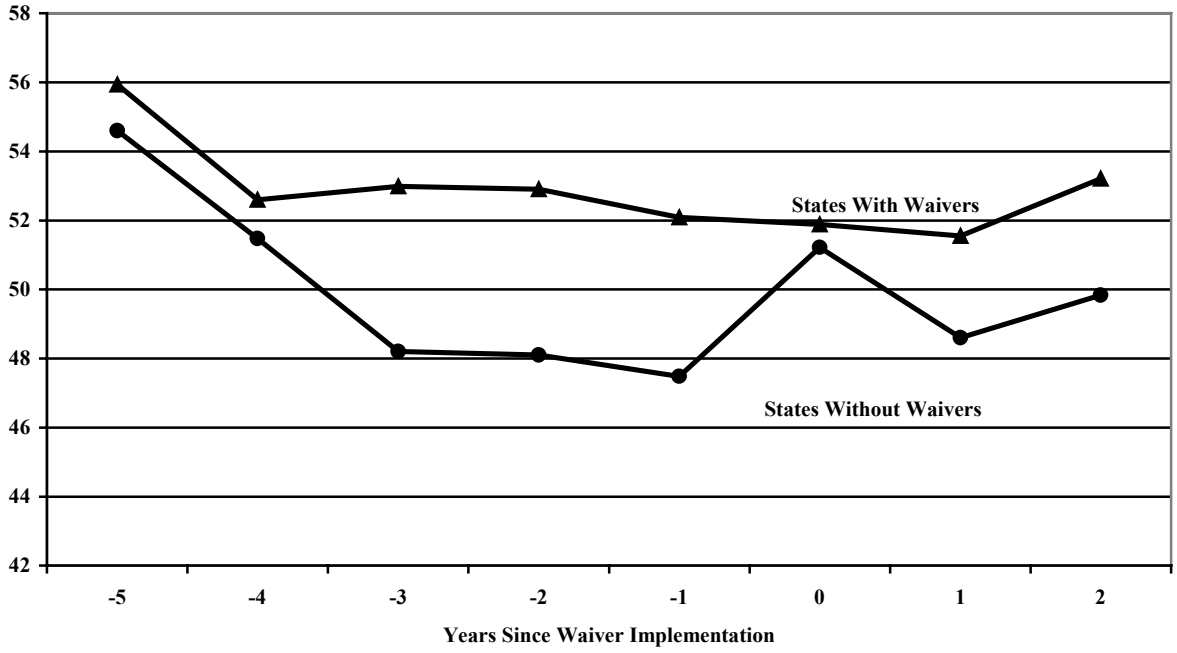
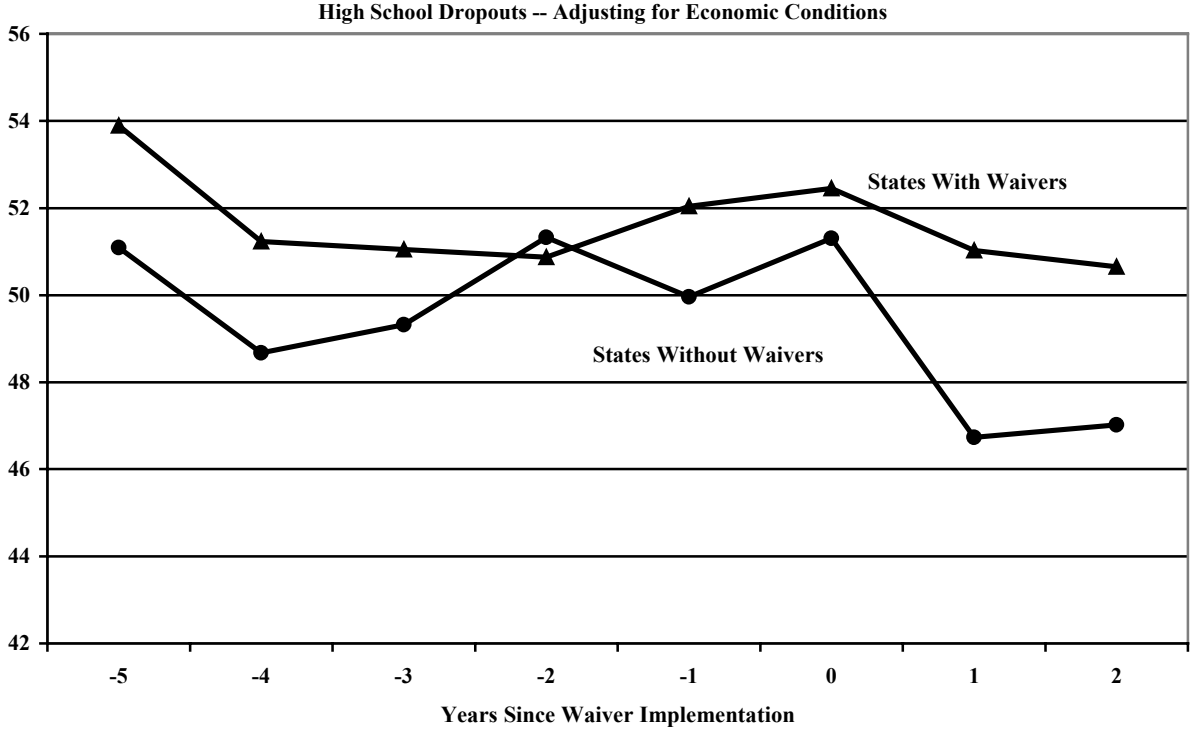


Figure 6b. Employment Pre- and Post-Waivers
High School Dropouts -- Adjusting for Economic Conditions



Based on regression that controls for current and lagged unemployment rate and employment growth rate.

Figure 7a. Poverty Rates Pre- and Post-Waivers
High School Dropouts -- Without Adjusting for Economic Conditions

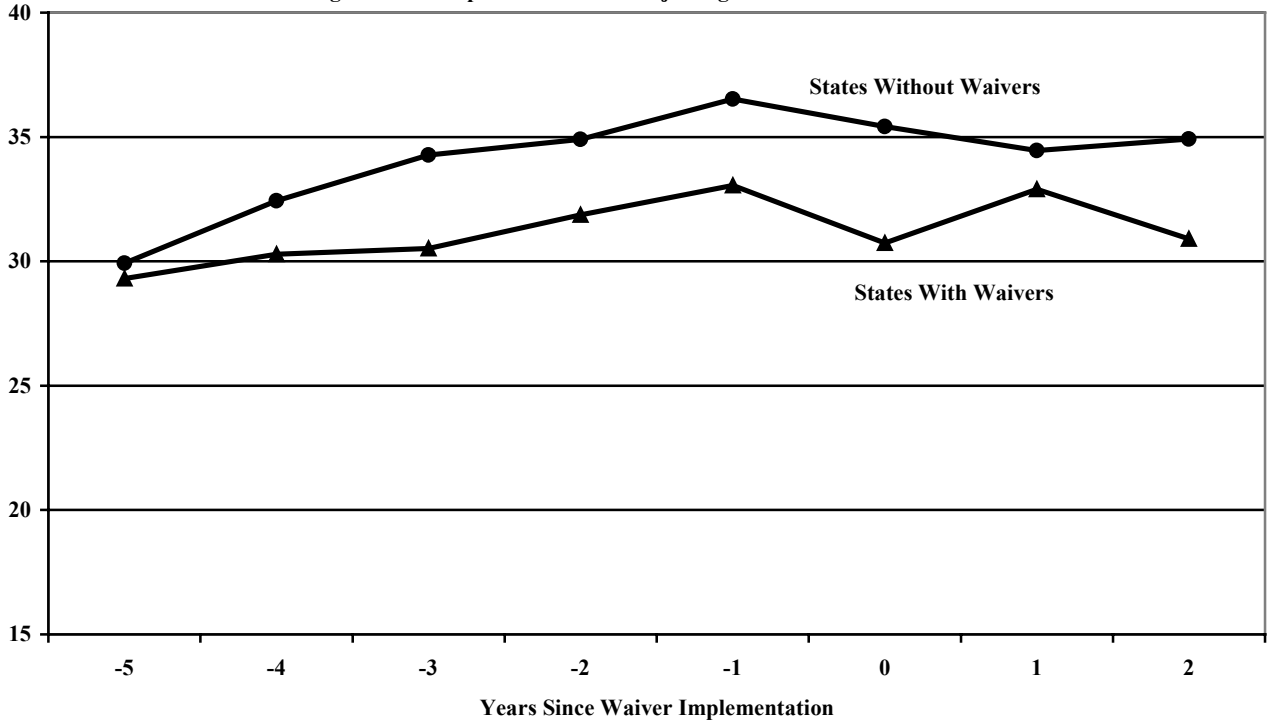
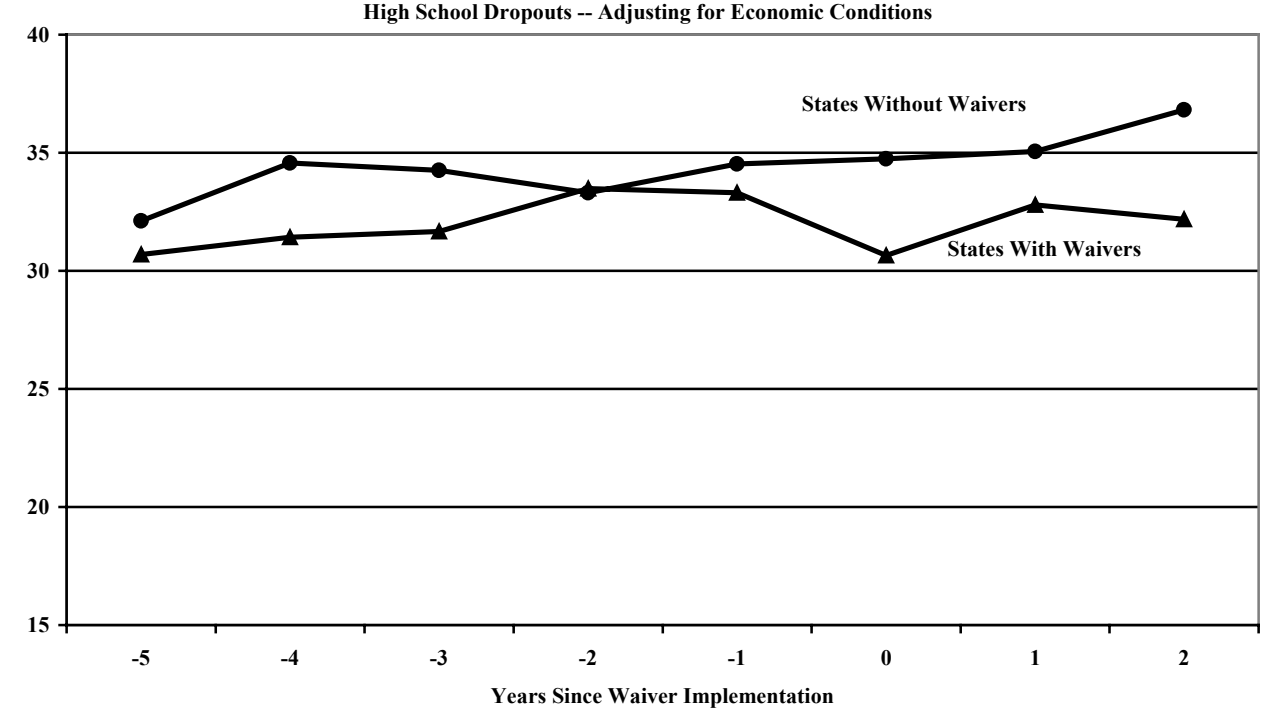


Figure 7b. Poverty Rates Pre- and Post-Waivers
High School Dropouts -- Adjusting for Economic Conditions



Based on regression that controls for current and lagged unemployment rate and employment growth rate.