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DISSertation

Presented in Partial Fulfillment of the Requirements for
The Degree Doctor of Philosophy in the Graduate School of The Ohio State University

By
Younghiee Lim, M.S.W.

* * * * *

The Ohio State University
2002

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ABSTRACT

This study has as its primary objective estimating the effects of the fully phased-in EITC and supplemental state-EITC on the reduction in welfare caseloads between 1994 and 2000. Previous empirical studies support that the EITC would provide incentive to enter the labor market to those on welfare who did not work. This study hypothesizes that this EITC’s incentive to work potentially could have contributed to the substantial decline in welfare caseloads in the 1990s.

This study employs a panel of annual state caseload data from 50 states and the District of Columbia between 1994 and 2000 calendar years. The major data source for this study was taken from the Technical Report of the Council of Economic Advisors to the President in 1999. Combining cross-section and time-series data, the fixed-effects model is used to examine the factors associated with the reduction in welfare caseloads from 1994 to 2000. The years of analysis are particularly useful to capture the effect of the EITC’s largest expansion on caseload decline between 1994 and 2000.

Results of this study support that, holding other factors constant, the increase in the federal EITC subsidy rate has been significantly associated with the decrease in welfare caseloads in the 1990s. The results are fairly robust to the various specifications using alternative dependent variables or including state-fixed effects and year-fixed
effects. More importantly, results of the simulations indicate that the EITC would have
decreased the welfare caseloads to a greater degree in the 1990s if the subsidy rate had
retained its real dollar value instead of deteriorating between 1998 and 2000.
Furthermore, when this effect was combined with the effect of state-EITC, the total effect
of both federal EITC and state-EITC on the caseload reduction increased.

This study has several implications to enable EITC to continue to be an effective
alternative to welfare recipiency by rewarding work. This study’s results also
recommend the expansion of state-EITC to be universal to further benefit working
families with children.
Dedicated to my mother
ACKNOWLEDGMENTS

I would like to give my special thanks to my advisor, Dr. Rebecca Kim, for her tremendous support and guidance throughout my journey at The Ohio State University. I am deeply indebted to her scrupulous review of my work and her extended support in every step of my academic endeavor. Her tireless passion for policy research and brilliant perspectives were shared with me through extended discussion, which made my dissertation research possible from inception to completion. I give my thanks to Dr. Celeste Burke for her excellent intellectual guidance in doing research. I thank her also for her emotional support; she gave me an opportunity to learn and grow as a person as well as a scholar. Her presence made my stay in a foreign land possible. I also give my sincere thanks to Dr. Catherine Montalto whose meticulous comments on my work continually improved my research.

I thank Laura, who always has been there for me with confidence unflailing. I owe Dr. Ruth Ann Hendrickson for her friendship and superb editorial work. I am grateful to Dr. Anne C. Davis, whose compassion for the poor has been and will continue to be the inspiration in my pursuit of policy research. My fiancee, David, and my mother suffered through the long days of my study with me. Finally, utmost thanks are given to Jesus Christ, the moral political-economist and Lord of my life, whose loving kindness made it possible for me to complete this painstaking race.
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FIELD OF STUDY

Major Field: Social Work

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CHAPTER 1

INTRODUCTION

Problem Statement

The last decade of the twentieth century has been a time of dramatic shift in U.S. social welfare policy. As policy has diverted from helping non-working families in the past several decades, a new focus has been placed on assisting low-income working families with children. From the early 1990s, states were encouraged to experiment with innovations in the operation of the Aid to Families with Dependent Children program (AFDC). The federal government approved state requests in a timely manner to facilitate these demonstration programs. The initial attempt to introduce change was followed by an extended effort to transform the system through reducing the number of people on welfare rolls. The primary means of achieving this goal was enforcing work for welfare recipients as an alternative to dependency on government aid.

Under the Clinton administration, 43 states were given opportunity to test a new welfare experiment—granting more waivers than those that all previous administrations provided. These welfare demonstrations could affect the lives of more than 10 million
people in an average month, representing more than 75 percent of all AFDC recipients (DHHS, 1996).

The 1996 welfare legislation, known as the Personal Responsibility and Work Opportunity Reconciliation Act (PRWORA), introduced various restrictions on welfare programs and culminated the nation’s efforts to “end welfare as we know it.” Under PRWORA as well as under waiver demonstrations, states have attempted to achieve the following goals: requiring work, providing time-limited assistance, making work pay, improving child support enforcement, and encouraging parental responsibility (DHHS, 1996).

In addition to these central welfare reform initiatives, the Clinton administration also introduced a series of Earned Income Tax Credit (EITC) expansions in an effort to make work pay outside the welfare system. The EITC was originally enacted in 1975, introduced by the Tax Reduction Act during the Ford presidency to relieve payroll tax burdens on low-income families. However, during the past 25 years policy analysts have come to consider the EITC a viable and work-oriented alternative to existing welfare programs. This intention is clearly reflected in their argument that it would “assist in encouraging people to obtain employment, reducing the unemployment rate and reducing the welfare rolls” (U.S. Congress, Senate, 1975, p.33).

A primary goal of these recent policy changes was to increase the participation of those on welfare in the workforce through work incentive and stringent rules of welfare eligibility. For this reason, it should not be a surprise that numerous policy analyses and evaluations in the 1990s focused on the decline in welfare caseloads to measure the success of recent reform efforts. It has been repeatedly reported that the total caseloads

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of AFDC, which had been replaced with Temporary Assistance for Needy Families (TANF) in 1996, drastically declined after the peak in 1994. Between 1994 and 1999, the total welfare caseloads declined by almost 50 percent (DHHS, 2000a).

While most policy analysts have attributed this decline to the success of welfare reform, some scholars have been puzzled by the fact that the substantial decline occurred before these newly implemented welfare policies came into effect and/or before welfare recipients reached the time limits. Several studies have examined why such an unprecedented decline in the AFDC/TANF caseloads occurred after 1994 when caseloads reached its highest point since 1960 (The Brookings Institute, 2001). These previous studies focused primarily on the adoption of federal AFDC waivers, TANF, and a booming economy, and attributed the decline in the welfare caseloads during the 1990s to these factors (Blank, 1997; CEA, 1997, 1999; Moffitt, 1999; Ziliak et al., 1999).

However, the previous studies overlooked an important piece of policy change in U.S. family policy in the 1990s—the series of expansions of the EITC. In particular, the Omnibus Budget Reconciliation Act (OBRA) in 1990 and 1993 significantly increased credit rates and the EITC’s maximum benefit and expanded income eligibility limits. OBRA 1993 required that the EITC be fully phased-in by 1996. As a result, the fully phased-in EITC has become the largest benefit program for low-income working families with children in the United States (see Table 6A.1 of Scholz and Levine, 2001, for complete data). When estimated, the EITC spending nearly equaled the combined federal spending on TANF and food stamps (Hotz and Scholz, 2001).

The EITC has grown from $3.9 billion in 1975 (in 1999 dollars) to $31.9 billion in 1999, and no other federal antipoverty program has grown at such a rate (Hotz and
Politicians and policy analysts tend to agree that the EITC has been successful in providing not only tax relief for low-income families, but also income support without discouraging work, which has become even more important. Logically, it can be well supported that the EITC encourages people to obtain employment, thereby reducing the number of non-working recipients. Unfortunately, however, most research on the EITC has had a very narrow scope despite the EITC’s potential contribution to the decline in welfare caseloads by increasing earnings of low-income families. Previous studies on the effectiveness of the EITC have focused on aggregate labor supply, income distribution, and child poverty. With respect to welfare caseloads, most studies have examined a series of welfare reforms and a booming economy, overlooking a potential impact of the EITC on the declining caseloads.

The EITC was originally designed to reimburse the Social Security tax paid by low-income wage earners, but later revisions and expansion of the credit focused on stimulating work effort (Browning, 1995). EITC subsidizes the earnings of low-income workers in the form of a refundable tax credit. According to Internal Revenue Service (IRS) Statistics of Income data, approximately 71 percent of the total credit amount was paid in the form of refunds between 1975 and 1994.1 By subsidizing low wages, the EITC has been expected to make work more attractive, and thus, enable welfare recipients to work themselves off the welfare rolls. It is, therefore, theoretically sound to give the EITC proper attention as a plausible contributing factor to the decline in welfare caseloads.

---

1 This concept of “refundability” as opposed to “non-refundability” will occur throughout this study. Refundability simply means that the Treasury pays out regardless of whether the taxpayer has any Federal income tax liability.
caseloads in addition to waivers, PRWORA 1996, and the booming economy of the 1990s.

**Conceptual Framework: Welfare Participation**

The economic perspective emphasizes the role of individuals making choices between various alternatives as key to understanding individual behaviors such as labor force participation, marriage, fertility, and participation in AFDC. It posits that there are individuals for whom changes in factors affecting the economic attractiveness of various alternatives will influence their behavior in these areas. It is less likely, however, that it recognizes that the behaviors of many others may not change as readily as those of some people, even if there are very large changes in these same factors, due to either lack of information or other constraints that these individuals face.

Because the decision to apply for benefits may be made in conjunction with other life decisions, any factor that influences the relative well-being of the (potential) parents under all of their various “life alternatives” is a potential determinant of AFDC participation (DHHS, 1997). The most obvious economic factor is the economic condition. A decline in the likelihood of succeeding in the job market may make AFDC participation relatively more attractive than work to an unmarried mother. It may also make marriage less attractive because of reduced job opportunities for both herself and her potential partner.

Declines in job opportunities also can have an impact on fertility, although the direction of the effect depends on the relative strength of competing forces. On the one hand, if an unmarried mother has a child she will need to use a share of her reduced
income to raise the child. On the other hand, the "opportunity cost" of time she devotes to having and raising a child is reduced when her potential wage rate is lowered. In this case, she gives up less when she uses her time to raise children instead of working.

Traditionally, an additional incentive in favor of having a child exists if the woman does not have children already: it gives her access to AFDC benefits, which many substantially offset the income losses due to her poorer job prospects.

Changes in programmatic factors, such as benefit levels and eligibility criteria, also lead to changes in potential recipients' welfare participation decisions. Provisions of the Omnibus Budget Reconciliation Act of 1981 clearly reduced caseload growth (CEA, 1997). In more recent years, several important changes brought about by Federal legislation also may have had an effect on the AFDC caseload. The 1988 Family Support Act (FSA) created the Job Opportunities and Basic Skills (JOBS) program and mandated that all states operate a UP program. In addition, many states have received Federal waivers that allow them to experiment with various policy and program parameters, often with the intended effect of moving people from welfare to work or reducing dependence on AFDC in other ways (DHHS, 1997).

As with changes in job opportunities, the influence of changes in programmatic factors on welfare participation may partly work though their impact on marital, fertility, and other decisions. For instance, introduction of the UP program was expected to reduce the number of unmarried mothers because it increased the availability of AFDC benefits to two-parent households. In theory, however, making AFDC benefits more available to two-parent families may make childbearing more attractive.
While there is much disagreement in the literature about the influence of economic factors on various life decisions, there is little doubt that these decisions are influenced by a common set of factors and, to some extent, are jointly made (DHHS, 1997). Hence, it is critical to recognize the potentially joint nature of these decisions in research on AFDC participation. Changes in programs that provide benefits to the low-income population also can have an impact on AFDC participation. Changes in programs, such as Medicaid food stamps, general assistance, unemployment insurance, workers compensation, and Social Security Disability Insurance and Supplemental Security Income (SSI) can have an impact. All of these programs are potential sources of benefits to at least some individuals who might be eligible for AFDC.

There are other program factors that may have affected AFDC participation. Many states have been granted and implemented waivers to federal rules under Section 1115 of the Social Security Act during the period under investigation, and some were expected to have a large impact on welfare participation. Based on descriptions of all waivers granted during this period provided by the Administration for Children and Families, a series of indicators were investigated as the major features that might have most affected AFDC participation decision. They include time limits for benefit termination and work requirements, Job Opportunities and Basic Skills (JOBS) exemptions, earnings disregards, work sanctions, and family caps (CEA, 1997, 1999; CLASP, 1996). Many states also enacted laws during the period under investigation that may have had an impact on AFDC caseloads and expenditures. New laws in the areas of paternal identification, child support enforcement, and restrictions on abortion and Medicaid funding of abortions may have affected participation and expenditures through
their effects on fertility and family income, in addition to their direct effects on welfare participation (DHHS, 1997).

Furthermore, as noted earlier, PRWORA 1996 brought about sweeping change in the welfare law to reduce the dependency of the poor on government. This federal law further ushered in a new work-enforcement, which holds that every female-head in a family, regardless of income level or child-rearing responsibility, should seek employment before or in conjunction with turning to the welfare system for support. No longer does the federal government guarantee that children living in poverty will receive some cash assistance from the state for basic survival needs. Instead, the prevailing assumption is that children are better off if their parents are working than if their parents are receiving cash transfers from government.

While the national welfare policy discussion is placed on the regulation of work and marriage behaviors of the welfare recipients (usually mothers), it becomes harder for policy researchers to build a model that explains a family’s decision to participate/not participate in the welfare programs. Previously, it was a relatively simpler decision for a family with children who meet the eligibility rules to work (and not participate in the welfare programs), or participate in the welfare programs (and not work). Currently, however, it becomes a more complicated decision for potential welfare recipients because recipients can stay on welfare until their earned income levels reach quite high as states raise the welfare-eligible income as an effort to attract low-income families to work and keep more from earnings. Low-income families in the new welfare regime after 1996 can stay on welfare while they have higher earnings from work than those low-income families in the old welfare regime under AFDC when they faced high effective marginal
tax rate and lose almost $1 for additional dollar earned. The years of analysis for this study are from 1994 to 2000, and during this time period, there co-existed two different regimes: transitional regime from 1994-1996 and new regime from 1996-2000. With the devolution of responsibility for social programs from the federal government to the states, individual states have adopted more diverse program parameters. As a result, interaction among different programs makes it harder for recipient families to understand and make welfare participation/non-participation decisions. With this issue of addressing different policy regimes in mind, the structure of the conceptual model for this study is developed in the following chapter.

Purpose of the Study and Research Questions

With this theoretical framework in mind, the objective of this study is to estimate the effects of a series of EITC expansions on the decline in the AFDC/TANF caseloads in the time period between 1994 and 2000, controlling for state policy variations in federal AFDC waivers and TANF. The study also controls for state demographic composition, the regional economy, and other cross-state variations. Previous empirical research has documented how the EITC has contributed to positive labor supply, increasing the returns to work among less-skilled and low-wage workers (Blank, 2000; Grogger, 2001; Meyer and Rosenbaum, 1999). This study further extends the years of observation after expansion of EITC and implementation of other policy, and this enables the study to further examine how these policy changes over a longer period of time affected welfare caseloads. More specifically, this study will address the following primary research questions.
First, based on the labor supply theory, the primary objective of this study is to examine the effect of the fully phased-in EITC on welfare caseloads, controlling other policy, demographic, and political factors. As previous empirical studies support, the EITC could provide people incentive to enter the labor market for those who were not working. As a result, the EITC would increase the hours of work in an aggregate level and increase low-income workers' combined disposable income from both wages and EITC subsidy. This study, thus, hypothesizes that it would have helped the low-income workers to leave welfare rolls.

Secondly, in addition to the federal EITC, there has been a continual development and implementation of state-EITC across the states. In 2000, 15 states had adopted state-EITC to supplement federal EITC subsidy rate for low-income working families. Currently, 10 out of these 15 states have "refundable" state-EITC credit while the remaining 5 states have "non-refundable" state-EITC credit (Johnson, 1999). The credit ranges from 10 percent to 50 percent of the federal EITC rate (Johnson, 1999). Even though the state-EITC is smaller in dollar amount compared to its federal rate, adoption of state-EITC could have contributed to the decline in the welfare caseloads in the 1990s when combined with federal EITC.

Thirdly, the study examines what role the variation in waiver and TANF policies has played in welfare caseload trends. One of the most inconclusive results has been reported regarding policy's impact on welfare caseloads. Even though there is considerable evidence that states with welfare reform waivers had larger declines in welfare caseloads than states without waivers, the role of each waiver policy and the magnitude of each impact on the caseload declines remain uncertain. The same is true
for policy change under PRWORA. Inevitably, therefore, no existing study fully and unambiguously separates the “carry-out” effects of earlier economic and policy changes from the influence of new, emerging policies. This study, including data from more years than those of the previous studies, attempts to examine how these policy initiatives and changes influenced the caseload size in the longer run.

**Significance of the Study**

Researchers have previously studied the determinants of welfare caseloads and have been able to explain some portion of the decline in the welfare rolls in the 1990s; however, the potential effect of the EITC on welfare caseload reduction is largely overlooked. Previous research has placed the primary interest in the effect of the EITC, including labor market incentives for families of different structures, changes in labor force participation and hours of work, and marriage and fertility. However, this current study represents one of the first empirical efforts to examine a potential relationship between the EITC expansions and caseload reduction that have occurred in recent years.

Furthermore, this study will fill the gap in the current knowledge in explaining factors associated with the fluctuation of welfare caseloads by including the EITC as well as other policies directed at low-income families. In addition, other state policy variables that might be important for explaining the welfare changes under TANF as well as waivers are being considered in this study. At the same time, this study controls for state-fixed effects and time-fixed effects, which is expected to produce unbiased and consistent estimates of the parameters.
The third merit of this research comes from the longitudinal nature of the data set. There have been only a few longitudinal analyses of state welfare caseloads with respect to EITC. This study holds considerable promise for examining changes in the factors over time, and also for controlling for unobservables in ways that are impossible with cross-sectional data sets.

The fourth significance of this study lies in the pooled cross-section and time-series (CSTS) data. An important benefit from pooling cross-section and time-series data is the ability to control for individual-specific (here state-specific) effects commonly unobservable that may be correlated with other exogenous variables in the specification (Hausman and Taylor, 1981). Fixed characteristics of states that may change more slowly than in policy or economic conditions are absorbed into the state-specific effects and they include the age distribution, metropolitan/rural population shares, racial/ethnic compositions, and out-of-wedlock births (CEA, 1997). In addition, this study indirectly controls a variety of other factors that may affect caseloads, including the availability of child care, transportation, and Medicaid coverage (CEA, 1999). Analysis of cross-section data alone can neither identify nor control for such state-specific effects. Also, the CSTS caseload model calls for a richer specification. In the use of CSTS, this study assumes most commonly used homogeneous intercepts and heterogeneous slopes for other parameters across states, as seen in other studies, following Hsiao’s recommendation (1990).

The EITC, since its inception as a non-stigmatizing tax policy outside of the welfare system, has been successful in relieving burdens of payroll taxes for low-income families, narrowing the gap between haves and have-nots, reducing child poverty, with
no or minimum disincentives to work. While previous research shows that the 1996 welfare reform legislation has produced a number of positive outcomes, the 107th Congress is facing serious issues regarding welfare reform reauthorization. Issues such as the structure of the TANF block grant, floundering families who cannot receive as much benefit from the booming economy, family structure, impact on children, and policy for recessions remain largely unresolved. More importantly, policy that works well in a hostile political environment while meeting other policy requirements will be another litmus test of the viability of policies.

Finally, if the EITC’s positive role in assisting low-income families and in decreasing welfare dependency is found as expected, this study will be a catalyst to complementary work of a careful evaluation and proposal for further EITC expansion, to diffuse criticism, and to mobilize further support for the credit. Consequently, this study will provide knowledge that can be useful in the future as federal and state governments continue to evaluate and redesign programs and policies in order to improve the living standards of American families and their children.

Structure of Study

Following this introduction, the effect of the fully phased-in EITC on the decline in welfare caseloads in the 1990s will be estimated in the following chapters. Chapter 2 reviews existing literature in the area of poverty and welfare caseloads and discusses background for this study, including a discussion of child poverty in the United States. Chapter 3 gives information on the source of data and methods employed for the
analyses. Chapter 4 presents results of the analyses, and lastly, chapter 5 summarizes the study findings and discusses conclusions as well as study limitations.
Notes:
X axis is "earnings" (In nominal dollars).
Y axis is credit amount (In nominal dollars).
(1) Phase-in range (Subsidy rate)
(2) Maximum credit for families with two or more children
(3) Phase-out range
Credit amounts for families with one child are different. See also Table 1.1.

Figure 1.1: The Earned Income Tax Credit for a family with two or more children in 1976 and 2000 (In nominal dollars)
<table>
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<th>Calendar year</th>
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<th>Minimum income for maximum credit</th>
<th>Maximum credit</th>
<th>Phasicout rate (Percent)</th>
<th>Phasicout range</th>
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<tr>
<td>1975 - 1978</td>
<td>10.00</td>
<td>$4,000</td>
<td>$400</td>
<td>10.00</td>
<td>$4,000 - $8,000</td>
</tr>
<tr>
<td>1979 - 1984</td>
<td>10.00</td>
<td>5,000</td>
<td>500</td>
<td>12.50</td>
<td>6,000 - 10,000</td>
</tr>
<tr>
<td>1985 - 1986</td>
<td>14.00</td>
<td>6,080</td>
<td>851</td>
<td>10.00</td>
<td>6,920 - 15,432</td>
</tr>
<tr>
<td>1987</td>
<td>14.00</td>
<td>6,240</td>
<td>874</td>
<td>10.00</td>
<td>9,840 - 18,576</td>
</tr>
<tr>
<td>1988</td>
<td>14.00</td>
<td>6,500</td>
<td>910</td>
<td>10.00</td>
<td>10,240 - 19,340</td>
</tr>
<tr>
<td>1989</td>
<td>14.00</td>
<td>6,810</td>
<td>953</td>
<td>10.00</td>
<td>10,730 - 20,264</td>
</tr>
<tr>
<td>1990</td>
<td>16.70</td>
<td>7,140</td>
<td>1,192</td>
<td>11.93</td>
<td>11,250 - 21,250</td>
</tr>
<tr>
<td>1991: One child</td>
<td>17.30</td>
<td>7,140</td>
<td>1,235</td>
<td>12.36</td>
<td>11,250 - 21,250</td>
</tr>
<tr>
<td>1991: Two children</td>
<td>17.60</td>
<td>7,520</td>
<td>1,324</td>
<td>12.57</td>
<td>11,840 - 22,370</td>
</tr>
<tr>
<td>1992: Two children</td>
<td>18.50</td>
<td>7,750</td>
<td>1,434</td>
<td>13.21</td>
<td>12,220 - 23,050</td>
</tr>
<tr>
<td>1993: One child</td>
<td>19.50</td>
<td>7,750</td>
<td>1,511</td>
<td>13.93</td>
<td>12,220 - 23,050</td>
</tr>
<tr>
<td>1993: Two children</td>
<td>26.30</td>
<td>7,750</td>
<td>2,038</td>
<td>15.98</td>
<td>11,000 - 23,755</td>
</tr>
<tr>
<td>1995: No children</td>
<td>7.65</td>
<td>4,000</td>
<td>306</td>
<td>7.65</td>
<td>5,000 - 9,000</td>
</tr>
<tr>
<td>1995: One child</td>
<td>26.30</td>
<td>7,750</td>
<td>2,038</td>
<td>15.98</td>
<td>11,000 - 23,755</td>
</tr>
<tr>
<td>1995: Two children</td>
<td>30.00</td>
<td>8,425</td>
<td>2,528</td>
<td>17.68</td>
<td>11,000 - 25,296</td>
</tr>
<tr>
<td>1996: No children</td>
<td>7.65</td>
<td>4,100</td>
<td>314</td>
<td>7.65</td>
<td>5,130 - 9,230</td>
</tr>
<tr>
<td>1996: One child</td>
<td>34.00</td>
<td>6,160</td>
<td>2,094</td>
<td>15.98</td>
<td>11,290 - 24,396</td>
</tr>
<tr>
<td>1996: Two children</td>
<td>36.00</td>
<td>8,640</td>
<td>3,110</td>
<td>20.22</td>
<td>11,290 - 26,673</td>
</tr>
<tr>
<td>1997: No children</td>
<td>7.65</td>
<td>4,220</td>
<td>323</td>
<td>7.65</td>
<td>5,280 - 9,500</td>
</tr>
<tr>
<td>1997: One child</td>
<td>34.00</td>
<td>6,330</td>
<td>2,152</td>
<td>15.98</td>
<td>11,610 - 25,078</td>
</tr>
<tr>
<td>1997: Two children</td>
<td>40.00</td>
<td>8,890</td>
<td>3,556</td>
<td>21.06</td>
<td>11,610 - 28,495</td>
</tr>
<tr>
<td>1998: No children</td>
<td>7.65</td>
<td>4,340</td>
<td>332</td>
<td>7.65</td>
<td>5,430 - 9,770</td>
</tr>
<tr>
<td>1998: One child</td>
<td>34.00</td>
<td>6,500</td>
<td>2,210</td>
<td>15.98</td>
<td>11,930 - 25,750</td>
</tr>
<tr>
<td>1998: Two children</td>
<td>40.00</td>
<td>9,140</td>
<td>3,656</td>
<td>21.06</td>
<td>11,930 - 29,290</td>
</tr>
<tr>
<td>1999: No children</td>
<td>7.65</td>
<td>4,460</td>
<td>341</td>
<td>7.65</td>
<td>5,570 - 10,030</td>
</tr>
<tr>
<td>1999: One child</td>
<td>34.00</td>
<td>6,680</td>
<td>2,312</td>
<td>15.98</td>
<td>12,260 - 26,473</td>
</tr>
<tr>
<td>1999: Two children</td>
<td>40.00</td>
<td>9,390</td>
<td>3,756</td>
<td>21.06</td>
<td>12,260 - 30,095</td>
</tr>
<tr>
<td>2000: No children</td>
<td>7.65</td>
<td>4,530</td>
<td>347</td>
<td>7.65</td>
<td>5,670 - 10,200</td>
</tr>
<tr>
<td>2000: One child</td>
<td>34.00</td>
<td>6,800</td>
<td>2,312</td>
<td>15.98</td>
<td>12,460 - 26,928</td>
</tr>
<tr>
<td>2000: Two children</td>
<td>40.00</td>
<td>9,540</td>
<td>3,816</td>
<td>21.06</td>
<td>12,460 - 30,580</td>
</tr>
</tbody>
</table>

Source: Green Book 2000 for years 1975 - 1999; Topical Index to IRS Forms and Publications by the Internal Revenue Service for year 2000

Table 1.1: Earned Income Tax Credit structure (In nominal dollars), 1975 – 2000

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CHAPTER 2

LITERATURE REVIEW AND CONCEPTUAL FRAMEWORK

Many economic and social policy changes concurrently occurred in the United States in the 1990s. One of the most dramatic changes involved a nearly 60 percent decline in welfare recipiency between 1994 and 2000 after reaching its record high in 1994 (5,053,000 families; 14,267,000 individuals on welfare) since 1960. A variety of circumstances coincided with this decline. Welfare reform efforts were made to reduce welfare participation by enforcing the work efforts of former welfare recipients. The economic performance began to improve and unemployment rates were declining. In addition, as part of the economic boom, wages among less-skilled workers began to rise. The rise in minimum wages and in job availability and a series of Earned Income Tax Credit (EITC) expansions are believed to have promoted work efforts and to have rewarded work efforts of even less-skilled workers.

Since all of these changes occurred concurrently, it is a difficult task to separate out the relative impact of each contributing factor on caseload changes. In the midst of the seeming success of welfare reform, macroeconomy, and other policies reflected in the welfare caseloads reduction, discussions of poverty have become important in the 1990s.
Explaining the decade’s increase and decline in welfare caseloads in the United States requires some understanding of how poverty is defined and measured in this country since welfare programs were designed to assist people designated as poor by the official poverty guidelines. Traditionally, it is believed that there is a close relationship between economic performance and poverty, and, subsequently, with welfare caseloads. However, many critics believe this relationship between economic performance and poverty reduction has weakened throughout the 1970s and 1980s (Blank and Card, 1993; Cutler and Katz, 1991; Danziger and Gottschalk, 1985, 1986; Freeman, 2001; Sawhill, 1988). Particularly, the economic well-being of American children that has long been a concern to the public as well as policy analysts since the child poverty rate remained high under economic prosperity, and as a result, children became the poorest sub-population in the United States since 1974 (Dalaker and Proctor, 1999). The discussion of the economic well-being of children is of particular importance to this study because the EITC, through its largest expansion under the 1993 Omnibus Budget Reconciliation Act (OBRA), targeted low-income working families with children.

This chapter attempts to provide the background and framework needed to understand poverty, welfare, and their relationship to the current study. The first section describes the definition and measurement issues relevant to the study of poverty. The second section discusses theories of demographic shift, economic factors, and government income transfer in order to provide a basic theoretical framework for understanding poverty. Having established the definitions, measures and general theories of poverty the discussion then moves, in the third section, to an overview of trends in poverty derived from the empirical literature, which includes the prevalence and
compositional changes of poverty over time. Poverty trends in the United States over the last 40 years from 1960 to 2000 will be observed. In presenting data on trends in poverty, child poverty is a focal point not only because the child poverty rate has historically remained high even in successive years' of recent economic growth but because the EITC—the focus of this study—is particularly targeted to help working families with children. This section also highlights trends in welfare caseloads.

The fourth section discusses the historical development of various policies targeting poverty/welfare caseloads including the EITC, welfare reforms, and other policies. Also, this section appraises the literature on the EITC as a strategy to increase labor supply and reduce poverty in an attempt to link EITC's work incentive and its potential to help people exit welfare by making work pay: the missing components from the previous welfare caseload studies. The fifth section reviews previous studies regarding factors associated with the dramatic change in welfare caseload trends. The last section presents a conceptual model that provides rationale for selecting determinants of welfare caseloads, which will be examined in the following chapter based upon the discussion of theories of poverty and previous empirical studies of welfare caseloads.

Definition and Measurement Issues of Poverty

This section address the primary issues associated with defining and measuring poverty, including thresholds and units of analysis.
Definition of the Official Poverty Threshold

To understand poverty in the United States, it is important to know the formation and development of the official poverty threshold. Mollie Orshansky, a staff economist in the U.S. Social Security Administration, developed a set of poverty thresholds on the basis of the Economy Food Plan (least costly) and the Low Cost Food Plan (second lowest cost of food). The Low Cost Food Plan was not adopted for official use even though Orshansky herself was in favor of this plan (Citro & Michael, 1995; Fisher, 1997). There were a few minor refinements in 1964, a statistical revision in 1981, and an annual indexation for price changes by the Consumer Price Index (CPI). However, the basic tenets of the poverty threshold, based on a minimum-cost food plan and the one-third rule of a food multiplier, remained the same for more than three decades (Citro and Michael, 1995; Fisher, 1997).

This measure had a set of poverty thresholds for different types of families that consisted of the cost of a minimum adequate diet based on the 1955 National Food Consumption Survey (Fisher, 1997). The threshold value for the base year 1963 for a family of two adults and two children was about $3,100 (Ruggles, 1990). Adjusting the thresholds for differences in family size and composition was done by a calculating scale that equalized income levels (Ruggles, 1990), implying a concept of economies of scale. To determine a family’s poverty status, its resources, defined as pre-tax cash income based on information from the March Current Population Survey, are compared with the appropriate post-tax threshold (Citro and Michael, 1995; Fisher, 1997).
Absolute versus Relative Measure

There are fundamental problems that evolve from the conceptual and methodological issues in poverty. As poverty researchers have pointed out (Citro and Michael, 1995; Ruggles, 1990), the United States defines poverty as economic deprivation, not as lack of utility or general welfare. This concept of "economic (or material) poverty" pertains to the individual's lack of economic resources to obtain the minimally adequate level of consumption of goods and services needed in the United States today. Many researchers agree that absolute poverty as measured by the expert-defined objective minimum level of income is too narrow (Focus, 1998). Moreover, absolute thresholds, which are fixed at a point in time and not updated for changes in consumption patterns, largely lag behind the standard of living of the population. As both relative prices and tastes change over time, the appropriate share of the budget to be allocated to specific basic consumption needs may change as well. As a result, an index based on food costs alone might overstate the well-being of the poor.

Absolute thresholds have had shortcomings such as reflecting arbitrariness and subjectivity, measuring the most extreme economic poverty only and overstating the well-being of the poor over time. However, because of their merits of simplicity, familiarity, and relative usefulness in policy analysis, absolute thresholds have been used without major adjustment since the 1960s.

Income-Based versus Consumption-Based Measure

The most enduringly controversial issue concerning the measurement of resources is whether the measure should focus primarily on people's income or on their level of
consumption (Cutler and Katz, 1991; Slesnick, 1992). Initially, consumption-based measures are attractive for a number of reasons. First, most people think of poverty as inadequate access to consumption, and it seems most natural to measure that access by examining consumption directly rather than by examining income as a proxy for consumption potential (Orshansky, 1969) and then estimating its relationship to consumption possibilities. Second, many analysts would exclude those whose poverty is merely transitory and who can expect much higher incomes in the long run. Measuring poverty based on consumption data recognizes the fact that families can smooth out the effects of dips in income; thus, it is a less sensitive indicator of families' economic needs than an income-based measure would be (Shipman, 1997).

However, despite arguments in favor of a consumption-based poverty measure, most empirical studies of poverty in fact use a measure based on income. There are two reasons for using an income-based measure. In a practical sense, it is much easier to obtain reasonably reliable and regularly produced estimates of personal income than it is to obtain such data on consumption (Citro and Michael, 1995, pp. 81-85). A second reason for choosing an income-based measure is because, in some respects, it may be a better indicator of an individual's command over goods and services than is his or her actual consumption. If individuals have the resources to consume adequate levels of goods and services, but they choose not to for reasons of taste, it is arguable whether they are in fact poor.
Unit of Analysis, Time Period, and Data Limitation

Decisions about the unit of analysis/presentation are made twice in poverty measures. The choice of an appropriate unit of analysis for measuring income depends primarily on assumptions about how income/resources are pooled and shared to make joint consumption decisions. The current official U.S. poverty measure takes a family that resides in the same household as the unit of analysis; it further includes unrelated individuals, who are defined as single-person families, for this purpose. However, measuring income at the family level does not necessarily mean that the numbers of units below the poverty line also must be counted at the family level. Thus, the unit of poverty representation is the individual: the aggregated income divided by the number of family members. The logic in this kind of distinction is significant in poverty studies because the family-based measure in the unit of representation can be misleading in understanding the types of people who are disproportionately poor. Ruggles (1990, p. 123) provides a clear example of the effect of using families instead of individuals as the unit of presentation. For example, the annual poverty rate for families headed by an elderly person is higher than that for other families, while the poverty rate for elderly people is lower than that for other people. The reason for this is that more elderly people who are poor than those who are not poor live in small family units, while the reverse is true for the nonelderly. Some researchers recommend adopting a broadened family definition to include cohabiting couples for the purpose of poverty measurement (Citro and Michael, 1995, p. 302). However, this recommendation needs more thorough examination since the fact that income from persons in nonfamily household contributes to helping other
household members avoid financial hardship was not given strong support (Bauman, 1997).

Secondly, choosing the unit of analysis/presentation requires researchers to decide what time period of poverty will be measured. The current U.S. poverty rate is an annual one. The problem is addressed in the data set used for the official poverty estimates by fixing the family composition at the point of the interview and by collecting retrospective data on income levels over the previous year. Further, this is done regardless of whether that person was a member of that family for the entire year. Indeed, because many of the policy and research issues that are of interest in a longitudinal context involve the relationship between changes in family composition and income, using a fixed family composition to measure income could undermine the advantages associated with longitudinal analysis (Ruggles, 1990, p. 124). The recommendation (Citro and Michael, 1995, pp. 293-301) to develop poverty measures for both short-term periods (for such programs as food stamps and Aids to Families Dependent Children) and long-term periods (longer than a year) makes good sense, although it may require the inclusion of asset values in the family resources.

Lastly, an inherent difficulty is embedded in the availability of particular data sets. No matter how well conceptualization and threshold of poverty measure are developed, it is not feasible to conduct studies as such without valid and reliable cross-sectional and longitudinal data. Historically, poverty studies have evolved utilizing Current Population Survey (CPS) data whose original focus was on unemployment, not poverty. The birth of the Survey on Income and Program Participation (SIPP) in 1983 improved the quality of income reporting and program participation (Citro and Michael,
1995, p. 81). However, due to SIPP's relative youth and smaller sample size compared to that of CPS, using both types of data is still recommended.

These technical issues related to current measures and their alternative measures are of importance in the following section because they will lead to different perceptions of the population in poverty and, ultimately, to different policy priorities.

Evaluation of Current Poverty Measures

Current U.S. poverty measures violate the two most important and inseparable principles of accuracy and consistency: setting the threshold to draw the poverty line and defining income for measuring poverty (Weinberg, 1996). This inconsistency results from the different treatment of family's gross money (or near-money) income and the appropriate threshold to which they are being compared.

First, criticism was leveled against setting the initial threshold. As discussed, this threshold specifies no list of goods and services other than food. Another criticism comes from recent survey findings that food now represents about one sixth or seventh of average family expenditure rather than the previously determined one third (Citro and Michael, 1995, p. 30; Shipman, 1997). Second, this threshold was fixed at a point in time and has not been updated for changes in consumption patterns. When the official poverty measure was first developed in 1963, the threshold of about $3,100 for a four-person family represented about one-half of the median after-tax four-person family income (Vaughan, 1993). Between 1963 and 1992, the median after-tax four-person family income increased by 28 percent in real terms (Vaughan, 1993), but the threshold
remained constant. Also, families' total expenditures increased in real terms, and spending on nonfood items rose more rapidly than spending on food.

Third, a poverty threshold that is proper for one type of family is not necessarily appropriate for another. Adjustments to the reference family poverty threshold to reflect difference in family size and composition are made by applying an "equivalence scale." Unfortunately, there are no clear guidelines and no research-based consensus for adjusting the poverty threshold for families of different size and structure. In addition, the scale is based on the dietary needs of family members even though the economies of scale appear to be different for food and for other goods, like housing or transportation. A final but frequently voiced criticism of the current poverty threshold is that it takes no account of variations in the cost of living in different geographic areas of the country (Citro and Michael, 1995, pp. 28-29; Weinberg and Nelson, 1997).

So far, this discussion has focused on issues involved in determining poverty thresholds. Another key aspect of this review is the issue of family resources. The primary measurement issues in defining income for measuring poverty are valuation of noncash income, treatment of taxes, work-related expenses, child support, and assets.

First, the current income measures do not reflect the fact that some families receive part of their income in the form of noncash benefits, such as food stamps, health benefits, rent-free or subsidized housing, school lunches, and home energy assistance. It becomes important to critics of current measures that in-kind benefits are more important now than 30 years ago due to the far greater government outlays to recipients in this form (Citro and Michael, 1995; Shea et al., 1997). Second, the income measure is based on a pre-tax income while the poverty threshold is based on a post-tax income. When the U.S.
poverty measure was first developed in the 1960s, the burden of income and payroll taxes on the low-income population was relatively light. However, there have been periods when the tax burden on low-income people has been relatively high. Also, tax law changes affect the amount of disposable income that is available for consumption. In the same line of logic, just as income used for taxes is not available for consumption, neither is the amount of earnings devoted to work expenses, which should not be included in income measure.

Third, the current measure of family resources correctly counts child support payments as part of the gross income of the families that receive them, which is appropriate because the payments are available for consumption. However, the amounts are not deducted from the income of the families that pay them, which is inappropriate because the payments are not available for consumption by those families. Finally, ignoring assets may be one of the more serious defects in the poverty measures (Orshansky, 1969, p. 39), but the income data from the CPS provided no asset data, and there were few low-income households with substantial assets (Citro and Michael, 1995, pp. 71-72).

In summary, estimates of poverty rate can vary depending on the definition of income, relative/absolute thresholds, data sets, and measured period of time. It is clear that, as Watts (1986) notes, “the official measures are… simply a collection of more or less arbitrary and eminently vulnerable rules. Their most remarkable feature is their widespread and persistent acceptance by the public and by those who make and criticize public policies.” Thus, despite the limitations inherent in defining and measuring
poverty, the discussions of poverty theories and trends in this study are tied to the Census Bureau’s poverty threshold because doing so provides relevant continuity.

**Theories of Poverty**

The failure of faster poverty reduction in the 1970s and its subsequent rise in the early 1980s, despite an economic boom, has prompted scholars to look for plausible explanations for persistent poverty. Volumes of empirical studies in the last 30 years have tried to find the causes by focusing on demographic shifts, economic forces, and government transfers. The purpose of this section is to provide a conceptual framework to explain poverty trends. After this theoretical framework is established, the discussion will focus on actual poverty trend data in the next section.

**Demographic Shift**

Many studies indicate that the demographic shift has affected the poverty rate by increasing the proportion of households headed by females. The absence of a male breadwinner in families invariably increases poverty because men earn more than women on average, and many families need two earners to achieve a reasonable level of income (Freeman, 2001). Nowadays, single female-headed households have disproportionately high rates of poverty (3 or 4 times those of all families) (Freeman, 2001). In 1999, 49.6 percent of people in families who fell below the poverty line were in families with single female householders (Bureau of the Census, 2000, Table B-1). Many of these families received welfare benefits, but cash welfare payments historically have been insufficient to move families above the poverty line (this will be discussed in a later section). Thus,
an increase in the share of single female-headed households in the United States would raise the overall poverty rate, and thus weaken the economic growth-poverty link over time (Freeman, 2001; Sawhill, 1988).

The most direct way to estimate the effect of changes in family composition on poverty is to decompose changes using a shift-share analysis. In this type of analysis, it is assumed that different types of families have constant rates of poverty. This is then calculated by finding how change in the distribution of the groups alters aggregate poverty. Analysts who have used this calculation find that compositional factors have a modest impact on changes in poverty. The general finding of the studies points to the assumption that demographic changes have put upward pressure on the overall poverty rate since the 1950s. The impact of these changes was especially significant in the 1970s because of the rapid growth of households headed by single females. Sawhill (1988) argues that the poverty rate in 1980 would have remained the same as that in 1950 if the age, race, and gender composition of household heads were held unchanged. Other studies further support that the poverty rate would have been 1.3 percentage points lower in 1985 in the absence of post-1967 shifts in population (Gottschalk and Danziger, 1984; Ross et al., 1985; Sawhill, 1988).

Danziger and Gottschalk (1995) show that the decline in poverty from 1949 to 1969 was due entirely to economic changes, while demographic changes worked in the opposite direction. They attribute the rise in poverty from 1973 to 1991 to the weakened effect of economic changes rather than to any massive change in the demographic composition of the population. More importantly, they identify sluggish growth in mean adjusted income as the major cause for the failure of the economy to reduce poverty in
the 1970s and 1980s. Other researchers come to a similar conclusion although their results produce a range of coefficients depending upon the different demographic grouping and the base period chosen (Gottschalk and Danziger, 1984; Green and Welniak, 1982; Ross et al., 1985). One reason for the rather modest importance of demographic shifts is that the changed composition of families was not the only development in the periods of study. The educational attainment of family heads increased during this time. This should have reduced poverty as much as the rising proportion of single female-headed households increased poverty. Changes in income within given demographic groups dominated the change in poverty while changes in the share of groups in the overall population are only a minor element in the observed patterns.

In summary, a major contribution of these studies is that their results provide a rough sense of how important certain population shifts have been in explaining the persistence of poverty. Demographic studies emphasize the importance of choices about living arrangements for an understanding of poverty and have led to a burgeoning of both theoretical and empirical research on the factors that affect these choices. Also, these studies lead to a more disaggregated view of poverty that does not assume that the underlying reasons for low income are universal for all groups (Sawhill, 1988). For instance, poverty among the elderly is little affected by what goes on in the labor market, but is sensitive to spending on income transfer. Thus, it can be argued that a model of poverty should begin with a certain degree of disaggregation of the population that reflects the different underlying processes of the incomes among different groups.
However, the standard decomposition analysis of changes does not give answers to the root causes of the demographic changes.

**Economic Factors**

The metaphor of “a rising tide lifts all boats” and its magnitude in the observation of antipoverty effects of economic growth has been a subject of debate since the inception of the War on Poverty (Aaron, 1967; Gallaway, 1965). This debate implies that the greater the antipoverty effectiveness of economic growth, the less the need for income supports during times of economic expansion. In reality, however, an increase in real income is not always associated with a decline in poverty at the same rate (Cutler and Katz, 1991; Danziger and Gottschalk, 1984, 1985; Sawhill, 1992).

The natural starting point for any investigation of how the economy affects poverty is to examine the linkage between the secular growth of economy (i.e., Gross Domestic Product [GDP] per capita income) and poverty and cyclical performance (i.e., unemployment rate) (Freeman, 2001; Danziger and Gottschalk, 1986; Sawhill, 1989). Per capita income is measured as the total domestic income divided by the number of population. The unemployment rate is represented by the percentage of the total number of unemployed people divided by the number of people who are employed (as well as unemployed after seriously seeking jobs) (Mankiw, 1997, p.80). From this point forward, whenever the term “economic growth” is used, it refers to an increase in per capita income or a decrease in unemployment rate.

Historically, economic growth has been highly effective in reducing the poverty rate. In other words, economic growth has contributed to raising people’s living
standards (Cutler and Katz, 1991; Danziger and Gottschalk, 1986; Freeman, 2001; Sawhill, 1988). The architects of the War on Poverty hoped that economic growth and a lower level of unemployment would raise the incomes of the poor (Gallaway, 1965). Along the same stream of thought, Gallaway (1965) contended that economic growth was likely to be the single most powerful weapon in the battle to raise the incomes of the poor. The discussion about the extent to which the benefits of growth trickled down to the poor has been under way ever since (Danziger and Gottschalk, 1986; Feldstein, 1998; Freeman, 2001). Also, Ellwood and Summers (1986) have argued “economic performance is the dominant determinant of the poverty rate” (p. 79).

The linkages between the rate of growth of GDP per capita as well as the level of, and change in, poverty during the past four decades, from 1960 to 2000, can illuminate how the economy affects poverty. In the 1960s, poverty fell rapidly as the economy grew rapidly and the nation began its War on Poverty (Anderson, 1964). During this period, a 1 percent increase in the GDP per capita was associated with a 0.26 percent reduction in the poverty rate. In the 1970s, by contrast, the 22.9 percent rate of growth in the GDP per capita was associated with just a 0.5 percent fall in poverty, while in the 1980s, a 19.1 percent growth rate was accompanied by a rise in poverty by 1.1 percent. The 1990s look much like the 1970s, with economic growth reducing poverty modestly. The trend during the 1970s, 1980s, and 1990s presents a gloomy picture of how economic growth affects poverty reduction. Over those three decades, the GDP per capita rose by 73 percent while the rate of poverty among families barely fell from 9.7 percent in 1969 to 9.3 percent in 1999 (Council of Economic Advisors, 1999; U.S. Bureau of the Census, 2000).
The ratio of the changes in the poverty rate to the change in the unemployment rate also helps us to understand the economy's impact on poverty. Poverty fell modestly in the 1959-1961 recession and dropped sharply in the 1961-1969 recovery. In succeeding recessions, poverty and unemployment rise together, and the impact coefficient rises until 1989-1992. In succeeding booms, declines in the unemployment rate are associated with a reduction in poverty smaller than those in the 1960s. The 1992-1999 recovery was associated with a larger drop in poverty percentage point change in unemployment than the 1982-1989 and 1975-1979 recovery. However, the poverty reduction rate in the 1990s recovery was less than the fall in the 1960s and early 1970s recoveries. Poverty rates hover around 10 percent to 12 percent from the 1970s on.

In fact, it is reasonable to expect that the increased GDP per capita and decreased unemployment rate will have powerful effects on poverty reduction. In 1980, among the poor, earnings are the dominant source of income; roughly half of all poor households and nearly 70 percent of non-elderly poor households received some earned income (Bureau of the Census, 1982). In 2000, approximately 75 percent of family income comes from labor, and even families in the lowest fifth of the income distribution, where government transfers are important, rely more on labor income than on any other source (Freeman, 2001). As discussed in the earlier section, income (and earnings from the labor market activities are part of the income) is what matters in discussing the problem of poverty in the United States. As long as poverty is defined in absolute terms, even small upward changes in real income, such as those that have occurred since the late 1960s, should drive the incidence of poverty to fall as the distribution of income shifts up over time. In light of this consideration, it is surprising that among the working-age
population, the incidence of pre-transfer poverty (status of poverty before income from transfer programs) was higher in 1985 (in the middle of the economic recovery period from 1982 to 1989) than at any time in the 1970s or the late 1960s.

In explaining poverty for the working-age population, scholars conclude that the wage rate stagnation and growing wage inequality can account for the changed impact of macroeconomic factors on the poverty rate (Blank and Card, 1993; Powers, 1995; Tobin, 1994). Others who decompose trends in the poverty rate to describe the distribution of income find that the study of cyclical conditions and greater earnings inequality merit more extended discussion (Aaron, 1967; Anderson, 1964; Gallaway, 1965; Gottschalk and Danziger, 1984; Hirsch, 1980; Thornton et al., 1978). As many analysts have documented, wage inequality increased massively in the United States in the 1980s, if not earlier. When earnings’ distribution is stable and real wages rise, economic growth lowers the rate of poverty, albeit with smaller impacts as poverty falls. In a period of rising inequality, the effects of growth on poverty can be offset or overpowered by rising inequality.

Furthermore, there is reasonably strong and consistent evidence that recessions have a disproportionate impact on the poor and widen the distribution of income (Blinder and Esaki, 1978; Cutler and Katz, 1991; Thurow, 1970; summarized in Blank and Blinder, 1986). A decline in demand causes not only more unemployment but also a reduction in hours worked, a drop in labor force participation, and slower real earnings growth, all of which affect family incomes adversely. Research using both aggregate and micro data supports the conclusion that these effects are not spread evenly across different income groups. Gramlich and Laren (1984), using micro data from the Panel...
Study on Income Dynamics (PSID), found that the relative income losses suffered by the working heads of poor families are about three times greater than the losses suffered by middle-income families when the overall unemployment rate rises. In addition, Blank and Blinder (1986), using an aggregate time series regression, found that a 1 percent increase in the prime-age male unemployment rate increases poverty by 0.7 percent, after controlling for other compounding factors.

Perhaps the most striking difference between the economy in the 1960s and in ensuing periods is that in the 1960s economic growth was associated with large rises in the real wages (wages adjusted for maintaining the current cost of living) of workers, whereas in ensuing years growth was associated with only a modest increase in real wages. The major labor market factor weakening the link between economic growth and poverty is the sluggish growth/decline of real wages. As many analysts have documented, the rate of increase in real wages associated with a given growth rate fell sharply between the 1960s and later periods, recovering only modestly in the 1990s (Cutler and Katz, 1991; Freeman, 2001).

In the 1960s, the real average hourly earnings of non-supervisory workers in the private sector increased by 19.3 percent; this is when poverty fell substantially. In the 1970s, real average hourly earnings rose by just 2.4 percent, and this is when the poverty rate barely dropped. In the 1980s, real average hourly wages actually fell by 6.5 percent, and poverty rates increased. Finally, when economic growth was associated with a rise in real wages of 2.9 percent, the growth modestly decreased poverty rates in the 1990s. These data suggest that the major factor in the declining impact of economic growth on poverty is a change in the relationship between the growth of the economy and the
growth of real wages (Council of Economic Advisors, 1999; U.S. Bureau of the Census, 2000). Declines in earnings of low-paid workers translate into higher rates of poverty in the absence of other offsetting factors such as decreased family size, increased employment by other family members, or increased governmental transfer and labor market policies that benefit the low-skilled workers.

Even though the major causes of these wage shifts are not fully understood, virtually all analyses come to the same conclusion: the problem with a wage change is on the demand, not the supply side of the market (Blank, 1997; Cutler and Katz, 1991). Declines in the demand for less-skilled workers are the primary reason for falling real wages (Blank, 1993; Levy and Michel, 1991). It is not that high school dropouts or high school graduates are less skilled than they used to be; it is that the jobs open to these workers are demanding more skills than before, a result of the introduction and advance of new technologies.

The sluggish growth/decline of real wages is not, however, the only labor market factor that weakened the link between economic growth and poverty. Inequality in the distribution of earned income is measured as the ratio of the earnings of persons with poverty-level incomes to mean earnings (average overall earnings). The gap in inequality would widen at the same rate as mean earnings to produce the rough stagnation in the rate of poverty between 1969 and 1998. The inequality in both annual and weekly earnings has been growing for several decades (Danziger and Gottschalk, 1986; Dooley and Gottschalk, 1984; Harrison et al., 1986; Plotnick, 1982). According to these studies, income inequality began growing in the mid-1970s within almost all demographic groups as well as in occupational and industrial sectors. It also has been growing during
economic recoveries as well as during recessions. The trend of income inequality showed up not only in weekly earnings of full-time workers but also in broader indicators that may reflect the growing incidence of part-time work. The usual explanations advanced for the increase in income inequality include cyclical factors, demographic changes, and changes in the industrial or occupational structure of the economy (the growth of the worse-paying jobs) (Sawhill, 1988). When these hypotheses were tested, the pattern described above occurred, while a large unexplained time trend remained in the work of almost all of the authors who have studied this phenomenon (Dooley and Gottschalk, 1985; Harrison et al., 1986; McMahon and Tschetter, 1986). Thus, Sawhill (1988), using different data sources, periods of time, indicators of inequality, and explanatory variables, suggests that all these studies find that something important happened to the distribution of earnings and that the most obvious explanations have to be dismissed as partial at best.

One thing that is worth noting, although its discussion will not be expanded in this study, is that there are individuals who may want a job but, after a long and unsuccessful search, give up looking for employment. These “discouraged workers” are counted as being out of the labor force and do not show up in unemployment statistics. Even though their joblessness is unmeasured, it may nonetheless be a social problem and a source of poverty since their characteristics are likely to weaken the effect of full employment on poverty in the future (Feldstein, 1998; Freeman, 2001; Mankiw, 1997, p. 140).

In summary, economic growth does contribute to decline in the poverty rate, when other variables are controlled for. However, other variables have operated to offset the effects of economic growth. Two labor market force variables that tend to curb this
poverty-reducing effect of economic growth are widened wage inequality and the
decreasing or sluggish growth of real wages for less-skilled workers. The increase in wage
inequality and the sluggish growth/decline of real wages over the past few decades have
worked to raise the incidence of poverty or have not successfully reduced the poverty rate
even when growth or other factors were operating to reduce it. The function of the
economic condition alone provides less than a perfect picture in explaining poverty
during the past 30 years. In addition to understanding demographic and economic
impacts on poverty in the United States, gaining a more complete understanding of the
poverty rate requires examining government policies and programs, which is addressed in
the next section.

**Government Policies and Programs**

The architects of the War on Poverty, initiated by President Johnson 1964, hoped
that economic growth and a lower level of unemployment would raise the incomes of the
poor. Nonetheless, they also believed the problem of poverty was increasingly
"structural" in nature; that is, poverty is related to other factors that are not curable by
prosperity alone (Gallaway, 1965). Even then, they believed that the goal of government
programs should be to help people earn their way out of poverty and not put them on "the
dole" (Aaron, 1978; Haveman, 1977; U.S. Council of Economic Advisors, 1964). This
voice of concern has been exacerbated by the fact that government outlays on income
maintenance programs have grown enormously since the mid-1960s (Sawhill, 1988).

Traditionally, there are two categories in income transfer programs: social
insurance programs and public assistance programs. The major objective of social
insurance programs—most of which are funded under the Social Security Act—is to prevent poverty by replacing income lost through unemployment, disability, retirement, or death of a family breadwinner. On the other hand, the major objective of public assistance, or means-tested programs—such as Aid to Families with Dependent Children (AFDC), food stamps, and Supplemental Security Income (SSI) for the low-income aged, blind, and disabled—is to assist those who are already poor. Social insurance benefits are generally financed through payroll taxes and are conditional on prior work history and earnings while public assistance is financed out of general revenues and is conditional on meeting eligibility rules. Both social insurance and means-tested programs may come in the form of cash and/or goods and services.

The most immediate way in which the government affects the poverty rate is by direct transfer programs to citizens with incomes below poverty level. These transfers can take the form of money (Earned Income Tax Credit) or specified goods or services (food stamps, health insurance or subsidized housing). Governments also can affect poverty by intervening in wage determination in the labor market (minimum wages); by regulating the hiring and promotion policies of firms (anti-discrimination policy); and by regulating workplaces (occupational health and safety) (Freeman, 2001).

In 1984, total outlays for the major income transfer programs were $476 billion. Of this total, 79 percent was paid by social insurance programs and 21 percent by means-tested public assistance programs. In-kind benefits have grown far more rapidly than cash assistance, and the expansion of programs such as food stamps, Medicaid, and public housing has caused means-tested programs to increase more rapidly than social insurance programs. On the other hand, outlays for means-tested cash assistance such as
AFDC, SSI, and General Assistance have grown only modestly over the entire period and have actually declined since the mid-1970s. For example, AFDC expanded in the 1960s but real benefit levels were eroded by inflation in the 1970s. As a result, the average real benefit level for a family of four fell by one-third between 1970 and 1987 (U.S. Congress House of Representatives, 1987). Most of the benefits were paid in cash but 28 percent of them took the form of in-kind transfers for health, housing, or nutrition. In-kind transfers were a much larger fraction (69%) of means-tested benefits than they are of social insurance benefits (18%), perhaps reflecting the public's unwillingness to provide as much unconditional assistance to the poor as to the general population (Focus, 1998, p. 5; Sawhill, 1988).

The antipoverty effectiveness of income transfers is typically measured by looking at the proportion of people with pre-transfer incomes below the poverty line that moved out of poverty by the receipt of income transfers. Danziger et al., (1981) who examined all of these studies up to the time point available, concluded that transfers significantly reduce poverty and that this redistributive effect has grown over time as the amount of transfers has increased. In 1985, cash transfers moved about 35 percent of the pre-transfer poor above the poverty line and most of the effect is attributable to social insurance programs rather than means-tested programs. Even among the non-aged, social insurance programs for disability, unemployment, and survivors have been two or three times as important in reducing poverty as means-tested cash transfers (U.S. Bureau of the Census, 1987). It is worth emphasizing that cash outlays for social insurance programs were nearly ten times as large as public assistance outlays in 1984, with the bulk of the money financing social security for the elderly. In the meantime, outlays for in-kind...
social insurance program, Medicare, were about the same in 1984 as all the means-tested
in-kind benefits (Medicaid, food stamps, school lunch, and public housing) put together.
These facts help explain why poverty has declined more for the elderly than for other
groups (U.S. Bureau of the Census, 1987).

Nonetheless, including in-kind transfers increases the proportion removed from
poverty still further. The effects in this case depend on which in-kind transfers are
included and how they are valued. The antipoverty effectiveness of transfers, regardless
of how it is defined, appeared to be have peaked between 1975 and 1980. The proportion
of the population that was removed from poverty due to transfer programs ranges from 44
percent to 78 percent (Danziger et al., 1985, 1986; Hoagland, 1982; Weingerg, 1985).
This variance reflects different definitions of transfers, ways of valuing them, different
data sources, methodologies, years, and so on. After the mid-1970s, the growth in real
cash and in-kind transfers per person slowed, and by the early 1980s, pre-transfer poverty
was rising in response to two back-to-back recessions (Sawhill, 1988). With real outlays
growing much more slowly and the need greater, the proportion of people removed from
poverty by income transfer programs declined in the 1980s. The poverty rate between
1967 and 1985 was reduced by about 3 percent as the result of the growth of cash
transfers (Sawhill, 1988). Their major impact was on the incidence of poverty among the
elderly. As a result of the growth of transfers, the elderly poverty rate fell by almost 12
percent over this period whereas the non-elderly poverty rate fell by only 1 percent. Most
of this progress was due to the growth of social insurance outlays, not means-tested
programs.
In addition to their relatively small size and their recent curtailment, there are other ways to explain why means-tested programs have not been more effective. According to Sawhill (1988), cash assistance totaled $31 billion while the poverty gap (measured before the receipt of any means-tested transfers) was $63 billion in 1983. If all of the money had been effectively targeted on the poor, it should have reduced the poverty gap to $32 billion, essentially cutting it in half. However, the poverty gap measured after the receipt of transfers was still $47 billion, implying that transfer programs reduced poverty only by 25 percent instead of 50 percent. In the meantime, some studies showed that over 80 percent of means-tested transfers went to the pre-transfer poor. This suggests that most of the dollars reach the right pool of people, but somehow do not reduce the poverty gap dollar for dollar. There are multiple reasons for this (Burtless, 1994; Plotnick, 1979; Weinberg, 1985), including a leakage of the money into administrative expenses, and the underreporting of income from transfers in the household survey data from which poverty gaps are calculated, while transfers going to those who are institutionalized are excluded. At the same time, some people who are not poor when an annual accounting period is used still become eligible for benefits if their income is depressed for short periods.

The analysis thus far clearly shows that explicit research on the impact of government transfers on poverty holds that publicly transferred income to those who are poor by U.S. official definition raised their income and subsequently reduced their poverty rate. This conclusion, however, must be interpreted with caution because these transfer programs have tried to affect the behavior of the poor. This is the topic of the
remaining discussion for understanding how government transfer programs indirectly affect poverty.

As mentioned earlier, the central objective of the War on Poverty was to cure (not simply to relieve) poverty by providing a “hand up” and not a “hand out”. This point was made crystal clear by the following statement from the 1964 report of the Council of Economic Advisors:

...But this “solution” would leave untouched most of the roots of poverty. Americans want to earn the American standard of living by their own efforts and contributions (p. 77).

To this end, the Council recommended expanding educational and training opportunities. It is evident that the Council was influenced by the emergence in the 1950s and 1960s of human capital theory as a major explanation for differences in productivity and earnings. The most commonly recognized reason for poverty in the United States is the inability to earn more than a low wage (Feldstein, 1998). This low earning ability is often attributed to inadequate schooling or training. Low levels of education, or poor quality training, can limit an individual’s earning ability. The obvious remedy in this case is more, or better, education. Though in the same vein, low earning ability is also due to inadequate training. Experience suggests that the best training is on-the-job. The problem of less human capital as an explanation of poverty is not just a matter of education and training, but also one of low cognitive ability. While variations in cognitive ability (IQ) of the mean population do not have much impact on wage rates, individuals with very low levels of cognitive ability (IQ levels below 80) have a difficult time earning a decent wage rate (Feldstein, 1998).
For this reason, many of the government transfer programs developed ways of increasing the human capital of potential low-income workers as a way of curing poverty. Examples of these programs include Head Start, Basic Educational Opportunity Grants, the Job Corps, and the Manpower Development and Training Act. Having undergone substantial modifications, some of the programs survived, although often at funding levels lower than before and sometimes under different names (Sawhill, 1988). Overall, the federal government spent roughly $282 billion (1986 dollars) on targeted education and training programs between 1963 and 1985 (Burtless, 1994). (This figure would be larger if the expenditure on Medicaid were included, which alone totaled approximately $469 billion [in 1986 dollars]). The government transfer programs (human capital investments), whose target was to increase productivity and earnings ability, have obviously received mixed criticism, but evaluating these particular government transfer programs is outside the scope of the current study.

Not all poverty can be attributed to involuntary unemployment or to the lack of earnings ability. If it were so, governmental efforts to increase human capital of the poor would be an effective tool to reduce poverty. Individual choice, rational (utility maximizing) or irrational (choosing poverty in error), can lead to poverty. More specifically, those individuals who choose to be in poverty may be making rational choices, i.e., individuals may choose leisure (not working or working very little) to cash income even though the result is to leave them in a poverty condition, which they could otherwise avoid. This may be a source of increasing poverty. Over time, the standard of living that is possible without working has increased for some segments of the population as a result of the rise in the real value of cash and in-kind welfare benefits. Often the real
value of these welfare benefits has increased more rapidly than the real value of wages available to low skilled workers, increasing the likelihood that the income effect of such benefits would exceed the effect of rising wages on the attractiveness of work (Feldstein, 1998). This is reinforced only to the extent that transfer programs reduce the incentive to work. From this standpoint, reducing poverty from the transfer programs requires reexamining the structure of welfare programs.

The critics of the War on Poverty have suggested that the issue of moral hazard is a serious one. For this reason, Charles Murray (1984) claimed that the welfare system might be a cause of, rather than a cure for, poverty. To Murray, traditionally exogenous factors such as the rate of economic growth, the work effort of the poor, their inclination to invest in their own education and training, decisions about family formation and living arrangements, and even cultural norms or attitudes become endogenous variables. This issue of incentive effects of income transfers (mainly means-tested programs) has been of public concern, and usually falls into one of the following categories: labor supply, family composition, and attitude.

First, researchers most exhaustively assess the effects of income transfers on labor supply. The literature, based on both experimental and non-experimental data, generally confirms the theoretical prediction that labor supply is reduced by income transfer, both because non-earned income increases, and in many programs, the net wage is lowered by the practice of reducing benefits as earnings rise. In short, income and substitution effects in this case work in the same direction. Danziger et al. (1984) estimate that income transfer recipients would have worked 4.8 percent more during the 1970s if all income transfer programs had been eliminated. Put in Okun’s term (1975),
this implies that a dollar of transfer money leads to roughly a 23-cent decline in the
earned income of the poor as the result of their reduced work effort. In other words, the
net income gain to the poor (not counting the value of their increased leisure or non-
market time) from a dollar of such expenditures is about 77 cents. The fact that the
estimates by different researchers in later studies (Browning and Johnson, 1984; Burtless,
1986; Burtless and Haveman, 1987; Danziger et al., 1981; Plotnick, 1984) widely vary
reflects uncertainty about labor supply elasticity, differences in methodology and in the
programs or policies being analyzed, and different assumptions about the counterfactual.

Second, as noted earlier, demographic trends have been an important factor
putting upward pressure on the poverty rate since 1950. The issue addressed in this
section is the potential role of income transfers in contributing to these trends, focusing
on the effect of welfare on the growth of single female-headed families. This growth,
rather than other types of demographic change, has been responsible for most of the
upward pressure on the poverty rate. Most of the research in this area relies on the
variation in welfare benefit levels across states, with a variety of controls for other
variables, to estimate the impact of welfare on the prevalence of single female-headed
families. Most studies find a positive relationship between some measure of the
generosity of the welfare system and the proportion of women heading families (Bishop,
1980; Garfinkel and McLanahan, 1986; MacDonald and Sawhill, 1978; Wilson and
Neckerman, 1986). The research by Ellwood and Bane (1984) suggests that a $100
increase (38% increase over the median state benefit level for that year) in maximum
AFDC benefits per month (1975 dollars) for a family of four would result in an increase
in the number of single female-headed families by 15 percent.
However, the results widely vary and are difficult to interpret because the positive relationship could be due to some omitted variable such as a tendency for female heads to migrate to states providing more generous benefits or a tendency for benefits to be adjusted upward in response to the growth of female-headed families. More importantly, any positive correlation between welfare and the formation of the single female-headed families may reflect the underlying reasons for the association. Thus, research in this area has increasingly focused on the effects of welfare on the events that lead to the formation of a single female-headed family, such as out-of-wedlock childbearing, divorce or separation, marriage and remarriage, and the decision of an unmarried mother to live independently rather than with other adults. The results find little or no evidence that welfare encourages out-of-wedlock childbearing (Ellwood and Bane, 1984; More and Burt, 1982; Moore and Caldwell, 1977). There is some evidence, although modest and inconsistent, that welfare increases divorce rates and that it discourages remarriage (Caldwell, 1975; Ellwood and Bane, 1984; Hoffman and Duncan, 1987; Sawhill et al., 1975). However, evidence does suggest that welfare has large effects on the living arrangements of young single mothers, encouraging or permitting them to establish independent households (Ellwood and Bane, 1984).

From these results, it seems reasonably fair to say that welfare is not the major cause of the growth of single female-headed families. Average real benefit levels for a family with no other income have been declining at least since 1970, yet the proportion of all households headed by women with children has continued to increase. Using the coefficients derived from the Ellwood and Bane (1984) and Danziger et al. (1982) studies, Garfinkel and McLanahan (1986) estimate that welfare can account for no more
than 10 percent to 14 percent of the total growth in the proportion of women who were single mothers between 1960 and 1975.

Lastly, another hypothesis is that the welfare system creates "dependency"—in other words, that it changes the attitudes and values of those who come into contact with the system. This hypothesis is extremely difficult to test and has been the least tested among these potential incentive effects. It used to be true that some welfare recipients might be described as "welfare-dependent" in the sense that they receive a substantial portion of their lifetime income from the welfare system (although this is not true with the passage of Personal Responsibility and Work Opportunity Reconciliation Act of 1996). In 1986, Ellwood estimates that nearly 30 percent of all those ever on welfare receive it for eight or more years. What is not known is whether the welfare system itself causes this dependency by fostering a change in tastes or attitudes or whether long-term involvement simply reflects the permanent characteristics of the individuals themselves and the choices available to them. However, the evidence available, though not entirely consistent, seems to support the latter more (Blank, 1986; Plant 1984). Generally, all empirical studies on incentive effects of government transfer programs indicate that the antipoverty effectiveness of those income transfers is less than the literature on direct effects would suggest.

In summary, several points emerge from reviewing some of the studies on the relationship between government transfer and poverty. First, poverty would have been substantially higher if it had not been for the existence of income transfer programs. The growth of income transfers was an important reason for the decline in poverty, especially among the elderly, between the mid-1960s and the late 1970s. Second, social insurance
programs have had far more impact on the incidence of poverty than means-tested programs. Third, there is leakage in transferring money to those who would be poor in the absence of transfer programs even when it is well targeted. Fourth, direct effects of government transfers on poverty reduction might have been overestimated as historically measured when their indirect effects on recipients' incentives to work or to form two-parent families are counted. Last, but not least, it also should be made clear that spending on AFDC, food stamps, and other programs was never so large as to raise all families above the poverty line, even though government transfers raised the income of the poor to some extent.

It is reasonable to conclude by assuming that one theory cannot account for poverty in its entirety, nor can it give a rationale for antipoverty policy or programs. Further theoretical and empirical efforts will benefit from examining the ways in which demographic shifts, economic factors, and government transfers in combination enhance the living conditions of the poor. Each of these theories and their interrelationship has some truth and power to explain the direct and/or indirect causes of poverty. Researchers should treat these theories as complementary for a fuller understanding of the critical issue of poverty. This need for a complementary analytical framework explains why there has historically been a set of various policies developed to have effects, via different routes, on poverty reduction. This set of policies will be reviewed more closely in a later section.
Trends in Poverty and Welfare Caseloads

The purpose of this section is to establish an understanding of poverty and welfare caseloads over the past 40 years and to examine the general trends seen during this period. The focus is on family composition, including living arrangements and children.

Poverty Trends

Even though poverty can be measured in a variety of ways as noted earlier in the discussion of measurement issues, the official measure of American poverty is defined in terms of personal or family income. Persons or families with incomes judged to be too low are classified as poor; those with incomes above official poverty thresholds are classified as nonpoor. Under this definition of poverty, a poor person or family is one whose income places the individual or family in the extreme lower tail of the overall income distribution (Burtless and Smeeding, 2001).

The declaration of the War on Poverty came during a long period of postwar economic growth, when both productivity and wages were rising. The prevalence of poverty fell steeply in the decade after 1959, reached an all-time low in 1973, and then increased in the early 1980s and 1990s. Much progress was quickly achieved: the official poverty rate for all persons fell from 17.4 percent in 1965 to 11.1 percent in 1973. During this time period, the elderly poverty rate fell even more rapidly, from about 30 percent to 15 percent over the same period.

The sharp rise of poverty from 1979 to 1982 and from 1989 to 1993 was connected to the recessions that occurred in those years, but the magnitude of this increase was a surprise to most economists (Blank, 2001; Burtless and Smeeding, 2001).
During the recession of the early 1990s, the overall poverty rate rose, approaching 15 percent in 1993 (Council of Economic Advisors, 1997). Although the recession in 1980-1982 produced the highest unemployment rate of the post-war period, the recession in 1974-1975 was almost as severe but did not cause the same dramatic rise in the poverty rate.

In comparison with the recessions in 1974-1975 and 1980-1982, the 1990-1991 recession was comparatively brief and mild. The peak monthly unemployment rate was just 7.8 percent in the 1990s recession, compared with a peak rate of 9.0 percent in 1975 and 10.8 percent in 1982. Even more surprising was the failure of the poverty rate to fall back to the level reached in the 1970s, even after prolonged economic expansions in the 1980s and 1990s. This is largely because the recessions of the 1980s and 1990s were accompanied or soon followed by large increases in income inequality. Even when average incomes rose in the 1980s and 1990s, the share of income received by low-income households stagnated or even declined. The real wages of low- and medium-skilled males continued the erosion that had begun in the mid-1970s, and inequality rose because only incomes at the top of the distribution increased throughout the 1980s and 1990s (Danziger and Haveman, 2001).

The poverty rate fell slowly, but it remained between 12 percent and 15 percent for the rest of the 1980s even though the recovery of the 1980s was lengthy. Although the percentage of people in poverty dropped during the expansions, it did not fall far enough to offset the surge in poverty that took place during and immediately after the earlier recessions. The official poverty statistics indicate that poverty increased about 10 percent in the 20 years after 1978, climbing from 11.4 percent to 12.7 percent of the
population. Moreover, the child poverty rate remained stalled at over 20 percent until the mid-1990s (Burtless and Smeeding, 2001; Children’s Defense Fund, 2000; Haskins and Primus, 2001; Sawhill, 2002; U.S. Bureau of the Census, 2000).

Declining steadily since 1993, the poverty rate leveled off slightly before the Personal Responsibility and Work Opportunity Reconciliation Act (PRWORA) of 1996 and then continued its decline (Brookings, 2000; U.S. Bureau of the Census, 2000). During the prolonged expansion of the 1990s, the overall poverty rate declined, reaching 11.3 percent in 2000, and the child poverty rate fell to 16.2 percent (Danziger and Haveman, 2001). These declines were the first noticeable successes against poverty since the gains of the late 1960s and early 1970s (Freeman, 2001; Haskins and Primus, 2001).

Poverty reduction in the 1990s boom shows that when economic growth produces an increase in real wages as well as an employment increase, people have hope that the rising tide of economic progress can indeed substantially cut into poverty (Freeman, 2001; Haveman and Schwabish, 2000). Although the close link between economic growth and poverty reduction that was lost from the mid-1970s through the 1980s was regained in the 1990s, a voice of concern still remains. This great economic boom in the 1990s should have reduced poverty at a greater rate, particularly for the group with initially high poverty rates—children (Haskins and Primus, 2001). Also, through the years, while there was a dramatic caseload decline in the 1990s, the degree of poverty reduction, especially child poverty reduction, was not occurring as fast as economists expected. Two primary reasons for this slowed reduction in poverty are the widening income inequality and the inability of government programs to remove single mothers from poverty although their earnings increased substantially. Child poverty remains a
significant issue and is expected to command great attention during the 2002 reauthorization of the 1996 welfare reform legislation.

Child Poverty Trends and Causes of Child Poverty

As the number of births plummeted in the United States beginning in the mid-1960s, the nation might have expected an improvement in the well-being of children, based on the assumption that falling birth rates would result in greater availability of resources per child. Yet many socioeconomic indicators suggested just the opposite. Rather than improving, children's health and economic well-being deteriorated in the following three decades (Casper and Bianchi, 2002). By 1974, 10.2 million (15.4%) children lived in poverty: The first year that children under age 18 represented the poorest age group in the United States with a poverty rate higher than that of any other age group including the poor elderly (3 million, or 14.6% of the 21.1 million elderly) (Dalaker and Proctor, 1999).

This situation prevailed throughout the 1980s and 1990s. In 1999, 12.1 million (16.9%) children in all households (71.7 million), and 11.5 million (16.3%) related children in all families (70.5 million) were poor. These poverty rates were 150 percent higher than the rates for adults ages 18 to 64 years (17 million, or 10% of 169 million) and for those 65 and over (3.2 million, or 9.7% of 32.6 million) (Dalaker and Proctor, 2000). In 1999, children under age 18 represented approximately one-quarter of the population; however, they comprised nearly 40 percent of the poor.

The U.S. child poverty rate currently remains stunningly high among all industrialized countries (Bennett et al., 1999; NCCP, 2001; Rainwater, 1999; Smolensky
et al., 1988). When the poverty rates of children in 1990 among 14 countries were compared, 8 countries had child poverty rates below 10 percent. The United States had an extremely high poverty rate of 23 percent, which was 10 times higher than that of Finland. Italy and United Kingdom had the next highest rates at 18 and 19 percent. Finland and Sweden had the lowest child poverty rates, 2.3 percent and 2.7 percent, respectively.

Young children under age 6 are particularly vulnerable (Bennett et al., 1999; Regensburger, 2001). In 1997, 42 percent of all children under age 6 were living in poverty or near poverty (i.e., in families with income below 185 percent of the poverty line). Approximately one in ten young children was extremely poor—10.4 percent in 1997—defined as living in families with a combined family income below 50 percent of the poverty line. In the same year, nearly half (47%) of the 5.2 million young children living in poverty lived in extreme poverty (Bennett et al., 1999).

It is also important to note that child poverty rates vary substantially among different racial/ethnic groups. Minority children are much more likely to be poor than their white counterparts. In 1999, the poverty rates for non-Hispanic white children under age 18 was 13.5 percent, compared to the rates for non-Hispanic black children and Hispanic children in the same age group which were 33.1 and 30.3 percent, respectively (Dalaker and Proctor, 2000). The gap in the child poverty rate for different racial/ethnic groups is even wider when considering poverty rates for young children under age 6. In 1999, the poverty rates for non-Hispanic black and Hispanic young children under age 6 were 40 and 38 percent respectively, approximately three times as high as 13 percent for non-Hispanic white young children under age 6 (NCCP, 2001).
Examining child poverty rates over time reveals the vulnerability of children to changing political and economic circumstances. The child poverty rate declined from 26.5 percent to 14.9 percent between 1960 and 1970. Since then, the child poverty rate steadily increased from 15.4 percent in 1974 to 17.9 percent in 1980 and further to 22.7 percent in 1993 (Dalaker and Proctor, 2000; U.S. Bureau of the Census, 1998, Table 2; U.S. Bureau of the Census, 1997, Table C-2). This comparison indicates that the child poverty rate increased by one-third between 1970 and 1993. The U.S. child poverty rate has declined since to 16.9 percent in 1999, yet remains significantly higher than the level reached in the 1970s (Dalaker and Proctor, 2000). While improvement in the child poverty rate since 1993 was encouraging and significant, decrease in child poverty lagged well behind decreases in the unemployment rate and improved economic well-being among adults.

Demographers as well as poverty analysts have long tried to understand why so many children are poor. Research reveals that the causes of child poverty are multiple and interrelated (Bianchi, 1993). Moreover, the nature and face of poverty/child poverty is not static over time, which makes it difficult for policy makers to come up with a general explanation or singular solution for the problem. However, there is a consensus that recent fluctuation in child poverty generally can be attributed to changes in the structure of American families and volatile macroeconomic factors, which have both adversely affected the well-being of the nation's children.

A number of recent studies indicate that increased higher divorce rates, increase in nonmarital births, and single parenthood (especially among low-income parents) have contributed the most to increased poverty among children in the 1980s and 1990s (Bane
and Ellwood, 1986; Bianchi, 1993; Casper and Bianchi, 2002; Kim, 1993). Children experience less economic security when the family has only one wage earner, especially when the sole wage earner is female. Gender differences in qualifications and labor market treatment, as well as the overall wage structure, the prices the labor market sets for skills and employment in particular sectors influence the size of the gender pay gap (Blau and Kahn, 2000). This gender pay gap further exacerbated the economic conditions of the children living in the female-headed households.

Given this thought, trends in single female-headed households between 1960 and 1998 do not favorably predict the well-being of children. The share of family households with children that were two-parent families declined substantially over this period, from 91 percent to 73 percent (Casper and Bryson, 1998). The proportion of households headed by married couples with children declined most dramatically in the 1970s (88.5 percent in 1970 to 80.5 percent in 1980, then to 76.0 percent in 1990) as the proportion of single female-headed households grew rapidly. Single female-headed households comprised only 8.2 percent and 10.3 percent of all households in 1960 and 1970, respectively. This shift continued in the 1980s and into the 1990s, but at a much more rapid pace. Nearly 18 percent of all households consisted of single female-headed households in 1980. In 1990, one in every five households was a single female-headed household. Between 1990 and 1998, the rate of increase in the single female-headed households (from 20.4 percent in 1990 to 22.1 percent in 1998) decreased. It was only by the mid-1990s that the shifting composition of families, for the most part, gradually came to a halt—no more growth in single female-headed families, and no more decline in
families consisting of married couples with children after 1994 (Casper and Bryson, 1998).

Eggebeen and Lichter (1991) found that about one-third of the increase in child poverty between 1960 and 1988 and 51 percent of the increase in child poverty between 1980 and 1988 was due to increases in the proportion of single-mother families. In 1998, the poverty rate for children living with their mother only was 47.5 percent while the poverty rate for children living with married parents was 9.3 percent (Current Population Survey, March Supplements, 1978, 1988, 1998; Cited from Casper and Bianchi, 2002, p. 113, Table 4.6). The trend toward a greater number of children living outside two-parent families occurred among both black and white families. Blacks, however, have historically experienced higher rates of single-parent households and the gap further increased between 1960 and 1996 (Casper and Bianchi, 2002). In 1960, 9 percent of white children and 33 percent of black children lived outside two-parent families. By 1996, 25 percent of white children and 66 percent of black children lived outside two-parent families (Lerman, 2002).

The sharp increase in the proportion of children living outside two-parent families resulted from a combination of rising divorce rates and increased incidence of nonmarital births. An increase in the number of children living with never-married parents accounted for about half the rise in the number of children living with single mothers during the years between 1960 and 1996 (Bianchi, 1993; Casper and Bianchi, 2002). In 1978, about one in five single mothers had never married, but by 1998, 42 percent of single mothers had not married (Casper and Bianchi, 2002). The percentage of children living with a never-married mother rose from only 0.3 percent of all children in 1960 to

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10 percent in 1996 (Lerman, 2002). This increase is of particular concern because children living with never-married mothers often face more serious socioeconomic predicaments than do children raised in other single-parent homes (Bianchi, 1993, pp. 91-125; Casper and Bianchi, 2002, pp. 95-121; Lerman, 2002).

Using Census Bureau data, Bianchi (1993) examined selected demographic and socioeconomic differences among children living with a divorced, separated, or never-married mother. Bianchi (1993) summarizes that never-married mothers tend to be younger and more than half of first out-of-wedlock births are to teens (Sawhill, 1999; U.S. Bureau of the Census, 1997). It is a natural consequence that these never-married mothers are economically more disadvantaged in the labor market (even if they work) than their divorced counterparts, because the never-married mothers are young, they experience first births at a younger age, and they are less well educated than divorced or separated mothers. Not only does their educational attainment tend to be low, but also the chance of their partners being high school graduates is also low. As a result, never-married mothers' rate of employment is lower than that of divorced and separated mothers, and consequently, their median income is only half of what is earned by divorced mothers (Bianchi, 1993; Sawhill, 1999). Moreover, the children of never-married mothers are also much less likely to receive child support payments than are children of divorced or separated mothers (Bianchi, 1993), which is why children of never-married mother are overwhelmingly poor and about three-quarters of them end up on welfare (Sawhill, 1999).

One of the most significant changes that have contributed to the increase in the incidence in single-mother families over time is the divorce rate (Bianchi, 1993; Casper
and Bianchi, 2002). Divorce was the primary reason for children residing in mother-only families prior to the 1980s. With a sharp rise occurring in the mid-1960s, the divorce rate more than doubled from 9 divorces per 1,000 married women to 23 per 1,000 between 1960 and 1979 (U.S. National Center for Health Statistics, 1991). In 1998, among all children living in single-mother families, 34.9 percent lived with divorced mothers. Even though the percentage is lower than it was in 1988 (38.8%), it remains still high.

A second factor contributing to an increase in single-mother households is the sharp rise that began around 1970 in nonmarital births as a percentage of all births (Lerman, 2002). The nonmarital birth ratio rose only 7 percentage points, from 3 percent to nearly 10 percent between 1920 and 1968 (Cutright, 1973). In contrast, the nonmarital birth ratio skyrocketed by more than 20 percentage points from 10 percent to 33 percent between 1968 and 1994 (The Brookings Institution, 2001; National Center for Health Statistics, 1999; U.S. Bureau of the Census, Table CH-1, 2000, cited from Lerman, 2002, p. 35, figure. 3-1). Since 1994, however, the nonmarital birth ratio has leveled off and remains around 33 percent (Haskins et al., 2000; The Brookings Institution, 2001).

In summary, the economic well-being of children has deteriorated, in part, as a result of the increasing trends in divorce rates, nonmarital births, and single parenthood. The shift toward younger, less educated, never-married mothers has adversely affected child well-being for the past three decades (Bianchi, 1993, p. 100, Table 4.2; Casper and Bianchi, 2002, p. 116, Table 4.7).

In addition to the divorce rate, nonmarital births, and single parenthood, the lack of earnings of a single mother is an additional factor that must be examined to explain child poverty. It is an easy logic to follow that one wage earner will make less than two
wage earners in a household. A primary female wage earner will make only 35 percent of what a primary male wage earner makes in a two-parent family due to lower labor force participation rates and gender-based wage discrimination (Casper and Bianchi, 2002; Garfinkel and MaLanahan, 1986, p. 22). The annual mean family income (1997 dollars) for single mothers in 1998 ($19,810) was similar to that for 1978 ($19,622); median income was about $1,000 lower in 1998 ($14,448) than in 1978 ($15,425) when adjusted for change in the cost of living (Casper and Bianchi, 2002, p. 113, Table 4.6). Women are less likely to have job-related training and more likely to have unstable work histories, often due to the lack of adequate child care and transportation. All these factors together have lowered the single mother’s earning capacity (Kim, 1993, p. 8).

The financial circumstances of single-mother families also raise the issue of child support from absent fathers. In the majority of cases, children born outside of marriage or after divorce stay with their mothers. Based on tabulation from the Current Population Survey (CPS) for 1978, 1988, and 1998, only around 30 percent (27.9%, 32.9%, and 29.2% respectively) of single mothers with children reported receiving any child support income (Casper and Bianchi, 2002, p.113, Table 4.6). Among those who received child support, the amounts (1997 dollars) reported in 1988 ($2,684) and 1998 ($2,700) were about $1,100 lower than in 1978 ($3,809) (Casper and Bianchi, 2002, p. 113, Table 4.6).

Secondly, the decline in the real value of welfare benefit levels during the 1970s and 1980s has contributed to the decline in the economic well-being of children. AFDC benefit levels decreased by 31 percent between 1972 and 1988 (Bianchi, 1993; Committee on Ways and Means, 1990, pp. 962-965). Also, inflation eroded income eligibility, and state legislatures failed to index benefits for inflation, so real benefits
declined (Danziger and Stern, 1990). In the 1990s, the real value of the government cash aid and food benefits has been declining since 1995 (U.S. Bureau of the Census, 2001, Table. 523, p.343). With AFDC eligibility criteria becoming increasingly stricter, a smaller proportion of poor single-parent families received welfare (U.S. Bureau of the Census, 2001, Table. 544, p.353). This became most obvious after the experiment with the AFDC waiver and the passage of PRWORA in 1996, which will be discussed later in this chapter.

The impact of government programs on child poverty gap over time reveals how these programs were much less effective in reducing the child poverty (Haskins and Primus, 2001). In 1979, the total reduction in child poverty gap (by addition of social insurance, means-tested and in-kind benefits, and federal taxes to low-income families’ cash income) was 62.4 percent. The total reduction in child poverty gap reduced to 58.4 percent in 1989. Even though it went up to 62.7 percent in 1995, the reduction rate went down to 56.3 percent in 1999. What is more revealing is that the means-tested cash and in-kind programs reduced the poverty gap by $23.4 billion in 1993, but only $11.9 billion in 1999 (1999 dollars). Despite improvement in the role of the EITC in reducing poverty, on the whole, government means-tested programs were much less effective in reducing child poverty after 1993.

Diminishing welfare allocations to poor children is further evident in the differential treatment of children and elderly persons as reflected in federal spending for the two groups. In 1990, the federal government spent only $1,020 per child, compared to $11,350 per elderly person (U.S. House of Representatives, 1992). According to
Danziger (1989), public transfers lifted only 17 percent of all pretransfer poor children out of poverty, while the rate was 77 percent for elderly persons.

The changing macroeconomic conditions over the last two decades also may account, in part, for the increasingly negative economic circumstances of children in two-parent households as well as single female-headed households. The wages of young and less-skilled workers declined between 1973 and 1990, particularly for young men with a high school education or less (Johnson and Sum, 1987). Such young men are not likely to be attractive marriageable prospects. Thus, the women who would have married these male counterparts in previous times are more likely to stay single, and this phenomenon is more prevalent among blacks (Blank, 1997, p. 37; Kasarda, 1989).

The solution favored by most Americans for reducing poverty always has been overall economic growth that creates jobs and helps the poor escape poverty through work and wages. However, the economic expansions of the 1980s and 1990s did not produce a substantial decline in poverty. As mentioned earlier, even when the economy was booming, the increased work effort was offset by declining wages (Blank, 1993, 1997; Blank and Blinder, 1986; Blank and Card, 1993). Therefore, the fact that economic growth itself no longer means less poverty is a puzzle to those who want to fight poverty (Blank, 1993, 1994, 1997).

In summary, the family structural and macroeconomic perspectives explain why the poverty rate for children is much higher than that for adults. The family structural explanation of child poverty points out that children are not equally distributed among all types of families, and this can be further stated in two ways. Poor families with children have fewer adults than nonpoor families with children, or, poor families with children
have more children (2.24 per family) on average compared to nonpoor families with children (1.70 per family) (Betson and Michael, 1997). The impact of the inter-relation between the family structure and macroeconomy on the child poverty rate suggests how economic or social policy alone without the other may not effectively reduce child poverty. Policies aimed at increasing job availability and enhancing the earning capacity of less-skilled, single-female householders are essential for any policy that encourages the two-parent family formation; otherwise, the desired improving the economic well-being children cannot be achieved (Ellwood, 1988; Rodgers, 1994; Scarbrough, 1993).

It should be noted, however, that the purpose of this study is to estimate the effects of the EITC on the welfare caseloads, controlling for other factors. Thus, any inference regarding the magnitude of the effect of EITC on poverty reduction based on the results of this study on welfare caseloads would not be precise. There can be an educated inference, however, that there is a link between the reduction in welfare caseloads and poverty reduction as long as poverty is measured in absolute terms as explained previously in this chapter.

**Trends in Welfare Caseloads**

Earlier in this chapter, trends of poverty and welfare utilization were explained using family structure fluctuations, the nation’s economy, and changes in the government transfer levels. The purpose of this section is not to reiterate the relationship among these three plausible explanations of poverty and welfare utilization but rather to examine welfare caseload trends and the programs that have been developed to address the issue of poverty/welfare caseloads. Historically, U.S. social welfare policies have oscillated
between two seemingly contradictory goals (Berlin, 2000): eliminating poverty and eliminating welfare dependency. The 1960s were marked by a campaign against poverty. In the 1980s, the focus was on the effects of welfare program characteristics on the participation decision, and in the 1990s, the focus increasingly shifted to other matters that fight welfare dependency (Berlin, 2000; Huang et al., 2000). While the problem of poverty as a social issue was prevailing from the 1960s to the 1980s, the discussion of welfare caseloads was dominant in studying income security of the poor persons in the 1990s.

There was a steep increase in AFDC caseloads in the late 1960s and early 1970s. The AFDC rolls more than tripled from 3 million individuals in 1960 to 10.2 million by 1971 (Helco, 2001). Welfare caseloads were then almost steady for 15 years until the 1990s when they again began to increase sharply. Then, as briefly mentioned earlier, welfare caseloads increased greatly in the early 1990s and then abruptly decreased after 1994.

Following 1989, a rather mild recession of 1990-1991 had a dramatic impact on welfare participation. The share of the population receiving welfare rose 25 percent between 1989 and 1993 to its highest level since 1976. Many scholars were puzzled by this impossibly high rate of welfare caseload size between 1989 and 1993, given the relatively mild recession and the unemployment rate of 7.8 percent, which is much lower than that of the peak rate during the 1981 and 1982 recession (i.e., 10.8% in 1982). Even though it is not the period of this study's focus, it is worth speculating why the mild recession of 1990-1991 had a dramatic impact on the welfare receipt. According to Blank (2001), this sharp rate of increase in the welfare receipt can be attributed to the
growth in child-only cases, and an increase in take-up rate (participation among the eligible population) and eligibility. She cautions, however, that there is limited data for further investigation of why child-only cases sharply increased in the early 1990s.

In 1994, after reaching its highest rate since 1976, the number of families receiving cash assistance declined dramatically. As mentioned earlier, the caseload dropped by half between 1994 and 1999. There were 14.2 million individuals in 1994, compared to 12.2 million in 1996 and 5.8 million in June 2002, respectively (DHHS, 2000b, 2001a). The rate of decline in welfare caseloads further accelerated, and the number of recipients in 2000 was less than half of what it had been in 1996 (Administration for Children and Families, 2000a, 2000b, 2000c, 2001a, 2001b; Farrell et al., 2000).

This declining trend in welfare caseloads is the most widely reported in the economic research done in the 1990s. Most research conducted using state-level aggregate data show the economy to have played an important role, with a 1 percent drop in unemployment leading to a 5 percent reduction in welfare recipiency (Bell, 2001). Also, as welfare rolls hit the high rate in 1994, the prevailing concern was about the unintended consequences of welfare programs that were discouraging the work efforts of welfare recipients and discouraging marriage, while encouraging out-of-wedlock childbearing. Many studies, thus, indicate that this concern might have led to welfare reforms that limited the time someone could receive welfare benefits, the incorporation of stricter work requirements, and consequently, the end of welfare as we knew it (Berlin, 2000).
As many studies indicated, the goals of the PRWORA of 1996 can be summarized as follow: to end dependency of needy families by promoting work and marriage; to prevent and reduce out-of-wedlock pregnancies; and to encourage formation and maintenance of two-parent families (Schoeni and Blank, 2000). To meet these ends, the legislation abolished the AFDC and replaced it with the Temporary Assistance for Needy Families (TANF). So far, there is little comprehensive evidence on how well these broad goals of welfare reform are being met. In evaluating the effectiveness of welfare reform, three criteria have widely been used and they are rather compartmentalized in their assessment of welfare reform effectiveness. Schoeni and Blank (2000) categorize these evaluation research as “caseload studies” (analyzing effects of welfare policies on the number of people receiving welfare, “leavers studies” (analyzing of the well-being of people who left welfare following welfare reform, and “labor participation studies” (estimating changing work participation among less-skilled women).

Policies Targeting Families with Children

The following discussion provides the historical background for the development of policies and programs designed to reduce welfare caseloads.

The Potential Effects of the EITC on Welfare Caseloads

In view of the strong theoretical and empirical evidence that shows that the EITC matters, it is surprising that previous studies did not incorporate the effects of changes in the EITC. Because the direct effects of the fluctuating number of AFDC/TANF recipients are more obvious and easier to document than indirect effects, previous studies have
concentrated on changes in traditional welfare policies such as AFDC and TANF rather than the EITC in accounting for changes in welfare caseloads. For a number of reasons, this omission is critical in understanding changes in welfare caseloads. First, policymakers raised the EITC subsidy rate in the belief that doing so would give incentive to work to low-income families (especially among single mothers) and thereby reduce welfare caseloads. Second, there are theoretical reasons to support the belief that the increased EITC subsidy rate would reduce welfare caseloads. Third, ample empirical evidence shows that the EITC increased the hours of work and earnings of single mothers, who are the most disadvantaged group in the labor market. Finally, evidence indicates that the EITC has improved the economic well-being of low-income families, especially among mothers whose children are likely to be on welfare.

It is likely that the increased earnings both from wages and from EITC subsidy may have helped single mothers who used to be dependent on welfare to leave the support. Also, it is probable that work became more attractive than receiving welfare for some single mothers and induced them to begin working, which also keeps potential future single mothers from entering the welfare system if their income is enough for them to be self-supporting. These reasons clearly support the argument that previous studies of welfare caseloads that excluded the EITC are incomplete.

*Theoretical Framework: Effect of EITC on Labor Supply.* The fast growth of the EITC and the EITC's popularity relative to other means-tested cash transfers like AFDC/TANF is because the EITC rewards work. To understand a potential relationship between the EITC and work, and to understand how the labor supply incentive of the EITC works differently for different family structures and their aggregate gross income,
it is necessary to know the structure of the EITC. The following discussion provides the framework in which to consider the work incentive effects of the EITC. A more thorough review of previous empirical studies about the work and labor supply incentives follows in the next chapter.

To receive the credit individuals must have earned income and adjusted gross income below a threshold that varies by year and by family size. Until recently, the taxpayer also had to have a "qualifying child."¹ There are three ranges for which taxpayers are eligible depending on where their earned income falls and the number of children: phase-in, stationary (or plateau), and phase-out ranges, as shown in figure 1.1 (Scholz, 1994).

If the taxpayer's earned income falls in the "phase-in" range, the amount of credit increases as the taxpayer's earned income increases (Browning, 1995). In 2000, families who had two or more children and earned income less than $9,700 were eligible for a credit of 40 percent of income (Internal Revenue Service, 2001). In the "stationary" range, the EITC works as a lump-sum transfer since the amount of the credit is constant at the maximum amount, with no increase or decrease for additional earnings (Browning, 1995). In 2000, these families with two or more children with earnings between $9,700 and $12,700 could receive the maximum credit of $3,888 (Internal Revenue Service, 2001). In the "phase-out" range, taxpayers lose a percentage of the credit for each additional dollar earned (Browning, 1995). For families with two or more children with earnings between $12,700 and $31,152 in 2000, the credit is reduced by 21.06 percent.

¹ The Omnibus Budget Reconciliation Act of 1994 added a small credit available for childless taxpayers between the ages of 24 and 65 with very low incomes.
(Internal Revenue Service, 2001). These EITC structures in 2000 are shown in Table 1.1 that summarizes the evolution of the structure.

The static labor-leisure model can explain the effect of these EITC ranges on the individuals' labor supply. According to this economic theory, there are two kinds of labor supply effects: a "substitution effect" and an "income effect" (Hoffman and Seidman, 1990). The substitution effect is a component of the total effect of a price change that results from the associated change in the relative attractiveness of other goods (Frank, 1997). On the other hand, the income effect is a component of the total effect of a price change that results from the associated change in real purchasing power (Frank, 1997).

When this pure economic theory is put into the EITC context, the effect on labor supply depends not only on whether the substitution effect or the income effect or both are effective in each income range but also on which effect overpowers the other when both effects are present. The substitution effect derives from the existence of a positive credit rate, as seen in the phase-in range. The substitution effect provides a positive incentive to increase labor supply, because the higher after-tax wage makes leisure more expensive, and workers may substitute work for leisure (Browning, 1995; Scholz, 1994). The EITC creates an incentive especially for non-workers to enter the labor force since it increases the marginal value of working by raising the effective wage. The rise in the effective wage rate due to the EITC for individuals initially out of the labor force results in only a positive substitution effect and no income effect (Hotz and Scholz, 2001). The "income effect" describes the potential for workers to choose to work fewer hours, since their disposable money incomes have increased with receipt of the credit and the demand
for leisure, a normal good, increase with income (Scholz, 1994). The negative direction of the income effect holds across all income ranges of the EITC. In the phase-in range, the substitution and income effects are in opposition to each other, yet the positive substitution effect is expected to dominate the negative income effect and result in a net increase in the labor supply (Holtzblatt et al., 1994; Scholz, 1994).

In the stationary range, there is no substitution effect, since the credit amount does not change (Holtzblatt et al., 1994). This is the case for individuals who are already in the labor force and for whom the introduction of the EITC will not alter the decision to work. Thus, for these individuals, the incentive effects of the EITC with respect to labor force participation are negative. The empirical evidence on income effects suggests that leisure is a normal good, so the EITC may result in a reduction of hours of work for these individuals whose income falls in this stationary range.

Lastly, for individuals whose wages fall in the phase-out range they have an incentive to reduce their hours of work enough so that they actually receive a credit. The decreasing after-tax wage makes leisure relatively less expensive, and workers may choose to substitute leisure for work (Browning, 1995). Thus, a potentially negative effect on hours of work is expected in the phase-out region of the EITC. In addition, there is an income effect that will lead to a further reduction in hours of work. In the phase-out range, the substitution effect would be expected to reinforce the income effect for creating significant work disincentives and reducing work effort (Browning, 1995; Hoffman and Seidman, 1990; Holtzblatt, 1991; Hotz and Scholz, 2001; Kosters, 1993; Scholz, 1994).
Despite theory predicts potential effect of the EITC on labor supply, empirical data can answer the actual effect of a series of EITC expansions on the work behavior. The importance of the potential work incentive/disincentive effect (on an aggregate level) of the EITC depends on many factors, including the magnitudes of the labor supply and labor force participation, wage elasticities of husbands and wives, the degree to which people correctly perceive tax incentives, and the distribution of individuals’ wage rates relative to the phase-in, stationary, and phase-out regions of the EITC. Empirical evidence on the labor force participation and labor supply effects of the EITC for families will be examined in the following chapter. It is reasonable to say, given the theory, that the EITC provides a positive work incentive to the lowest income group such as welfare participants with only a slight disincentive to other recipient groups. As such, EITC’s potential positive effect on labor supply occurs on the participation margin, and this effect may not be small. Therefore, the EITC could make work a better alternative than welfare because it supplements low wages once a welfare recipient begins to participate in the labor market, and consequently, assists her/his family to exit from the welfare rolls.

*Inception and historical development.* During the 1970s, the anomaly of the poor paying taxes while federal policy sought to raise their income prompted revisions in the federal income tax structure (Levitan et al., 1998, p. 99). A welfare policy and reform effort to help families with children as a redistributive effort was initiated through the income tax system, more specifically the Earned Income Tax Credit (EITC). The EITC was first enacted in 1975 as a means of targeting tax relief to working low-wage taxpayers with children, providing relief from the social security payroll tax for these.

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2 I use the term “family” rather than individual because the unit of analysis in the tax system is family.
taxpayers (Hoffman & Seidman, 1990; Ozawa, 1995; Scholz, 1993) and improving incentives to work (Chilman, 1995). A key difference in the design of the EITC from traditional welfare programs is that a person should work in order to receive the benefits. For this reason, the EITC works as a means of providing incentives to work by subsidizing wages of low-income workers (Hoffman and Seidman, 1990; Scholz, 1993; Chilman, 1995; Ozawa, 1995).

When enacted, the EITC parameter was 10 percent of the first $4,000 of earned income and was phased out at a rate of 10 cents per dollar of earnings or Adjusted Gross Income (AGI), whichever was higher for incomes between $4,000 and $8,000 (Green Book, 1996, p. 805). Over a period of time, changes in the legislation have adjusted the income range for EITC eligibility and maximum credit. The changes both from 1979 through 1984 and 1985 through 1986 have consistently increased the income range for eligibility and maximum credit. Under the Tax Reform Act (TRA) of 1986, the dollar amount of EITC began to be indexed for inflation; the basic credit rate was increased to 14 percent and the phase-out range of incomes was set between $6,920 and $15,432 in 1987 dollars (Green Book, 1996, pp. 804-805).

With the Tax Reform Act (TRA) of 1986, the EITC began developing as an integral part of the anti-poverty program. The 1986 TRA offset nearly all of the erosion of the EITC that occurred between 1975 and 1984 (the EITC's maximum credit had fallen by 35 percent in real terms) (Steuerle and Wilson, 1987, p. 2). In fact, TRA 86 removed more than six million impoverished Americans who were facing deteriorating wages from poverty by liberalizing the EITC (Conlan et al., 1988, p. 3).
While TRA 86 restored the original value of the EITC and thereby reduced the tax burden on low-income families, a substantial expansion of the credit was made in the Omnibus Budget Reconciliation Act of 1990 and 1993 (OBRA 1990 and 1993). OBRA 1990 substantially increased the maximum amount of the basic credit and also differentiated for the first time between families with one and two or more qualifying children. Maximum credit in 1990 was $953 (in nominal dollars) and this amount increased to $1,192 (in nominal dollars) in 1991 (Green Book, 2000). For 1991, the basic EITC rate was 16.7 percent for taxpayers with one qualifying child (maximum credit of $1,192) and 17.3 percent for those with two or more children (maximum credit of $1,235). EITC was phased out for taxpayers with an AGI (or, if greater, earned income) above $11,250 at a rate of 11.93 percent for each additional dollar earned over the threshold. The basic EITC was completely phased out for an AGI above $21,250 in 1991 (Green Book, 1996, p. 805).

Since the Clinton administration placed the EITC at the center of its plan to "make work pay," more drastic changes were made in 1993. The 1993 bill extended the credit to childless low-income working adults, which finally instituted the House version of the 1975 EITC proposal (Ventry, Jr., 2000). However, the benefit credit was minimal—the subsidy rate was 7.65 percent while income falls in phase-in range in 1994—and this rate remains the same until 2000 (Green Book, 2000). In 1996, taxpayers with more than one qualifying child could claim a credit of 40 percent of earnings up to $8,890, resulting in a maximum credit of $3,356. The maximum credit was available for those with earnings between $8,890 and $11,610, and the credit benefit began to phase down at a rate of 21.06 percent of earnings above $11,610. The credit was eventually
phased out to $0 at $28,495 of earnings (Green Book, 1996, pp. 804-805). As a result, the total annual EITC credit amount received by low-income families with children increased more than ten times in nominal dollars between 1984 and 1996 (Green Book, 2000, p.872). The EITC had become the largest means-tested transfer program for low-income working families with children in the United States by 1996 when it became fully phased-in (Phillips, 2002; see Table 6A.1 of Scholz and Levine, 2001, for complete data). In 1999, the total spending on the EITC ($31,900 in 1999 dollars) alone exceeds the amount of TANF ($13,449 in 1999 dollars) combined with food stamps ($15,766 in 1999 dollars) (see Table 6A.1 of Scholz and Levine, 2001, for complete data).

In general, since social security payroll taxes had become a much greater burden than income taxes for low-income families, the expanding EITC approach had two merits. EITC not only offset the costs of social security taxes to a substantial degree but also offered an approach to income supplementation to families who demonstrated their commitment to work. The fact that EITC has been successful in providing income supplements without destroying work incentives justifies keeping the idea in the intellectual tool kit.

However, there are some issues in treating the EITC as income in determining AFDC/TANF, which is embedded in any type of means-tested program. This should not be a surprise to anyone who considers that the trade-off between benefits, incentives, and costs is part of any public assistance. Until 1986, the EITC had been counted as income in AFDC calculations. Since 1991, EITC has not been counted as income in the month of its receipt or following month when determining eligibility for AFDC or other benefits for low-income families. It was not until 1994 that the EITC has not been counted at all.
in most means-tested programs, at least for the first 12 months after receipt (Hotz and Scholz, 2001). Beyond these time intervals, however, the EITC could cause potential recipients to fail program asset tests (Hotz and Scholz, 2001). With the abolition of AFDC, states now have the authority to determine whether to count the EITC as income in eligibility testing. What is more problematic, however, is that guidelines regarding how the EITC triggers tax obligations have not been developed (Hotz and Scholz, 2001).

As of July 2000, keeping abreast with federal attempt to support the work efforts of low-income workers, 14 states and the District of Columbia have EITCs as part of their state income taxes (Johnson, 2000). These state EITCs are structured as a function of a percentage of the federal credit and use the same eligibility rules, and they are summarized in Table 2.1 (Johnson, 2000). Ten of the state EITCs are refundable and most make the credit available to workers without qualifying children. This concept of "refundability," as explained in the first chapter, simply means that the Treasury pays out regardless of whether the taxpayer has any Federal income tax liability. The individuals in the states with refundable state EITC can receive the full amount of the credit even if that amount exceeded their state income tax liability. In contrast, "non-refundability" means that each credit is available only to the extent that it offsets a family's income tax. Low-income working persons in a state with a non-refundable EITC can still benefit from receiving substantial tax relief to families with state income tax liability. However, non-refundable state EITC provides no benefits to working families with income too low to owe any income taxes. Thus, refundable state EITC assists working-poor families with children and is likely to be a more effective tool to give a work incentive (Bennett and Lu, 2001; Johnson, 1999).
There is no direct evidence that low-income workers are fully aware of the EITC expansion, nor is it presumed that the EITC expansion is the sole cause of increase in work efforts. Two studies by Phillips (2001) and Rormich and Weisner (2001) specifically looked at the awareness of the EITC. Phillip (2001), using data from the 1999 National Survey of America's Families (NSAF), examined demographic differences in knowledge about the EITC among parents and reported that nearly 70 percent of parents know about the EITC and about 30 percent of parents have received the credit at some time. Romich and Weisner (2001) selected a sub-set of 60 families from 812 households with young children that were identified to be part of a more in-depth child and family study from a sample of 1357 households who volunteered for the New Hope Project in 1998 (a community-initiated anti-poverty program in Milwaukee, Wisconsin). Using this ethnographic data, they found that most people in the sample have heard of the EITC. Fifty-three percent of 1998 filers were aware of the credit, but could not give an exact break-down of how much they get from the EITC versus how much comes from their refund. Overall, however, people commonly describe a linear relationship (holding a "more work, more money" view) between the amount they work and the total amount of their check. There is an indication that there may be more of an over-identification rather than less-identification issue. Therefore, it is reasonable to link directly the EITC (especially when combined with state EITC) with the increased labor force participation (LFP) rate among single mothers with children, increased earnings, and subsequent child poverty reduction.

**Empirical evidence.** At this point, it is helpful to be reminded of the fact that employment and welfare use are inversely related. In 1994, 23 percent of those receiving
welfare in 1993 were observed at work in March of 1994, whereas 40 percent of welfare recipients from 1998 were working in March 1999 (Blank, 2000). LFP among single mothers with young children—the group historically most likely to depend on welfare—soared during this time period (Meyer and Rosenbaum, 1999). Unmarried women with children under age 18 have experienced more than a 10 percentage point increase in labor force participation in the 1990s (Blank, 2000).

Empirical research points to the same direction that the EITC provides unambiguous incentives for single workers to participate in the labor force (Blank et al, 1999; Liebman, 1998; Scholz, 1997). Moreover, economic research estimates that the EITC raises labor force participation rates among single women who might otherwise choose welfare over work (Blank et al., 1999; Dickert et al., 1995; Eissa and Liebman, 1996; Liebman, 1998; Meyer, 1998; Meyer and Rosenbaum, 1998).

A study by Eissa and Liebman (1996) is the first study of its kind to systematically examine how changes in the credit have affected work of single mothers. They, using March CPS (annual nationalistic demographic file of approximately 60,000 households), identify the impact of TRA 86 by comparing the change in labor supply of single women with children to the change for single women without children between 1984 and 1990. They measured the effects of change in the EITC and other tax provisions of Tax Reform Act of 1986 and concluded that the changes in EITC increased annual employment by 2.8 percent for all single mothers and 6.1 percent for those with less than a high school education.

The data used in the Meyer and Rosenbaum (2000) study come from CPS and the March CPS annual Demographic Files 1968-1997 and Outgoing Rotation Group (ORG)
1984-1996. ORG contains all 12 months of the year and only includes those in their fourth and eighth interviews, and this has close to three times as many observations as the CPS. The major goal of their study was to describe how the changes in the federal and state income taxes and other welfare policies affect employment rates and income for different demographic groups. They found that the changes in EITC were followed by a large increase in employment of single mothers with children, and that this type of increase in employment was not observed in other low-income groups. Ellwood (1999), using March CPS 1980-1998, studied whether work incentives have changed differentially for women at different levels of the wage distribution over time. He found different incentives of the EITC across the groups over time and estimated that between 27 percent and 33 percent of the increase in employment in the 1992-1996 periods could be attributed to EITC.

In a similar vein, for their estimations, Meyer and Rosenbaum (1999) used the CPS, ORG files and the March CPS annual Demographic Files. To compare changes in employment for single mothers to those for single women without children, they rely on the differential treatment of these two types of women under welfare and tax laws. They suggested that a large share of the increase in work by single mothers can be attributed to the EITC (57 percent of the annual employment of single mothers), with smaller shares for welfare benefit reductions (10% to 13%), and other changes in welfare programs between 1984 and 1996.

Simultaneously, average incomes among less-skilled single mothers have increased while poverty among single mothers has reached a historic low. Recent studies are likely to point to a similar conclusion that single mothers' incomes increased despite
the reduced benefit levels from welfare due to the increased earnings from employment. A study by Grogger (2001), using March CPS 1979-2000, confirms the previous studies by Ellwood (1999) and Meyer and Rosenbaum (2000) that the increase in the maximum credit of the EITC has a substantial positive effect on the employment of single mothers. He, looking at the changes in employment by female-headed families, further attributes the increase in employment, labor, supply, and earnings in recent years to the EITC.

Meyer and Rosenbaum (1999, 2000) also concluded that the main explanation for the increase in single mothers' employment in recent years was the EITC expansions, with smaller roles played by welfare reforms and changes in other provisions such as childcare and training. Haskins (1999) examined the changes in annual cross-section samples of low-income single mothers for comparison using CPS data and calculated the source of income that increased most between 1993 and 1998 was earnings. The average increase in income from earnings for single female-heads with children for this period was $467, while the average decrease in income both from AFDC/TANF and from food stamps was $715.

The EITC not only substantially increases the proportion of single mothers who work, it also has a powerful effect in reducing poverty. Analysis of census data show that in 1998 the EITC lifted 4.8 million people out of poverty, including 2.6 million children. In other words, the EITC lifts more children out of poverty than any other program and or category of programs (Center on Budget and Policy Priorities, 2000). Haskins and Primus (2001), calculating CPS data sets from 1993 to 1999, also indicated that the EITC was one of the main factors in the steep decline in child poverty in recent years. The National Center for Children in Poverty analyzing CPS data from 1997 to 1999,
concluded that income-to-needs ratios (defined as the family's income divided by the poverty threshold associated with that family's size and structure) of children in working poor families in states with refundable state EITC changed while this ratio barely moved in states with non-refundable state EITC (National Center for Children in Poverty, 2001). NCCP (2001) further estimates that approximately one-half of all children nationwide would escape poverty as a result of universal refundable state EITC (if pegged at 50 percent of the federal credit) in 12 states with the largest population of children.

As noted earlier, the EITC, available to low-income working families with 2 or more children, increased from 14 percent in 1990 to 40 percent in 1996 and is likely to have led to a decline in the welfare rolls, making work a better alternative to welfare. It is evident that the EITC provides incentives to work, particularly among less-skilled women—more specifically, former welfare recipients whose work behavior has been the target of the most criticism through the years. Previous research concludes that the timing of the increase in employment among single mothers with children is concurrent with a series of EITC expansions in the 1990s. It is plausible and compelling that the EITC played a major role in raising income through the increase in employment, which resulted in exodus from welfare rolls. How the EITC in the 1990s, individually and together with other policies, may have reduced the welfare caseloads has not received appropriate analytical attention.

Welfare Reform: Federal AFDC Waivers and TANF

Section 1115 of the Social Security Act (DHHS, 1999) waived specified program requirements governing the AFDC and Medicaid programs. Waivers were intended to
allow states to experiment with program changes that were judged to promote self-sufficiency among welfare recipients. Between January 1993 and August 1996, the Department of Health and Human Services (DHHS) approved welfare waivers in 43 states. States experimented with changes in nearly every aspect of AFDC, but the extent to which many of the provisions applied varied depending on the state.

Most popular waiver provisions adopted by states included setting time limits/work requirements for welfare receipt, expanding earnings disregard, sanctioning noncompliance, extending transitional childcare, and expanding Medicaid benefits for those who leave AFDC. Some states also added a family cap that limited the benefits for additional children while on welfare. The following changes in the employment-related initiatives pre- and post-waivers are extensively drawn from work by Savner and Greenberg (Center for Law and Social Policy, 1995).

To implement “time limit” programs, 24 states have designed programs, requiring all non-exempt adults to participate in work activities after a specified time period. These states have specified to provide the cash assistance as long as recipients meet the work requirements. A smaller group of states designed the programs to deny all cash aid to a family after a specified time period, but the family will be eligible for assistance after the passage of an additional time period. Two of these states would deny cash aid to the adult in the family after a specified time period, but then allow eligibility again after the passage of time. All of these states could allow extensions for aid for those who met the work requirements but could not find a job. Most commonly, families in these states limit assistance to not more than 24 months in 60 months.
As a way of encouraging work, 41 state waivers provided families an incentive to work by increasing the earnings disregard so that they may achieve and maintain self-sufficiency (DHHS, 1996). In treating earnings, before designing earnings disregard waivers, a family receiving AFDC that enters employment was potentially eligible to receive a $90 work expense disregard. For this family, a $30 work incentive disregard for the first 12 months of employment, or a work incentive disregard of 1.3 gross earned income after the $90 and $30 disregards is allowed for the first 4 months. Basically, the major deduction is no longer available after the first four months, resulting in immediate AFDC ineligibility (the benefit reduction rate was quite high, a dollar of earnings results in close to a dollar reduction in AFDC benefits) even though the family may still have very low income. Modification of the earned income deduction rules is one of the most commonly requested (by 28 states) waivers. Most common (requested by 17 states of these 28 states) would disregard an initial net amount of earnings, varying from $90 to $200, and then a percentage of the balance of the earnings, raging from 1/6 to 58 percent. This group also includes 4 states that continue the current $30 and 1/3 disregards, but remove the time limits. When combined with the current $90 work expense disregard, this could yield a disregard of $120 and 1/3.

The foremost emphasis was placed on work. Thirty-six state waivers helped people move from welfare to work by increasing education and training opportunities and creating public/private sector partnerships (DHHS, 1996). Some states have expanded the Job Opportunities and Basic Skills (JOBS) training program by restricting exemptions from JOBS participation or extending job search requirements. Prior to receiving waivers, there was no restriction imposing a financial penalty on an individual or family...
because of the number of months the family has received benefits. However, under waivers, an individual who was not exempt from mandatory JOBS participation is subject to a financial penalty or "sanction." Sanctions are to remove the non-exempt persons from the grant. Twenty-six states have sought the sanction waiver. The severity of penalty varies: from partial benefit reduction to the loss of the family's entire cash grant; from denial of aid to the participant to denial of aid to the entire family; and from immediate sanction to sanctions few months later after non-compliance.

Recognizing the need for transitional support from welfare to work, especially for single mothers, 18 states also extended childcare. Since April of 1990, states have been required to provide up to one year of child care assistance for some persons losing AFDC due to employment. Three conditions had to be met: pay a sliding fee scale amount based on the ability to pay; continue to have a "dependent child"; and request transitional child care (TCC). The family could lose eligibility for failing to cooperate with child support enforcement or for losing employment without good cause. The variation in these waivers included expanded child care depending on the family income or extended period of months upon leaving AFDC.

Another way to aid families after they leave the welfare rolls was by expanding Medicaid. Effective April 1990, states were required to provide up to one year of continued medical assistance for some persons losing AFDC due to employment for the first six months (and additional six months for a family with income below 185% poverty) without a fee. At the same time, however, states could impose a premium for families with earnings exceeding 100 percent of poverty. To be eligible, a family should have received AFDC for at least three of the six months immediately before becoming
ineligible for aid. In addition, the family should have become ineligible for AFDC because of employment-related reasons of self or of caretaker relative. Nineteen states have requested waivers either to extend the duration of transitional Medicaid (TMA) to ease the initial eligibility requirements.

Other Policies

As a significant component of PRWORA, there are several other federal policies introduced over the past years that also may have contributed to change in the rate of welfare receipt. One of the most costly programs that aids single mothers with children is Medicaid. Unlike AFDC, Medicaid eligibility has expanded dramatically since 1984. Before 1987, most cases for Medicaid eligibility for single mothers and their children required receipt of AFDC. However, as this rule has relaxed every year, states have been required to cover all children under six and pregnant women with incomes below 133 percent of the poverty line since 1990, and all children under 19 with a family income below 100 percent of the poverty line since July 1991 (Weil and Holahan, 2002).

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 childcare) for 12 months to families who lost AFDC due to increased earnings. The extended Medicaid coverage may have eased the transition for families leaving welfare for work-fare. However, how well Medicaid encourages welfare recipients to move off welfare is questionable, and this is related to the decision of
Medicaid eligibility. Traditionally, eligibility for Medicaid depended on receiving cash assistance. In contrast, under the current law, eligibility for Medicaid is based on income. It is possible that this policy may eventually discourage welfare recipients from working because a parent in a family of three loses Medicaid if she earns more than 67 percent of poverty (Greenstein and Guyer, 2001). The theoretical effect of Medicaid expansions on the decision to work may be positive, but only up to the income level of 67 percent of poverty. This may be why Yelowitz (1996) finds that Medicaid expansions are unlikely to account for a large share of the reduction in the welfare rolls.

Several federal child subsidy programs that target low-income families have been created since 1988. In 1988, the Family Support Act created two such programs: the Aid to Families with Children Child Care, and Transitional Child Care. Two more new programs were implemented in 1990: the At-Risk Child Care and the Child Care and Development Block Grant (Scholz and Levine, 2001). The first three programs served families on AFDC/TANF participating in job training programs, families who had recently moved off welfare, and families at risk of going on welfare, while the fourth program provided additional funds to low-income working families. In 1996, PRWORA consolidated these fragmented programs into the Child Care and Development Fund (CCDF). The federal and state funding for all four programs totaled $3.4 billion (in 1999 dollars) in 1995, but increased to $5.5 billion in 1998. It is likely that the recent rise in federal and state spending on daycare for children might have made it easier for low-income workers to enter the labor market and increased the rewards to work for individuals who might have otherwise stayed on welfare.
Another major change that occurred in the 1990s during this economic boom was the implementation of a series of policy changes that focused on increasing the returns to work among less-skilled and low-wage workers. The minimum wage rose from $3.35 at the beginning of 1990 to $5.15 by 1997 (Blank, 2000). Moreover, by 1999, a mother with two children working full-time in a minimum wage job could receive over $3700 in a refundable tax credit, a substantial addition to her income (Green Book, 2000). As noted in Blank (2000), the combination of the EITC and the minimum wage changes substantially increased after-tax wages among minimum wage workers with children. By the late 1990s, a full-time minimum wage worker with two children had an income (when an increased minimum wage combined with the expanded EITC, increased subsidy for child care, and expanded Medicaid) above the poverty line (Blank, 2000).

In summary, conventional welfare and public assistance services gave way to work-oriented programs. States received “waivers” of federal welfare rules, allowing them to experiment with alternative ways of administering and regulating welfare services. States responded by imposing strict requirements on welfare recipients in the hopes of dramatically reducing their caseloads. In 1996, the PRWORA replaced AFDC with a new program, TANF. This eliminated open-ended federal matching grants in favor of block grants to the states, thereby devolving still further welfare responsibility to the state level. It also allowed states to set even shorter time limits and add other requirements at their discretion. Time limits, work requirements, reduced benefits, and administrative actions designed to push individuals off welfare reduced caseloads as much as 80 percent in some states. While federal and state welfare programs pushed one-time (and would-be) welfare claimants towards work, the EITC eased the transition by
reducing the marginal tax rate from earnings. It provided individuals entering the labor
force an earnings subsidy, as well as an increased incentive to remain employed. The
EITC complemented a work-oriented welfare reform consensus: increased earnings of
low-income families, especially for single mothers with children, and subsequently
lowered child poverty. Therefore, it is theoretically most appropriate to make an
inference that the EITC may have made work a better alternative than welfare, leading to
a decline in the welfare rolls.

Previous Studies on Welfare Caseloads of the 1990s

Fluctuation in welfare caseloads is more easily described than disentangled or
interpreted because of the following reasons. First, the changes described above have
happened simultaneously. A series of EITC expansions coincide not only with the rise of
minimum wage but also with the economic expansion and welfare reform of 1996.
Second, the economic and the policy changes were not only concurrent but also
endogenous and inter-causal. In other words, the types of policies certain states adopted
following the 1996 legislation are also likely to be differentially chosen in states with
different economic environments (Schoeni and Blank, 2000). On the other hand, states
which chose to adopt stronger policy requirements that pushed welfare recipients into
work faster after 1996 might have affected the wage and employment opportunities for
less-skilled workers in their labor market (Bartik, 2000).

Third, there are substantial indirect effects that result from economic growth and
are hard to measure separately (Blank, 2000). Economic expansion not only increases
job availability and earnings among current and past welfare recipients but also increases
earnings among their friends and partners. Family and partners may well be more willing
to share their resources when they are economically better off, making it easier for former
welfare recipients to leave welfare even if they themselves do not necessarily work or
make more earnings.

These reasons make it difficult to separately identify the influences of the 1996
welfare reform; however, it would still be a difficult task even if there had not been an
economic boom and no other policy changes that simultaneously occurred. Controlling
for the effect of the 1996 welfare change is extremely hard because most states
inaugurated their new programs within a few months. Thus, the difference in
implementation dates across states is not a reliable source to identify differential program
impacts. In addition, there are timing problems with current evaluations. Time-series
data by state that are currently available is limited to only a few years' data after its
enactment. Evaluating the effects of these programs using 2 or 3 years' data post 1996
might be misleading, since all aspects of the programs were not fully implemented in
these years. In addition, some program changes have not yet fully taken effect. This is
most true of time limits. Only a small fraction of welfare recipients have hit their time
limits, but over the next several years many more will reach their benefit-reduction or
life-time limits.

In summary, evaluating the effect of one policy from others, especially separating
out welfare reform of 1996 from other factors, is inherently difficult because of state
variation, and made even more difficult by the simultaneous occurrence of an economic
boom and other policy changes. These challenges are important to keep in mind while

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reviewing the existing research on welfare caseloads. All of the research, even though each has its own merit, is subject to the problems discussed above.

Numerous studies have found that changes in demographics, macroeconomic conditions, political affiliation, and AFDC/TANF program characteristics account for the changes in welfare caseloads over time (Blank, 2000, 2001; CBO, 1993; CEA, 1997, 1997; Figlio and Ziliak, 1999; Levine and Whitmore, 1998; Moffitt, 1999; Schoeni and Blank, 2000; Wallace and Blank, 1999; Ziliak et al., 2000). The research that tried to disentangle policy and economic effects on caseloads generally supports that both factors are important. However, the relative magnitude of effects varies depending upon the choice of variables, time frame and model specification (Blank, 2000; Ellwood, 1999). Most of these studies used state-level aggregate data analyzed using a state-fixed effects model. When a micro-data set is used, it is unexceptionally a CPS data set. The existing research can be categorized into major empirical studies that attempt to separately assess the effects of policy and economy utilizing data up to 1996 and a smaller group of studies that attempt to explicitly evaluate the 1996 legislation utilizing post-1996 data.

The first group of studies that utilizes data up to 1996 focuses on caseload changes in the earlier AFDC program and do not include the 1996 welfare reform in their analysis. The areas examined are the economy, other policy changes, and the waivers granted to states in the 1992-96 period. The studies in this first group identify the impact of welfare reform based on both differential implementation time and kinds of welfare waivers across states. The Council of Economic Advisors (CEA, 1997) used annual state-level panel data for 1976-1996 and modeled per capita AFDC/TANF receipt (welfare caseloads divided by state population) as a function of unemployment rates,
welfare waivers, and AFDC/TANF maximum benefit guarantees. The Council of Economic Advisors (CEA, 1997) attributed over 40 percent of the steep decline in the national AFDC caseload over the 1992-1996 period to economic growth and almost 33 percent to waivers, particularly those that sanction recipients who do not comply with work requirements. Results from the CEA update (1999) indicated that PRWORA has been a key contributor to the recent decline in caseloads. Most of the other studies used data similar to the Council of Economic Advisors (1997) and reach similar conclusions. These studies find that economic factors explain somewhere between 25 percent to 50 percent of caseload change. Compared to the possible impact of economy, welfare waivers typically explain a smaller share of the caseload change by these studies.

Interestingly, the CEA found that the AFDC benefit level had little effect on caseloads. However, Martini and Wiseman (1997) questioned the conclusions of the CEA report. They criticized the way waivers were measured and suggested that caseload declines are likely to be exogenous to waiver applications.

While other studies look at changes over a period that spans both increases and declines in caseloads, typically 1993 to 1996, studies by Blank (2001) and Wallace and Blank (1999) differentiate between the periods of rising versus falling caseloads. Both studies used annual state data for 1980-1996 and a richer set of control variables to examine the changes in welfare caseloads. These two studies find that caseloads were rising but the waivers should have caused them to fall between 1990 and 1994. They further suggest that waivers explain between 13 percent and 31 percent of the caseload decline in the 1994-96 period when caseloads were actually falling. They conclude that the ongoing decline in unemployment rates could explain about 8 percent to 19 percent of
the AFDC caseload declines since 1994, suggesting that the recent caseload decline must be largely due to factors other than a strong economy.

What is particular about Blank’s study (1997) is that she concluded that the waivers are correlated with other changes occurring or even preceding their implementation. She further explained that these changes were causing caseloads to decline in states that sought waivers. (This is called “lead effect.”) She concluded that it is hard to determine how much change in caseloads can be explained by the actual program implementation of the waivers but it is surely no more than half. Levine and Whitmore (1998), who included the same variables as the CEA study with more detailed data on waivers, concluded economic effects similar to those reported in the CEA study. However, waiver states had almost twice the caseload reduction but no difference in unemployment rates.

Ziliak et al. (1997) argued that economic conditions were the primary cause of recent caseload declines and that waivers played a much smaller role. Both Ziliak, et al. (2000) and Figlio and Ziliak (1999) find stronger economic effects and unusually weaker waiver effects than the other studies in this group who utilized data up to 1996. Ziliak et al. (2000) contended that the use of annual caseloads masks the importance of short-run dynamics in welfare caseload levels and employed monthly state-level data and a more dynamic specification to examine AFDC/TANF caseloads. They used 1987-1996 monthly data and attributed 78 percent of the decline to macroeconomic factors and only 6 percent to welfare waivers for the 26 states experiencing at least a 20 percent decline in AFDC/TANF caseloads between 1993 and 1996.
Figlio and Ziliak (1999) attempted to reconcile the findings in Ziliak et al. with those of the CEA. They concluded that these differences were largely due to the CEA use of a static model while Ziliak et al. employed a dynamic one (first difference and lagged dependent variable models, with extended lags in many of the independent variables). They further argued that the primary consequence of controlling for welfare caseload dynamics is to reduce the role of welfare reform relative to the macroeconomic role in generating the decline in AFDC/TANF caseloads. Employing their preferred specification, Figlio and Ziliak attributed 75 percent of 1993-1996 decline in welfare caseloads to macroeconomic conditions, while the effect of welfare reform was negligible.

The second group of studies includes post-1996 data and tries to estimate effects of both waivers and of the 1996 TANF block grant. Most of these studies focus solely on caseload changes, but a few investigate a broader range of outcomes. Of these, the CEA study (1999) is most comparable to the earlier work. This study updates the 1997 CEA report, but made an addition of data from 1996-1998. The results indicate that the decline in welfare caseloads in the more recent 1996-1998 period has been larger, and the single most important factor for this trend is the implementation of TANF. Their estimates implied that TANF alone accounts for almost 33 percent of the reduction from 1996-1998, while attributing only 8 to 10 percent to the improvement in the labor market. Wallace and Blank (1999), using monthly data and more dynamic specifications, estimate quite similar effects of TANF on caseload reduction over the 1997-1998 period. It seems that the estimation from different studies is sensitive to the years of analyses. On the one hand, for instance, studies that cover the years of analysis only up to 1996 (not including
TANF implementation) tend to conclude that economy potentially played a more important role. On the other hand, studies that start their analyses from 1996 (including TANF implementation) tend to conclude that TANF is relatively more important.

Schoeni and Blank (2000) analyze the impact of the 1996 welfare reforms on a much wider range of variables beyond caseloads, including workforce participation, weeks and hours of work, earnings, income, and poverty rates. They calculate these data by age and education cells within each state and year, aggregating data from the Current Population Survey (CPS). They show that the welfare reform effects that they estimate (both for waivers and for the implementation of TANF) are strongest among the least skilled; they argue that this supports their claim that they are measuring the actual effects of policy changes. Their study includes an extensive discussion of the problems of estimating the impact of the 1996 legislation in existing data, and they try several different estimation procedures for robustness tests of their models.

Grogger (2001) most recently investigates the effects of time limits and other policy changes on welfare participation, work, and income among female-headed families, using data on female-headed families only from the CPS from 1979 to 2000. Unlike other research, he does not aggregate observations by state but uses the individual micro data, which makes it difficult to compare with results from other research. Since the key variables of interest (unemployment rates and policy changes) are state-level variables, using individual-level data is likely to produce much smaller standard errors than in the state panel data analysis of other studies. Grogger's focus was to differentiate the effects of time limits on female-headed families with children of different ages. Nevertheless, it is noteworthy that he identified that the recent EITC expansions had

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substantial effects on all dimensions of behavior: decrease in welfare use, increase in employment, labor supply, and earnings.

Schoeni and Blank (2000) go beyond caseloads and LFP to look also at earnings and income effects on the entire population of women rather than female-headed families only. They find sizeable, positive effects of the 1996 changes on family income among less-skilled women, and significant negative effects of the legislation on poverty rates. Similar to work by Primus et al. (1999), Schoeni and Blank find some evidence that those in the bottom quintile of the income distribution of all female high school dropouts (most disadvantaged group) are not experiencing the same increases as those in the middle and top of the distribution. However, their study has limitations. First, it remains hard to identify an independent effect of the welfare reform act of 1996 because of its rapid national implementation. Second, any of their estimated effects may not fully reflect the impact of the more mature programs that were emerging by future years because of the ongoing changes in these programs.

These studies point to three primary areas of agreement. First, most of the evidence suggests that both economy and policy played an important role in caseloads. Second, the economy seems to have larger effect on reducing caseloads before 1996, and welfare policy, after 1996. Third, the existing evidence suggests that both waiver and the 1996 legislation increased income and reduced poverty. Evidence also indicates that incomes for the most disadvantaged less-skilled female family heads have not risen as much. Thus, it may be reasoned that the increased hours of work by low-income single-female householders enforced by work-oriented welfare policies, rather than the increase in hourly wage, was the contributor to increased income and reduced poverty.
However, conclusions differ about the relative contribution of employment and waiver implementation on AFDC caseload change. These differences result for several reasons. First, some studies take only contemporaneous waiver and macroeconomic effects, compared to those containing lag effects. Second, including state-fixed and month-fixed effects made quite a difference in results. Third, the selection of national trends to adjust for long-term changes in national factors such as the expansion of EITC or shifting demographic and political factors can explain mixed conclusions. Additionally, those effects vary across studies. Variation on data source, data level, time periods and empirical specifications used in the models in different studies might have produced different results.

In the 1990s, many researchers have tried to explain how rapid and unprecedented changes in caseloads occurred; however, it is difficult to accurately measure the real changes in AFDC/TANF caseloads caused by a particular policy. Even though the relative contributions of a strong economy and welfare reform are in dispute, the results across studies are consistent in that both factors underlie the decline in caseloads. In the estimation of contribution of the work driven policies on caseloads, the EITC changes have not been explicitly controlled for in most of the regressions in the previous studies. At best, some studies attempted to include effects of the EITC changes into their year fixed effects or state fixed effects. In view of the strong theoretical as well as empirical evidence that the EITC matters, it is surprising that these studies have not incorporated the effects of dramatic expansion of the EITC. This study, in an attempt to fill the gap in the existing research, will estimate the effect of the EITC as a determinant of welfare caseload reduction between 1994 and 2000.
Conceptual Model

The objective of this section is to identify the primary components of the analytical model as shown in Figure 2.1.

Tax Policies (EITC)

As noted before, the EITC was enacted and expanded to relieve the social security tax burden, and importantly, to encourage work efforts of low-income families with children. Empirical evidence as well as the theoretical guidelines of the EITC attest to how the EITC increased LFP (especially for single mothers with less than high school education degree and incomes of low-income families (more income from both wages and the EITC), and reduced (child) poverty.

There are a number of federal EITC parameters—phase-in rate for families with two or more children, number of people who file for EITC return, maximum income, end income, and phase-out range for families with one child and two children—that could be used for the analysis of this study. To make the most intelligent assumption as to what EITC parameters might have the most impact on welfare dependency, the dollar amount of earned income and dollar amount received by the EITC in Table 1.1 in the previous chapter, can be compared with the poverty line in Table 2.2. It is more likely that the people who exit from welfare with the supplemental income from EITC combined with their earned income are the ones who fall in the phase-in credit range (and maybe a very small portion of EITC recipients at the lower end of the plateau credit range for the maximum benefit).
Moreover, the EITC phase-in rate for families with two or more children over families with one child is more preferable for two main reasons. First, the EITC phase-in rate for families with two or more children increased through OBRA 93, from 19.50 percent of earned income in 1993 to 30 percent in 1994, which increased to 34 percent in 1995 and was fully phased in at 40 percent in 1996. By way of contrast, the EITC phase-in rate for families with one child increased OBRA 93 from 18.50 percent of their earned income to 26.30 percent in 1994 and to 34 percent 1995, and pegged at this rate since then. Second, the empirical evidence of a California study on the EITC and labor market participation of families on welfare using a sample from four California counties between 1992 and 1997 indicate that the EITC stimulates higher employment among two-plus-child families relative to one-child families (Hotz et al., 2001). This study further concludes that changes in employment rate before and after 1994 suggest that the EITC expansion may have had a significant impact on the EITC differential between the two types of families beginning in 1994. The estimated increased participation rate for two-plus families was 6 to 8 percentage point higher than that of one-child families (Hotz et al., 2001). Thus, to measure the effect of the EITC on welfare caseloads, the EITC phase-in rate for families with two or more children is used. The higher the EITC phase-in rate becomes, the more likely caseloads become lower.

The second variable included for the tax policy variable is an indicator variable for state-EITC. State-EITC is known to have a significant effect on reduction in child poverty. The adoption of state EITC by states is likely to reduce the welfare participation by subsidizing work efforts of the low-income working families with children.
Welfare Reform and Other Policy Parameters

The number of people who are eligible for a program depends on program rules, including availability of other potentially competing programs. Program parameters are important determinants of caseloads partly because they directly determine eligibility but also because they provide incentives for people to alter their behavior. Both federal and state program parameters are important.

Historically, AFDC/TANF was a program for single mothers that imposed a high tax rate on earnings. In most cases, a single mother who worked fulltime at the minimum wage earned too much to qualify for any AFDC/TANF benefits. Thus, most single mothers had three choices: they could marry and forego welfare, they could work regularly in the labor force and forego welfare, or they could take welfare and forego both marriage and regular labor market work.

The two main program parameters of interest to policy makers and researchers are the benefit level and the benefit reduction rate (Mayer, 2000). All else being equal, more generous benefits should result in more people choosing welfare over other sources of income. As we have seen, real AFDC/TANF benefit levels for families declined beginning in the early 1970s; if nothing else changed, it is expected to have welfare caseloads reduced.

AFDC waivers /TANF. Experimentation and swift changes in the eligibility rules and benefit levels have happened in the 1990s, and work-enforcing efforts were fortified since PRWORA of 1996. Waivers are believed to be negatively correlated with welfare caseloads, but findings from previous studies show that the degrees of waiver effects on caseloads vary (Blank, 1997; CEA, 1997, 1999; Figlio and Ziliak, 1999; Moffitt, 1999;
PRWORA/TANF was signed into law in August of 1996. However, states could draw money once they formally implemented their TANF plan, not when they submitted the plan or when the federal government approved the plan (CEA, 1999). The official implementation dates for all states fall between September 1996 and July 1997. The date that the state formally implemented its TANF plan is the date that is used to construct the TANF variable. TANF is expected to be strongly negatively associated with the caseloads (Blank, 2000; CEA, 1999; Figlio and Ziliak, 1999; Wallace and Black, 1999).

Policy-specific variables under waiver/TANF. As briefly illustrated under welfare waivers, there are several major policies that have been studied to be most influential on welfare caseloads, regardless of whether the policy was implemented under waivers or TANF. This study adds to the list since there are other policies implemented under TANF that might have affected labor supply of low-income female heads and potentially caseloads. Variables are difficult to define and measure due to much variations (scale and intensity of implementation) between years within states as well as across states for the same year. This study focuses only on AFDC/TANF maximum benefit level, minimum wage, time limits for benefit termination and work requirements, Job Opportunities and Basic Skills (JOBS) exemptions, earnings disregards, work sanctions, and family caps.

Increasing the income level (increasing AFDC/TANF maximum monthly benefit and earnings disregard) at which families are eligible for the program clearly increases the number of families who are eligible. Because the main alternative source of income for a welfare recipient is labor market earnings, a high benefit reduction rate—the amount
that the government reduces welfare benefits for each dollar of non-welfare income that a recipient gets from earnings, child support, or other source—is equivalent to a high tax on earnings, even though there is no agreement about how changes in the benefit reduction rate should affect work effort, much less welfare caseloads. A tax on earnings has two contradictory effects. In response to a high tax on wages some individuals are likely to work less in the labor market because their foregone wage is less than it would be with a lower tax rate. In contrast, some individuals might work more to compensate for the lower wage. There may be others who cannot alter their hours of work because they have constraints in their work decisions in response to changing tax rate.

*Monthly minimum wage.* There was not much change for years 1999 and 2000 for most states since the last federal minimum wage amendment was in 1997, although there were some states that adopted their own minimum wage that is higher than the federal level. Theoretically, the higher the minimum wage, the more people will be attracted to the labor force, and as a result, the welfare caseload will be reduced. Other eligibility restrictions—time limit/work requirement, JOBS exemptions, work sanction, and family cap—tend to decrease welfare caseloads as they become harsher, if all other factors are equal.

**Macroeconomic Conditions**

As discussed earlier, economic conditions are of essential importance in determining welfare caseloads. Factors that make labor market work more attractive will increase work and decrease welfare caseloads by decreasing the number of people who are income eligible. Thus, a strong economy should reduce welfare caseloads, while a
downturn in the economy accompanies less employment and earnings opportunities for low-income families, thereby generating a greater demand for public assistance. To capture such economic effects, past studies often included a variety of measures such as the unemployment rate, per capita income, employment in certain selected industries, and average local wage rates. Among these, researchers most often use the unemployment rate to indicate the strength of the labor market and individuals' economic activity, especially that which directly affects the welfare-prone population. Unemployment rate, as a singular measure of macroeconomic environment, is considered rather rough. Including marginally employed groups of persons (i.e., discouraged workers) is most desirable because they are the hardest to employ. However, as pointed out by Bernstein (1994), the correlation between the two series (unemployment rate from the BLS series and calculated from CPS series) was high (0.91), and thus, this study uses BLS as a good proxy for economic condition. Simply put, when unemployment rates are low and wages increase, more people find that the benefits of labor market work out-weigh the benefits of the welfare package.

Unemployment rates fell sluggishly at the beginning of the 1990s, following the economic slowdown of 1990-91. But the mid-1990s, unemployment was steadily ticking downward, remaining at or below 5 percent from April 1997 onward and reached 4.0 percent in 2000 (Bureau of Labor Statistics, 1993-1998). On national average, unemployment decreased from 5.6 percent to 4.0 percent between 1995 and 2000, and this downward trend was present across all gender and racial/ethnic groups (U.S. Bureau of Labor Statistics, 2001). By January 2000, Virginia recorded the lowest unemployment rate of 2.2, followed by states such as Connecticut and South Dakota, with incredible
rates of 2.3 each. In contrast, two states, Alaska and District of Columbia, continued to record the highest unemployment rate of 6.6 and 5.8, respectively. It is well known fact that the unemployment rate was historically low since the mid-1990s and the welfare caseloads unprecedentedly fell between 1994 and 2000. This is strong evidence that the unemployment rate, which is expected to be statistically positively associated with welfare caseloads, contributed to the dramatic reduction in welfare caseloads in the 1990s.

**Political Influences**

Political regime in a state is taken to partly indicate sympathy or hostility towards welfare receipt. These may reflect the norms and values affecting desirability of single parenthood, the social acceptance of LFP among mothers (vs. stigma associated with welfare recipiency), fertility and other behaviors that can also affect welfare caseloads in a given region/state. Norms and values can also affect program parameters. For example, the increasing social approval for working mothers clearly encouraged legislators to pass increasingly aggressive work rules for welfare recipients. Norms and values also can affect many aspects of program implementation in ways that are seldom measured. For example, when there is a lot of social hostility towards welfare recipients, caseworkers might treat potential recipients in ways that discourage their participation in welfare programs. On the other hand, in the early 1970s, caseworkers were not aggressive in sanctioning AFDC recipients who failed to seek work because there was still considerable ambiguity about whether mothers of young children should work (Mayer, 2000).

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There is little empirical evidence about how norms and values influence these behaviors, so it is hard to judge how they affect welfare caseloads in relation to other factors. Traditionally, however, Democrats are prone to prefer less restrictive eligibility rules. Therefore, it is expected that if the governor of a state is a Democrat, there will be more people on welfare rolls. It is also expected that states with the House and Senate controlled by the same party are likely to have lowered caseloads for these states might have less difficulty in passing welfare reform legislation to reduce caseloads.

**Demographic Characteristics**

It is conventional that AFDC caseload studies include some types of demographic explanatory variables. The most commonly used ones are the size of the population of female-headed households, total population or total female population measures. Other commonly used variables are births (out-of-wedlock or fertility rates) and the number of divorces. This study, however, does not directly control this factor. Instead, this study controls the demographic factors rather indirectly, due partly to data unavailability and to the statistical merit that this study employs, which will be explained in the following chapter. Also, unfortunately, published data on detailed demographic characteristics such as these are unavailable at the state level for each year of analysis. Moreover, many agree that there is only limited choice that low-skilled single mothers have about whether they work in the labor market.

However, there is also a theoretical rationale for expecting work effort, marriage rates, and fertility to respond to labor market conditions and the kind of welfare programs implemented in the United States as endogenous. For most means-tested programs
eligibility and benefit levels depend on a family's income and on its need for income, where need is based on family size and composition, and perhaps some other program characteristics. Thus, they provide an incentive to alter factors, such as number of children, which affect need as defined by program parameters.

Some potentially important demographic changes affecting welfare caseloads are the aging of the population and the number of immigrants. As the population ages we expect increases in SSI caseloads and decreases in AFDC/TANF caseloads. The number of legally admitted immigrants has fluctuated over time, although the results of empirical studies report a mixed effect of the fluctuation of immigrants admitted on welfare caseloads.

It is also true that the factors that affect demographic characteristics could also affect eligibility and hence welfare caseloads. For example, educational attainment is probably the most important determinant of work effort among both men and women. A volume of research literature documents that relationship between educational attainment and work effort and tries to explain why some people get more schooling than others. Theoretically, the higher educational level is associated with fewer people who receive welfare benefits, but educational attainment could be endogenous if welfare programs provide education and training opportunities or incentives to get more or less schooling. Many other influences on work, marriage and fertility are also likely to be endogenous; however, research predicting these factors is far beyond the scope of this study.
Other Explanatory Variables

There are a variety of unobservable or unavailable factors that may have affected caseloads, including the availability of child care, transportation, and Medicaid coverage for single mothers on welfare, and as described above, family structure resulting from changes in marriage/fertility behaviors. Even though models in this study cannot directly examine these factors, this study attempts to control these factors indirectly, as explained in the next section.
<table>
<thead>
<tr>
<th>Refundable Credits</th>
<th>Percentage of Federal Credit</th>
</tr>
</thead>
<tbody>
<tr>
<td>Colorado</td>
<td>10</td>
</tr>
<tr>
<td>District of Columbia</td>
<td>10</td>
</tr>
<tr>
<td>Kansas</td>
<td>10</td>
</tr>
<tr>
<td>Maryland (1)</td>
<td>10</td>
</tr>
<tr>
<td>Massachusetts</td>
<td>10 (15% in 2001)</td>
</tr>
<tr>
<td>Minnesota</td>
<td>Averages 34%, varies by earnings (2)</td>
</tr>
<tr>
<td>New Jersey</td>
<td>10 (20% by 2003), limited to families with incomes below $20,000</td>
</tr>
<tr>
<td>New York</td>
<td>20 (30% by 2003)</td>
</tr>
<tr>
<td>Vermont</td>
<td>32</td>
</tr>
<tr>
<td>Wisconsin</td>
<td>4% one child</td>
</tr>
<tr>
<td></td>
<td>14% 2 children</td>
</tr>
<tr>
<td></td>
<td>43% 3 children</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Nonrefundable Credits</th>
<th>Percentage of Federal Credit</th>
</tr>
</thead>
<tbody>
<tr>
<td>Illinois</td>
<td>5</td>
</tr>
<tr>
<td>Iowa</td>
<td>6.5</td>
</tr>
<tr>
<td>Maine</td>
<td>5</td>
</tr>
<tr>
<td>Oregon</td>
<td>5</td>
</tr>
<tr>
<td>Rhode Island</td>
<td>26</td>
</tr>
</tbody>
</table>


(1) A Maryland taxpayer may claim a refundable credit or a non-refundable credit (equal 50% of the federal credit), but not both.

(2) Minnesota’s credit for families with children, unlike the other credits shown in the table, is not expressly structured as a percentage of the federal credit. Depending on income levels, the credit may range from 22% to 46% of the federal credit.
<table>
<thead>
<tr>
<th>Size of Family Unit</th>
<th>48 Contiguous States and D.C.</th>
<th>Alaska</th>
<th>Hawaii</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>$ 8,350</td>
<td>$10,430</td>
<td>$ 9,590</td>
</tr>
<tr>
<td>2</td>
<td>11,250</td>
<td>14,060</td>
<td>12,930</td>
</tr>
<tr>
<td>3</td>
<td>14,150</td>
<td>17,690</td>
<td>16,270</td>
</tr>
<tr>
<td>4</td>
<td>17,050</td>
<td>21,320</td>
<td>19,610</td>
</tr>
<tr>
<td>5</td>
<td>19,950</td>
<td>24,950</td>
<td>22,950</td>
</tr>
<tr>
<td>6</td>
<td>22,850</td>
<td>28,580</td>
<td>26,290</td>
</tr>
<tr>
<td>7</td>
<td>25,750</td>
<td>32,210</td>
<td>29,630</td>
</tr>
<tr>
<td>8</td>
<td>28,650</td>
<td>35,840</td>
<td>32,970</td>
</tr>
<tr>
<td>For each additional person, add</td>
<td>2,900</td>
<td>3,630</td>
<td>3,340</td>
</tr>
</tbody>
</table>


Note: The poverty thresholds are the original version of the federal poverty measure and updated each year by the Census Bureau. The thresholds are used mainly for statistical purposes — for instance, preparing estimates of the number of Americans in poverty each year. The poverty guidelines are the other version of the federal poverty measure and issued each year in the Federal Register by the Department of Health and Human Services (DHHS). The guidelines are a simplification of the poverty thresholds for use for administrative purposes — for instance, determining financial eligibility for certain federal programs (DHHS, last updated on August 09, 2002).

Table 2.2: 2000 HHS Poverty Guidelines
Figure 2.1: Factors determining welfare caseloads
CHAPTER 3

METHODS

The four sections of this chapter describe the design, data, variable definition, and analytical approach of the study. The first section presents the study design and sample, providing the rationale for the pooled cross-section and time-series (CSTS) fixed-effects model used in this study. This section also discusses the merits and disadvantages of using the pooled CSTS fixed-effects over cross-sectional data or national level/single state-level time-series alone. The second section describes the multiple secondary data sources for the variables. The third section presents the list of variables and measures, which will delineate how each of the variables is operationalized. The fourth section describes the analyses plan, using secondary data sources and model specifications to be estimated in the following chapter and a discussion of the issues involved in their estimation.

Study Design and Sample

This study examines trends in welfare caseloads between the calendar years 1994 and 2000, using a combined cross-section and time-series multivariate regression design. From this point forward, this design will be referred to as “cross-section time-series..."
(CSTS).” For this study, welfare caseload data were compiled from 50 states and the District of Columbia. From this point, the District of Columbia will be treated as a state for convenience in discussion. A total of 357 observations were available for analysis from aggregate-level data from 51 states from 1994 and 2000.

The seven years of analysis is chosen for two reasons: 1994 was the year when the largest federal EITC expansion was beginning to be phased-in (after its enactment in 1993). The caseloads began declining in 1994. Thus, the year of 1994 is an important turning point with respect to changes in the EITC and welfare caseloads.

**Pooled Cross-Section Time-Series Fixed-Effects Model**

Aid to Families with Dependent Children (AFDC) caseload models often use pooled state-level data for 51 states and over time. This model can be viewed as individual state time-series models that have been linked by using the same explanatory variables in all states, and constraining the coefficients of each variable to be the same for all states.

This pooled CSTS approach has strengths in caseload modeling, compared to simple national (or single-state) time series. First, for a given time period and data periodicity, there are up to 51 times as many observations as in the national time series. This helps solve the multicollinearity problems and allows for a richer specification (Hausman and Taylor, 1981). Second, the pooled CSTS is feasible to control for all changes in any national program policy or other national factors, by using time fixed effects. Third, the model has better prospects for obtaining robust estimates of the impacts of program variables because there are much more variations in program...
variables across states than in weighted national averages of these variables (Moffitt, 1986). Fourth, fixed-effects models have the ability to control for state-specific effects commonly unobservable that may be correlated with other exogenous variables in the specification (Hausman and Taylor, 1981). Analysis of cross-section data or national time series alone cannot identify nor control for such individual state effects.

However, the pooled methodology does have its limitations. First, it is methodologically more complex, which makes it more difficult both to conduct and to describe the findings. Second, cross-state relationships between welfare caseload measures and explanatory variables in the model may in part reflect substantial cross-state variation in variables that have not been included, thereby biasing estimated coefficients for the included variables (Maddala, 1992). Even though a state-fixed effects model may control for these factors, it tends also to be "overfitting," as the state-fixed effects are restrictive in that some of the true effects from other variables become controlled by the state-fixed intercepts (STATA Reference Su-Z). Lastly, collecting state-level data requires more time-consuming effort. Data for some variables may not be available and the quality of data may be poor.

An important aspect of the CSTS model concerns the specification of the regression disturbance. The general specification for this functional form is as follows:

\[ y_{it} = \alpha_i + \beta'x_{it} + \varepsilon_{it} \]

Where "\( y_{it} \)" is the dependent variable for year "\( t \)" in state "\( i \)"; "\( x_{it} \)" is a vector of explanatory variables; "\( \alpha \)" is the intercept; "\( \beta \)" is a vector of coefficients for the explanatory variables (assumed constant across states and over time); and "\( \varepsilon_{it} \)" is the
regression disturbance, which represents the effects of omitted variables specific to the state in a given time period. It is assumed to be independently distributed with mean zero and constant variance.

There are various sub-groups of pooled models, which are defined through the specification of the disturbance. This analysis uses the "fixed effects" model, which assumes that the disturbance, ei, is the sum of three terms: a "state-fixed effect" that is different for each state but does not vary over time; a "time-fixed effect" that is different each year but does not vary across states; and a random error. The "fixed-effects" model can be specified as:

\[ y_{it} = \beta' x_{it} + \alpha_i + \tau_t + \mu_{it} \]

Where "\( \alpha_i \)" is the state-fixed effect; "\( \tau_t \)" is the time-fixed effect for time period "t"; and "\( \mu_{it} \)" is the random disturbance.

It is useful to think of the state-fixed effect as the intercept term for the state; i.e., under this specification the regression intercept varies across states. This term will "explain," in a statistical sense, all of the cross-state variation in the average of the caseload variable over time. In other words, it captures all factors that account for cross-state variation in the dependent variable that do not change over time. These variables may include differences in industrial structure that may affect less-skilled workers, traditional perception towards welfare benefit level, or attitudes towards welfare recipients that are uniquely true to a particular state. In the fixed-effects model, as specified by Hsiao (1986), Greene (1993), Maddala (1992) and Pindyck and Rubinfeld (1998), scale effects deriving from the different ranges of magnitudes in state sizes are

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captured by these fixed state-specific intercepts calculated for all 51 states in the fixed-effects model.

The fixed-effects model is more appropriate for this study than traditional Ordinary Least Squares (OLS). As attested by a number of econometricians, traditional OLS is not a proper tool for analysis of this model (Greene, 1993; Maddala, 1992; Pindyck and Rubinfeld, 1998). Traditional OLS will produce biased and inconsistent estimates with the presence of cross-section heteroskedasticity and time-series autocorrelation, such as in the case with a cross-sectional and time-series data set. This occurs primarily because OLS does not contain a means to measure any of the year-fixed effects that capture time-varying factors that affect all states. The time-fixed effects capture factors that change over time, but have an equal influence on the caseload variable in all states. These factors may include changes in income transfer policy, changes in national attitudes regarding welfare dependency that may have influenced the welfare reform, or any structural shift that may be a characteristic to a particular year.

The fixed-effects model is also more appropriate for this study rather than the random-effects model, which is another commonly used pooled model (Green, 1993; Maddala, 1992; Pindyck and Rubinfeld, 1998). As in a fixed-effects model, the disturbance is usually assumed to have three components—one that varies across states, one that varies across time periods, and a third that varies across both. The random-effects model assumes that the state and time components of the error term are uncorrelated with the X variables the while fixed effects model assumes their correlation. If uncorrelated, the random-effects estimators will be more efficient than the fixed-effects
estimators, but if correlated, these random-effects estimators could be substantially biased (Pindyck and Rubinfeld, 1998).

There are several merits in using the fixed-effects model over random-effects model for this study, in addition to its common use for studying welfare program participation at the state level. First, the fixed-effects model is more appropriate for this study because all 51 states are chosen for analysis, and it is not a result of random selection of states. Also, there are significant differences across the states in all the variables that are not random. Equally important, there is a non-orthogonal relationship between the regressors and the state-level “effects” that would lead to covariance between them in the random-effects model. Finally, this study has tested whether the errors are correlated with X variables, but the result has indicated their correlation.

The Hausman test is used to compare two sets of estimates, one of which is consistent under both the null and the alternative hypotheses (in the case of the fixed-effects model) and another that is consistent only under the null hypothesis (which is the random-effects model). If the model employed here is correctly specified and if the cross-section error component (μ) is uncorrelated with Xμ, then the coefficients that are estimated by the fixed-effects estimator and the coefficients that are estimated by the random-effects estimator should not statistically differ (Pindyck and Rubinfeld, 1998, pp. 252-256). A large difference between the two sets of estimates is taken as evidence supporting the fixed-effects model (Eviews4 User’s Guide, 1994-2000; STATA Reference Su-Z, pp. 431-432). The result from the Hausman specification test supports the use of the fixed-effects model over the random-effects model to correct for the
inconsistency that is caused by the intercorrelation between the error terms and the explanatory variables. Therefore, this study used the fixed-effects model for analysis.

Data Sources

The data for this study came from several sources. Some data for this study were taken from the Technical Report of the Council of Economic Advisors (CEA) to the President in 1999. From this point forward, this study will be referred to as the “CEA report.” The data from 1994 through 1998 were adopted from this CEA report for this study. The data included welfare policy/reform parameters (AFDC waivers/TANF, all policy-specific variables under waivers/TANF, monthly minimum wage) and macroeconomic condition (unemployment rate).

Then, the data for 1999 and 2000 were collected from other multiple sources and added to the data set. The additional data include welfare caseloads both for 1999 and 2000 (as of June of both years) from the U.S. Department of Health and Human Services (DHHS). Data on the number of females between ages 16 and 44, which was used as a denominator of welfare caseloads, were collected from the People Estimates of the Census Bureau. The details of the EITC parameters were obtained with the help of the Center for Budget and Policy Priorities (CBPP) and the Quarterly Internal Revenue Services Publication 1136, Statistics of Income (SOI) Bulletin. AFDC waivers/Temporary Assistance for Needy Families (TANF)-specific data were drawn

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1 I would like to thank Rebecca Blank who referred me to Bob Schoeni at Rand Organization for providing me with their data used for the CEA report.

2 I am indebted to John Wancheck, EIC Campaign Coordinator at the CBPP, whose extensive help has provided me with 25 years' longitudinal EITC data sorted by state and more.

from the Green Book 2000, the 2000 Annual Report to the Congress on TANF by the U.S. Department of Health and Human Services (DHHS); and the State Policy Documentation Project, jointly supported by the Center for Law and Social Policy (CLASP) and the Center on Budget and Policy Priorities (CBPP). Then, a cross-validation check among these three different sources was conducted. The federal and state minimum wage data were collected from the Wage and Hours Division of the Bureau of Labor Statistics (BLS). A complete series of unemployment rate sorted by state was obtained from Local Area Unemployment Statistics from the BLS web site. Data sources on the political affiliation came from the various editions of The Book of the States, published by the Council of State Governments. Finally, education data by state under demographic variables were collected from the Statistical Abstract of the United States.

There are other state characteristic variables that would have been beneficial in studying caseloads, such as trends in the proportion of female-headed households, and/or births out-of-wedlock. However, as mentioned in the previous chapter, these variables are not included into the equation for two primary reasons. First, complete time-series data on these variables by state exist for only part of the period. Second, the fixed-effects model as described earlier intends to control these demographic changes and produce unbiased estimates of the variables (CEA, 1997; Ziliak et al., 1999).

There are a variety of other unavailable variables that may have affected caseloads, including the availability of child care, transportation, Medicaid coverage for single mothers on welfare, and changes in family structure resulting from changes in marriage/fertility behaviors (CEA, 1997). Even though models in this study cannot
directly examine these factors, this study attempts to control these factors indirectly as well through a fixed-effects model. For example, the model can control fixed characteristics of states such as state's age distribution, metropolitan/rural population shares, and racial/ethnic composition, which also may lead them to high welfare recipiency. Moreover, even though these factors may change over time, such change occurs more slowly than changes in policy or economic conditions (CEA, 1999).

**Variables and Measures**

The full variable list is included in Table 3.1. Variables in dollar terms, such as AFDC/TANF monthly maximum benefit levels, earnings disregard, and minimum wage, were adjusted for difference of year-to-year cost-of-living to convert the nominal dollar terms to their real dollar terms and then transformed to natural logarithm.

**Dependent Variable: Welfare Caseloads**

AFDC/TANF aggregate caseload data by state in each year were defined as the natural log of the ratio of the number of recipients to the number of females between ages 15 and 44. This study used the number of females between ages 15 and 44 instead of state population or state population whose age is under 65 because it can take into account the size of the population at risk of welfare dependency in that state (Blank, 2001). From this point forward, this endogenous variable will be referred to as “caseload rate.”
Independent Variables

The independent variables include EITC (state as well as federal), welfare reform policies, macro-economics, political environment, and educational attainment. Federal EITC and state EITC are two major variables of interest in this study.

*The federal EITC.* The federal EITC parameter that was used is the EITC phase-in rate/subsidy rate for families with two or more children. EITC variables are expressed in real dollar terms (in 1998 dollars) using the Consumer Price Index (CPI), and then converted to the form of natural logarithm. This same procedure was applied to all the variables that came from dollar values.

*The state EITC.* The state-EITC variable was coded as a dummy variable. When state EITC was implemented in a given state in a given year, the state for that year takes the value of 1; otherwise it is 0.

There are welfare/reform policies that might have affected welfare caseloads or financial condition of low-income workers, which include AFDC/TANF monthly maximum benefit, AFDC waivers, TANF, five specific policies under AFDC/TANF, and minimum wage.

*AFDC/TANF maximum monthly benefit.* AFDC/TANF maximum monthly benefits were defined in the natural log form of the maximum monthly benefit for a family of three on AFDC/TANF for each state and year.

*AFDC waivers.* AFDC waivers were measured with dummy variables that indicate the absence or presence of AFDC waivers in each state. This study focuses only on major, state-wide waivers, which include time limits for benefit termination and work requirements, Job Opportunities and Basic Skills (JOBS) exemptions, earnings
disregards, work sanctions, and family caps. The waiver variable takes the value of 1, if the state implemented any of these five major provisions in the year of observation; 0 otherwise. These waiver-related variables take the value of “0” once states implemented TANF under the PRWORA 1996.

PRWORA/TANF. PRWORA/TANF was coded by dummy variables. PRWORA was signed into law in August of 1996. However, states could draw money only after they formally implemented their TANF plan, not when they submitted the plan or when the federal government approved the plan (CEA, 1999). The official implementation dates for all states fall between September 1996 and July 1997. The date that the state formally implemented its TANF plan is the date that is used to construct the TANF variable. The value takes 1 if TANF was implemented for a state given year; 0 otherwise. When there was a discrepancy between the official implementation date and the actual date of implementation, the actual date was used to determine the value of the TANF variable, as in the cases of California, Mississippi, New Jersey, New York, and Wisconsin.3

Policy-specific variables under waiver/TANF. The implementation of a specific policy under waiver/TANF was coded as a dummy variable. As briefly illustrated under welfare waivers, there are several work enforcement policies that have been found through previous studies to be significant on welfare caseloads, regardless of whether the policy was implemented under waivers or TANF. All policy-specific variables with the exception of earnings disregard are dummy coded. These dummy variables include time

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3 The discrepancies between the official implementation date and the actual implementation date for these five states ranged from five months (in the case of New Jersey) to fourteen months (in the case of California).
limits for benefit termination/work requirements, JOBS exemptions, earnings disregards, work sanctions, and family caps. The following discusses each of the five variables under waiver/TANF.

First, *termination/work-requirement time limits* was coded as 1 if the state terminates eligibility or requires participants to work after a given duration on aid; 0 otherwise. The coding was based on the year that welfare recipients first began to actually reach the time limit.

Second, *JOBS exemptions* was coded as 1 if the welfare recipients, unless the mother has a youngest child up to 3 years old, are required to begin to work to be eligible for cash benefit; 0 otherwise.

Third, *earnings disregard* was coded by the natural log of dollar amount that workers on welfare could keep when working. For ease of data collection and management, following the CEA report, this variable captures the generosity of states by measuring the earnings that are disregarded from determination of welfare benefit amount if a welfare recipient earns $750 (in 1998 dollars). As in the case of the CEA report (1999), when the disregard formula varies with duration on welfare, the disregard applicable for the longest duration is assumed, which is typically more than three months.

Fourth, *work sanctions* was coded as 1 if full sanction eventually is applied against noncompliance; 0 otherwise. There are three types of sanctions against noncompliance and they differ in their severity: full family sanction with the first offense (full/full), full family sanctions only after repeated offenses (partial/full), and a reduced benefit as a maximum (partial/partial). Full/full sanction means that families will have their welfare benefit terminated at their first noncompliance. Both full/full sanction and
partial/full sanction are likely to have an effect on welfare caseloads reduction. Thus, for this study, sanction policies take the value of 1 if either the full/full sanction or partial/full is applied to the state for a given year; 0 otherwise.

Fifth, family cap was coded as a dummy variable to evaluate states’ willingness and/or reluctance to further support families having more children while on welfare. This variable takes the value of 1 if the state does not increase benefits for the welfare participants who give birth to a child while on the welfare roll; 0 otherwise.

Monthly minimum wage. Monthly minimum wage was also coded in natural log of the state-specific minimum wage expressed as a monthly amount assuming employment for 30 hours per week for 4.33 weeks (CEA, 1999). In most cases, this is the federal minimum wage and if the state had a higher range of minimum wages than the federal minimum wage, the state minimum wage was used to construct this variable. There was not much change for years 1999 and 2000 for most states since the last federal minimum wage amendment was in 1997, although there were some states that adopted their own minimum wage that is higher than the federal level.

Unemployment rate is used for measuring the effect of macroeconomic performance on welfare caseloads and represented by the percentage of the total number of unemployed people divided by the number of people who are in the labor force, for a state in a given year.

The following three types of political variables were used for capturing the effect of political influence on welfare caseloads.

Political variables were measured as dummy variables. The value of 1 is assigned if the governor of a state was a Democrat, 0 otherwise. In addition, it takes a
value of 1 if the majority of both state House and state Senate is Republican, 0 otherwise.
In the same way, it takes a value of 1 if the majority of both state House and state Senate
is Democrat, 0 otherwise. All three were entered and tested simultaneously.

*Educational attainment.* Educational attainment is measured as percentage of
people over age 25, as a function of state population, who completed four years of high
school. Educational attainment was coded using percentage of high school graduates for
this study (instead of "years of education" or "high school or more" as in previous
studies) and tested to learn whether high school completion may account for the welfare
caseload reduction.

There are demographic variables that are likely to have an impact on changes in
welfare caseloads. As mentioned earlier under dependent variables, number of females
between ages 15 and 44 was used as a denominator when calculating for the dependent
variable. In addition, with the inclusion of state-fixed effects, effects of the state
demographic changes on welfare caseloads were rather indirectly controlled for.

**Analysis Plan and Model Specification**

The primary analysis technique used in this study is fixed-effects multivariate
regression analysis of welfare caseloads with welfare caseloads as the endogenous
variable, and federal and state EITC, welfare, economic, political, and demographic
(educational) variables as exogenous variables. This study estimates essentially two
models: a basic model and a policy-specific model. These two models are basically the
same, except for the treatment of welfare policy variables. The basic model refers to a
model where waivers and TANF dummies are included to indicate their presence/absence.
only. The policy-specific model refers to a model where waiver or TANF dummy variables are replaced with a set of the five major work-enforcing welfare policies, regardless of whether the policy was implemented under waivers or TANF. The two primary purposes of having both the basic model and policy-specific model is to estimate the effect of specific welfare policies and to test the robustness of the model in estimating the effect of the EITC coefficients.

The model specification uses the natural logarithm form and is given by:

$$\ln y_{it} = \alpha_i + \beta_1 EITC_{it} + \beta_2 \chi_{it} + \delta_t + \varepsilon_{it}$$

Where $y_{it}$ is welfare caseloads measured for state $i$ at time $t$; $\alpha_i$ is the individual state effect (which is taken to be constant over time); $EITC$ is EITC variables; $\chi$ is a vector of welfare, economic, political, and educational variables; $\delta_t$ is the time effect (which is taken to be constant across states); $\beta$ is a regression coefficient; and $\varepsilon_{it}$ is the cross-sectional time-series error component.

Not only the inclusion of the EITC variables, but also the different definition of the educational variable are distinctive in this study. Further, the modeling and estimation of coefficients in this study differ from previous studies on several grounds. First, this study does not include state-specific time trends. Some previous studies (CEA, 1997, 1999; Ziliak, et al., 1997) included all of the $\alpha_i$ (state-specific effects), $\delta_t$ (year-fixed effects), and $\varepsilon_{it}$ (a residual). In these models, state-specific time trends (i.e., the interaction of state dummies and the linear time-trend variables) are also included. All these efforts are means to capture changes in otherwise unmeasured factors that differ across states in different time points that might have affected caseloads. However, including state-specific time trends may introduce the problem of “overcontrolling” for
variables that trend up or down linearly (Blank, 2001). This study, however, does not include the state-specific time trends. Given that there are only 7 years with 51 cross-sections to observe, to include the state-specific time trends would require too many dummy variables, as in the case of previous studies (except in the study by Ziliak et al., 1999). In addition, there is evidence from Blank's study (2001) that time-fixed effects and time-trend effects absorb most of the time-related effects, which results in fewer effects that the state-specific time trends have to control.

Second, this study controls the presence of heteroskedasticity caused by combining data across states. Because CSTS pools (combines) cross-sections across years, variation in welfare and other parameters comes from variation over time as well as variation across states. In the fixed-effects model, where the dependent variable is the natural logarithm of the total AFDC/TANF caseloads, the first term, $\alpha_i$, represents the fixed-effects (i.e., the effects of omitted variables specific to each unit [state]) and is assumed to stay constant over time. Scale effects deriving from the great range of magnitudes in state size are captured by these fixed effects. In addition, to further diminish potential heteroskedastic errors generated by these scale differences and to produce the consistent estimates of variables, White's heteroskedasticity-consistent covariance estimates were computed for pooled specifications. The variance estimator produced using this estimator is robust to heteroskedasticity within each cross-section (White, 1980). The parameter estimators corrected for cross-section heteroskedasticity reported in this section are likely to be unbiased, consistent, and efficient. To the extent

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4 The exception, Ziliak et al., is not too limited, in a sense, in entering these dummy variables into the equation because they used state-level monthly (instead of yearly) panel data from 1987 to 1996.
that the inclusion of fixed effects and certain other variables, along with weighting the regressions, control for level differences across the states, the problem of heteroskedastic errors is properly addressed.

Thirdly, this study examines whether the error terms from year to year are serially correlated, which is common to time-series welfare caseload models. Previous studies included time-fixed effects, trend, and state-specific time trends (interaction of state-fixed and time-fixed effects), based upon the assumption that they are serially correlated. The underlying logic behind the serially correlated error terms between years is that the errors are not distributed independent of one another over time, and this can be expressed as $\varepsilon_t = \rho\varepsilon_{t-1} + \nu_t$. The error in time period $t$ is determined by some diminishing of the value of the error in the previous period and then adding the effect of a random error from the current year. This is called first-order autoregressive process denoted as AR(1), which is often included in the CSTS model. Most of the previous studies controlled the serial autocorrelation by including year-fixed effects. Even though this presumption is true, the end result of entering all of these dummy variables to control any unobserved effects due to time may be consuming excessive number of degrees of freedom.

For this study, the most widely used Durbin-Watson (DW) test for serial correlation was conducted before determining inclusion of time-related dummy variables. Based on the test results, either the first-order autoregressive process or second-order autoregressive process could be used. The DW statistic will likely be in the range of 0 to 4, with a value near 2 indicating no first-order serial correlation. The DW statistics (approximately 1.5 that falls in the uncertain region of decision about serial correlation)
for this study indicate that there might be slight serial correlation between error terms, and thus, time-fixed effects are included.

However, including AR terms, time-fixed or trend dummies should be used with caution. Including AR(1), AR(2), or even higher order serial correlation terms until DW statistics indicate no serial correlation is not theoretically appealing. In addition, including these autoregressive terms is not feasible for relatively short-term CSTS analyses like this study because of the loss of the number of observations each time a higher order AR term is added.

Lastly, the interpretation of coefficient sizes in the following section is different from previous studies. According to Kennedy (1998, p. 108), there are advantages in having variables in log form. All variables that are entered as logged values (using natural logs) can be interpreted as elasticity. The reason for this, which is fairly conventional in caseload modeling, is twofold. First, many of the variables in the model have well-established lognormal properties, and thus are more efficiently and consistently estimated in logged form in the context of regression analysis. Second, and more importantly, in the cross-section time-series (CSTS) context, the log-log form allows the results to be measured in levels, which differ dramatically by state, yet interpreted as elasticities. By utilizing the log-log specification, interpretations can be made as to the percentage change in caseloads in the average state given a percentage change in an independent variable (Kennedy, 1998, p. 108). However, interpretation of coefficients must be done carefully when it is semi-log forms as in \( Y = \alpha + \beta \ln X \) (where \( \beta \) gives \( \Delta Y \) due to \% \( \Delta X \)) and \( \ln Y = \alpha + \beta X \) (where \% \( \Delta Y \) due to \( \Delta X \), unless \( X \) is a dummy, in which case \% \( \Delta Y \) is given by \( e^\beta - 1 \)). Previous studies interpreted all coefficients as...
though they were log-log form or variables were measured using rate. This inevitably results in the incorrect (inflated in the case that the Xs are dummy variables) interpretation of the relationship of variables. This study carefully follows the direction provided by Kennedy and reports the relationship correctly.
<table>
<thead>
<tr>
<th>Variable</th>
<th>Definition</th>
</tr>
</thead>
<tbody>
<tr>
<td>CASELOAD (DV)</td>
<td>Log of ratio (number of recipients/number of females ages 15-44)</td>
</tr>
<tr>
<td>EITC</td>
<td>EITC phase-in rate for families with two children with income that falls in phase-in range</td>
</tr>
<tr>
<td>STATEITC</td>
<td>= 1 if state-EITC is implemented; = 0 otherwise</td>
</tr>
<tr>
<td>MAXBEN</td>
<td>Log of monthly maximum benefit for family of three on AFDC/TANF</td>
</tr>
<tr>
<td>WAIVER</td>
<td>= 1 if any major AFDC waiver is implemented statewide; = 0 otherwise</td>
</tr>
<tr>
<td>TANF_IMP</td>
<td>= 1 if TANF is implemented; = 0 otherwise</td>
</tr>
<tr>
<td>TIMELIM</td>
<td>= 1 if (benefit reduction or life-time) time limit policy or work requirement policy is implemented; = 0 otherwise</td>
</tr>
<tr>
<td>WKEXMPT</td>
<td>= 1 if work exemption policy is implemented; = 0 otherwise</td>
</tr>
<tr>
<td>EARNDISR</td>
<td>Log of earnings disregard of a welfare recipient who earns $750/month. When the disregard formula varies with duration on welfare, the disregard applicable for the longest duration is assumed.</td>
</tr>
<tr>
<td>SANCTION</td>
<td>= 1 if a full sanction policy against noncompliance is implemented; = 0 otherwise</td>
</tr>
<tr>
<td>FAMCAP</td>
<td>= 1 if family cap policy is implemented; = 0 otherwise</td>
</tr>
<tr>
<td>MINWAGE</td>
<td>Log of minimum wage expressed as a monthly amount, assuming employment for 30 hours/wk for a full month</td>
</tr>
<tr>
<td>UR0</td>
<td>Unemployment rate, current year</td>
</tr>
<tr>
<td>UR1</td>
<td>Unemployment rate, 1-year lag</td>
</tr>
<tr>
<td>UR2</td>
<td>Unemployment rate, 2-year lag</td>
</tr>
<tr>
<td>REPUBGOV</td>
<td>= 1 if a state governor is Republican; = 0 otherwise</td>
</tr>
<tr>
<td>BOTHREP</td>
<td>= 1 if a majority of both State Senate and State House is Republican; = 0 otherwise</td>
</tr>
<tr>
<td>BOTHDEMO</td>
<td>= 1 if a majority of both State Senate and State House is Democrat; = 0 otherwise</td>
</tr>
<tr>
<td>EDUCAT</td>
<td>Percentage of people 25 and over, who completed 4 years of high school</td>
</tr>
</tbody>
</table>

* All dollar values are expressed in 1998 real dollar terms and then transformed to natural logarithm.

Table 3.1 Variable names and definitions (In a state and in a year)
CHAPTER 4

RESULTS

This section initially presents the descriptive statistics on variables used for the study models. This chapter also includes the results of statistical analyses of the basic model and the policy-specific model in which both models control state-fixed effects and year-fixed effects. Finally, this section presents results from a simulation of the model based upon the assumption that the Earned Income Tax Credit (EITC) phase-in rate would have remained at the 1998 rate, instead of eroding in its real value since 1998.

Descriptive Statistics of the Data

The year-to-year changes of selected variables are listed in Table 4.1, which includes a discussion to benefit the understanding of the welfare caseload function in relation to the EITC. In 1994, the mean welfare caseload rate on national average—percentage of each state’s individual welfare recipients divided by its female population between ages 15 and 44—was 20.64 percent, with a standard deviation of 7.45 suggesting substantial variation across states. This proportion continues to drop to 17.69 percent in 1996 and to 11.77 percent in 1998, and reaches far down to 8.34 percent in 2000, the last year of analysis for this study.
The EITC phase-in rate for families with two or more children was 30 percent of families' earned income in 1994 and the rate increases to 36 and 40 percent in 1995 and 1996, respectively. It is noteworthy that this EITC phase-in rate for families with two or more children has standard deviation of 0, because the EITC is federally implemented with no variation across states. Figure 4.1 displays the national trends in welfare caseloads and the EITC phase-in rate for families with two or more children over time. A statistically negative relationship between welfare caseloads and EITC is evident, particularly between 1994 and 2000.

The unemployment rate on national average was 5.68 percent in 1994, and decreases steadily to 5.21 percent and 4.43 percent in 1996 and 1998, respectively. In 2000, the unemployment rate reached 3.94 percent, which was as low as those of the late 1960s. Educational attainment, when measured by the percent of high school graduates in the state population age 25 and over, remains unchanged between 1994 and 2000. In contrast, the percent of persons who completed high school or more increased by nearly 4.0 percent during this time period.

As noted before, the state-level data on the proportion of female heads with children and the proportion of female heads that are eligible for EITC while on welfare rolls were not available. Welfare caseload rate is affected by both the proportion of females who are single mothers and the proportion of single mothers who participate in welfare. The trends of these variables can be observed on the national level by statistics published by the U.S. Bureau of the Census. While the proportion of white females who are single mothers remained between 8.1 percent and 8.5 percent between 1994 and 2000, the proportion of black females who are single mothers decreased from 32.9 percent to
27.8 percent during the same period (U.S. Bureau of the Census, 2001). Given the higher propensity of black single mothers to participate in welfare, this decreasing number of black single mothers is likely to affect the change in welfare caseload rate from 1994 to 2000, holding other factors constant.

Also, the pool of single mothers who are at risk of depending on welfare declined over the period. The Brookings Institution reports that the poverty rate for female-headed families fell from 36.5 percent to 27.9 percent between 1995 and 2000. Since the official poverty definition is used in determining welfare eligibility, a decrease in poverty rate for single female-headed families is also likely to affect the change in welfare caseload rate over this time period, holding other factors constant.

Finally, the proportion of single mothers who are eligible for the EITC is an important piece of information to understand the likely effect of the EITC on welfare caseload rate. The data on the year-to-year change in the characteristics of the EITC recipients, specifically the family head information, was not available. Eissa and Liebman (1996), however, estimate that single female-heads with children are the largest group of taxpayers eligible for the EITC, consisting of approximately 48 percent of the EITC-eligible population. More recently, Kim (2001) estimates that female-headed families with children among EITC-eligible families account for 50 percent of the total EITC caseload in 1998. This proportion of single-female heads with children who are eligible for the EITC would have increased as there has been a steady increase in labor force participation (LFP) of single-female heads with children (Meyer and Rosenbaum, 1999). Moreover, Hill et al. (1999) report that the EITC participation rate of single female-headed families who had been on AFDC in California was in the range of 42 to
54 percent in 1993 and 1994. Eissa (1995) further supports that female heads with children are the most relevant group to study to evaluate whether the EITC would reduce welfare dependency (Eissa, 1995). With the percent of females 15-44 remaining constant between 1994 and 2000, the increase in LFP of single-female heads with children coinciding with an increase in income from the EITC is likely to associate with the decrease in welfare caseload rate, holding other factors constant.

However, as mentioned earlier, the state-level data on changes in the proportion of female heads that are eligible for EITC while on welfare rolls and the proportion of female heads who actually received EITC were not available. Instead, this study assumes that the large proportion of female heads who were welfare recipients received EITC between 1994 and 2000 and their receipt of EITC would likely affect welfare caseloads.

Table 4.2 presents means and standard deviations of the variables—EITC, welfare reform policy, economic, political, and demographic variables—used in the main analysis. Some other variables that are not directly estimated in this study are also included in the table either because they are used in alternative specifications or because their understanding of welfare caseloads is beneficial while they are indirectly controlled for in this study. The number of panels in any given year is 51 (50 states and District of Columbia), and these 51 panels were observed for 7 years from 1994 to 2000, which results in the observation total of 357. All dollar terms are adjusted by the Consumer Price Index (CPI) deflator (in 1998 dollars) and then transformed into natural logarithm. It should be noted that the mean of each variable is calculated overall (considering differences between states as well as within states), while standard deviation is calculated.
overall, between states, and within states. The multivariate analyses further explore these expected relationships in the following section.

**Statistical Analyses**

The following analyses examine results of the two models used in the study. The basic model (Model 1) and policy-specific model (Model 2) are essentially the same, except for the treatment of welfare policy variables as mentioned in the previous chapter. Model 1 refers to the model where waivers and TANF dummies are included to indicate their presence/absence only, whereas Model 2 refers to the model where five specific variables pertaining to work enforcement either under waivers or TANF are included. The definition and operationalization of other variables for both models are the same. Model 2 has the advantage of being able to identify the specific policies that would influence caseload rate (CEA, 1999). However, Model 2 may not capture a number of other TANF policies and implementations that may affect welfare participation because of data limitation, especially on other employment-related initiatives such as diversion programs or improved asset rules. In this case, Model 1 with dummy variables of AFDC waivers and TANF could be more effective in capturing the general effect of waivers and TANF policies (CEA, 1999).

Both Model 1 and Model 2 differ from the models used by Blank (2001) and the Council of Economic Advisors (CEA, 1999) on the following grounds. First, the variables of federal EITC parameter as well as state EITC are explicitly included in both Models. Second, the operationalization of educational attainment is different—percent of
high school graduates is used in this study while year of education is used in other
studies. Third, the lagged unemployment variables are excluded in this study. Fourth,
the analysis of this study is extended up to the year of 2000, whereas the analysis in
Blank’s study and the CEA study ended in 1995 and 1998, respectively. Lastly, as
explained in the earlier chapter, state-specific time trend dummies are included in this
study. Rationale, advantages, and/or limitations/issues of these differences will be
discussed in the following chapter.

Results of Model I (Basic Model)

Table 4.3 presents the estimated coefficients for the 1994-2000 period from
Model 1 of cross-section time-series (CSTS) fixed-effects multivariate regression.
The results of Model 1 concerning the relationship between the dependent variables
defined as the log of welfare caseload rate and independent variables such as federal
EITC, state EITC, AFDC/TANF maximum benefit, AFDC waivers, TANF, minimum
wage, unemployment rate, political affiliation, and educational attainment are similar to
Blank’s and CEA’s.

*Federal Earned Income Tax Credit (EITC).* The federal EITC phase-in rate for
families with two or more children is likely to have an impact on the caseload rate. The
coefficient for the EITC phase-in rate for families with two or more children is estimated
to be -0.012 (significant at 1%). It can be interpreted that, holding other variables
constant, one percent increase in the EITC phase-in rate for families with two or more
children would be associated with 1.2 percent reduction in the caseload rate.
One noteworthy feature is that the federal EITC phase-in rate for families with two or more children had been increasing consistently in nominal dollars between 1994 and 2000; however, its purchasing power has eroded since 1998 as shown in Figure 4.2. The effect of the EITC phase-in rate on caseload reduction, should the rate not have eroded in real dollars, will be discussed later in this section.

**State EITC.** In addition to the federal EITC, there has been a continual development and implementation of state-EITC across states. It is expected that states with state-EITC are likely to have an impact on the caseload rate. The estimated coefficient for state-EITC is $-0.242$ (significant at 1%). It implies that states with the state-EITC would be associated with a greater reduction in the caseload rate by .22 percent compared to those states without state EITC, holding other variables constant, by supplementing the federal EITC to help low-income workers increase their combined disposable income and move off the welfare rolls.

**AFDC/TANF maximum benefit.** States with more generous AFDC/TANF benefits are estimated to have a higher caseload rate. The coefficient for AFDC/TANF maximum benefit is estimated to be $0.185$ (significant at 5%). It means that, holding other variables constant, one percent higher AFDC/TANF monthly benefit above the 1998 benefit amount would be associated with an increase in caseload rate by 0.19 percent. It seems that states with more generous benefit levels tend to attract more people to welfare.

**AFDC waivers.** The estimated coefficient for the relationship between states with major statewide AFDC waivers and the caseload rate is $-0.064$ although its coefficient is not statistically significant in this study. It is noteworthy that previous studies found that
states with AFDC waivers would reduce their caseload rate at a greater rate than those without waivers.

**TANF.** TANF is a dummy variable. The implementation of TANF also has an impact on the caseload reduction between 1994 and 2000. The coefficient for TANF is \(-0.169\) (significant at 1%). It is interpreted that work enforcement policies implemented under TANF are associated with 0.16 percent decline in caseload rate, holding other variables constant.

**Minimum wage.** States with higher minimum wages seem to have affected caseload rates. The coefficient for minimum wage is estimated to be \(-2.252\) (significant at 1%). It is estimated that, holding other variables constant, one percent increase in the minimum wage would be associated with the decrease in caseload rate by 2.25 percent. As in the case of the EITC, reward for work is likely to increase the combined disposable income of low-income workers (who might have been on welfare otherwise), which would have led people to move off the welfare rolls.

**Unemployment rate.** States with a higher unemployment rate seem to have contributed to increasing welfare caseload rate. The estimated coefficient for unemployment rate is 0.136 (significant at 1%). In other words, holding other variables constant, one percent increase in unemployment rate in the current year would have increased in caseload rate by 13.6 percent for that year. This study also estimated the effects of unemployment rates of lagged years, although the table does not show them here. As in previous studies, unemployment rates of the one- or two-lagged years are found to have significant impact on the welfare caseloads rate of the current year. However, these variables were as strongly correlated as the current year's unemployment.
rate with the caseload rate, and inclusion of lagged unemployment rates washes away the
effect of the current year's unemployment rate. In other words, the size of the combined
effect of one percent increase in each of the current, one-year lagged and two-year lagged
unemployment rate on caseload rate is the same as the effect of unemployment of the
current year on caseload rate.

Political affiliation. Political variables are found to have an impact on welfare
caseload rate. States with a Republican governor are likely to decrease caseload rate.
The estimated coefficient for Republican governor is −0.101 (significant at 1%). The
estimate implies that states with a Republican governor would be associated with a 0.1
percent greater decline in caseload rate than other states. Also, having both the state
Senate and House controlled by Republicans tends to have an impact on the decline in
caseload rate. The estimated coefficient for state legislative chambers controlled by
Republicans is −0.051 (significant at 1%). This means that states with both the House
and Senate controlled by Republicans would be associated with a 0.05 percent greater
decline in the caseload rate than states otherwise. However, the coefficient for having
both state Senate and House controlled by Democrats is statistically insignificant.

Educational attainment. States in which the state population has a higher
proportion of persons with a high school diploma are found to have contributed to
decreasing caseload rate. The estimated coefficient for educational attainment is −0.017
(significant at 1%). It is estimated that one percent increase in the proportion of the state
population with a high school diploma would be associated with a 1.7 percent decrease in
caseload rate.
It is worth noting that Model 1 also was tested with two alternative dependent variables. For the first test, the dependent variable, welfare caseloads, was defined as a ratio of AFDC/TANF recipients to the state population instead of ratio of AFDC/TANF recipients to the number of females between the ages of 15 and 44. For the second test, the dependent variable was defined as the log of the number of families receiving AFDC/TANF. These alternative definitions show similar coefficients in terms of their significance as well as magnitude.

Summary of Model 1. The results of the combined cross-section and time-series analyses for the sample of 357 (51 states for 7 years between 1994 and 2000) show that most of the independent variables entered into the estimating equation are statistically significant in expected directions. In particular, factors such as the federal EITC as well as state EITC, TANF implementation, AFDC/TANF maximum benefit, minimum wage, unemployment rate, two of the political variables, and educational levels of state population are estimated statistically significant in determining changes in the welfare caseload rate.

An increase in the federal EITC phase-in rate for families with two or more children is likely to be associated with declining caseload rate. Also, states with state EITC are estimated to be associated with a decrease in caseload rate. In addition, states with a Republican governor tend to decrease welfare caseload. States in which both the state House and Senate are controlled by Republicans are estimated to be associated with welfare caseload reduction. States with a higher proportion of the state population with educational attainment were estimated with caseload reduction. States with a higher unemployment rate and an AFDC/TANF monthly maximum benefit level are estimated
to be associated with an increase in caseload rate. All results of estimated coefficients were stable to the alternative model specifications.

The relative importance of coefficient size can be compared in the relationship between independent and dependent variables that are expressed in log-log form. A percent change (increase) in unemployment rate is likely to have the larger impact on welfare caseloads than a percent change in any other explanatory variables. A one percent increase (by 13.6%) in unemployment rate would increase welfare caseloads by approximately 14 percent. At the same time, a one percent change (increase) in the minimum wage is estimated to be associated with the large decline (by 2.25%) in welfare caseloads. Also, a one percent increase in EITC phase-in rate and percentage of persons with high school diploma would contribute to 1.2 percent and 1.7 percent decrease in welfare caseloads, respectively. In addition, when the AFDC/TANF maximum monthly benefit increases by one percent, welfare caseloads would likely increase by 0.19 percent.

There may be different cost and feasibility issues involved in orchestrating different policies to optimize the economic conditions of low-income workers and to smooth the welfare recipients' way to move off welfare rolls if this continues to be a policy goal. For example, lowering the unemployment rate by one percent so that it may continue to absorb low-income workers to the labor market is unlikely to happen, given the already very low current rate. (Some states had an unemployment rate below 2.5 percent in recent years, and it is almost impossible to lower the unemployment rate below this level.) Increasing the proportion of persons with high school diploma by 10 percent within one-year period may be more difficult to operate than increasing EITC phase-in rate by 10 percent (from current 40 percent to 50 percent) for the same period. However,
an increased EITC phase-in rate and increased minimum wage are not going to benefit low-income workers with less skill if unemployment rate and initial competition to enter job market become hurdles for them.

Results of Model 2 (Policy-Specific Model)

Table 4.4 further presents the estimated coefficients from Model 2 for the 1994-2000 period using cross-section time-series (CSTS) multivariate regression. Model 2, the policy-specific model, differs from Model 1 in that policy-specific variables are used instead of dummies of welfare policy variables, as mentioned earlier. The model includes five major work-enforcement provisions—time limits for benefit termination and work requirements, Job Opportunities and Basic Skills (JOBS) exemptions, earnings disregard, work sanctions, and family cap. These provisions could be implemented under either waivers or TANF. Variables other than these work-enforcement provisions in Model 2 are similar to Model 1, including federal EITC and state EITC, AFDC/TANF maximum monthly benefits, minimum wages, unemployment rate, political variables, and educational attainment of state population. The coefficients of Model 2 are similar to those of Model 1. Instead of reiterating the results of these variables, the following discussion focuses on the policy-specific variables in Model 2.

Time limits/Work requirements. It is expected that states that terminate eligibility or require participants to work after a given duration on aid or that have life-time limits would decrease the welfare caseloads, since these states will eventually terminate welfare benefits and therefore are likely to be associated with a decreased caseload rate. The coefficient for time limit/work requirement is estimated to be -0.097 (significant at 10%).
This estimate implies that states that implemented time limits would decrease the caseloads at a 0.09 percent greater rate than other states. The size of the coefficient in this study is estimated to be twice the size of the coefficient in the CEA study (1999). A plausible explanation for this will be discussed in a later section.

**JOBS exemptions.** It appears that states that have implemented more generous JOBS exemptions play a substantial role in changing the welfare caseloads. The estimated coefficient for JOBS exemption is 0.194 (significant at 5%). It is estimated that states with the JOBS exemption for welfare mothers with a youngest child up to 3 years old would be associated with an increasing caseload rate by 0.21 percent greater rate, compared to states with such exception.

**Earnings disregard.** The state’s earnings disregard policy does not appear to affect the welfare caseloads. The estimated coefficient for the earnings disregard variable is 0.005, yet not statistically significant.

**Sanctions.** Not surprisingly, states with sanctions for non-complying recipients who do not go to work played a significant role in changes in caseload rate. The estimated coefficient for sanction policies is −0.278 (significant at 5%). It is estimated that states with full sanction (terminating full benefits either at first noncompliance or later) are associated with a 0.24 percent decline in caseload rate compared to states without sanctioning at all or partial sanction only. This result, in fact, supports previous studies that states with sanctions had a lower caseload rate than non-sanctioning states during this time period (CEA, 1999).
Family cap. It appears that states with a family cap provision do not play a substantial role in determining caseload rate. The direction of the estimated coefficient for family cap is negative (−0.056) as expected, but not significant.

Summary of Model 2. The model specifically examined the impact of work enforcement provisions of welfare reform under AFDC waivers and TANF. The results indicate that states with harsher sanctions (full sanctions) and time limit/work requirements would have contributed to the decline in the caseloads from 1994 and 2000. On the other hand, states with more lenient rules on work provisions seem to have an impact on welfare caseloads to a lesser extent. However, higher earnings disregard and family cap provisions show a statistically significant relationship with welfare caseloads.

Results from Simulated Phase-in Rate of EITC

As indicated earlier, the real dollar value for the EITC for families with two children has eroded since 1998. Figure 4.2 shows how the EITC maximum credit of nominal dollars versus real dollars for families with two children changed from its inception in 1976 to 2000. It is noticeable that the credit rate deteriorated for the first 10 years, then it regained its real dollar value (purchasing power) in 1987. However, the real dollar value began deteriorating again between 1987 and 1990, and continued to grow until 1998 when the real dollar value began deteriorating again.

The EITC phase-in rate for families with two or more children was 40 percent of the family’s earned income since 1996. In nominal dollars, a family with two or more children could receive the EITC maximum credit of $3,556 in 1996. This amount
continued to increase to $3,756, $3,816, and $3,888, in 1998, 1999, and 2000, respectively. However, the EITC maximum credits for a family with two or more children in real dollar terms increased between 1996 and 1998, then decreased between 1998 and 2000. The EITC maximum credit amount a family with two or more children could receive was $3,694 (in 1998 dollars) in 1996. This maximum credit increased to $3,756 (in 1998 dollars) in 1998, but decreased to $3,734 (in 1998 dollars) in 1999. This credit amount further decreased to $3,680 (in 1998 dollars) in 2000.

If the credit level were to be kept at least at the 1998 level, the maximum credit in 1999 should have been $3,839 instead of $3,816, in nominal dollars. This means that the phase-in rate of EITC should have increased to 40.42 percent for families with two or more children in 1999. Similarly, the phase-in rate of EITC should have been set at 41.56 percent for families with two or more children in 2000 in order to maintain the real dollars of the EITC maximum credit at the 1998 level. All these calculations were done using Consumer Price Index (CPI).

Table 4.5 presents the estimated coefficients of the variables from the simulation. This simulation was performed to estimate the effect of the EITC phase-in rate on caseload rate under the condition that the EITC phase-in rate would have been kept at the 1998 benefit level instead of deteriorating in its real value since 1998. Simulations were performed using both Model 1 and Model 2; the results from Model 1 are presented here. However, it is worthwhile to note that the direction and size of the coefficients, particularly of the federal EITC and state-EITC, were robust, regardless of the model on which the simulation was performed.
The results from the equation model that included EITC phase-in rates simulated show the larger coefficient of \(-0.016\), compared to \(-0.012\) of current EITC (See Table 4.5). The result implies that it is critical to adjust the EITC benefits at least to the current cost-of-living for the EITC to be a more effective policy to help people move off welfare rolls. Further erosion of EITC’s real value in assisting single heads on welfare rolls to be self-sufficient can possibly result in the loss of its major strength as a policy in providing work incentive while giving more income to welfare recipients to move off welfare rolls.

Summary of simulation. This study simulated federal EITC under the assumption that the real dollar value of EITC benefits was maintained at the 1998 level against inflation erosion. The results of the simulation indicate that EITC would have had a larger impact on the decline in welfare caseloads if EITC were kept with the cost of living from 1998 to 2000.

In summary, this study tested two primary specifications of a welfare caseload model using annual state panel data over a seven-year period. The overall findings show the work enforcement provision under welfare reform in the model is generally significant in determining changes in the welfare caseload. The model attempted to control cross-section heteroskedasticity and year-to-year serial correlation of error terms, and used alternative definitions of variables in order to produce unbiased, consistent, and efficient estimates. The analysis shows rather robust estimates regardless of different model specifications. In the following section, the findings of this study will be compared with previous research on welfare caseloads. Conceptual as well as statistical issues will be further discussed as well.
Comparison with Previous Studies

There are several studies that have examined recent changes in welfare caseloads, of which this study chose two for comparison because they included the welfare reform provisions under TANF and followed this study closely in the coding scheme. Table 4.6 compares this study with these other studies in terms of data and estimates of major variables of interest, focusing on the effects of the variables on caseload rate, which are the primary interests of this study, including the federal EITC, state EITC, and welfare reform policies under AFDC waivers/TANF.

Because those two recent studies on welfare caseloads did not include federal EITC and state EITC, comparison is possible only for welfare-reform related variables (Blank, 2001; CEA, 1999). These studies found that states with AFDC waivers were likely to have the greater decline in welfare caseloads than those states without waivers, but those studies estimated the size of effect to a different degree. Coefficients of these studies, which estimated that the states with waivers were associated with a decline on welfare caseload, were -0.107 (Blank’s) and -0.09 (CEA’s), respectively with statistical significance. For this study, however, the direction of the estimated coefficient was minus as expected, but waivers variable was not statistically significant in explaining welfare caseload reduction.

One potential problem with the inclusion of TANF as a dummy variable is that it is a crude measure of welfare policy and therefore may produce a downward-biased estimate for the effect of welfare reform on welfare caseloads (Mayer, 2000). This problem also could occur when AFDC waivers or other specific policies are used as dummies. Blank (2001) and the CEA (1999) study examined the effect of different types
of waivers, as did Figlio and Zilliak (1999) in order to reconcile differences among studies. Yet, they do not seem to provide a conclusive answer to those differences in findings among different studies.

One possible explanation for the rather inconsistent findings with respect to the effect of the waivers across studies is that waivers may be correlated with other changes occurring at the same time (and/or preceding) as their implementation (Blank, 2001). According to Blank, these other changes might include sending “get tough” messages from media publicity and front-line workers that might have discouraged applications or encouraged current recipients to find alternative channels of support. Blank herself commented that the estimated coefficient for waivers in her study is too large and thus, the size of the waiver coefficient is probably an indication that this variable tends to be a proxy for effects beyond its direct program effect in the state at the same time. Another possibility is the control of other multiple policy-specific variables under waiver as well as TANF that are occurring simultaneously and that are highly correlated with each other. Also, the estimated insignificant coefficient of waivers in this study may result from the shorter time period in this study for waivers to show effect on changes in welfare caseload, compared to the years that waivers lasted in those two studies’ estimations.

With respect to the effect of TANF on welfare caseloads, CEA (1999) is only relevant because other studies did not include the TANF variable. Using the same variable definition of TANF (1 if TANF was in effect in a state in a given year), CEA’s estimated coefficient for TANF was between −0.18 and −0.19, which was quite similar to the estimation of −0.17 in this study.
Concerning the effects of specific policies (either under waivers or TANF) on welfare caseloads, this study’s estimated results indicated that three provisions of work enforcement had significant impact on caseload rate. These provisions are time limits/work requirements, JOBS exemptions, and sanctions. This study found that time limits/work requirements had significant impact on welfare caseloads, while CEA (1999) found no significant impact. It is plausible that the longer time period from 1994 to 2000 in this study could explain this different finding. CEA examined the time period only to 1998. Not many families would have been affected by the time limit by 1998, except a few states that began to implement a time-limit policy under AFDC waiver before 1996.

With respect to the effect of the JOBS exemptions based upon the age of the youngest child on welfare caseloads, this study estimated that states with a JOBS exemption would be associated with an increase in caseload rate that was 0.21 percent greater than other states. The size of the estimated coefficient for JOBS exemptions in this study (0.194) is a little larger than that (0.124) of the CEA (1999) study.

When the effect of sanction on welfare caseloads is compared with other studies, the size of its effect is estimated in much smaller magnitudes in this study. It is estimated that states with the presence of full sanctions on noncompliance would be associated with 0.24 percent greater decline in caseload rate than other non-sanctioning states (states without full sanction even at a repeated noncompliance). The size of the estimated coefficient in this study is nearly half the size of the CEA’s 1999 estimate from 0.44 to 0.48 percent (depending on the presence of state-specific time trends). This may be due to differences in sanction definition. The sanction definition where full sanction can result in loss of the entire grant for noncompliance is used in this study, whereas partial
sanction with benefit reduction only is additionally included in CEA study. It may not be the case that states with partial benefit reduction as their harshest sanction rule can be associated with larger decline in welfare caseload (than states with benefit termination sanction rule) since recipients can continually receive the welfare benefit, though reduced. However, it is possible that welfare recipients might have reacted to their state’s benefit reduction sanctioning and some recipients may leave the rolls sooner or not come on the rolls at all in order to save up time that could be used at a later date.

Changes in the rule of earnings disregard and implementation of family cap do not appear to have affected the welfare caseloads in this study. However, some previous studies have found the significant impact on welfare caseloads. Using the same model as the CEA study but omitting data for 1977 and 1996, Moffitt (1999) finds that the effects of a family cap and work requirement are statistically significant, while sanctions were not. The difference in results between the CEA and Moffitt may have to do with dropping the year of 1996 in Moffitt’s analysis. Moffitt argues that the sensitivity of the estimated coefficient of welfare policies under waivers to the years selected for analysis raises suspicion that these variables are not correctly measuring the effects of the separate waivers.

Blank (2001) also raises doubts about the meaning of the effect of waivers. Her results suggest that family caps (coefficient of $-0.179$ with S.E. $0.04$) and JOBS exemptions (coefficient of $-0.10$ with S.E. $0.04$) had a negative and significant effect on caseloads (while sanctions actually show a positive and significant effect—coefficient of $0.11$ with S.E. $0.46$) (See Table 4.4). Surprisingly, she found that the family cap had a stronger effect than any other waivers. According to her estimation, states with the family cap
would have been associated with a 0.18 percent more reduction on the AFDC caseloads than states without the family cap. Blank herself argues, however, that this effect is too large to be realistic. A family cap is not likely to affect caseloads in the short-run because it does not reduce the existing amount of benefits or remove families from the rolls. Blank interprets her findings as evidence that the estimated effect of waivers is likely to measure changes that took place in the state around the same time that waivers were implemented.

This study finds the effect of earnings disregard statistically insignificant in its effect on the welfare caseloads. The CEA study estimation, on the other hand, indicates that a higher earnings disregard would be associated with increased welfare participation, although this effect was relatively small (coefficient of 5.38 with t-stat 2.40). However, Moffitt (1999) found the sign of the coefficient of earnings disregard to be negative but insignificant, while Zilliak et al.’s estimation indicates the opposite (statistically positive and significant). The gap in the estimates coefficients of earnings disregard seems to reflect that the impact is extremely sensitive to the economic condition, time period of analysis, data level, and the extent of waiver implementation within states.

Lastly and most importantly, the primary variable for estimation for this study is the federal and state EITC. However, it is difficult to compare the estimated coefficient of the EITC on welfare caseload rate because no previous study uses the state as the unit of analysis and the EITC as a variable for explaining the recent decline in the welfare caseload. To date, only one study has produced a direct estimate of the effects of the EITC on welfare use. Grogger (2001) included the EITC in explaining welfare caseload reduction and identified the EITC as a particularly important contributor to the recent
decrease in welfare use. He investigated and found a significant interaction effect of the
EITC maximum credit with the age of the oldest youngest child among female-headed
families. He estimated coefficients of the EITC that a $1,000 increase in the EITC
maximum credit reduces welfare use by an average of 1.5 percentage points among
families whose youngest child was three and by 3.1 percentage points among families
whose youngest child was ten. Using state annual panel data, my study estimated that a
one percent increase in the EITC phase-in rate would be associated with a decrease in
welfare caseload by 1.2 percent. This can be put another way, in terms of dollars: if a
family with two children could have received 1 cent more through the EITC subsidy rate
for every additional dollar earned, the EITC would have decreased individual welfare
recipients by 1.2 percent.

However, Grogger pooled the Current Population Survey (CPS) micro data set
from 1979 to 2000 (reflecting population characteristics from 1978 to 1999) and
extracted the female-headed families only instead of using state annual panel data. In
addition, he selected a quite different set of the explanatory variables than other recent
welfare caseload studies, focusing on welfare time limit variables, with a particular
interest in the interaction effect of the age of the youngest child in a family on welfare
use and labor supply. While his estimates provide an insightful connection that the
increased work of single mothers and increased disposable income through the EITC
might possibly move them off welfare, his choice of a different data set and the sample
definition of his study make it difficult to compare his results with my estimates.

With respect to the effect of the state EITC, this study estimates that the states
with state EITC would have been associated with a decline in welfare caseload by 0.22
percent. However, there is no previous study that produced a direct estimate of the effect of the state EITC on a decline in welfare use in recent years, which makes comparison impossible.
<table>
<thead>
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<tbody>
<tr>
<td>Welfare Caseload (percent of # of welfare recipients/# of females age</td>
<td>20.64</td>
<td>19.36</td>
<td>17.69</td>
<td>14.79</td>
<td>11.77</td>
<td>9.94</td>
<td>8.34</td>
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<td>15-44)</td>
<td>(7.45)</td>
<td>(7.71)</td>
<td>(7.85)</td>
<td>(7.77)</td>
<td>(7.13)</td>
<td>(6.59)</td>
<td>(5.36)</td>
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<tr>
<td>Percentage of females age 15-44 in state population</td>
<td>22.75</td>
<td>22.63</td>
<td>22.51</td>
<td>22.37</td>
<td>22.16</td>
<td>21.95</td>
<td>22.04</td>
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<td></td>
<td>(0.85)</td>
<td>(0.82)</td>
<td>(0.82)</td>
<td>(0.81)</td>
<td>(0.83)</td>
<td>(0.85)</td>
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<td>Federal Earned Income Tax Credit phase-in rate for families with two or</td>
<td>30.0</td>
<td>36.0</td>
<td>40.0</td>
<td>40.0</td>
<td>40.0</td>
<td>40.0</td>
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<tr>
<td>more children</td>
<td>(0)</td>
<td>(0)</td>
<td>(0)</td>
<td>(0)</td>
<td>(0)</td>
<td>(0)</td>
<td>(0)</td>
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<td>Unemployment Rate</td>
<td>5.68</td>
<td>5.26</td>
<td>5.21</td>
<td>4.77</td>
<td>4.43</td>
<td>4.16</td>
<td>3.94</td>
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<tr>
<td></td>
<td>(1.32)</td>
<td>(1.28)</td>
<td>(1.24)</td>
<td>(1.22)</td>
<td>(1.19)</td>
<td>(1.05)</td>
<td>(0.97)</td>
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<tr>
<td>Percent of high school graduates among persons 25 years old and over</td>
<td>59.96</td>
<td>59.94</td>
<td>59.59</td>
<td>59.76</td>
<td>59.95</td>
<td>59.66</td>
<td>60.24</td>
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<tr>
<td>in state population</td>
<td>(4.79)</td>
<td>(5.00)</td>
<td>(4.72)</td>
<td>(4.74)</td>
<td>(4.82)</td>
<td>(5.26)</td>
<td>(4.56)</td>
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<tr>
<td>Percent of high school or more among persons 25 years old and over</td>
<td>81.85</td>
<td>82.76</td>
<td>82.81</td>
<td>83.10</td>
<td>83.97</td>
<td>84.69</td>
<td>85.44</td>
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<td>in state population</td>
<td>(4.98)</td>
<td>(4.79)</td>
<td>(4.88)</td>
<td>(4.29)</td>
<td>(4.11)</td>
<td>(4.28)</td>
<td>(3.93)</td>
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Notes: Unit is state. Total observation for each year is 51. Standard errors are in parentheses.

Table 4.1: Year-to-year changes in means and standard deviations of selected variables
### Table 4.2: Descriptive statistics of variables

<table>
<thead>
<tr>
<th>Variables</th>
<th>Mean</th>
<th>Standard Deviation</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>1. AFDC/TANF Caseload data</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Number of Families</td>
<td></td>
<td></td>
</tr>
<tr>
<td>overall (1)</td>
<td>74,660</td>
<td>125,170</td>
</tr>
<tr>
<td>between (2)</td>
<td>121,568</td>
<td>121,568</td>
</tr>
<tr>
<td>within (3)</td>
<td>33,734</td>
<td></td>
</tr>
<tr>
<td>Number of Recipients</td>
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</tr>
<tr>
<td>overall (1)</td>
<td>196,684</td>
<td>348,986</td>
</tr>
<tr>
<td>between (2)</td>
<td>336,659</td>
<td>336,659</td>
</tr>
<tr>
<td>within (3)</td>
<td>101,794</td>
<td></td>
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<tr>
<td><strong>2. EITC</strong></td>
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<tr>
<td>--EITC phase-in rate</td>
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<tr>
<td>overall (1)</td>
<td>38</td>
<td>3.551</td>
</tr>
<tr>
<td>between (2)</td>
<td>0</td>
<td></td>
</tr>
<tr>
<td>within (3)</td>
<td>3.551</td>
<td></td>
</tr>
<tr>
<td>--State EITC (dummy var.)</td>
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</tr>
<tr>
<td>overall (1)</td>
<td>0.185</td>
<td>0.389</td>
</tr>
<tr>
<td>between (2)</td>
<td>0.354</td>
<td></td>
</tr>
<tr>
<td>within (3)</td>
<td>0.168</td>
<td></td>
</tr>
<tr>
<td><strong>3. log (AFDC/TANF max benefit)</strong></td>
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<tr>
<td>overall (1)</td>
<td>1.336</td>
<td>0.403</td>
</tr>
<tr>
<td>between (2)</td>
<td>0.403</td>
<td></td>
</tr>
<tr>
<td>within (3)</td>
<td>0.047</td>
<td></td>
</tr>
<tr>
<td><strong>4. Policy variables</strong></td>
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<tr>
<td>Any major waiver (dummy var.)</td>
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</tr>
<tr>
<td>overall (1)</td>
<td>0.142</td>
<td>0.320</td>
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<tr>
<td>between (2)</td>
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<tr>
<td>within (3)</td>
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<tr>
<td>PRWORA/TANF (dummy var.)</td>
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<td>overall (1)</td>
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<td>within (3)</td>
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<tr>
<td>--Time limits/Work requirements (dummy var.)</td>
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<td>overall (1)</td>
<td>0.714</td>
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<tr>
<td>between (2)</td>
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<tr>
<td>within (3)</td>
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</tr>
<tr>
<td>--Work exemptions (dummy var.)</td>
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</tr>
<tr>
<td>overall (1)</td>
<td>0.336</td>
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<tr>
<td>between (2)</td>
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<tr>
<td>within (3)</td>
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</tr>
<tr>
<td>--log (Earnings disregard)</td>
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<td></td>
</tr>
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<td>overall (1)</td>
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<tr>
<td>between (2)</td>
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<tr>
<td>within (3)</td>
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(Continued)
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<tr>
<th>Variables</th>
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<th>Standard Deviation</th>
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</thead>
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<td>--Sanctions (dummy var.)</td>
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<td></td>
</tr>
<tr>
<td>overall (1)</td>
<td>0.181</td>
<td>0.375</td>
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<tr>
<td>between (2)</td>
<td>0.253</td>
<td>0.279</td>
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<tr>
<td>within (3)</td>
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<td>0.279</td>
</tr>
<tr>
<td>--Family cap (dummy var.)</td>
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<td></td>
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<td>overall (1)</td>
<td>0.301</td>
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<td>between (2)</td>
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<td>0.253</td>
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<tr>
<td>within (3)</td>
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<td>0.373</td>
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<tr>
<td>5. log (Minimum wage)</td>
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<tr>
<td>overall (1)</td>
<td>1.865</td>
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<td>between (2)</td>
<td>0.041</td>
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<td>within (3)</td>
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<td>6. Macroeconomic variable</td>
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<tr>
<td>Unemployment rate</td>
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<td></td>
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<tr>
<td>--Current</td>
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<td>overall (1)</td>
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<td>between (2)</td>
<td>1.098</td>
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<tr>
<td>within (3)</td>
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<td>0.742</td>
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<tr>
<td>--1-year lag</td>
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</tr>
<tr>
<td>overall (1)</td>
<td>5.125</td>
<td>1.437</td>
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<td>between (2)</td>
<td>1.159</td>
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<tr>
<td>within (3)</td>
<td>0.862</td>
<td>0.862</td>
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<tr>
<td>--2-year lag</td>
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<td></td>
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<tr>
<td>overall (1)</td>
<td>5.516</td>
<td>1.560</td>
</tr>
<tr>
<td>between (2)</td>
<td>1.219</td>
<td>0.987</td>
</tr>
<tr>
<td>within (3)</td>
<td>0.987</td>
<td>0.987</td>
</tr>
<tr>
<td>7. Political Party Affiliation</td>
<td></td>
<td></td>
</tr>
<tr>
<td>--Republican governor</td>
<td></td>
<td></td>
</tr>
<tr>
<td>(dummy var.)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>overall (1)</td>
<td>0.459</td>
<td>0.499</td>
</tr>
<tr>
<td>between (2)</td>
<td>0.382</td>
<td>0.325</td>
</tr>
<tr>
<td>within (3)</td>
<td>0.325</td>
<td>0.325</td>
</tr>
<tr>
<td>--Both House &amp; Senate Republican</td>
<td></td>
<td></td>
</tr>
<tr>
<td>(dummy var.)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>overall (1)</td>
<td>0.314</td>
<td>0.465</td>
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<tr>
<td>between (2)</td>
<td>0.397</td>
<td>0.247</td>
</tr>
<tr>
<td>within (3)</td>
<td>0.247</td>
<td>0.247</td>
</tr>
<tr>
<td>--Both House &amp; Senate Democrat</td>
<td></td>
<td></td>
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<tr>
<td>(dummy var.)</td>
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<td></td>
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<tr>
<td>overall (1)</td>
<td>0.417</td>
<td>0.494</td>
</tr>
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<td>between (2)</td>
<td>0.452</td>
<td>0.208</td>
</tr>
<tr>
<td>within (3)</td>
<td>0.208</td>
<td>0.208</td>
</tr>
<tr>
<td>8. Sociodemographic variables</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Population</td>
<td></td>
<td></td>
</tr>
<tr>
<td>--Total</td>
<td></td>
<td></td>
</tr>
<tr>
<td>overall (1)</td>
<td>5,267,224</td>
<td>5,826,413</td>
</tr>
<tr>
<td>between (2)</td>
<td>5,871,826</td>
<td>223,276</td>
</tr>
<tr>
<td>within (3)</td>
<td>223,276</td>
<td>223,276</td>
</tr>
<tr>
<td>--Females ages 15-44</td>
<td></td>
<td></td>
</tr>
<tr>
<td>overall (1)</td>
<td>1,180,597</td>
<td>1,313,942</td>
</tr>
<tr>
<td>between (2)</td>
<td>1,324,262</td>
<td>48,264</td>
</tr>
<tr>
<td>within (3)</td>
<td>48,264</td>
<td>48,264</td>
</tr>
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</table>

Table 4.2 (Continued)
Table 4.2 (Continued)

<table>
<thead>
<tr>
<th>Variables</th>
<th>Mean</th>
<th>Standard Deviation</th>
</tr>
</thead>
<tbody>
<tr>
<td>Percent elderly over 65</td>
<td>overall (1) 12.692</td>
<td>1.971</td>
</tr>
<tr>
<td></td>
<td>between (2) 1.977</td>
<td>0.206</td>
</tr>
<tr>
<td></td>
<td>within (3) 0.206</td>
<td>0.206</td>
</tr>
<tr>
<td>Percent black</td>
<td>overall (1) 11.168</td>
<td>11.894</td>
</tr>
<tr>
<td></td>
<td>between (2) 11.992</td>
<td>11.992</td>
</tr>
<tr>
<td></td>
<td>within (3) 0.298</td>
<td>0.298</td>
</tr>
<tr>
<td>Education</td>
<td>Percent high school</td>
<td>overall (1) 59.87</td>
</tr>
<tr>
<td></td>
<td>between (2) 4.60</td>
<td>4.60</td>
</tr>
<tr>
<td></td>
<td>within (3) 1.52</td>
<td>1.52</td>
</tr>
<tr>
<td></td>
<td>Percent high school and +</td>
<td>overall (1) 83.514</td>
</tr>
<tr>
<td></td>
<td>between (2) 4.299</td>
<td>4.299</td>
</tr>
<tr>
<td></td>
<td>within (3) 1.709</td>
<td>1.709</td>
</tr>
<tr>
<td>Poverty rate</td>
<td>overall (1) 12.399</td>
<td>3.771</td>
</tr>
<tr>
<td></td>
<td>between (2) 3.372</td>
<td>3.372</td>
</tr>
<tr>
<td></td>
<td>within (3) 1.743</td>
<td>1.743</td>
</tr>
</tbody>
</table>

Notes: (1) Overall is calculated over 51 states for 7 years of data (N=357); (2) between is calculated over 51 states (n=51); and (3) within refers to deviation from each state’s average for years of data (T-bar=7).
### Table 4.3: Estimated effects on the caseload rate from Model 1

<table>
<thead>
<tr>
<th>Variable</th>
<th>Coefficients</th>
<th>S.E.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Federal EITC phase-in rate (1)</td>
<td>-0.012***</td>
<td>(0.001)</td>
</tr>
<tr>
<td>Adoption of state EITC (2)</td>
<td>-0.242***</td>
<td>(0.008)</td>
</tr>
<tr>
<td>Log (AFDC/TANF maximum monthly benefit) (3)</td>
<td>0.185**</td>
<td>(0.091)</td>
</tr>
<tr>
<td>Any major AFDC waivers (4)</td>
<td>-0.064</td>
<td>(0.069)</td>
</tr>
<tr>
<td>TANF implementation (5)</td>
<td>-0.169***</td>
<td>(0.016)</td>
</tr>
<tr>
<td>Log (Monthly minimum wage) (6)</td>
<td>-2.252***</td>
<td>(0.180)</td>
</tr>
<tr>
<td>Unemployment rate (7)</td>
<td>0.136***</td>
<td>(0.006)</td>
</tr>
<tr>
<td>Republican governor (8)</td>
<td>-0.101***</td>
<td>(0.009)</td>
</tr>
<tr>
<td>Both State Senate &amp; House controlled by Republican (9)</td>
<td>-0.051***</td>
<td>(0.013)</td>
</tr>
<tr>
<td>Both State Senate &amp; House controlled by Democrat (10)</td>
<td>0.007</td>
<td>(0.011)</td>
</tr>
<tr>
<td>Percent of persons with high school diploma (11)</td>
<td>-0.017***</td>
<td>(0.002)</td>
</tr>
<tr>
<td>State-Fixed Effects</td>
<td>Yes</td>
<td></td>
</tr>
<tr>
<td>Time-Fixed Effects</td>
<td>Yes</td>
<td></td>
</tr>
<tr>
<td>R-Square</td>
<td>0.997</td>
<td></td>
</tr>
<tr>
<td>F-Statistics</td>
<td>8113.95</td>
<td></td>
</tr>
</tbody>
</table>

Notes. Dependent variable is log of caseload rate (i.e., AFDC or TANF recipients/number of females age 15-44); Standard errors are in parentheses; All regressions are based on data for 51 states from 1994-2000; *** significant at .01 level; ** significant at .05 level; * significant at .10 level.

(1) EITC phase-in rate for families with two children
(2) 1 if state-EITC is implemented; = 0 otherwise
(3) Log of monthly maximum benefit for family of three on AFDC/TANF
(4) 1 if any major AFDC waiver is implemented statewide; 0 otherwise
(5) 1 if TANF is implemented; 0 otherwise
(6) Log of minimum wage expressed as a monthly amount, assuming employment for 30 hours per week for a full month
(7) Unemployment rate of current year
(8) 1 if a state governor is Republican; = 0 otherwise
(9) 1 if majority of both State Senate and State House is Republican; 0 otherwise
(10) 1 if majority of both State Senate and State House is Democrat; 0 otherwise
(11) Percentage of people 25 and over who completed 4 years of high school in state population
<table>
<thead>
<tr>
<th>Variable</th>
<th>Coefficients</th>
<th>S.E.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Federal EITC phase-in rate (1)</td>
<td>-0.008***</td>
<td>(0.001)</td>
</tr>
<tr>
<td>Adoption of state EITC (2)</td>
<td>-0.229***</td>
<td>(0.018)</td>
</tr>
<tr>
<td>Log (AFDC/TANF maximum monthly benefit) (3)</td>
<td>0.302**</td>
<td>(0.085)</td>
</tr>
<tr>
<td>Time limits/Work requirements (4)</td>
<td>-0.097*</td>
<td>(0.057)</td>
</tr>
<tr>
<td>JOBS exemptions (5)</td>
<td>0.194**</td>
<td>(0.050)</td>
</tr>
<tr>
<td>Earnings disregard (6)</td>
<td>0.005</td>
<td>(0.013)</td>
</tr>
<tr>
<td>Sanctions (7)</td>
<td>-0.278**</td>
<td>(0.057)</td>
</tr>
<tr>
<td>Family cap (8)</td>
<td>-0.056</td>
<td>(0.041)</td>
</tr>
<tr>
<td>Log (Monthly minimum wage) (9)</td>
<td>-1.816***</td>
<td>(0.125)</td>
</tr>
<tr>
<td>Unemployment rate (10)</td>
<td>0.096**</td>
<td>(0.005)</td>
</tr>
<tr>
<td>Republican governor (11)</td>
<td>-0.046***</td>
<td>(0.010)</td>
</tr>
<tr>
<td>Both State Senate &amp; House controlled by Republican (12)</td>
<td>-0.034**</td>
<td>(0.010)</td>
</tr>
<tr>
<td>Both State Senate &amp; House controlled by Democrat (13)</td>
<td>0.072</td>
<td>(0.055)</td>
</tr>
<tr>
<td>Percent of persons with high school diploma (14)</td>
<td>-0.008**</td>
<td>(0.002)</td>
</tr>
<tr>
<td>State-Fixed Effects</td>
<td>Yes</td>
<td></td>
</tr>
<tr>
<td>Time-Fixed Effects</td>
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<td></td>
</tr>
<tr>
<td>R-Square</td>
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</tr>
<tr>
<td>F-Statistics</td>
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</tr>
</tbody>
</table>

Notes. Dependent variable is log of caseload rate (i.e., AFDC or TANF recipients/number of females age 15-44); Standard errors are in parentheses; All regressions are based on data for 51 states from 1994-2000; *** significant at .01 level; ** significant at .05 level; * significant at .10 level.

(1) EITC phase-in rate for families with two children
(2) 1 if state-EITC is implemented; = 0 otherwise
(3) Log of monthly maximum benefit for family of three on AFDC/TANF
(4) 1 if state has implemented life-time limit of benefit receipt or work-triggering time limit: 0 otherwise
(5) 1 if work-exemption policy is implemented; 0 otherwise
(6) Log of earnings disregard of a welfare recipient who earns $750 per month.
(7) 1 if state has implemented full family sanction with the first offense (full/full) or full family sanctions after repeated offenses (partial/full); 0 otherwise
(8) 1 if family cap policy is implemented; = 0 otherwise
(9) Log of minimum wage expressed as a monthly amount, assuming employment for 30 hours per week for a full month
(10) Unemployment rate of current year
(11) 1 if a state governor is Republican; = 0 otherwise
(12) 1 if majority of both State Senate and State House is Republican; 0 otherwise
(13) 1 if majority of both State Senate and State House is Democrat; 0 otherwise
(14) Percentage of people 25 and over who completed 4 years of high school in state population

Table 4.4: Estimated effects on the caseload rate from Model 2

157
<table>
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<tr>
<th>Variable</th>
<th>Current EITC</th>
<th>Simulated EITC</th>
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<tbody>
<tr>
<td>Federal EITC phase-in rate (1)</td>
<td>-0.012***</td>
<td>-0.016***</td>
</tr>
<tr>
<td></td>
<td>(0.001)</td>
<td>(0.001)</td>
</tr>
<tr>
<td>Adoption of state EITC (2)</td>
<td>-0.242***</td>
<td>-0.238***</td>
</tr>
<tr>
<td></td>
<td>(0.008)</td>
<td>(0.010)</td>
</tr>
<tr>
<td>Log (AFDC/TANF maximum monthly benefit) (3)</td>
<td>0.185**</td>
<td>0.372**</td>
</tr>
<tr>
<td></td>
<td>(0.091)</td>
<td>(0.165)</td>
</tr>
<tr>
<td>Any major AFDC waivers (4)</td>
<td>-0.064</td>
<td>-0.036</td>
</tr>
<tr>
<td></td>
<td>(0.069)</td>
<td>(0.068)</td>
</tr>
<tr>
<td>TANF implementation (5)</td>
<td>-0.169***</td>
<td>-0.097***</td>
</tr>
<tr>
<td></td>
<td>(0.016)</td>
<td>(0.034)</td>
</tr>
<tr>
<td>Log (Monthly minimum wage) (6)</td>
<td>-2.252***</td>
<td>-2.393***</td>
</tr>
<tr>
<td></td>
<td>(0.180)</td>
<td>(0.071)</td>
</tr>
<tr>
<td>Unemployment rate (7)</td>
<td>0.136***</td>
<td>0.080***</td>
</tr>
<tr>
<td></td>
<td>(0.006)</td>
<td>(0.030)</td>
</tr>
<tr>
<td>Republican governor (8)</td>
<td>-0.101***</td>
<td>-0.086***</td>
</tr>
<tr>
<td></td>
<td>(0.009)</td>
<td>(0.025)</td>
</tr>
<tr>
<td>Both State Senate &amp; House controlled by Republican (9)</td>
<td>-0.051***</td>
<td>-0.075***</td>
</tr>
<tr>
<td></td>
<td>(0.013)</td>
<td>(0.013)</td>
</tr>
<tr>
<td>Both State Senate &amp; House controlled by Democrat (10)</td>
<td>0.007</td>
<td>0.024</td>
</tr>
<tr>
<td></td>
<td>(0.011)</td>
<td>(0.065)</td>
</tr>
<tr>
<td>Percent of persons with high school diploma (11)</td>
<td>-0.017***</td>
<td>-0.008***</td>
</tr>
<tr>
<td></td>
<td>(0.002)</td>
<td>(0.002)</td>
</tr>
<tr>
<td>State-Fixed Effects</td>
<td>Yes</td>
<td>Yes</td>
</tr>
<tr>
<td>Time-Fixed Effects</td>
<td>Yes</td>
<td>Yes</td>
</tr>
<tr>
<td>R-Square</td>
<td>0.997</td>
<td>0.997</td>
</tr>
<tr>
<td>F-Statistics</td>
<td>8113.95</td>
<td>10510.16</td>
</tr>
</tbody>
</table>

Notes. Dependent variable is log of caseload rate (i.e., AFDC or TANF recipients/number of females age 15-44); Standard errors are in parentheses; All regressions are based on data for 51 states from 1994-2000; *** significant at .01 level; ** significant at .05 level; * significant at .10 level.

(1) EITC phase-in rate for families with two children
(2) 1 if state-EITC is implemented; = 0 otherwise
(3) Log of monthly maximum benefit for family of three on AFDC/TANF
(4) 1 if any major AFDC waiver is implemented statewide; 0 otherwise
(5) 1 if TANF is implemented; 0 otherwise
(6) Log of minimum wage expressed as a monthly amount, assuming employment for 30 hours per week for a full month
(7) Unemployment rate of current year
(8) 1 if a state governor is Republican; = 0 otherwise
(9) 1 if majority of both State Senate and State House is Republican; 0 otherwise
(10) 1 if majority of both State Senate and State House is Democrat; 0 otherwise
(11) Percentage of people 25 and over who completed 4 years of high school in state population

Table 4.5: The effects of simulated EITC on caseload rate in comparison of the current EITC phase-in rate
<table>
<thead>
<tr>
<th>Study</th>
<th>This study</th>
<th>Blank 2001</th>
<th>CEA 1999</th>
</tr>
</thead>
<tbody>
<tr>
<td>Time limits</td>
<td>-.097*</td>
<td>Benefit .045</td>
<td>-.038</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Work -.059</td>
<td></td>
</tr>
<tr>
<td>JOBS exemptions</td>
<td>.194**</td>
<td>-.104*</td>
<td>.124*</td>
</tr>
<tr>
<td>Earnings disregard</td>
<td>.005</td>
<td>-.004</td>
<td>5.38*</td>
</tr>
<tr>
<td>Sanctions</td>
<td>Partial→ full &amp; Full combined -.278**</td>
<td>.111*</td>
<td>Partial→ full -.097* Full -.394*</td>
</tr>
<tr>
<td>Family cap</td>
<td>-.056</td>
<td>-.179*</td>
<td>.067</td>
</tr>
</tbody>
</table>

Note: The original coefficient estimates (before multiplied by 100) from previous studies are used. *Statistically significant at the .10 level.

Table 4.6: Comparison with other studies on welfare caseloads
Notes: Years 1 through 15 represent years from 1986 to 2000

Figure 4.1: Trends in welfare caseloads and EITC phase-in rate from 1986 to 2000
Notes: Year 1 through 25 represent years from 1976 to 2000.

Figure 4.2: Trends in EITC maximum credit of nominal versus real dollars for families with two or more children from 1976 to 2000
CHAPTER 5

DISCUSSION AND CONCLUSIONS

The 1996 welfare reform legislation, Personal Responsibility and Work Opportunity Reconciliation Act (PRWORA), abolished the entitlement to cash assistance, Aid to Families with Dependent Children (AFDC), and replaced this with Temporary Assistance for Needy Families (TANF). This legislation is often described as ending welfare dependency through work. Although this change began under AFDC waivers, the 1996 legislation was the culmination of the nation's effort to move people from welfare to the workforce.

The welfare system has undergone major changes at the same time that the number of people using government benefits decreased by nearly 60 percent (between 1994 and 2000). Previous studies on welfare caseload have attributed this dramatic decline in the caseloads to strong economy, welfare reforms under AFDC waivers and TANF, and other work-related incentives as well as demographic changes. However, these previous studies have largely overlooked the potential effect of the EITC on the decline in welfare caseloads.
In an effort to explain the unprecedented caseload drop during this period, this study examined whether the EITC, after its largest expansion in 1993, had contributed to reducing welfare caseloads in recent years. This study also estimated the effect of the state EITC—keeping abreast with federal attempts to support the work efforts of low-income workers—on welfare caseload reduction. For this purpose, data for this study were taken from multiple sources: Council of Economic Advisors, Center for Budget and Policy Priority, Internal Revenue Service, Bureau of Labor Statistics, Department of Health and Human Services, State Policy Documentation Project, Green Book, and The Book of the States.

Determining the impact of the EITC on welfare caseloads was the primary focus of this study; however, this study also addressed other research questions as well. The study method employed for this study is pooled cross-section time-series (CSTS) fixed-effects model. Using a fixed-effects model has been known as an appropriate tool for producing unbiased and consistent estimators of factors entered into an equation, controlling state-fixed and time-fixed effects (CEA, 1997; Greene, 1993; Maddala, 1992; Zilliak et al., 1999).

The overall findings of this study are consistent with those of previous studies (Blank, 2001; CEA, 1999). The remainder of this chapter summarizes the findings of this study and compares them with other recent caseload studies. This chapter also addresses the study’s contributions, limitations, and suggestions for future research on caseloads. This chapter ends with an assessment of the study’s implications.
Summary and Discussion

The primary questions investigated in this study are as follow:

1. Did the fully phased-in EITC contribute significantly to the decline in welfare caseloads between 1994 and 2000, controlling other policy, demographic, and political factors?

2. In addition to the federal EITC, there has been a continual development and implementation of state EITC across the states. Did the adoption of state EITC contribute to the decline in welfare caseloads?

3. Previous caseload studies have shown inconsistent estimates for the effects of work-enforcement provisions. How did state variations in work-enforcement provisions affect the decline in welfare caseloads?

Most of all, this study focuses on estimating the effect of the EITC on the reduction in welfare caseloads in recent years. It is estimated that a one percent increase in the EITC phase-in rate is associated with a 1.2 percent decrease in caseload rate, as the results from the basic model (Model 1) show (see Table 4.4 in Chapter 4). This means that the federal EITC would have moved nearly 722,525 people off welfare on the national average in any given year from 1994 to 2000, holding other factors constant. The results from the simulation showed that the EITC could have been more effective in lowering welfare caseloads, should the EITC have sustained against erosion of purchasing power.

The state EITC is also estimated to be effective for reducing the welfare caseloads. The size of the estimated effect on caseload rate is larger than those of other factors such as AFDC/TANF maximum benefit, implementation of TANF, and influence of political affiliation. The coefficient of the state EITC appears to be large given that there were only 15 states that adopted state EITC as an effort to further supplement...
federal EITC rate by 1999. This result implies that the state-EITC can be an effective tool for helping people move off welfare by supplementing low-income workers’ disposable income. Further, as more states adopted state EITC, its effects, when combined with an increased federal EITC phase-in rate, could decrease welfare caseloads considerably.

Several other variables are found to be significant in explaining the changes in state welfare caseloads. One percent increase in percentage of the state population 25 and over with a high school diploma is associated with 1.7 percent reduction in welfare caseloads. This appears to indicate that completing high school remains an important factor in explaining the incidence of welfare participation. A continual focus on attaining higher education as an effort to increase skills (even if this is just a proxy of many other factors) for less-skilled low-income workers may help encourage them to get and to retain better paying jobs and to work toward self-sufficiency.

The impact of work enforcement provisions under waivers/TANF on caseload changes is difficult to interpret as earlier researchers have indicated (Wallace and Blank, 1999). Differences in the sign and size of the coefficients for these policy variables across studies may indicate that these variables are capturing something more (or other) than the direct program effects of the waivers/TANF (Blank, 2001; CEA 1997, 1999; Wallace and Blank, 1999). Some of the former or potential welfare recipients might have changed their behavior because of the strong reform message in general. More importantly, including extended years of analysis until year 2000 in this study may explain different estimates from previous studies. For example, the size of the coefficient of time limit (-0.09) estimated from this study was twice as large as the CEA’s (-0.038).
This may be due to more people reaching the time limit as time passes by. On the other hand, the previous studies included shorter timeframes, usually ended at the year of TANF implementation or only two years after TANF implementation, and therefore are unlikely to capture the sizable effects of the TANF.

However, specific welfare reform provisions appear to show the more consistent impact on welfare caseloads than welfare policy entered as a waiver or TANF dummy variable does. The basic model of this study in which AFDC waivers were entered as a dummy variable into the model equation was not able to capture waiver effects on the caseload reduction. The alternative model with more specific provisions of state welfare policy, however, shows more significant estimates. A more sophisticated specification in the post-1996 period could allow future studies to separate the impact of welfare reform from the impact of other changing economic, political, and demographic factors, as more data become available. Also, including more years after TANF implementation also will improve the capability to capture the effects of these policy-specific variables.

A caution should be made in interpreting results of future studies, however. The sub-group that remained on welfare or the new group that entered the welfare system may respond differently from the way the first round of welfare leavers responded, even under the same influence of those policies. As Freeman (2001) indicates, these residual poor who are still on welfare in 1999 are likely to have quite different characteristics than those who left the welfare rolls earlier, and they might find it harder to exit from welfare. These characteristics may include their relationship to the labor market, family composition/responsibility, disability status, education level, race/ethnicity, and
immigration status. Hopefully, a richer specification with household income, labor force behavior, and family composition explain better the caseload reduction in recent years.

Economy, with no doubt, is estimated to be a significant factor in determining caseloads. States with a higher unemployment rate are estimated to be associated with higher welfare caseloads. It is consistent with the literature review that a booming economy is likely to reduce poverty and thus lower welfare caseloads, holding other factors constant. Economic growth is also likely to affect welfare caseloads in several indirect ways. Not only will the strong economy increase job availability and earnings among current and former welfare recipients, but it also will impact the earnings of these recipients' families and friends (Blank, 2001). Different economic conditions across states also potentially could influence the state welfare (and other) policy. As for minimum wage, states with rising minimum wages are estimated to have a greater impact on welfare caseload reduction, consistent with previous research.

Political affiliations of state House and Senate as well as state governor are estimated to have a significant impact on caseload change in recent years. States with Republican governors are likely to have lower welfare caseloads. States whose House and Senate are controlled by the Republican Party are associated with lower caseloads. The results are consistent with previous studies, with only some variation in the magnitude of the effects (Blank, 2001; CEA 1999).

Overall, those factors including EITC examined in this study seem to play an important role in lowering welfare caseloads in recent years. The results from this study indicate that both the federal EITC and state EITC are significant factors in explaining recent welfare caseload reduction, controlling for other factors including state-fixed
effects and time-fixed effects. Moreover, the effect of the EITC on the welfare caseload reduction would have been larger if the purchasing power of the EITC had not eroded since 1998. However, it should be noted that the relative magnitude of the effects varies depending upon different data entry (monthly versus annual or micro data versus state aggregate data), time period (long-term versus short-term), and estimation model (Blank, 2001; CEA, 1999; Moffitt, 1999). While it is hard to identify the best approach that fits all time periods, Blank (2001) found that her specification on welfare caseloads fits rather well for AFDC-UP caseloads, moderately well for AFDC-Basic caseloads, and hardly at all for child-only caseloads.

Contributions of the Study

First and foremost, all previous welfare caseload studies, except for Grogger's study (2001), ignored the EITC variable. Those previous studies tend to assume that the effect of EITC parameter changes in caseload reduction might have been subsumed in the year-fixed effects. The underlying logic is that the changes in the EITC subsidy rate occurred in all states in the same year, as mentioned in the previous chapter. Grogger employed CSTS and applied it to the micro data set, which is more apt to find significance of the effect of changes in the EITC parameter due to the ability to capture a greater variation across families in his micro data set, and thus, is methodologically different from my study. Limiting female-headed families, Grogger estimated that a $1,000 increase in the EITC maximum credit reduces welfare use by an average of 1.5 percentage points among families whose youngest child was three and by 3.1 percentage points among families whose youngest child was ten. As mentioned in the previous
chapter, it is difficult to compare these two studies because each used a different data set, different time period of analysis, and different unit of analysis.

Second, most literature on welfare caseload studies included the data up to year 1996; only a few studies utilized the data year after 1996 when TANF became effective, in an attempt to evaluate the 1996 legislation. This current study added several more years to evaluate the effects of those policy changes through TANF on welfare caseloads, and thus, contributed to understanding the policy impact in a longer term.

Time limits on benefit termination would have resulted in the loss of benefits for the entire family (or just for adult members) with different time passage in different states (The Green Book, 2000). This impact becomes clearer when some studies that included only up to year 1996 found rather counter-intuitive results of these policy variables. For example, Blank (2001) found that implementation of both time limit and work requirement as well as sanctions had significant and positive effects on caseloads during the year of implementation. Particular policy options such as time limit and sanctions under waivers or TANF may result from rising caseloads, or just proxies for a set of changes that were happening in certain states. By adding more years for the analysis, my study was able to capture a longer effect of these policies after they became effective.

Third, one of the contributions of this study comes from the nature of the CSTS models used. In comparison to national time series analysis, the CSTS model has prospects for obtaining better estimates of the impacts of program variables because there are more variations in state policies than in weighted national averages of those policy variables. Also, compared to national or state time-series estimates, it is feasible with the CSTS model to control for all changes in national program/policy or other national
factors by using time-fixed effects. Using dummy variables to capture regime shift is useful as in one of the specifications for this study (i.e., waiver and TANF dummies were used in some of the models for the present analyses). The more important asset, however, comes from using fixed-effects models that have the ability to control for state-specific effect commonly unobservable that may be correlated with other exogenous variables in the specification (Hausman and Taylor, 1981). Analysis of cross-section data or national time-series alone can neither identify nor control for such individual effects. Employing fixed-effect models helps solve the multicollinearity problems that are common to national time-series models and allows for a richer specification for the model (Hausman and Taylor, 1981).

Lastly, this study found that state-EITC would be effective in evaluating welfare caseload reduction in recent years. Previous studies limit their estimation of state EITC as an effective tool for reducing child poverty and effective distributional effect. This study estimates that state EITC as a supplement to federal EITC would reduce state welfare caseloads. This indicates that policies that make work pay are needed and should go hand-in-hand with a series of work-enforcing welfare reforms. The EITC is likely not only to give incentive to non-working welfare recipients to seek employment in the labor market and incentive to low-income workers to increase the amount of work, but also reward these work efforts enough to help people move off welfare.

Limitations of Study and Suggestions for Future Research

Although this study improves model specification in several ways, there are some limitations. First, this study was not able to obtain the time-series data for each state on
changes in the composition of single female-headed householders, non-marital births, weeks/hours of work and earnings of single mothers that might have been important determinants in changes in welfare caseloads even after controlling state-fixed and year-fixed effects. If there is deviation from trending up or trending down over time within states, and if these omitted variables are correlated with any variable entered into the equation, omitting these variables would have resulted in overestimation of effects of independent variables in this study. More specifically, the information on the relationship between EITC and state TANF-based programs was unavailable for this study, and this could have affected the estimation results. Most states have no rules about what kinds of state-subsidized activities will or will not trigger EITC eligibility. Even though the rule explicitly indicates that “work-experience” and “community-service” jobs will not trigger the EITC, there are many gray areas of other TANF-supported activities that need to be clarified (Hotz and Scholz, 2001). Unavailability of such data would have affected the precision of the estimated effect of the EITC on welfare caseloads.

In the same line, the potential interaction between EITC and the federal tax system and with other means-tested programs and the interaction between state EITC payment received and the state tax system are not included in the specification. From 1979 until 1993, the EITC was counted as income when testing AFDC, Medicaid, food stamps, SSI, and low-income housing benefits. It was from 1994—through the 1993 Mickey Leland Hunger Act—that the EITC was not allowed to be counted as income for the first 12 months after receipt for food stamp benefits and eligibility (Hotz and Scholz, 2001). After TANF replaced AFDC, it is not clear how states treated EITC income in eligibility for TANF. The EITC could cause potential recipients to fail program asset
tests beyond this time (Hotz and Scholz, 2001). Future studies would be able to produce more precise estimates with the inclusion of these changes in the tax-triggering activities and the rules of counting EITC as income in means-testing.

Third, this study coded every policy-specific (work enforcing) variable as dummy variables. A rather sparse coding and the ongoing policy changes across states make it difficult to identify the effect of each policy factor. The fourth limitation of this study is that the inclusion of state- and time-specific effects may underestimate the effect of the EITC as well as other variables. Inclusion of state-fixed and time-fixed effects might reduce the sizes of estimated coefficients of independent variables. This potential underestimation especially becomes problematic for the estimated effect of the EITC because the EITC does not have variation across states. Future research can improve this cross-sectional lack of variation in EITC subsidy rate by applying a pooled cross-section and time-series approach to cross-sectional data on individuals instead of state-aggregate data. This approach can capture variations in factors across families whose variation was lost when state aggregate data were used.

Lastly, as briefly touched on in the first chapter, this study covers the years of analysis from 1994 to 2000, covering two different welfare policy regimes: One, under waivers, and the other, TANF under PRWORA. It became harder for policy researchers to build a theoretical model that explains a family’s decision to participate or not participate in the welfare programs. Previously, recipients seemed to have only two choices (although many would argue that these low-income single female heads do not have choice in reality): welfare or work. With the introduction of waivers and subsequent TANF, however, it becomes a more complicated decision for potential
welfare recipients because recipients have to work to receive welfare. Also, welfare recipients these days can stay on welfare until their earned income levels reach quite high as states raise the welfare-eligible income, compared to those of recipients prior to implementation of work enforcement policies under waivers or TANF. The years of analysis for this study are from 1994 to 2000, and during this time period, there co-existed two different regimes: transitional regime from 1994-1996 and new regime from 1996-2000. With the devolution of responsibility for social programs from the federal government to the states (or to other local authorities), individual states have adopted more diverse program parameters at different months and years. As a result, interaction among different programs makes it harder for recipient families to understand what behavior will result in what differences in their welfare benefit when combined.

Additionally, this study assumes welfare recipients have full information on these sweeping changes in welfare regime and they are able to make a rational choice whether to participate in welfare. Understanding to what extent it is about potential welfare recipients' choice, given limited resources of time, information, or other constraints, or to what extent it is about the work enforcement under these two different welfare policy regimes is a missing piece of this study. Future studies should address this issue and develop a better conceptual model to explain the potential welfare recipients' decision-making process and welfare receipt behavior.

Implications

The findings of this study have several significant implications. First, findings support that the EITC could help single mothers move off welfare by making work pay.
Multiple policy goals, such as increase in well-being of children of low-income families and decreasing welfare dependency, may not always be seen easily to go hand-in-hand. There has been much research on EITC’s ability to induce more people, especially single mothers, into the labor force, thus decreasing poverty and increasing distributional impact.

Second, as shown in simulation of the EITC phase-in rate, maintaining an adequate EITC subsidy rate is essential to keep it consistent with the cost of living. The real dollar value of the EITC has been deteriorating since 1998, and the time period 1998 to 2000 might not be long enough to measure how much the decreased real value of the EITC would affect welfare caseloads. However, it became clear through the simulation results that the more reward the EITC gives to low-income workers, the more families would exit welfare rolls. By supporting work efforts through EITC, the government can send a stronger message to welfare recipients, consistent with other work-enforcing welfare policies under TANF. Excluding EITC in means-testing for other benefits such as AFDC, Medicaid, food stamps, or SSI is an absolute necessity. If more states count the EITC payments as income in means-testing, it will reduce the amounts of these other benefits, which can penalize work efforts.

Third, adopting state EITC is also an effective tool when combined with the federal EITC in decreasing welfare caseloads. As the findings of this study show, the marginal effect of adopting state EITC is quite large. Making state EITC refundable will further help low-income working families to increase the economic security for their children by increasing the families’ income.
Fourth, with the devolution of responsibility for social welfare programs for the federal government to the states, there is no more timely mission for social workers than to inform the public to help state and local decision makers carry out their new responsibilities more effectively. Given this important timely mission, social workers should be informed themselves of swift changes not only in the new welfare programs and eligibility rules but also in the legislation. Social workers need to learn how legislation is being made and how much impact legislation can have on the people that they work with daily. Integrating some curriculum that teaches social work students the ongoing and upcoming changes so that they can inform agencies and educate public and clients will be a critical contributing piece in making connections between the policy arena and the people who are affected by those policy changes.

In conclusion, many factors contributed to the decline in welfare caseloads during the 1990s, including a shift in demographic compositions, strong economy, and work-oriented policy changes. Among others, one of the fastest growing policies was the EITC through its expansion in 1993. The findings of this study support that the EITC could become one of the most viable options to existing welfare programs. The primary recommendation is this: To enable the EITC to effectively increase the combined income for low-income working families and to enable them to exit the welfare systems, excluding the EITC from income that counts in determining TANF eligibility and adjusting its real value to keep abreast with the current cost of living is essential.

Much remains unknown about how the devolution of welfare policy has affected the well-being of American children. The caseload studies do not answer under what conditions these children have been living after the families left welfare rolls. Future
research should answer under what circumstances and with what types of state policy
options the families fare better after leaving welfare rolls.

Lastly, it is essential to note that while the EITC is an effective instrument to fight
poverty while providing work incentives, we should be mindful of the fact that the EITC
does not help the children of the most destitute, such as those with nonworking parents.
Therefore, EITC cannot replace the safety net. A more universal approach to supporting
all needy families with children should be considered. Then—and only then—can
abolition of entitlement of cash benefits to needy families with children be justified.
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