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Minnesota's Earned Income Credit Program: Utilization by Current and Former Welfare Households and the Impact of Policy Parameters

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Minnesota's Earned Income Credit Program: Utilization by Current and Former Welfare Households and the Impact of Policy Parameters

By Donald P. Hirasuna and Thomas F. Stinson

Abstract: We examine the utilization of a state earned income credit by current and former welfare recipients using two measures: receipt among all current and former welfare recipients and among only those eligible for the credit. Both measures may be useful, depending upon which groups policymakers hope to target. We further characterize utilization by examining how receipt varies with earnings and by demographic group, the length of time current and former welfare households receive the state earned income credit, and whether recipient households respond to changes in the parameters of state earned income credit programs.

During the 1980s and the 1990s, Congress and the states realigned programs for low-income families, placing greater emphasis on work as a means to raise their standard of living. Central to federal and state efforts was the transformation of the welfare program Aid to Families with Dependent Children (AFDC) into Temporary Assistance for Needy Families (TANF) and expansions to state and federal earned income credits. In turn, researchers evaluated these program innovations and correlated expansions of federal and state earned income credits to lower welfare caseloads and higher employment rates among single mothers.

The rewards and consequences of an emphasis on work are still under scrutiny as researchers more completely characterize the sometimes successful, sometimes troublesome transitions of individuals off of welfare. An evaluation of such programs partly depends upon who is intended to benefit from the program, which may be unclear or may include several intended pools of beneficiaries. Nonetheless, appropriate measures of program utilization hinge on choosing the pool of beneficiaries that comports with the perceived goals of the policy. In this paper, we examine two pools, all current and former welfare recipients regardless of their earned income credit eligibility and the subset of only those eligible for the credit. If policymakers want to know the extent to which the earned income credit earnings incentive reaches all current and former welfare recipients in any one year, then the relevant pool is the

first one. On the other hand, if policymakers want to know the extent to which the earned income credit

reaches those eligible for the credit, then the relevant pool is the subset of the first pool that includes only

those households with earnings within the earned income credit eligibility range. Ultimately, the

measures of utilization associated with the two pools may have substantively different policy

implications. For example, to raise utilization among all current and former welfare recipients,

policymakers may consider alleviating barriers to work. To raise utilization among the subset of current

and former welfare recipients with earnings eligible for the earned income credit, policymakers may

consider outreach efforts.

To facilitate our discussion of utilization, we define two measures: (1) the receipt percentage, which is

the percentage of all current and former welfare recipients that receive the state earned income credit in a

given year regardless of eligibility for the credit, and (2) the participation percentage, which is the

percentage of current and former welfare recipients who receive the credit among only those eligible for

the credit. In this paper, we report results on the utilization of the credit in three parts: (1) an

investigation of the household characteristics that determine receipt of and participation in the state

earned income credit among current and former welfare recipients; (2) an analysis of the number of years

current and former welfare recipients spend before taking up the credit and the number of years current

and former welfare recipients receive the credit; and (3) an examination of whether current and former

welfare recipients respond to changes in earned income credit programs. The first issue addresses the fact

that policymakers may not only care whether those eligible to participate in the earned income credit do

so, they may also want to know the extent to which all current and former welfare recipients use earned

income credits as they transition away from welfare, especially given the current policy emphasis on work

incentives. The second issue recognizes that receipt and participation percentages are snapshots of a

dynamic process as parents pass through a window of eligibility. The third issue addresses the fact that

not only will having earnings within the eligibility window affect receipt and participation, but the

amount of the benefit, determined by the parameters of the earned income credit, may matter as well.

We examine these measures with administrative data from Minnesota's earned income credit program, the Working Family Credit (WFC). The data include information on household heads receiving welfare, receipt of the earned income credit, and earnings covered under the unemployment insurance (UI) system. The data include parents when first observed on welfare and an additional observation for each year afterward. As discussed later, some parents' children will become too old to be eligible for welfare or the EIC, which implies we have households that claim between zero and two or more qualifying dependents for the state earned income credit. Our household-level data include over one million observations, capturing the wide range of circumstances that current and former Minnesota welfare recipients face. Although we examine a state earned income credit, readers may find our analysis relevant to the federal earned income credit, although effects on utilization of state credits will differ from those at the federal level since migration across states affects only state credits.

To summarize our results, we find that participation percentages for current and former welfare recipients are lower than the participation percentages for all taxpayers for the federal EIC, which may be partly due to a higher concentration of lower earnings by current welfare recipients. In turn, receipt percentages are substantially lower than participation percentages for all current and former welfare recipients, which is in part due to the number of ineligible parents who have moved out of the state, have no earnings, or too much in earnings. In any given year, 40 percent or less of current and former welfare households in our dataset receive the state earned income credit. However, of parents that successfully transition from welfare to work, a large proportion eventually participate in the earned income credit, which implies a transfer of state funding from welfare to tax credits. Examining welfare transitions reveals that some former recipients eventually find themselves with earnings too high to be eligible for the earned income credit. Those less likely to transition quickly from welfare to earned income credits and to income levels above the earned income credit eligibility limits are nonwhites, younger parents, and those without a high school diploma, which may relate to barriers to work. Further examination finds that expansions to state

earned income credits may have raised credit utilization rates, effectively reaching more welfare recipients and providing further incentives to work. However, even with a large, microlevel dataset, the results are less than perfectly robust.

Literature Review

Researchers find that state and federal earned income credits may contribute to a greater likelihood that parents will transition from welfare to work. Some find that increases in federal and state earned income credits increase the employment rate of single mothers (Eissa and Liebman, 1996; Meyer and Rosenbaum, 2000 and 2001; Ellwood, 2000; Blank and Schmidt, 2001).[1] Grogger (2003) finds that more generous earned income credits contributed to lower welfare caseloads in the 1990s. Using data from 1986 through 1995, Neumark and Wascher (2001) report a positive correlation between higher earned income credits and the proportion of parents with incomes above the poverty guidelines.

Research on the impact of earned income credits on employment rates and welfare caseloads raises the question of how many welfare recipients get earned income credits. With respect to the receipt percentage, Hirasuna and Stinson (2007a, 2007b) and Hotz and Scholz (2003) use administrative data from Minnesota and California and find that between 20-55 percent of welfare recipients received state or federal earned income credits between 1992 and 1999, with higher receipt percentages in later years. In this analysis, we examine all current and former welfare recipients because some may never use the earned income credit but rely on their welfare grant, child support, other income, and in-kind assistance. Because earned income credits extend benefits to those who transition from welfare to work, we contribute to the literature by examining receipt rates after parents transition away from welfare.

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[1] See Hotz and Scholz (2003) for a review of the federal earned income credit literature.

Several researchers have examined the participation percentage for the entire eligible population. Scholz (1994) matches Survey of Income and Program Participation (SIPP) data with federal income tax information and estimates that 80–86 percent of eligible taxpayers participated in the earned income credit in 1990. Liebman (1998) combines 1990 federal income tax returns and 1991 Current Population Survey (CPS) data and finds participation percentages equal to 70 percent over the phase-in segment of the credit and 83–86 percent in the maximum and phase-out segments of the credit.[2] In a study for the U.S. Internal Revenue Service, SB/SE Research (2002) uses 1996 SIPP data and estimates that 83 percent of eligible taxpayers filed a federal tax return and consequently may have received the earned income credit. Finally, the U.S. Government Accountability Office (GAO) (2001), using CPS data, estimates that 75 percent of eligible households claimed the federal earned income credit in 1999.

Researchers generally find that public assistance recipients participate at lower rates than the larger eligible population, as reported in the previous paragraph. Hill et al. (1999) match a weighted sample of California welfare recipients with federal income tax records for the years 1993 and 1994 and find that between 42 and 54 percent of single parents in California on AFDC and eligible for the federal earned income credit actually receive it. For married parents, they estimate between 61 and 84 percent of AFDC parents participated in the credit. SB/SE Research (2002) also reports lower participation percentages of approximately 65 percent for public assistance recipients and 71 percent for food stamp recipients, where it defined participation as eligible recipients who filed an income tax return. Scholz (1994) includes a number of demographic and institutional characteristics in a regression analysis on participation rates and finds that taxpayers on public assistance were less likely to receive the federal earned income credit. Also, taxpayers who receive Social Security, have larger families, are unmarried, are of Hispanic origin, have a smaller earned income credit, or live in states without a state income tax are less likely to receive the credit.

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[2] Liebman (1996 and 1998) finds lower receipt rates for individuals with less than $5,000 in earnings.

Our research adds to the literature by more completely characterizing: (1) the difference between receipt and participation rates, (2) parents' transitions from welfare to earned income credits or other outcome paths, and (3) whether expansions in earned income credit parameters raise the probability of receipt and participation.

Minnesota's Earned Income Credit and Other Related Welfare Policies

In the transition from welfare to work, federal and state earned income credits provide additional assistance after parents become earnings-ineligible for TANF. Grant amounts for TANF vary by state and sometimes by substate region, such that in 2003, the median annualized earnings at which a single parent with two children became ineligible for TANF was $11,328 in Minnesota's program, while the highest level was $23,196, in Alaska's program. In comparison, parents ineligible for TANF could still receive the federal and state earned income credit with earnings up to $34,692 (U.S. House of Representatives, 2004). For a single parent with two children, Figure 1 depicts the amounts for Minnesota's TANF grant (the Minnesota Family Investment Program—MFIP), federal earned income credit (EIC), and the Minnesota earned income credit (the WFC). Annualized amounts of benefits and credits are on the y-axis and annual earnings are on the x-axis. Since MFIP combines the TANF cash grant with food stamps, we graph the cash portion and add the cash value of food stamps.

To receive state or federal earned income credits, taxpayers must file an income tax return. In all states other than Minnesota, the state earned income credit is a percentage of the federal earned income credit, which phases in with earnings until it reaches a maximum or plateau, and phases out until the credit equals zero (Figure 1) (Johnson and Lazere, 1998). Minnesota authorized a single-tier credit until 1998, when legislators enacted the current two-tier credit. As shown in Figure 2, the credit phases in until it reaches the first-tier maximum, remains constant until earnings reach the phase-in to the second tier,

phases in to the second maximum, remains constant until earnings or income reach the phase-out floor, and then phases out.

To further set the context of the policy environment in which expansions in Minnesota's WFC took place, we summarize all Minnesota and federal legislative enactments relevant to low-income families.

Federal Earned Income Credit (1991–1997). The federal Omnibus Budget Reconciliation Act of 1990 authorized increases in the earned income credit that were phased in over a three-year period starting January 1, 1991, and ending in 1993. Congress again raised the earned income credit in the Omnibus Budget Reconciliation Act of 1992; those changes were phased in over a three-year period that began in 1994. Also effective in 1994, individuals without dependents could claim the credit.

Working Family Credit (1992–1997). Originally, Minnesota's WFC was calculated as a fixed percentage of the federal earned income credit. In 1992, the credit equaled 10 percent of the federal credit. In 1993, Minnesota legislators increased it to 15 percent. Each of the federal changes noted above increased Minnesota's WFC because before 1998, Minnesota's credit was simply a fixed percentage of the federal credit (Table 1).

Working Family Credit (1998). Minnesota policymakers designed the second tier to eliminate the high marginal tax rates imposed during the phase-out of the federal earned income credit. Prior to 1998, there was a range of earnings where individuals could receive increased earnings but end up with reduced after-tax, after-benefit income (Hirasuna and Manzi, 1997). This was caused by a combination of increased federal and state income taxes, a decreased federal earned income credit, a decreased WFC, and decreased welfare benefits (Figure 1). In Minnesota's two-tier credit, the second or upper tier increased the WFC as the federal earned income credit began to phase out, eliminating the interval of decreased income (Wilson, 2000). The reform in 1998 also increased the maximum credit from $541 to $1,257. Finally, to

ensure that earned income credit recipients were eligible for the WFC, Minnesota's 1998 reform adjusted the earnings range of the WFC to equal the federal earned income credit eligibility range.

TANF/MFIP (1997). In response to TANF, in 1997 Minnesota authorized its welfare reform program, the MFIP. The program included increased financial incentives for work and increased subsidies for childcare. It imposed work requirements, a 60-month time limit on benefits, and a statutory requirement that county human services agencies inform TANF recipients of the WFC.

Income Taxes (1999). Minnesota legislators lowered income tax rates for all income brackets in 1999. In addition, the WFC percentages were increased by 10 percent. The phase-out rate was increased so the state credit would phase out at the same point as under the federal credit.

Calculation of Minnesota's Working Family Credit

To calculate the amount of the WFC, the five rows in the equation below correspond to the five stages of the credit: (1) the phase-in to the first tier, (2) the maximum credit for the first tier, (3) the phase-in to the second tier, (4) the maximum credit for the second tier, and (5) the phase-out.

Equation 1

$$
WFC = \begin{cases}
RATE1*w & \text{if } 0 \le w < \left(\dfrac{MAX1}{RATE1}\right) \\[2mm]
MAX1 & \text{if } \left(\dfrac{MAX1}{RATE1}\right) \le w < WFCFLOOR \\[2mm]
MAX1 + RATE2(w - WFCFLOOR) & \text{if } WFCFLOOR \le w < \left(WFCFLOOR + \dfrac{MAX2 - MAX1}{RATE2}\right) \\[2mm]
MAX2 & \text{if } WFCFLOOR + \dfrac{MAX2 - MAX1}{RATE2} \le w < PHOUTFL \\[2mm]
MAX2 - PHOUTRT(w - PHOUTFL) & \text{if } PHOUTFL \le w \le \left(PHOUTFL + \dfrac{MAX2}{PHOUTRT}\right)
\end{cases}
$$

where *w* equals earnings, *RATE1* is the phase-in rate to the first tier, *MAX1* is the maximum first-tier credit, *WFCFLOOR* is the phase-in floor to the second tier, *RATE2* is the phase-in to the second tier,

MAX2 is the maximum credit for the second tier, *PHOUTFL* is the phase-out floor, and *PHOUTRT* is the rate at which the credit phases out.

Data

To analyze WFC receipt and participation rates, we merge several administrative datasets. With data from the Minnesota Department of Human Services containing records of every adult with children on AFDC or TANF/MFIP from January 1992 through December 1999, we aggregated the adults into households via case numbers provided by the Department of Human Services, assigned each a household head, and matched state income tax records of Minnesota residents via Social Security numbers for the same years with data from the Minnesota Department of Revenue.[3] With the income tax data, we merged variables on whether the household head or spouse filed an income tax return or received Minnesota's earned income credit.[4] We next took quarterly data on job earnings for 1995 through 1999, reported in the wage detail file from the Minnesota Department of Economic Security (DES). We call these "covered earnings." We matched the earnings information via Social Security numbers for the household head and the spouse listed on his or her tax return.[5] Because an individual may hold multiple jobs over multiple quarters, we aggregated the data over all job holdings by year and Social Security number, which gave us annual earnings. We then matched the resultant data by year and household head and then by year and spouse. We did not match by earnings of spouses listed in the AFDC/TANF file since some parents may divorce or marry before the end of the tax year. For the same reason, we matched income tax records to the welfare data twice, first to the household head via Social Security number of the tax filer and then via Social Security number of the filer's spouse.

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[3] The Minnesota Department of Human Services designates welfare recipients within this dataset as eligible. *Eligibility* is a technical term for parents who applied and are deemed eligible for welfare benefits. In our data, parents are later verified as eligible and are actual welfare recipients.
[4] Filing data was restricted to those filing as full-year residents because we did not have access to part-year resident income tax forms.

Also, we added data on the percentage change in aggregate wages within the local labor market area, calculated from summary data on jobs covered under the state unemployment insurance program (ES-202).[6] The wage data act as a proxy for annual changes in wages and job opportunities. Higher aggregate wages are expected to increase the probability that parents on welfare would either find a job or receive a pay increase sufficiently large to make them more likely to receive the earned income credit.

We kept separate records for each household for each year after the first year the household received welfare.[7] For example, if a family was first recorded on welfare in 1994, we kept separate records and time varying covariates for that household for 1994 and for each subsequent year through 1999. The data file contained a total of 1,098,473 household-year observations. Since the number of households in any year equaled the number of households in the prior year plus the number of new welfare households, the number of observations in a year increased over time.

In constructing the data, we had several options for a starting date. Since Minnesota income tax records were available from 1992 through 1999, we could have constructed the data to include all households from 1992 forward, but that would have included households whose heads were younger than 13 years of age when they first entered the data set and were not ready to work. Also, we considered including households with heads aged 14 or older, but we did not have any record of whether they were within the

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[5] We did not add the earnings of the second parent indicated by AFDC or TANF records because the parents may divorce and resultantly be required to file separate individual tax returns.

[6] Local labor market data were originally provided at the county level. But the county may be too small a unit to accurately represent shifts in local job opportunities for Minnesota residents. To compensate for this, wage data were aggregated into local labor market areas as defined by the U.S. Department of Labor. The Bureau of Labor Statistics defines a labor market area (LMA) as "an economically integrated geographic area within which individuals can reside and find employment within a reasonable distance or can readily change employment without changing their place of residence." Metropolitan statistical areas are designated here as labor market areas. For nonmetropolitan areas, the Bureau of Labor Statistics groups counties where at least 15 percent of county residents commute to another county within the LMA.

[7] A household head was determined as the parent in single-parent families and the male parent in two-parent families. On several occasions the entire household consisted of minors. When the oldest person in the family was at least 14 years older than the youngest child, that person was selected as the household head. If no household head could be found, then the data was not included in the analysis. A total of 645 cases were excluded, which sums to less than 0.3 percent of all cases.

state. Ultimately, we chose to track households from the first year we observe them on AFDC or TANF/MFIP, which means we know they are within the state. This approach better comports with our research issue of how many parents utilize earned income credits while on welfare and after they transition away from it. The data on AFDC and TANF/MFIP recipients include the date of birth of the children and the number of children on AFDC and TANF/MFIP. We do not have data on the number of children in the household when parents are not on welfare. For that reason, when a child reaches 19 years of age, that child was no longer counted as part of the household and the number of children was reduced by one. If there were no children under 19, then the number of children was set to zero. Also, setting the age limit at 19 further comports with AFDC and TANF/MFIP statutes regarding the age limit of eligibility for children.

County of residence was recorded while families received welfare and if they filed a tax return, but since a significant proportion of parents did not file a return after they left welfare, verifying where they lived was impossible.[8] For those individuals, we attached data on changes in wages in the local labor market based upon their most recently recorded residence, which may have slightly biased the information on local labor markets. We also examined separate regressions with statewide changes in aggregate wages; however, since there were no appreciable differences, those results are not reported.

We constructed two datasets—the first included every household that received welfare for at least one month from 1992 through December 1999, and the second had the same data merged with covered earnings from 1995 through 1999. Both datasets include time varying covariates and year-by-year recordings of WFC utilization. By keeping both ranges of years instead of only the years 1995 through 1999, the datasets include more years of information since the welfare recipients' first recording of

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[8] We have the addresses of employers, which are entered in covered employment statistics and may add more observations with address identifiers, but there is still a significant proportion of parents that have no covered earnings and did not file an income tax return. In another paper, we conduct an analysis of those that received

welfare receipt, which allows for a more complete analysis of WFC utilization while parents transition off of welfare. In order to examine participation, we estimate eligibility for the WFC with the number of children last reported while on welfare less any children who have become too old to be claimed as qualifying dependents and with covered earnings below the income eligibility limits for the earned income credit. Of course, this imperfectly estimates eligibility because the number of children may differ from the number of qualifying children because of the rules regarding the determination of a qualifying child, and parents may give birth after leaving welfare. Also, covered earnings exclude self-employment earnings and earnings by small employers not covered under the UI system.

The Characteristics of Receipt and Participation Rates

As expected, the receipt percentages of the Minnesota earned income credit among all current and former welfare recipients are lower than the participation percentages among those who are eligible. Table 2 lists the magnitudes of the differences between the two measures. From 1992 through 1999, receipt percentages for parents currently or formerly on welfare range from 31.2 to 40.0 percent, whereas from 1995 through 1999, participation percentages range from 62.9 to 65.0 percent. Mechanically, the difference between these percentages is that receipt percentages include parents ineligible because they are without earnings and parents ineligible because their earnings are too high.

These percentages are somewhat surprising in that even though earned income credits have been found to contribute to higher labor force participation rates and lower welfare caseloads, current and former welfare recipients participate in the state credit at lower rates than the national rates for all individuals eligible for the earned income credit. Besides the participation percentage, a somewhat surprising result is that a sizably smaller percentage of all current and former welfare recipients, regardless of eligibility, receive the state earned income credit. The results help place bounds on the extent of the benefits

welfare in the current year only, without any substantive differences to the results reported here (See Hirasuna and

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delivered to current and former welfare recipients in any single year in that participation and receipt rates may be lower than some might expect. However, we describe below conditions under which participation rates might be higher across different demographic groups, earnings levels, and time since first entering welfare.

In Tables 3 and 4, we further characterize utilization rates by placing parents along earnings categories and segments of the state earned income credit—no covered earnings, earnings by segment of the state earned income credit, and covered earnings that are too high. Table 3 lists the percentage of all households within each category and Table 4 lists the percentage of parents that receive the credit. From Table 3, depending on the year, 33.1–39.3 percent of the households have no covered earnings and 5.9–13.5 percent have covered earnings that are too high, which leaves between 53.0 and 55.3 percent with covered earnings that meet the eligibility requirements for the earned income credit. Similar to Liebman's (1998) analysis of the federal earned income credit, parents increasingly participate at higher levels of covered earnings, and at the upper segments of the earned income credit.[9] From Table 4, between 52.1 and 55.4 percent of parents with covered earnings in the phase-in range and 76.2–77.9 percent of parents with covered earnings in the maximum credit range participate in the state earned income credit.[10] Although segmented by phase of the credit, participation percentages appear to vary continuously across covered earnings ranges with highest percentages between 74 and 80 percent, which are similar to national averages for the federal earned income credit when considering all households regardless of welfare history (Figure 3). The lower overall participation by current and former welfare recipients may in part relate to a concentration of households at lower earnings levels. Approximately

Stinson, 2004).

[9] These percentages fall slightly below Liebman's (1998) and Scholz's (1994) findings of between 75 and 86 percent. However, in a separate data analysis, we find that some households may have other sources of income or may have migrated outside the state, which may raise our participation percentages.

[10] A small percentage of households with no covered earnings still receives the WFC, which might indicate self-employment income, and a small percentage of households with earnings too high to receive the earned income credit also receives the WFC, which might result from a variety of reasons, such as unknown changes in the number of qualifying children and potential noncompliance. For all households, approximately 3 percent in 1999 had no

24.1–31.9 percent of current and former welfare recipients are concentrated within the phase-in segment of the credit (Table 3).

To further characterize the differences between and within receipt and participation, we report the distribution of households by demographic characteristic and phase of the credit in Table 5, and the participation percentages by demographic characteristic and earnings-related segment of the state earned income credit for 1999 in Table 6.[11] From Table 5, parents who are nonwhite, without a high school diploma, or under 20 years old are more likely to have no covered earnings or earnings in the phase-in range of the credit, which are groups identified as more likely to face work barriers (Danziger et al., 2000; Turner et al., 2006). From Table 6, these parents often participate in the earned income credit at lower rates when their covered earnings are in the phase-in range of the credit.

Blank (2007) identifies and characterizes former welfare parents who disappear from administrative records, with no record of earnings, welfare, income taxes, or other public assistance programs. We find that from 1995 through 1999, the percentage of parents without any record of covered earnings, current welfare receipt, or current year tax filing increases from roughly 18 to 24 percent and comprises roughly 71 percent of parents with no record of covered earnings in 1999. As shown in Table 7, in comparison to those with covered earnings too high to be eligible for the state earned income credit, these parents are more likely to be nonwhite and without a high school diploma and are similar to those parents without covered earnings. Some of the parents with no administrative records may have migrated out of the state; received Supplemental Security Income; received child support; cohabitated with a partner, family, or friends; received other in-kind assistance from nonprofits; or garnered self-employment earnings or alimony of too small an amount to register as taxable income.

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covered earnings but received the credit, and approximately 1 percent of households appeared to have covered earnings too high, but received the credit.

Finally, we report whether receipt and participation rates differ between current and former welfare recipients (Table 8). If a significant number of parents leave welfare for work, then receipt and participation rates may increase after parents leave welfare. Although parents who leave welfare initially receive the state earned income credit at higher rates than after leaving welfare, receipt and participation percentages among former welfare recipients decrease over time. The percentage of households that left welfare and received the state earned income credit decreased from 38.2 percent in 1992 to 31.7 percent in 1999, whereas the percentage of current welfare recipients that received the credit increased from 31.2 to 54.3 percent. The percentage of eligible households that left welfare who participated in the state earned income credit also decreased from 66.1 percent in 1995 to 62.1 percent in 1999, whereas the participation rate among current welfare recipients increased from 60.8 to 68.2 percent. At least some of the declining rates may be due to out-migration of former welfare recipients. Also, a separate analysis confirms that as households approach the earnings eligibility limit, they may have unearned income that renders them ineligible for the state earned income credit. However, some of these households may survive on income and in-kind income from family, partners, friends, and nonprofits even though they may be eligible for welfare (Blank, 2007). Increasing utilization rates among current welfare recipients may relate to a number of factors, including higher levels of the state earned income credit, higher earnings among current welfare recipients because of changes in welfare policy, higher earnings because of a better economy, and changes in the characteristics of new welfare entrants (Topel, 2001).

The Timing of Welfare and State Earned Income Credit Utilization

The previous analysis underscores the fact that receipt and participation rates are part of a dynamic process that partly depends upon the rates at which parents increase their earnings, which determines their

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[11] We select one year instead of reporting all years because we find that the percentages are fairly stable across time; using data for a single year also avoids double counting of households and the effects of year-to-year changes in the state earned income credit.

eligibility for welfare and earned income credits. Although covered earnings may generally increase from year to year, the rate of increase may systematically differ across different demographic groups of parents. In this section, we report information on the dynamics of earned income credit utilization, with statistics on the time until first receipt of the state earned income credit and on transitions in eligibility from welfare to the state earned income credit.

In Figure 4, we report Kaplan-Meier statistics on the time to first use of the state earned income credit along with the time before parents exit their first observed spell on welfare. Because earned income credit receipt may depend upon the level of generosity of the credit, we select only households first observed on welfare in 1992 and track their survival probability across subsequent years.[12] A household's estimated probability of staying on its first observed spell on welfare drops from 0.4 in the first year to 0.2 in the third year. As households transition off of welfare, they are more likely to have received the state earned income credit at least one time—the probability increases from 0.35 in the first year to 0.5 in the third year.

A minority of parents in the sample receives the credit in any given year, but the survival estimates suggest that, eventually, roughly 75 percent of parents will receive the state earned income credit. Household heads who are more likely to have the longest stays in their first welfare spell are African Americans or Asian Americans parents, male single parents, parents under age 20, and parents with children 5 years old and younger. These same groups, along with American Indians in comparison to whites and parents without a high school diploma in comparison to those with a diploma, take longer to receive their first state earned income credit (See Table A.1 in the Appendix).

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[12] To capture an entire spell, we drop households observed on welfare in the first month of the dataset (January 1992). Spell endings occur when the household does not receive welfare for one or more months. The Minnesota Department of Human Services helps assure that the spell endings are accurate by checking the data after receiving records of ineligibility. We estimate the probability of exiting welfare with the Kaplan-Meier technique with units in years. Because we select only 1992 entrants, each unit represents a year such that a spell ending in one year implies the household left welfare sometime within the first year in 1992.

Utilization of state earned income credits appears temporary. In Tables 9 and 10, we tabulate the number

of years a parent receives the WFC, the distribution of covered earnings, and other related characteristics

for parents who were on welfare in 1992. Summing across the rows in Table 9, for each year 1992–1999,

50 percent or more of parents receive the credit for three years or less. As time passes, increasing

percentages of parents use the credit multiple times, but only 5.8 percent of households receive the credit

for all eight years.

As mentioned earlier, utilization rates that are less than 100 percent may reflect a number of factors,

including migration away from the state, reliance on income other than earnings, too little in earnings to

substantively benefit from the state earned income credit, and earnings that are too high to qualify for the

credit. As reported in Table 10, less than 35 percent of parents have any covered earnings and 10 percent

have covered earnings less than $2,000 even in 1999, seven years after they were first observed on

welfare. However, as shown in Table 10, the percentage of parents with covered earnings too high to

remain eligible for the state earned income credit increases over time, with 10 percent of households

having earnings exceeding $46,000 by 1999.

The findings of relatively low year-to-year receipt percentages and the estimates that parents in the

sample often eventually receive the credit suggest a somewhat chaotic path from welfare to receipt of the

state earned income credit. In Tables 11 and 12 we classify parents into different status categories based

upon whether they receive welfare, whether they receive the earned income credit, and whether they have

covered earnings. In Table 11, we place the status categories for parents in 1998 along the rows and their

transition to each status in 1999 along the columns. For each entry in the resultant matrix, we report the

probability a parent transitions from status i in 1998 to status j in 1999, where the reported probability is

the proportion of parents who began in status i that end in status j. The table allows us to track transitions

across several welfare and earned income credit statuses between the years 1998 and 1999. We include

all households in the dataset as of 1998, which better represents the actual caseloads witnessed by

administrators, rather than including data only on those who began their first observed welfare spell in

1992. To eliminate the effects of various expansions in the state earned income credit, we only consider

transitions from 1998 through 1999, which may represent conservative estimates because of a fall in

receipt percentages, and for the first time, a slight decline in the percentage of parents with covered

earnings (Tables 2 and 10). For Table 12, we conduct a thought experiment by projecting transitions over

a five-year period by sequentially multiplying the probability of transitioning from status i to j.[13]

Approximately 58 percent of parents on welfare with no covered earnings and no WFC in 1998 remained

in the same status in 1999. However, if the transition probabilities remain stable, parents who start out on

welfare without any covered earnings or the WFC are more likely to receive the WFC five years later than

they are to be in the same status of welfare receipt with no covered earnings and no WFC. A small

percentage of parents eventually have earnings levels too high to be eligible for the WFC, with the highest

probabilities from those who were off of welfare, had covered earnings but did not receive the WFC, or

had covered earnings that were initially too high.

Ultimately, some parents may end up worse off than in 1998. For example, as can be seen in the bottom

row of Table 12, of those with covered earnings too high to receive the WFC in 1998, 20 percent are

projected to be back on welfare with covered earnings and the WFC. Scanning across the rows in the

column titled "No Record" within Table 12, the highest percentages of parents projected to end up with

"No Record" after 5 years are those parents who start out in either "On Welfare, No Covered Earnings,

but Receives WFC," "Off Welfare With Covered Earnings, but No WFC," or simply "No Record" of

welfare receipt, covered earnings, or WFC receipt. Perhaps the number of parents who receive benefits

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[13] Using a transition matrix P, which lists one-year transition probabilities $\left(p_{ij} \right)$ of originating in status i and ending in status j conditioned on starting in i, we can estimate that a parent starts in status i and ends in status j five years later by multiplying the transition matrix times itself four times.

from only some of the programs for which they are eligible provide an early indicator of parents who may not participate in welfare and earned income credit programs in future years. In any case, the projections are rough estimates using summary statistics that do not control for changes in policy, demographic characteristics, or economic conditions. More research is needed to place more accurate bounds on these transitions.

Parents' Responses to Changes in the WFC

Policymakers may be able to affect utilization rates by changing the parameters of the credit (Equation 1 and Figure 2). Using a logit regression, we run two sets of regressions to estimate separately the probability of receipt and the probability of participation, with the independent variables for both regressions including the state earned income credit parameters, other policy variables, demographic characteristics and characteristics of the economic environment. Since the results regarding demographic and economic characteristics may further inform policymakers, we summarize the estimated coefficients to these variables in our results.

We report the results from both receipt and participation regressions because the impact of state earned income credit parameters and other variables included in the regressions may be different across the two measures. A parent's choice to receive the earned income credit depends on choices regarding whether to participate in the labor force and how much to earn, whereas the parent's choice to participate in the earned income credit program is conditional on already being in the labor force and having earnings that satisfy eligibility requirements.

We hypothesize that adjustments to the state earned income credit parameters that increase its generosity would increase utilization rates, as households may be more likely to spend the time needed to file or pay

a tax preparer to help them file and claim the credit. Also, households may be more likely to hear about the credit from neighbors and others if the credit is more generous.

Our results confirm this hypothesis. We report the results of several regressions to determine the robustness of these results. First, we measure the effect of WFC parameters on the probability of receipt of the maximum credit. Second, because many previous studies include one or a subset of earned income credit parameters, we include all parameters to see if household heads respond to all individual WFC parameters (Neumark and Wascher, 2001; Grogger, 2003). Since Minnesota adopted a two-tier credit, we can take advantage of additional parameters that other states and the federal government do not have and, in combination with a large microdataset, we may find different results from previous studies. Third, to reduce specification bias, we account for changes in other policies that may correlate with changes in the WFC. In one approach, we include dummy variables for each year. However, since yearly dummies can incorporate the impact of the WFC itself, we also report regression results without these dummies except for when our search identified other relevant policy changes, including the state implementation of its welfare reform program and reforms to child support in 1998 and the lowering of tax rates in all income brackets in 1999.

The WFC parameters used in the regressions incorporate all state changes in the generosity of the credit including those related to changes in the federal credit. For example, the calculation of the maximum credit takes into account federal expansions to the credit through the Omnibus Budget Reconciliation Acts and the fact that before 1998 the WFC was a percent of the federal earned income credit, the state expansion of the credit from 10 to 15 percent in 1993, and state expansions that accompanied the switch to a two-tier credit. In addition, the state adjusts the parameters of the credit to reflect expected inflation.[14] To incorporate the change from a one-tier to a two-tier credit, in years prior to 1998, we set

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[14] The federal EITC is indexed for inflation. To allow comparisons of the real value of the state earned income credit across years, we adjust the maximum credits, phase-in and phase-out floors for realized inflation using the

WFCFLOOR equal to zero*, MAX2* equal to the maximum credit, *RATE2* equal to *RATE1*, *MAX1* equal to

zero, and all remaining rate parameters that were equal to zero to 0.00001.[15] This specification preserves

the piecewise linear construction of the WFC and allows us to examine effects along different segments

of the credit.

Another source of variation that may help capture the effects of the state earned income credit is

differences in the number of children across households. Minnesota's earned income credit follows the

federal credit in allowing different amounts for parents with zero, one, or two or more dependents. Since

this variation changes the values of any given WFC parameter from one household to the next, it may

help capture some of the effects of the various state earned income credit parameters on the probability of

utilization.

To partly account for decreasing receipt and participation rates over time, we include fixed effects for

border counties and an interaction term with the years since the household was last on welfare. We

expect that over time the households most likely to migrate out of the state are in border counties,

especially as the number of years since last on welfare increases. To identify evidence of out-migration,

we compare these results to the estimated coefficient for the time that parents were last on welfare within

interior counties.

We use separate datasets for receipt and participation behavior. For receipt behavior, we take advantage

of having more years of information by using the 1992–1999 dataset. For participation, we can only use

the 1995–1999 dataset. We estimate the probability of receipt or participation with a reduced form

expression, where receipt depends upon the sum of WFC parameters, demographic characteristics, and

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CPI for Minneapolis-St. Paul. This may result in slight inaccuracies in that some local areas in Minnesota may have
a different rate of inflation than that experienced in Minneapolis-St. Paul.
[15] Also, since the WFC remained a one-tier credit for households without dependents, we kept the same specification
for all years to 1998 and set the phase-out rate equal to 0.00001.

environmental economic characteristics. Names of variables and a year-by-year list of averages and standard deviations are shown in Table 13. The year-by-year list displays demographic shifts in the makeup of welfare recipients and the panel structure of the dataset (United States, 2004; Hirasuna, 2000). Maximum credits, phase-in floors to the second tier, and the phase-out floor of the WFC are adjusted to 2002 dollars. The phase-in and phase-out rates are unadjusted, making cross-year comparisons possible with real wages and parameters implicitly determining the credit amount in real dollars.[16]

We list the probability regression results in Tables 14 and 15 with standard errors adjusted for clustered sampling with respect to local labor market areas. By virtue of the logit function, the estimated coefficients can be transformed to represent the effect of a one-unit change in the independent variables on the odds ratio of receipt, where the odds ratio equals $\pi / (1 - \pi)$ and π equals the probability of receipt. The exponent of each estimated coefficient yields an estimate of the percent change in the odds ratio. If the independent variable correlates to an increase in the probability of utilization, the exponent of the estimated coefficient will be greater than one $(\hat{\beta} > 1)$ and the percentage change in odds due to a one-unit increase in the independent variable equals 100 times the quantity of the exponent of the estimated coefficient minus one $[100 * (\hat{\beta} - 1)]$. If there is no change in odds due to a one-unit increase in the independent variable, then the exponent of the coefficient equals one $(\hat{\beta} = 1)$. If the independent variable leads to a decrease in the probability of utilization, the estimated coefficient will be greater than zero, but less than one $(0 < \hat{\beta} < 1)$, and the percentage change in odds equals the exponent of the estimated coefficient minus one $[100 * (\hat{\beta} - 1)]$.

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[16] Phase-in and phase-out rates are in dollars of credit per dollar of earnings.

Changes in the Probability of Receipt

In Table 14, we provide the estimated regression coefficients on the probability of receipt, where columns (1) and (2) include only the maximum credit and columns (3) and (4) include all of Minnesota's earned income credit parameters. Also, columns (1) and (3) include all year effects while columns (2) and (4) include year effects only for the 1998 implementation of MFIP and other reforms and the 1999 reduction in income taxes. The first row of Table 14 corresponds to the maximum WFC and shows that under columns (1) and (2), a $100 increase in the maximum credit raises the odds of household receipt of the credit by 5 percent regardless of whether all year effects are included in the regression. We obtain mixed results in the model with all WFC parameters, with some indications that households respond to individual parameters. Perhaps not surprisingly, including all year effects results in few statistically significant coefficients. In the regression with all current and former welfare recipients, the only statistically significant WFC coefficient implies that an increase in the phase-in rate to the second tier reduces the probability of receipt.

The desirability of including year effects is not entirely clear. By including year effects, we are more likely to capture the effects of any remaining policy changes unrelated to changes in the state earned income credit. However, year effects may not only pick up residual changes in policy and economic conditions, they may also incorporate changes in WFC parameters. When we drop the yearly fixed effects except for those years in which we identified policy changes relevant to low-income families, the results uniformly suggest an expansion to the WFC raises the probability of receipt. First, a 1 percent higher phase-in rate for the first tier gives some households more income and raises the odds of receipt by 9 percent. Second, a $100-increase in the maximum first-tier credit raises the odds of receipt by 14 percent. Third, a $1,000-higher earnings threshold before phasing into the second tier forestalls an increase in the WFC, which lowers the odds of receipt by 6 percent. Fourth, a higher second-tier maximum credit raises the odds of receipt and suggests that regardless of whether a single-tier or two-tier

credit is created, expanding the generosity of the credit raises the odds of receipt. Fifth, a $1,000-higher earnings threshold before the WFC phases out allows higher incomes for some parents and raises receipt odds by 1.9 percent. Finally, a 1-percent higher phase-out rate would lower the credit amount for some households and lower the odds of receipt by 17 percent. The estimated coefficient for the phase-in rate to the second tier is the only estimate that is not statistically significant, with a p-value of 0.09, and suggests that a 1-percent increase in the rate results in a 0.9-percent increase in the odds of receipt.

Parents on the pre-TANF program, AFDC, are less likely to receive the WFC in comparison to parents on TANF/MFIP and parents who left welfare. Parents on TANF/MFIP may be more likely to receive the WFC in comparison to parents on AFDC because the income eligibility limit for TANF/MFIP is higher after including the food portion of the grant and due to the requirement that caseworkers must inform TANF/MFIP recipients of the WFC.

We test for evidence of out-migration with fixed effects for border counties and an interaction term between border counties and years since last on welfare. We hypothesize that out-migration increases with years after leaving welfare, and the results corroborate that hypothesis with households along the border counties more likely to receive the WFC while on welfare, but up to 16 percent less likely each year after their last welfare episode. These out-migration effects are in addition to the general trend that households are less likely to receive the WFC as years elapse since their last time on welfare. As noted above, in addition to migrating out of the state, parents may increasingly garner too much in earnings or income to be eligible for the WFC, or they may drop out of the system.

Our regression results on demographic variables are consistent across specifications and with our previous analyses. African Americans, Hispanics, and American Indians are all less likely to receive the WFC. Consistent with expectations regarding work skills, household heads without a high school diploma and younger household heads are less likely to receive the WFC. Tables 5 and 7 show that these

groups are more likely to have covered earnings in the phase-in range of the state earned income credit, have no earnings, or have no record of earnings, earned income credit or welfare receipt. In terms of economic conditions, a good economy, as measured by lower unemployment rates and higher growth in local area aggregate wages, raises receipt rates of all current and former welfare recipients.

Changes in the Probability of Participation

As shown in Table 15, parents increase their odds of participation by 5 percent in response to a $100 increase in the state earned income credit. We find noticeably fewer statistically significant coefficients when examining participation rates but, when significant, the coefficients are of the expected sign and, in the case of the WFC, tend to be larger. In general, expansions in the WFC seem correlated with higher participation.[17] When we drop the fixed effects for years, even though only one coefficient is significant, all estimated coefficients for the earned income credit parameters suggest that an expansion in the WFC leads to higher participation percentages. These results also suggest that the yearly dummies may incorporate some changes in the WFC along with other residual effects.[18] This may be particularly true when the state tends to increase more than one parameter at once. However, even though we include year effects for years in which other policy changes are identified, dropping the remainder of year effects may exclude residual changes in policy and in the local economy.

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[17] In regressions with yearly dummies, the insignificant coefficients counter-intuitively suggest expansions in the WFC might result in decreases in participation; however, the error bands around these coefficients are large enough to reject such conclusions by conventional standards.

[18] As further evidence of residual effects, one might expect the coefficients on our dummy variables for 1998 and 1999 to be positive since these are the years of welfare reform and lower income tax rates. However, we account for the effects of welfare reform and changes in WFC parameters with other variables in our model. Also, the residual effects may be picking up signs of a decrease in employment opportunities for welfare recipients that correspond with a decrease in the percent of welfare recipients with covered earnings. We further investigated whether alternate specifications of the model would reverse the signs of these dummy variables with different variable combinations and several linear probability models with household fixed effects, none of which reduced the sign. Some of these regressions dropped the dummy variable for 1998 suggesting severe multicollinearity with other existing variables and further corroboration that it may be picking up all residual changes.

In Table 15, the estimated coefficient for the variable that indicates when parents are on TANF/MFIP suggests that these parents are less likely to receive the earned income tax credit than former welfare recipients. Table 3 shows that a higher concentration of welfare recipients may be at the phase-in portion of the credit and less likely to participate than eligible households with higher incomes, which might explain the lower participation rates of TANF/MFIP recipients. Roughly 45 percent of all eligible households are within the phase-in range of the credit and would be eligible for TANF/MFIP unless they had no children. Table 4 shows that participation percentages are 55 percent for households in the phase-in range and 70 percent within the phase-out range. As shown in Figure 1, TANF/MFIP phases out prior to the phase-out range of the WFC.

With regard to out-migration, households are still less likely to participate in the state earned income credit as the number of years since their last time on welfare increases. Under state law, parents must consider income earned outside the state when claiming the state earned income credit. In addition, parents with residence in another state must file a separate tax return, but since we only have access to state resident tax forms, we are not able to examine their WFC participation.

Consistent with the literature on work barriers, African American, Hispanic, and American Indian parents, younger parents, and parents without a high school diploma are less likely to participate in the WFC. Table 5 shows that these parents are more likely to have covered earnings within the phase-in range of the WFC where the benefit of receiving the WFC may be smaller. In this case, a higher unemployment rate decreases the probability of participation, but lower aggregate wages increase the probability of participation. One potential explanation, subject to further analysis, is that during periods of high wage growth more families may find themselves closer to the phase-out range of the credit and be less likely to participate in the credit program, as demonstrated in Figure 3.

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Conclusion

The stories of welfare recipients include successes and challenges in their transitions from welfare to employment. Earned income credits provide an incentive to work and researchers have investigated their contribution to helping parents move from welfare to work. However, the use of earned income credits by current and former welfare recipients requires further investigation.

We examine state earned income credit utilization by households who currently receive welfare or after their transition from welfare. Two measures provide insight into how many current and former welfare recipients benefit from state earned income credits. The participation percentage is the percentage of parents who receive the state earned income credit while eligible. The second measure is the receipt percentage, which includes all current and former welfare recipients regardless of whether they have any earnings or earnings inside the range of eligibility. Together, these two measures are relevant for helping policymakers identify areas for improvement, such as whether policy might focus on getting the credit to those eligible for it, or getting more parents to become eligible.

Our results suggest that in any single year, about 65 percent of welfare recipients eligible for the state earned income tax credit participate in the program, while 38 percent of all current and former welfare recipients receive the credit. In general, the 65 percent participation rate is lower than the rate found in studies of the entire population of eligible earned income credit recipients, possibly because welfare recipients may have relatively low earnings that qualify them for a relatively low credit, and thus have less incentive to claim the credit.

We find that as time passes, parents are more likely to receive the credit and get off welfare. Data on transitions depict somewhat chaotic passages between welfare and work. Among those less likely to receive the state earned income credit are non-whites and persons without a high school diploma, which

may correspond roughly to parents that face greater barriers to work. An important policy lever available to state policymakers that affects both receipt and participation rates is the generosity of the state earned income credit. In general, there appears to be some evidence that policymakers can raise participation and receipt rates for state earned income credits by increasing the generosity of the credit.

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Figure 1

2006 Annual Minnesota Family Investment Program (MFIP) Grant and Earned Income Credits
for a Single Parent with Two Dependents
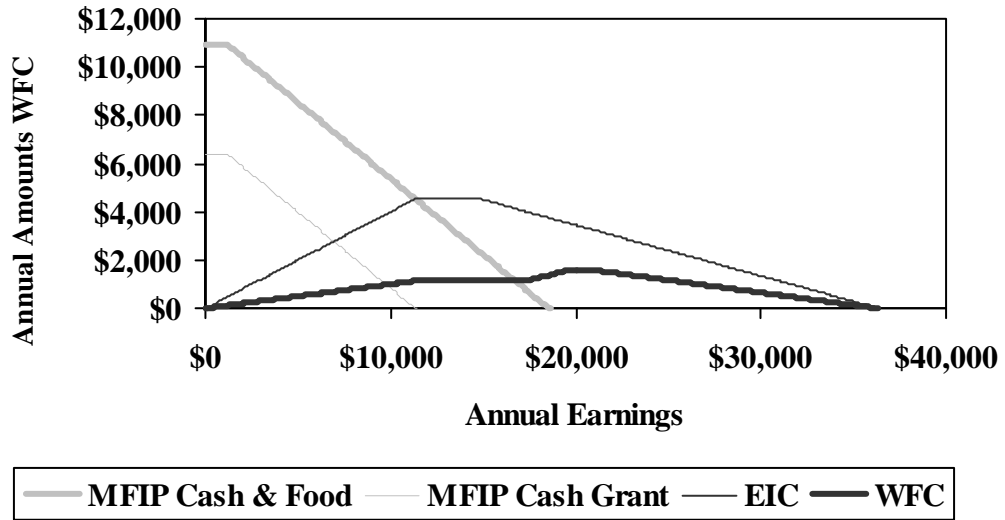
Figure 2

Working Family Credit (WFC)
For a Single Parent with Two or More Children, 1997 and 1998
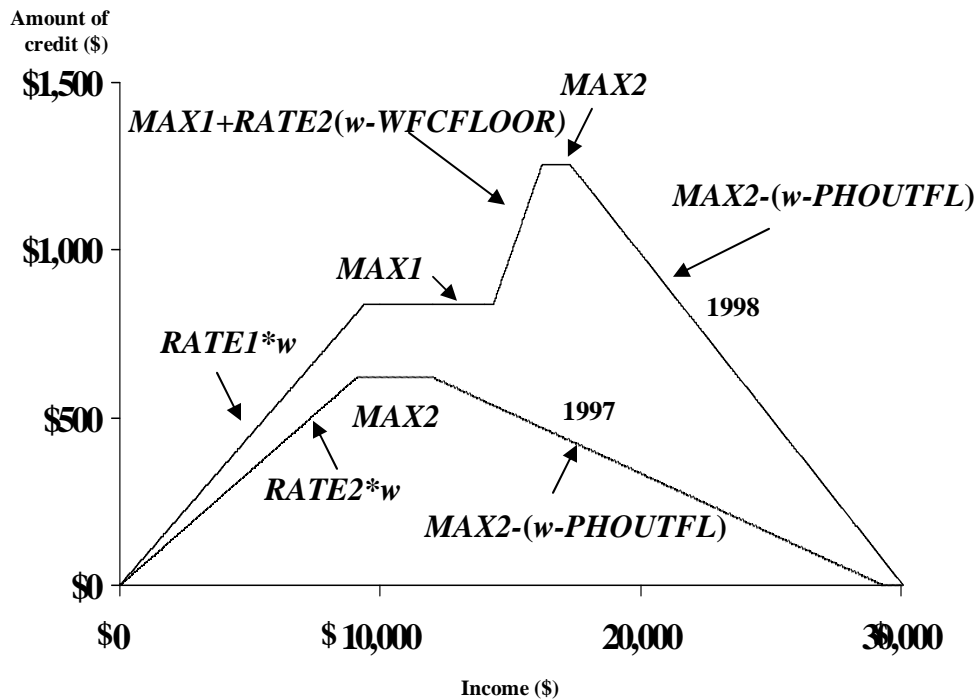
Figure 3

WFC Participation Rates by Earnings Level and
Number of Qualifying Children, 1995–1999
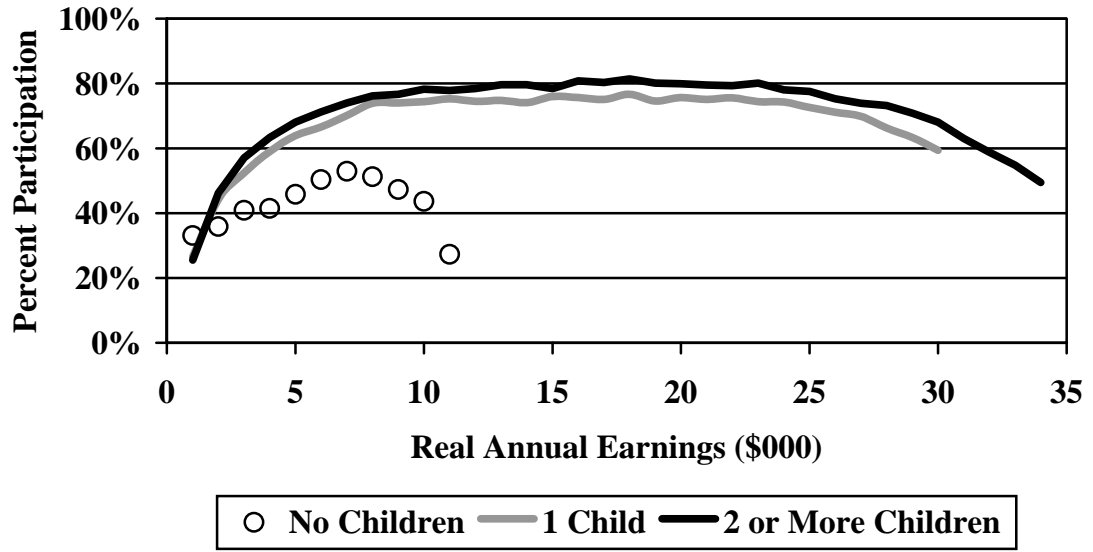
Figure 4

Survival Probabilities of Staying on Welfare and of Receiving the WFC
For Households First Observed Entering in 1992
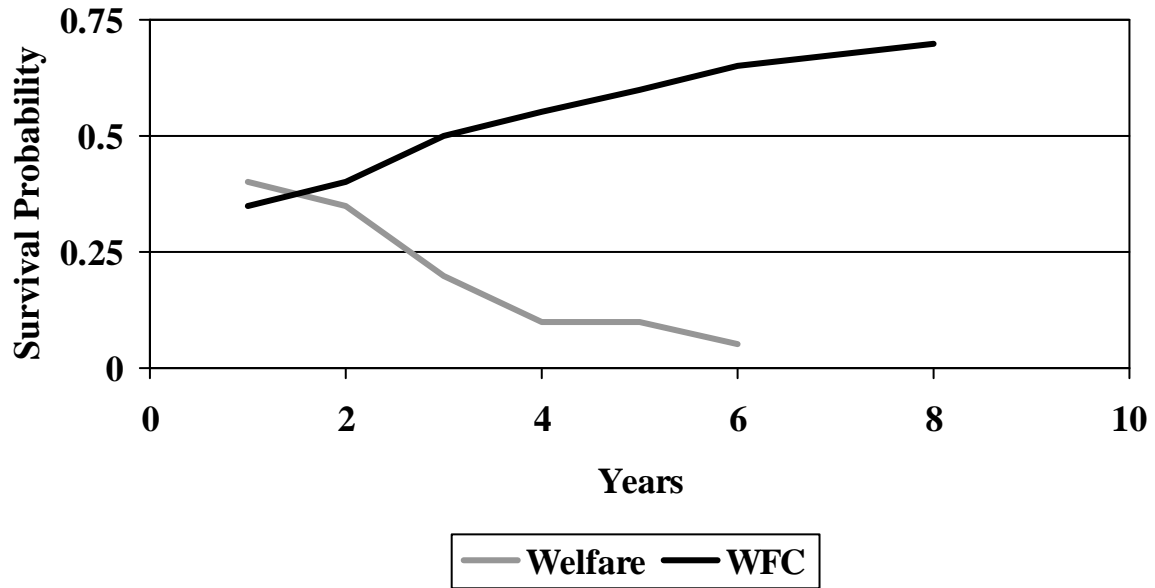
Table 1

Parameters for the WFC

Year	Phase-in Percentage for First Tier (RATE1)	First-tier Maximum Credit in (MAX1)	Floor to Phase-in to Second Tier (WFCFLOOR)	Phase-in Percentage for Second Tier (RATE2)	Second-tier Maximum Credit in (MAX2)	Phase-out Floor in (PHOUTFL)	Phase-out Percentage (PHOUTRT)
No Children							
1994	1.1%	45.9				5,000.0	1.1%
1995	1.1%	47.1				5,130.0	1.1%
1996	1.1%	48.4				5,280.0	1.1%
1997	1.1%	49.8				5,430.0	1.1%
1998	1.1%	51.2				5,570.0	1.1%
1999	1.1%	52.0				5,660.0	1.1%
One Child							
1992	1.8%	132.4				11,840.0	1.3%
1993	2.8%	215.1				12,200.0	2.0%
1994	3.9%	305.7				11,000.0	2.4%
1995	5.1%	314.2				11,290.0	2.4%
1996	5.1%	322.8				11,610.0	2.4%
1997	5.1%	331.5				11,930.0	2.4%
1998	6.8%	454.2	11,650.0	8.5%	568.2	14,560.0	4.8%
1999	7.5%	506.0	11,850.0	8.5%	622.0	14,810.0	5.1%
Two or More Children							
1992	1.8%	138.4				11,840.0	1.3%
1993	2.9%	226.7				12,200.0	2.1%
1994	4.5%	379.1				11,000.0	2.7%
1995	5.4%	466.6				11,290.0	3.0%
1996	6.0%	533.4				11,610.0	3.2%
1997	6.0%	548.4				11,930.0	3.2%
1998	8.0%	751.2	14,350.0	20.0%	1,127.2	17,280.0	8.8%
1999	8.8%	840.0	14,590.0	20.0%	1,222.0	17,570.0	9.4%

Table 2

Receipt of WFC by Year
For All Current and Former Aid to Families with Dependent Children and MFIP Households
(N=1,098,473)

	All Current and Former Welfare Recipients			Only Those Eligible for the WFC		
Year	Did Not Receive the WFC	Received the WFC	Percent that Received the WFC	Did Not Receive the WFC	Received the WFC	Percent that Participate in the WFC
1992	57,157	25,969	31.2%			
1993	67,865	35,223	34.2%			
1994	76,401	43,945	36.5%			
1995	83,583	51,861	38.3%	27,533	46,708	62.9%
1996	90,439	57,992	39.1%	28,837	52,291	64.5%
1997	95,732	62,698	39.6%	30,886	56,469	64.6%
1998	101,770	67,866	40.0%	32,830	61,094	65.0%
1999	110,994	68,978	38.3%	33,858	61,694	64.6%
Total	683,941	414,532	37.7%	153,944	278,256	64.4%

Table 3

Distribution of Households by Phase of the WFC (N=1,098,465)

			Single-Tier Credit			
Year	No Covered Earnings	Phase-in	Maximum Credit	Phase-out	Earnings Are Too High	
1995	39.30%	31.90%	7.10%	15.80%	5.90%	
1996	38.30%	29.80%	7.20%	17.60%	7.10%	
1997	35.70%	28.30%	7.40%	19.40%	9.10%	

			Two-Tier Credit				
Year	No Covered Earnings	Phase-in to First Tier	Maximum First-Tier Credit	Phase-in to Second Tier	Maximum Second-Tier Credit	Phase-out	Earnings Are Too High
1998	33.10%	26.70%	9.50%	2.80%	2.00%	14.30%	11.60%
1999	33.50%	24.10%	9.20%	2.70%	2.00%	15.00%	13.50%

Table 4

Participation Percentages by Phase of the WFC (N=1,098,465)

	Single-Tier Credit				
Year	No Covered Earnings	Phase-in	Maximum Credit	Phase-out	Earnings Are Too High
1995	8.10%	52.10%	77.50%	78.20%	10.70%
1996	8.10%	53.50%	77.90%	77.50%	10.50%
1997	8.40%	54.50%	76.20%	75.10%	10.20%

	Two-Tier Credit						
Year	No Covered Earnings	Phase-in to First Tier	Maximum First-Tier Credit	Phase-in to Second Tier	Maximum Second-Tier Credit	Phase-out	Earnings Are Too High
1998	8.80%	55.40%	76.00%	77.40%	77.00%	71.80%	9.50%
1999	8.70%	54.60%	75.10%	77.50%	77.10%	70.10%	8.60%

Table 5

Distribution of Households by Phase of the WFC and Individual Characteristic for Year 1999
(N=179,972)

Demographic Group	No Covered Earnings	Phase-in to First Tier	Maximum First-Tier Credit	Phase-in to Second Tier	Maximum Second-Tier Credit	Phase-out	Covered Earnings Are Too High
Gender							
Male	40.2%	24.1%	8.3%	3.1%	2.3%	12.7%	9.4%
Female	32.4%	24.0%	9.3%	2.8%	2.1%	15.3%	14.1%
Race							
Asian American	39.6%	14.5%	7.0%	2.6%	1.8%	17.1%	17.5%
African American	38.4%	30.2%	8.0%	2.4%	1.8%	12.7%	6.5%
Hispanic	58.3%	19.2%	6.1%	1.6%	1.1%	8.8%	4.7%
American Indian	44.1%	33.8%	7.2%	2.0%	1.2%	7.6%	4.2%
White	26.9%	22.7%	10.4%	3.1%	2.3%	17.1%	17.4%
Education							
No High School Diploma	44.2%	27.4%	7.6%	2.1%	1.5%	9.7%	7.5%
High School Diploma	28.9%	22.7%	9.9%	3.0%	2.3%	17.2%	16.0%
Children							
None	13.6%	18.8%	5.1%			22.4%	40.0%
At Least One	32.7%	25.2%	9.8%	2.9%	2.2%	15.5%	11.6%
Age of Children							
5 and Younger	35.3%	35.2%	10.6%	2.9%	2.0%	14.0%	12.8%
6 through 10	41.1%	22.5%	10.6%	3.3%	2.5%	20.0%	17.9%
11 and Older	41.7%	21.5%	10.6%	3.5%	2.7%	19.9%	17.4%
Age of Parent							
Under 20	28.8%	59.2%	7.5%	0.9%	0.6%	2.5%	0.4%
20 through 39	30.6%	25.7%	10.0%	3.0%	2.2%	15.9%	12.6%
40 and Older	41.4%	17.1%	7.4%	2.2%	1.6%	13.6%	16.7%
Marital Status While on Welfare							
Single	33.3%	25.8%	9.3%	2.9%	1.9%	14.3%	12.5%
Married	33.3%	15.5%	6.6%	2.2%	1.5%	11.3%	11.1%

Table 6

Participation Rates by Phase of the WFC and Individual Characteristic
for Year 1999 (N=179,972)

Demographic Group	No Covered Earnings	Phase-in to First Tier	Maximum First-Tier Credit	Phase-in to Second Tier	Maximum Second-Tier Credit	Phase-out	Covered Earnings Are Too High
Gender							
Male	10.1%	40.2%	55.3%	41.7%	58.8%	45.0%	9.1%
Female	8.4%	57.2%	78.1%	80.3%	79.8%	73.5%	8.6%
Race							
Asian American	7.3%	69.3%	82.1%	84.1%	75.8%	70.4%	6.7%
African American	4.9%	52.6%	80.3%	81.6%	79.6%	76.4%	16.8%
Hispanic	3.6%	53.6%	79.0%	77.2%	80.0%	73.4%	12.8%
American Indian	6.6%	37.4%	55.4%	60.8%	65.2%	58.7%	9.3%
White	12.4%	57.4%	74.6%	77.2%	77.0%	68.9%	7.6%
Education							
No High School Diploma	5.2%	49.6%	74.3%	78.4%	79.9%	70.1%	9.9%
High School Diploma	10.9%	57.2%	75.4%	77.3%	76.3%	70.1%	8.3%
Children							
None	4.9%	29.0%	40.4%			43.1%	16.4%
At Least One	9.0%	55.4%	75.7%	77.5%	77.1%	71.1%	6.6%
Age of Children							
5 and Younger	9.0%	53.2%	77.7%	83.4%	81.6%	74.0%	13.0%
6 through 10	7.9%	57.1%	74.3%	75.1%	76.1%	69.4%	6.3%
11 and Older	9.3%	55.4%	71.4%	71.5%	72.0%	65.8%	5.7%
Age of Parent							
Under 20	4.0%	32.9%	69.3%	69.4%	100.0%	84.0%	11.1%
20 through 39	8.8%	56.5%	76.8%	79.0%	78.3%	72.5%	7.3%
40 and Older	8.6%	53.6%	69.7%	72.8%	71.8%	62.5%	11.1%
Marital Status While on Welfare							
Single	7.8%	54.1%	75.8%	77.4%	78.0%	71.6%	9.4%
Married	10.8%	56.0%	73.5%	77.8%	74.3%	65.7%	6.2%

Table 7

Characteristics by WFC Eligibility Status
for Year 1999 (N=179,972)

Year	No Record	No Covered Earnings	Eligible for WFC	Ineligible Because Covered Earnings Are Too High
Gender				
Female	84.9%	82.9%	86.9%	90.7%
Race				
Asian American	5.3%	6.0%	4.4%	7.1%
African American	22.3%	9.1%	20.0%	9.3%
Hispanic	18.0%	10.4%	5.7%	2.9%
American Indian	7.4%	52.7%	6.1%	2.0%
White	47.1%	52.7%	63.7%	78.8%
Education				
Percent without High School				
Diploma	38%	40%	27%	17%
Children				
None	4.0%	11.5%	2.7%	19.9%
Age of Children				
Less Than 5	48.6%	26.8%	39.2%	30.6%
5 through 10	30.2%	46.9%	38.9%	43.7%
11 and Over	21.3%	26.3%	21.9%	25.7%
Age of Parent				
Under 20	5.7%	0.3%	3.0%	0.1%
20 through 39	64.4%	64.6%	75.6%	66.3%
Over 40	29.9%	35.1%	21.4%	33.6%

Table 8

Receipt of Minnesota's WFC:
Separate Tables for Current and Former Welfare Households[19] (N=1,098,473)

| | All Households Regardless of Eligibility for the WFC | | | | | | Only Households Eligible for the WFC | | | | | |
| | Received Welfare | | | Left Welfare | | | Received Welfare | | | Left Welfare | | |
Year	Received WFC	Did Not Receive WFC	Percent That Received WFC	Received WFC	Did Not Receive WFC	Percent That Received WFC	Received WFC	Did Not Receive WFC	Percent That Received WFC	Received WFC	Did Not Receive WFC	Percent That Received WFC
1992	25,969	57,157	31.2%	0	0	0.0%						
1993	27,713	55,700	33.2%	7,510	12,165	38.2%						
1994	29,259	52,278	35.9%	14,686	24,123	37.8%						
1995	29,761	47,340	38.6%	22,100	36,243	37.9%	26,938	17,372	60.8%	19,770	10,161	66.1%
1996	29,421	42,352	41.0%	28,571	48,087	37.3%	26,764	15,758	62.9%	25,527	13,079	66.1%
1997	28,640	34,287	45.5%	34,058	61,445	35.7%	26,260	14,429	64.5%	30,209	16,457	64.7%
1998	30,146	26,926	52.8%	37,720	74,844	33.5%	27,984	13,635	67.2%	33,110	19,195	63.3%
1999	28,745	24,198	54.3%	40,233	86,796	31.7%	26,650	12,438	68.2%	35,044	21,420	62.1%

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[19] The table shows that some households receive the WFC even though they are ineligible in terms of covered earnings. For example, in 1995, there are 5,153 WFC recipients whom we did not find eligible in terms of covered earnings. Some of this is due to households having self-employment earnings or earnings not covered by the unemployment insurance system. However, some of it may also be because of fraudulent behavior with persons not reporting all their earnings in either their federal or state income tax returns. The WFC has the same eligibility limits that the federal earned income credit does, so when the U.S. Internal Revenue Service finds someone who falsely claims the federal earned income credit, Minnesota can follow up with the WFC.

Table 9

Number of Years Households Receive the WFC,
Households Are First Observed on Welfare in 1992 (N=665,008)

Category	Year							
	1992	1993	1994	1995	1996	1997	1998	1999
I. Percent of Households that Receive the WFC by Year	31.2%	33.8%	36.5%	38.5%	39.5%	39.7%	39.7%	37.3%
II. Distribution of Households by the Number of Years the Household Receives the WFC within the Nine-Year Period:								
Never	68.8%	56.9%	48.3%	41.4%	36.3%	31.8%	27.6%	25.3%
One Year	31.2%	21.2%	18.9%	17.3%	15.5%	14.6%	13.8%	12.1%
Two Years		21.9%	15.9%	14.8%	13.8%	12.9%	12.4%	11.8%
Three Years			16.9%	13.0%	12.3%	11.7%	11.2%	10.9%
Four Years				13.6%	11.0%	10.7%	10.5%	10.2%
Five Years					11.1%	9.3%	9.2%	9.2%
Six Years						9.1%	8.0%	8.0%
Seven Years							7.2%	6.6%
Eight Years								5.8%

Table 10

Distribution of Covered Earnings by Year
Households Are First Observed on Welfare in 1992 (N=665,008)

Category	Year				
	1995	1996	1997	1998	1999
I. Percent of Households With Covered Earnings By Year	60.1%	62.2%	65.1%	67.8%	67.3%
II. Percentile Distribution of Covered Earnings in Real 2002 Dollars (Among Only Those With Earnings)					
10th	$729	$896	$1,174	$1,617	$1,972
25th	$3,014	$3,705	$4,627	$5,935	$7,003
50th (median)	$9,968	$11,629	$13,211	$14,991	$16,641
75th	$19,931	$21,785	$23,814	$26,547	$28,596
90th	$31,770	$34,725	$38,822	$43,200	$46,716

Table 11

Transitions across Statuses of Welfare, Work and WFC Receipt
from 1998 through 1999 (N= 169,636)*

Status Observed in 1998	Status Observed One Year Later in 1999							
	On Welfare, No Covered Earnings and No WFC	On Welfare, No Covered Earnings, but Receives WFC	No Record	On Welfare With Covered Earnings, but No WFC	On Welfare With Covered Earnings and WFC	Off Welfare With Covered Earnings, but No WFC	Off Welfare With Covered Earnings and WFC	Off Welfare With Covered Earnings that Exceed WFC Eligibility
On Welfare, No Covered Earnings and No WFC	58%	3%	4%	20%	13%	1%	1%	0%
On Welfare, No Covered Earnings, but Receives WFC	8%	46%	9%	4%	14%	3%	15%	1%
No Record	6%	2%	78%	3%	1%	7%	3%	1%
On Welfare With Covered Earnings, but No WFC	20%	1%	3%	43%	25%	5%	3%	1%
On Welfare With Covered Earnings and WFC	10%	3%	1%	15%	62%	1%	8%	1%
Off Welfare With Covered Earnings, but No WFC	2%	1%	10%	9%	6%	44%	19%	10%
Off Welfare With Covered Earnings and WFC	1%	2%	3%	3%	19%	8%	62%	3%
Off Welfare With Covered Earnings that Exceed WFC Eligibility	0%	0%	1%	2%	5%	13%	12%	67%

*For each row, the sum across the columns equals 100 percent.

Table 12

Projected Transitions across Welfare, Work and WFC Receipt Statuses
from 1998 to Five Years Later (N= 169,636)*

Status Observed In 1998	Projected Status Five Years Later							
	On Welfare, No Covered Earnings and No WFC	On Welfare, No Covered Earnings, but Receives WFC	No Record	On Welfare With Covered Earnings, but No WFC	On Welfare With Covered Earnings and WFC	Off Welfare With Covered Earnings, but No WFC	Off Welfare With Covered Earnings and WFC	Off Welfare With Covered Earnings that Exceed WFC Eligibility
On Welfare, No Covered Earnings and No WFC	22%	4%	11%	18%	28%	6%	10%	3%
On Welfare, No Covered Earnings, but Receives WFC	14%	5%	14%	14%	25%	7%	16%	4%
No Record	12%	3%	35%	11%	15%	9%	11%	4%
On Welfare With Covered Earnings, but No WFC	19%	4%	9%	18%	29%	6%	12%	3%
On Welfare With Covered Earnings and WFC	18%	4%	8%	17%	31%	6%	13%	3%
Off Welfare With Covered Earnings, but No WFC	11%	3%	14%	12%	23%	10%	18%	8%
Off Welfare With Covered Earnings and WFC	12%	4%	9%	13%	28%	8%	21%	6%
Off Welfare With Covered Earnings that Exceed WFC Eligibility	8%	2%	9%	10%	20%	12%	21%	18%

*For each row, the sum across the columns equals 100 percent.

Table 13

Names, Description of Variables, Averages, and Standard Deviations for All Current and Former Welfare Recipients by Year (N=1,098,465)

Name of Variable	YEAR								Average
	1992	1993	1994	1995	1996	1997	1998	1999	
Maximum Working Family Credit in $00s	1.7847	2.8091	4.3024	4.8619	5.1553	5.0963	9.5772	9.8458	5.9933
(MAXCRED)	(0.0798)	(0.2637)	(0.6389)	(1.0988)	(1.4451)	(1.5297)	(3.7029)	(4.0129)	(3.6007)
Phase-in Percentage for First Tier (RATE1)	1.8128	2.8532	4.2618	5.1937	5.5183	5.4567	7.1603	7.739	2.3506
	(0.0811)	(0.2678)	(0.4759)	(0.655)	(0.9256)	(1.0321)	(1.5975)	(1.9432)	(3.6319)
First-tier Maximum Credit in $00s	0	0	0	0	0	0	6.6705	7.0608	2.1869
(MAX1)	(0)	(0)	(0)	(0)	(0)	(0)	(2.2808)	(2.6047)	(3.4888)
Floor for Working Family Credit in $000s	0	0	0	0	0	0	139.6253	135.151	4.3705
(WFCFLOOR)	(0)	(0)	(0)	(0)	(0)	(0)	(37.487)	(40.1533)	(6.7634)
Phase-in Percentage for Second Tier (RATE2)	1.8128	2.8532	4.2618	5.1937	5.5183	5.4567	14.6722	14.2951	7.6528
	(0.0811)	(0.2678)	(0.4759)	(0.655)	(0.9256)	(1.0321)	(6.398)	(6.5598)	(6.0517)
Second-tier Maximum Credit in $00s	1.7823	2.8038	4.2945	4.8532	5.1464	5.0877	9.5772	9.8458	5.9882
(MAX2)	(0.0797)	(0.2632)	(0.6377)	(1.0968)	(1.4425)	(1.5271)	(3.7029)	(4.0129)	(3.6023)
Phase-out Floor in $000s (PHOUTFL)	1.5455	1.5343	1.3401	1.3375	1.3239	1.3214	1.7392	1.6936	1.48823
	(0.0616)	(0.1391)	(0.0928)	(0.114)	(0.1336)	(0.1537)	(0.3126)	(0.3327)	(2.7137)
Phase-out Percentage (PHOUTRT)	1.2946	2.038	2.5431	2.7695	2.8228	2.7943	6.8722	7.1806	3.9315
	(0.0579)	(0.1913)	(0.2149)	(0.3944)	(0.4786)	(0.509)	(2.3796)	(2.6208)	(2.5989)
Received AFDC During That Year	1	0.8091	0.6775	0.5692	0.4835	0.3972	0	0	0.4187
	(0)	(0.393)	(0.4674)	(0.4952)	(0.4997)	(0.4893)	(0)	(0)	(0.4933)
Received MFIP During That Year	0	0	0	0	0	0	0.3364	0.2942	0.1002
	(0)	(0)	(0)	(0)	(0)	(0)	(0.4725)	(0.4557)	(0.3002)
Lives in County Bordering Canada (CA)	0.0673	0.0655	0.0645	0.0634	0.0628	0.0625	0.0621	0.0619	0.0634
	(0.2505)	(0.2474)	(0.2457)	(0.2437)	(0.2427)	(0.242)	(0.2413)	(0.241)	(0.2436)

Name of Variable	YEAR								Average
	1992	1993	1994	1995	1996	1997	1998	1999	
Wisconsin (WI)	0.0925	0.0926	0.0924	0.0918	0.0914	0.0911	0.0906	0.0904	0.0914
	(0.2897)	(0.2899)	(0.2896)	(0.2887)	(0.2881)	(0.2878)	(0.2871)	(0.2867)	(0.2882)
Iowa (IA)	0.0311	0.0323	0.0332	0.0333	0.0336	0.0336	0.0339	0.0338	0.0333
	(0.1737)	(0.1768)	(0.1792)	(0.1794)	(0.1801)	(0.1801)	(0.1809)	(0.1808)	(0.1794)
South Dakota (SD)	0.0079	0.0086	0.0089	0.0089	0.0089	0.0089	0.0089	0.0089	0.0088
	(0.0886)	(0.0924)	(0.094)	(0.0939)	(0.0941)	(0.094)	(0.0941)	(0.0938)	(0.0934)
North Dakota (ND)	0.0446	0.0474	0.049	0.051	0.0517	0.0513	0.0505	0.0498	0.0498
	(0.2065)	(0.2125)	(0.2159)	(0.2201)	(0.2214)	(0.2207)	(0.2189)	(0.2175)	(0.2176)
Years from Last Time on AFDC or MFIP (YRFRMLST)	0	0.1909	0.469	0.8168	1.2209	1.7033	2.2038	2.7305	1.3683
	(0)	(0.393)	(0.7363)	(1.0801)	(1.4243)	(1.7599)	(2.0863)	(2.411)	(1.8417)
Interaction With County Bordering									
Canada (CA*YRFRMLST)	0	0.0129	0.031	0.0544	0.0811	0.1124	0.1441	0.177	0.0897
	(0)	(0.113)	(0.2241)	(0.3463)	(0.4776)	(0.6204)	(0.7659)	(0.915)	(0.5823)
Wisconsin (WI*YRFRMLST)	0	0.0198	0.0471	0.0818	0.1217	0.1685	0.2184	0.2698	0.1358
	(0)	(0.1394)	(0.2741)	(0.423)	(0.5831)	(0.7566)	(0.9348)	(1.1186)	(0.7132)
Iowa (IA*YRFRMLST)	0	0.0073	0.0182	0.0321	0.0475	0.0656	0.084	0.1037	0.0525
	(0)	(0.0853)	(0.1713)	(0.2662)	(0.3685)	(0.4785)	(0.59)	(0.7075)	(0.4483)
South Dakota (SD*YRFRMLST)	0	0.0018	0.005	0.0087	0.013	0.018	0.0232	0.0285	0.0144
	(0)	(0.0423)	(0.088)	(0.1386)	(0.1928)	(0.2519)	(0.3121)	(0.3739)	(0.2358)
North Dakota (ND*YRFRMLST)	0	0.0118	0.0277	0.0479	0.0726	0.1023	0.1333	0.1635	0.082
	(0)	(0.1082)	(0.2113)	(0.3257)	(0.4507)	(0.5892)	(0.7338)	(0.8814)	(0.5568)
Female	0.9112	0.8988	0.8901	0.8825	0.8764	0.8716	0.8672	0.8628	0.879
	(0.2845)	(0.3016)	(0.3128)	(0.322)	(0.3291)	(0.3345)	(0.3394)	(0.3441)	(0.3261)
Asian American	0.0546	0.0538	0.0533	0.0533	0.0536	0.0537	0.0543	0.0544	0.0539
	(0.2272)	(0.2257)	(0.2245)	(0.2247)	(0.2251)	(0.2254)	(0.2266)	(0.2268)	(0.2258)
African American	0.1631	0.1642	0.1684	0.1735	0.1785	0.182	0.1869	0.1927	0.1784

Name of Variable	YEAR								Average
	1992	1993	1994	1995	1996	1997	1998	1999	
	(0.3694)	(0.3704)	(0.3742)	(0.3787)	(0.383)	(0.3858)	(0.3898)	(0.3944)	(0.3828)
Hispanic	0.0596	0.0684	0.0736	0.0785	0.0819	0.0823	0.0824	0.0825	0.0779
	(0.2367)	(0.2524)	(0.2612)	(0.269)	(0.2742)	(0.2748)	(0.275)	(0.2751)	(0.2679)
American Indian	0.0698	0.0671	0.0653	0.0638	0.0628	0.0629	0.0629	0.0629	0.0642
	(0.2549)	(0.2502)	(0.247)	(0.2445)	(0.2426)	(0.2427)	(0.2429)	(0.2428)	(0.2451)
Did Not Graduate from High School	0.2682	0.2708	0.2727	0.277	0.282	0.2859	0.2933	0.2985	0.2833
	(0.443)	(0.4444)	(0.4454)	(0.4475)	(0.45)	(0.4518)	(0.4553)	(0.4576)	(0.4506)
Number of Children 18 or Younger	2.443	2.368	2.3007	2.241	2.18	2.1172	2.0446	1.968	2.1736
for That Year	(1.5032)	(1.4877)	(1.4756)	(1.4647)	(1.458)	(1.4476)	(1.4301)	(1.4083)	(1.4606)
Age of Youngest Child	5.2099	5.4683	5.7661	6.0913	6.4115	6.7473	6.9948	7.2478	6.3974
	(4.6413)	(4.684)	(4.7094)	(4.7412)	(4.7811)	(4.8355)	(4.9169)	(5.0132)	(4.8618)
Age of Household Head	30.7219	31.191	31.7472	32.3309	32.9382	33.6026	34.1305	34.7315	32.9749
	(8.2337)	(8.3535)	(8.4636)	(8.585)	(8.7024)	(8.8234)	(9.0094)	(9.1896)	(8.8382)
Married at Least Some of the Time While on AFDC or MFIP	0.259	0.2649	0.2671	0.2687	0.269	0.2692	0.2709	0.2718	0.2684
	(0.4381)	(0.4413)	(0.4424)	(0.4433)	(0.4434)	(0.4435)	(0.4444)	(0.4449)	(0.4431)
Percent Change in Aggregate Wages (For BLS-LMA)	0.0452	0.063	0.066	0.0749	0.0666	0.0833	0.0663	0.0738	0.0691
	(0.0353)	(0.0305)	(0.018)	(0.0196)	(0.0222)	(0.0244)	(0.0216)	(0.0247)	(0.026)
Statewide Unemployment Percentage	0.052	0.051	0.04	0.037	0.04	0.033	0.025	0.028	0.0363
	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0.0087)
Number of Observations	83,126	103,088	120,346	135,444	148,431	158,430	169,636	179,972	1,098,473

Table 14

Probability of Receiving Minnesota's WFC
(Coefficients Reported As Odds Ratios)
All Current and Former Welfare Households, 1992–1999 (N=1,098,465)

Variable Name	Maximum Credit		Individual Parameters	
	Year Effects For All Years	Year Effects For Years With Policy Changes	Year Effects For All Years	Year Effects For Years With Policy Changes
	(1)	(2)	(3)	(4)
Maximum Working Family Credit in $00s (MAXCRED)	1.0508***	1.0531***		
Phase-in Percentage for First Tier (RATE1)			0.9958	1.0932***
First-tier Maximum Credit in $00s (MAX1)			1.2274	1.1357**
Floor for Working Family Credit in $000s (WFCFLOOR)			0.9353	0.9415***
Phase-in Percentage for Second Tier (RATE2)			0.9782***	1.0089
Second-tier Maximum Credit in $00s (MAX2)			1.1622	1.0862***
Phase-out Floor in $000s (PHOUTFL)			1.0511	1.0194***
Phase-out Percentage (PHOUTRT)			0.769	0.8265***
Received AFDC During That Year	0.7165***	0.7161***	0.7145***	0.712***
Received MFIP During That Year	1.1709***	1.1987***	1.1824***	1.204***
Dummy Variable for Year				
1993			1.216	
1994	1.0955***		1.4495	
1995	1.2125***		1.6499	
1996	1.3272***		1.7998	
1997	1.4797***		2.0008	
1998	1.1108***	0.669***	1.8015	0.9836
1999	1.1469***	0.7269***	1.7849	0.9735
Lives in County Bordering				
Canada (CA)	0.9712	0.9714	0.9708	0.9735
Wisconsin (WI)	1.0394	1.038	1.0411	1.0377
Iowa (IA)	1.2413**	1.2405**	1.2401**	1.2424**
South Dakota (SD)	1.1445	1.1426	1.1429	1.1434
North Dakota (ND)	0.8055***	0.8046***	0.8039***	0.8052***
Years from Last Time on AFDC or MFIP (YRFRMLST)	0.7922***	0.7983***	0.7946***	0.7994***
Interaction With County Bordering				
Canada (CA*YRFRMLST)	1.0095	1.0098	1.01	1.0105
Wisconsin (WI*YRFRMLST)	0.9883	0.9886	0.9883	0.9888
Iowa (IA*YRFRMLST)	0.9388***	0.9391***	0.9389***	0.9394***
South Dakota (SD*YRFRMLST)	0.9288***	0.9295***	0.9285***	0.9292***

North Dakota (ND*YRFRMLST)	0.8403***	0.8412***	0.8401***	0.8411***
Female	1.3803***	1.3799***	1.3841***	1.3848***
Asian American	0.6751***	0.677***	0.6752***	0.6766***
African American	0.6204***	0.6227***	0.6217***	0.6236***
Hispanic	0.6285**	0.6298**	0.6271**	0.6281**
Native American	0.3646***	0.3656***	0.3651***	0.3658***
Did Not Graduate from High School	0.5841***	0.5851***	0.5856***	0.5869***
Number of Children 18 or Younger for That Year	0.9582***	0.9561***	0.9524***	0.9498***
Age of Youngest Child	1.0235***	1.0234***	1.0194***	1.0181***
Age of Household Head	0.9919***	0.9921***	0.994***	0.9947***
Married at Least Some of the Time While on AFDC or MFIP	1.2896***	1.2899***	1.287***	1.2867***
Statewide Unemployment Percentage		0***		0***
Percent Change in Aggregate Wages (For BLS-LMA)	1.1546	1.206	1.0358	1.2327

*Significant at the 0.05 level; **significant at the 0.01 level; and ***significant at the 0.001 level.

Table 15

Probability of Participation in Minnesota's WFC
(Coefficients Reported As Odds Ratios)
Only Current and Former Welfare Recipients Eligible for the FC 1995–1999 (N=432,200)

Variable Name	Maximum Credit		Individual Parameters	
	Year Effects For All Years	Year Effects For Years With Policy Changes	Year Effects For All Years	Year Effects For Years With Policy Changes
	(1)	(2)	(3)	(4)
Maximum Working Family Credit in $00s (MAXCRED)	1.0504***	1.0517***		
Phase-in Percentage for First Tier (RATE1)			0.8875	1.1883*
First-tier Maximum Credit in $00s (MAX1)			2.2142*	1.3192
Floor for Working Family Credit in $000s (WFCFLOOR)			0.8222**	0.9139
Phase-in Percentage for Second Tier (RATE2)			0.9815	1.0374
Second-tier Maximum Credit in $00s (MAX2)			1.5891*	1.1075
Phase-out Floor in $000s (PHOUTFL)			1.2478***	1.0595
Phase-out Percentage (PHOUTRT)			0.2845*	0.6245
Received AFDC During That Year	0.6828***	0.6812***	0.6795***	0.6792***
Received MFIP During That Year	0.8599***	0.8659***	0.864***	0.867***
Dummy Variable for Year				
1996	1.0679*		1.0819***	
1997	1.1359***		1.1246***	
1998	0.8408***	0.6907***	0.9554	0.8563***
1999	0.8668***	0.7332***	1.0181	0.8279***
Lives in County Bordering				
Canada (CA)	1.2067*	1.206*	1.2102**	1.2099**
Wisconsin (WI)	1.0504	1.0502	1.049	1.0488
Iowa (IA)	1.1645*	1.1643*	1.1663*	1.1662*
South Dakota (SD)	1.1942*	1.1924	1.1935	1.1933
North Dakota (ND)	0.9268	0.9256	0.9271	0.9266
Years from Last Time on AFDC or MFIP (YRFRMLST)	0.8657***	0.8678***	0.8731***	0.874***
Interaction With County Bordering				
Canada (CA*YRFRMLST)	0.948***	0.9482***	0.9512***	0.9513***
Wisconsin (WI*YRFRMLST)	0.9625***	0.9626***	0.9629***	0.9629***
Iowa (IA*YRFRMLST)	0.9852	0.9851	0.9867	0.9867
South Dakota (SD*YRFRMLST)	0.9252***	0.9254***	0.9243***	0.9244***
North Dakota (ND*YRFRMLST)	0.9047***	0.905***	0.9067***	0.9068***
Female	2.2824***	2.2828***	2.3191***	2.3193***
Asian American	1.4983***	1.5017***	1.4884***	1.4887***

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African American	0.6725***	0.6738***	0.6793***	0.6797***
Hispanic	0.8868	0.8876	0.8841	0.8846
Native American	0.3331***	0.3336***	0.3344***	0.3346***
Did Not Graduate from High School	0.7024***	0.7032***	0.7114***	0.7115***
Number of Children 18 or Younger for That Year	0.9867*	0.9853**	0.9813**	0.9813**
Age of Youngest Child	1.0146***	1.0145***	1.0003	1.0003
Age of Household Head	1.0067***	1.0067***	1.0144***	1.0144***
Married at Least Some of the Time While on AFDC or MFIP	1.0955***	1.0952***	1.091***	1.091***
Statewide Unemployment Percentage		0***		0.0002***
Percent Change in Aggregate Wages (For BLS-LMA)	0.26**	0.2543**	0.2466**	0.2452**

Notes: *Significant at the 0.05 level; **significant at the 0.01 level; and ***significant at the 0.001 level.

Appendix

Table A.1

Kaplan-Meier Survival Estimates of Time on Welfare and Time to WFC Receipt:
First Observed Spells on Welfare by Using All Households Observed in the Dataset in 1992
(N=665,008)

Household Type	Percentile Distribution of Exit From First Observed Spell on Welfare In Years			Percentile Distribution of Time to First Receipt of WFC Where Time to First Receipt Starts at the Beginning of the First Observed Spell on Welfare In Years		
	25th	50th	75th	25th	50th	75th
All Households	2	1	1	1	3	NA
Gender						
Male	3	1	1	1	4	NA
Female	2	1	1	1	3	NA
Race						
Asian American	4	2	1	2	5	NA
African American	3	1	1	2	5	NA
Hispanic	2	1	1	.	.	NA
American Indian	2	1	1	2	8	NA
White	2	1	1	1	2	6
Education						
No High School Diploma	2	1	1	2	7	NA
High School Diploma	2	1	1	1	2	7
Children						
None				1	4	NA
At Least One				1	3	NA
Marital Status While on Welfare						
Single	2	1	1	1	3	NA
Married	2	1	1	1	3	NA
Age of Children						
5 and Younger	3	1	1	1	3	NA
6 through 10	2	1	1	1	2	NA
11 and Older	2	1	1	1	3	NA
Age of Parent						
Under 20	3	1	1	2	4	8
20 through 39	2	1	1	1	2	NA
40 and Older	2	1	1	1	5	NA