

An Analysis of Post-Reform Welfare Reentry in Tennessee

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Executive Summary

Welfare programs across the nation underwent a dramatic transformation in 1996. Tennessee was no exception, as work or training requirements and time limits replaced unrestricted cash grants. These important policy changes had the potential to affect the way welfare recipients use public assistance, possibly leading to more cycling on and off welfare as opposed to long-term continuous participation. This cycling—leaving the program for a period of time and then returning—is the focus of this report. We present what is perhaps the first in-depth analysis of welfare reentry in Tennessee since Families First was implemented.

We examine 128,775 assistance groups that left Families First between its inception and April 2001. 42,277 (about one-third) returned to the program at least once during the period of our analysis. We examine the families that left the program, present a descriptive comparison of reentrants with those that stayed off public assistance, and provide a multivariate statistical analysis of the determinants of reentry.

We find that a number of characteristics are strong predictors of whether or not an assistance group will return to Families First. Specifically, assistance groups with younger, female, or black caretakers are more likely to return, as are those with more children and those in urban areas. Those less likely to return include assistance groups with married caretakers and those whose caretakers have more education or were not working as of their case closure.

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Introduction

Public assistance programs across the nation underwent a dramatic transformation in 1996. Time limits were placed on benefit receipt, work requirements were instituted, and an array of supportive services were made available to program participants. With these changes in policy, it becomes even more important that we understand the dynamics of welfare participation. Welfare reentry, defined here as a return to public assistance rolls after leaving the program for at least one month, is of continuing concern to policy makers and researchers alike. Although the occurrence of reentry is certainly not new, the implementation of stricter policy requirements in the 1996 law have once again put it at the forefront of welfare research.

One motivation for analyzing welfare reentry is to eventually be able to predict which cases are most likely to return to the program at some point in the future. If a recipient can be identified as potentially at risk of reentry upon first leaving welfare, additional support programs and assistance could be offered to the group in hopes of reducing the probability of a return. Targeting at risk individuals could prove to be an efficient way of reducing the administrative cost of a welfare program.

A complementary goal of welfare reentry analysis is to assess possible long-term consequences and implications of reentry on employment, earnings, or other aspects of a recipient's well-being. While not the focus of this report, the effects of reentry are not clearly understood, especially since the 1996 changes. Future research will explore this side of the reentry question.

Reentry occurs for many different reasons, typically depending on the circumstances of each individual case. Possible causes of reentry include changes in household composition, marital status, or employment

status. The addition of a child, either through birth or adoption, might require higher support levels which may only be accessible through a return to the welfare program. A divorce, separation, or death of a spouse can also make it difficult for the surviving spouse to maintain self-sufficiency, thereby causing a return to welfare. Changes in earnings resulting from a loss of a job or a reduction in hours can also increase the attractiveness of returning to welfare. These are just a few of the possible causes of reentry. The possibilities are as numerous as the incidences of reentry.

Reentry is frequently viewed negatively by policy makers and researchers. This is evidenced by the popular use of the word "recidivism" to denote a return to program rolls. As this term typically refers to repeat criminal offenders, we opt for the more optimistic "reentry." With this, it is important to consider both the negative and positive aspects of reentry.

A return to welfare is often perceived as a signal of instability, suggesting that the recipient is unable to maintain self-sufficiency for any lengthy period of time. Families who are more reliant on public assistance have a much more difficult time trying to leave the program permanently. Second, a return to the welfare program may result from the inability of the household head, or caretaker, to keep a steady job. This unemployment can be detrimental to the well-being of the family due to lost earnings, valuable work experience, and on-the-job-training. A loss of experience and job skills while unemployed also makes future employment more difficult for the caretaker to obtain. Finally, reentry is viewed negatively because it represents considerable administrative cost. The importance of the costs of closing and reopening cases on a regular basis cannot be underestimated.

Despite its negative perceptions to date, reentry may not necessarily be a bad phenomenon. Viewed in a more positive light, continual reentry shows that a recipient is making a good faith effort to leave the program. The family may just need a bit more support before it can become completely self-sufficient. A temporary return to the welfare program might provide the needed help to attain permanent self-sufficiency. Finally, reentry may only represent a brief reliance on public assistance. If a household were to experience a temporary job loss or a reduction in earned income or hours worked, it may become necessary to return to the welfare program. The return spell may not last very long and may play an important role in helping the family to regain self-sufficiency.

Effects of the 1996 Reforms on Reentry Rates

The implementation of time limits and other program requirements can certainly affect the rates of exit and reentry. Recognition of time limits by participants will increase the frequency of welfare exit—and reentry—as individuals attempt to maximize their current and future well-being. In order to improve their own welfare, individuals may choose to use benefits only when they are needed the most, which may imply cycling on and off the welfare program. (See, for example, Mach [1999], Grogger [2000] and [2001], and Grogger and Michalopolous [1999]).

Another important effect of the 1996 reforms is the change in the general makeup of the welfare caseload. Lifetime time limits and work requirements might remove many of the long-term recipients from the rolls, thereby leading to an observed increase in reentry rates if the remaining participants are more likely to cycle on and off the program.

Alternatively, these new elements of welfare policy might remove mainly short-term recipients, leaving many of the long-term participants on the rolls. As such, reentry rates might fall as a result, simply due to the changing nature of the caseload.

It is important to keep in mind that the American economy has performed remarkably well during the implementation of the new welfare regime. The late 1990s were times of great prosperity for most families, and the observed reduction in welfare rolls is at least partially the result of a strong economy. With that, caution should be exercised in attributing changes in reentry rates solely to policy changes.

Previous Studies of Welfare Reentry

To gain a perspective on the changes in reentry rates over time, it is useful to examine previous research on the topic. Of the earlier studies of welfare reentry, none have focused on Tennessee and few, if any, have used post-welfare-reform data. The latter is likely a result of difficulties in obtaining good data and the relatively short time period that the new laws have been in place. Nonetheless, the available studies are instructive and are summarized below.

As shown in Table 1, the earlier literature on reentry reports that between 20 and 81 percent of individuals who end a spell on welfare return to the rolls at some point during their lifetime (or, more typically, during the period of analysis). Table 1 also provides a summary of one-year reentry rates found in the literature, along with a brief description of the sample used in each study. Despite the wide dispersion of eventual reentry rates, one area of consensus in the literature is that reentry occurs rapidly: 11 to 33 percent return within the first year alone. This suggests that

TABLE 1: SUMMARY OF REENTRY RATES			
Author	Eventual Reentry Rate	One Year Reentry Rate	Data Source
Ellwood (1986)	40% (24 months)	11%	PSID, 1968-1982 (annual data)
Weeks (1991)	35% (36 months)	NA	Washington State Family Income Study Data
Meyer (1993)	81% (109 months)	32%	Administrative data sample of divorced Wisconsin women, 1980-1989
Blank and Ruggles (1994)	20% (28 months)	NA	SIPP, 1986-1987
Brandon (1995)	21% (28 months)	NA	SIPP, 1986-1988 (four rotation groups observed for 28 months)
Harris (1996)	42% (24 months)	25%	PSID, 1983-1988
Cao (1996)	58% (168 months)	33%	NLSY, 1979-1992
Gleason, Rangarajan, and Schochet (1998)	62% (49 months)	50%	Sample of teenage mothers in Camden and Newark, NJ and the south side of Chicago, 1987-1991
Maryland Department of Human Resources (1998)	23% (12 months)	23%	Sample of Maryland administrative data. October 1996 - September 1997.
Keng, Garasky, and Jenson (1999)	25% (24 months)	NA	Sample of Iowa administrative data, April 1993-March 1996
Hoynes (2000)	46% (48 months)	33%	Sample of California administrative data, 1987-1992
Note: PSID = Panel Study of Income Dynamics (University of Michigan) SIPP = Survey of Income and Program Participation (U.S. Census Bureau) NLSY = National Longitudinal Survey of Youth (Ohio State University)			

the first few months off the program seem to be the most crucial in determining which individuals will return to the rolls.

The wide variation in the percent of individuals who return can be explained almost entirely by the different sources of data used by various authors. Data that cover short time intervals tend to produce reentry rates that are lower than those that cover longer periods of time, due to their inability to observe individuals for a sufficient period of time following their welfare experience. Yearly data (e.g., Ellwood, 1986) also tend to underestimate reentry due to a loss of variation in the month-to-month program status of individuals within a single year. The upper-end estimates of reentry rates are found using samples of divorced women (Meyer, 1993) or inner-city teenage mothers (Gleason, et al., 1998).

Many of these studies have undertaken some form of multivariate statistical analysis of the causes of welfare reentry. Those characteristics that seem to exert the strongest influence are age, ethnic origin, education, and the number of children in the household. Women who are young, black, or less educated, and those who have more children, are more likely to reenter. Other control variables were used, and many were found to have important effects on reentry; but no clear consensus developed across the various studies.

Again, despite their national focus and pre-1996 data, these studies represent much of what is known about reentry and serve as guidelines for the present analysis. This is one of the first studies to focus on reentry since 1996, the first to focus exclusively on Tennessee's Families First program, and one of a very small number to use administrative data.

Construction of Data Sample

The data used in this analysis were drawn from the Tennessee Department of Human Services ACCENT database and the Families First Data Warehouse. These sources of administrative data contain a wealth of information on Families First recipients and their eligibility. A combination of assistance group (the concept of a recipient “household” to Families First), case, and individual information was used to construct a monthly case history for every participant since Families First began.

Our initial sample is the entire universe of Families First case closures from the program’s beginning through April 2001. The analysis is limited to those assistance groups who experienced at least one closure during this period. Following standard practice in the welfare literature, we exclude any observed off-program spells that last less than three months in order to avoid any effects of administrative churning. Our sample also excludes child-only cases, specifically those that either exit or reenter as child-only. Our focus is on the act of exiting and reentering as a result of the actions of an adult participant. Reentry among child-only cases is likely to be quite different, and a complete assessment is left for future research.

A total of 128,775 initial case closures are included in the analysis that follows. Of these cases, 42,277 (or 32.8 percent) experienced at least one return. Of these initial reentrants, a number leave and reenter two or more times within our window. We focus on each assistance group’s first reentry in the remaining analysis.

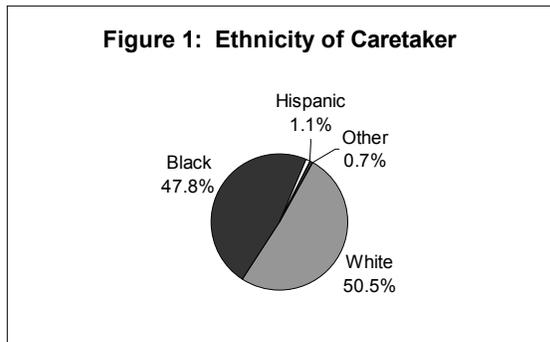
Descriptive Analysis

We begin with a general description of the sample of those who have left Families First (“leavers”) that is used in the analysis. This section, while not indicative of the *causes* of reentry, provides some detail on the *characteristics* of those who have left the program at some point since its inception. Also, wherever possible, we compare the characteristics of this sample of leavers with the overall Families First population as summarized in the 1997 *Families First Case Characteristics Study*.

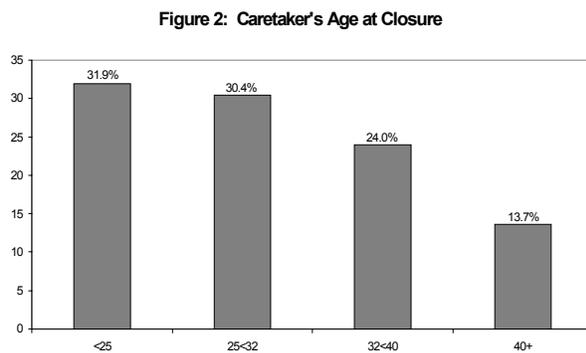
The gender breakdown of the caretakers of the assistance groups used in this sample is largely unsurprising—the number of female caretakers far exceeds the number of male caretakers. A female caretaker heads over 95 percent of assistance groups who left while a male caretaker heads less than 5 percent. This is nearly identical to the data in the 1997 *Families First Case Characteristics Study*, which reports that females head about 95.8 percent of all Families First assistance groups.

Figure 1 shows the ethnic diversity of the sample. Whites represent the largest ethnic group in the sample, comprising 50.5 percent of Families First leavers. Blacks make up 47.8 percent of all leavers, and the remainder is split between Hispanics (1.1 percent) and all others (0.7 percent). It should be noted that the ethnic composition of this sample is somewhat different from the overall Families First caseload. As of 1997, blacks headed up 60.7 percent of all Families First assistance groups, while only 38.2 percent had white caretakers. All other ethnicities accounted for the remaining 1.1 percent of the 1997 caseload.

Figure 2 shows the distribution of caretakers from the sample into various age categories. Although the sample is fairly evenly split among the age categories, there are slightly more caretakers under the age of 25 in the



sample than in any other category. The over-40 category has the lowest percentage of caretakers with only about 14 percent. This distribution for leavers is certainly not surprising since younger individuals are more likely to have children and difficulties in finding a job due to a lack of experience. The age composition of this sample is slightly younger than the overall Families First caseload as measured in 1997.



The distribution of the sizes of the assistance groups in our sample is shown in Figure 3. Nearly half of our assistance groups consist of only two members, with the percentage falling as assistance-group size increases. Only 6.6 percent of the assistance groups in our sample have more than four members. This sample is more heavily weighted by two- and three-person assistance groups than the overall 1997 Families First caseload, primarily due to our removal of child-only cases from this analysis.

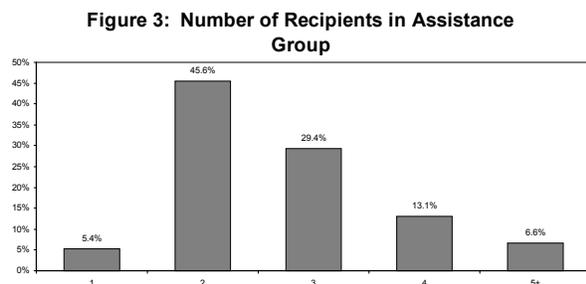
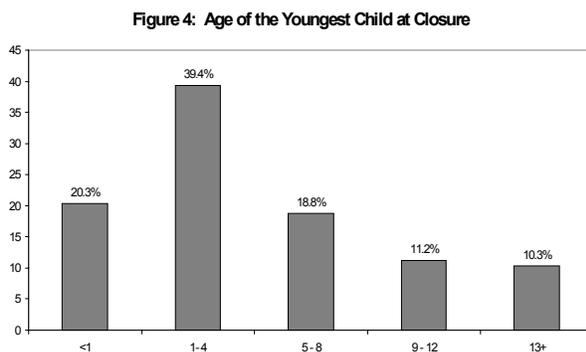


Figure 4 shows the percentage of assistance groups with youngest children in various age categories. Roughly 39 percent of the assistance groups that left the program have a youngest child that is between one and four years of age at the time of closure, which may provide evidence that those with younger children are in fact exiting the program more frequently than others.



The sample is fairly evenly split between urban and rural residency. Slightly less than half, 49.5 percent, of the assistance groups reported living in an urban county (Davidson, Hamilton, Knox, or Shelby) at the time of closure while the remaining 50.5 percent resided in a rural county. As of 1997, 61.3 percent of all assistance groups in Families First lived in urban counties (with 38.7 percent in rural counties). Given that this urban-rural division in the overall caseload has remained fairly stable, our findings suggest that rural recipients are relatively more likely to exit the program.

Figure 5 further distinguishes residency of the sample by breaking it down into various districts. District 8 (Shelby County) is home to a large percentage of the assistance groups in the sample; more than 27 percent of the sample resides in this district. Each of the remaining districts contains less than 17 percent of the sample. District 4 (Hamilton County) is home to the fewest number of recipients with only 5.7 percent of the sample. Compared with the caseload distribution from

the 1997 *Families First Case Characteristics Study*, our sample of leavers is disproportionately representative of Districts 4, 6, and 8, but only slightly so.

About one-half of the caretakers in assistance groups that have left Families First have been single, as shown in Figure 6. The other half are headed by married (14.5 percent), divorced (15.6 percent), separated (18.6 percent), or widowed (1.0 percent) caretakers. This distribution is very similar to that in the 1997 *Families First Case Characteristics Study*.

Figure 7 provides some key information regarding the education of the caretaker at the time of Families First case closure. More than one-third had not yet completed a high school education when their cases were closed. The largest group of leavers (48.3 percent) had attained a high school education, however, while the remainder had either accumulated some postsecondary education (12.1 percent) or reported “no” or “other” education (1.2 percent). This distribution is also very similar to that observed among the 1997 caseload, suggesting that the probability of leaving Families First is not highly correlated with educational background.

Time limits and work requirements represent what are perhaps the most significant changes in welfare programs across the nation. Both have evoked considerable interest among researchers and program administrators. It will be extremely important to gauge the extent to which cases who close due to time limits are more or less likely to return to the program. Furthermore, work participation during benefit receipt can be an important indicator of future reentry probabilities.

In our sample of administrative data, meeting Tennessee’s short-term time limit of 18 months is only responsible for 2.5 percent

Figure 5: Percentage of Recipients in Each District

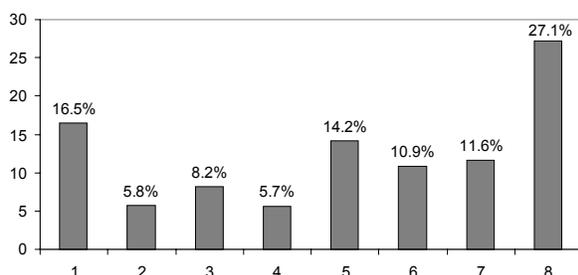


Figure 6: Marital Status of the Caretaker at Closure

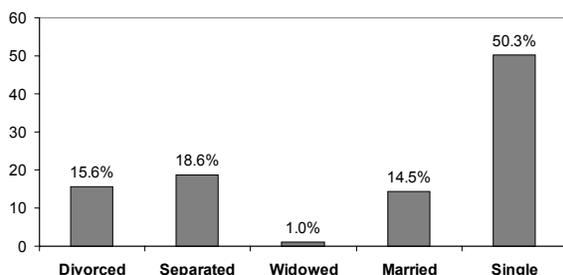
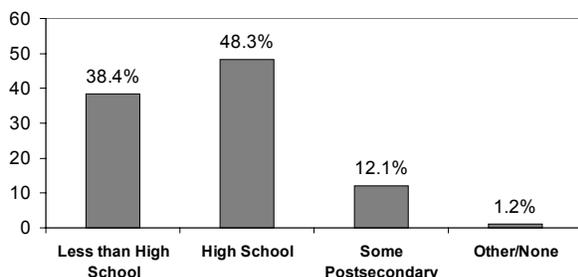


Figure 7: Education of the Caretaker at Closure



of the closures. The average number of accumulated countable lifetime months of benefits as of case closure is 4.8 months, suggesting that short-term stays on public assistance are more likely to be the norm than is continuous lifetime participation. In terms of work requirements, our data show that more than one-fourth of all caretakers were working at a job for pay as of their case closures, and nearly 40 percent were receiving some sort of earned income. These characteristics are investigated in more detail below.

Overall Reentry Rates and Characteristics of Reentrants

Of the 128,775 assistance groups in our sample who have left the Families First program at least once since the program's beginning, 42,277 experienced at least one return. The general reentry trends for this group are presented in Table 2.

The eventual cumulative reentry rate over the time period that we analyze, as shown graphically in Figure 8, was 32.8 percent. This Figure also includes the cumulative reentry rates as of two, three, and four years after program exit. Reading from Table 2, about 13.6 percent returned within six months and 22 percent returned within one year of leaving. This is remarkably close to the one-year reentry rate found in Maryland's post-reform study of reentry (1998), as shown in Table 1. These findings suggest that most of the eventual reentry occurs relatively soon after an exit. The Tennessee evidence apparently mirrors broader studies summarized above.

Changes that may have occurred in the assistance group's size, income, or residency may provide some indication of why reentry is observed. Unlike those who leave and do not reenter, reentrants to Families First provide a complete set of information in the

Months Since Exit	Reentrants	Cumulative Reentry Rate
3	6349	4.93%
4	4574	8.48%
5	3730	11.38%
6	2892	13.62%
7	2419	15.50%
8	2151	17.17%
9	1917	18.66%
10	1556	19.87%
11	1416	20.97%
12	1270	21.96%
13	1092	22.80%
14	1075	23.64%
15	918	24.35%
16	898	25.05%
17	762	25.64%
18	1015	26.43%
19	737	27.00%
20	644	27.50%
21	586	27.96%
22	503	28.35%
23	486	28.72%
24	402	29.04%
25	362	29.32%
26	375	29.61%
27	355	29.88%
28	343	30.15%
29	298	30.38%
30	287	30.61%
31	296	30.84%
32	245	31.03%
33	222	31.20%
34	224	31.37%
35	213	31.54%
36	168	31.67%
37	190	31.82%
38	154	31.93%
39	171	32.07%
40	129	32.17%
41	142	32.28%
42	111	32.36%
43	132	32.47%
44	90	32.54%
45	79	32.60%
46	72	32.65%
47	59	32.70%
48	46	32.74%
49	42	32.77%
50	34	32.79%
51	31	32.82%
52	17	32.83%
53	3	32.83%
54	1	32.83%
55	0	32.83%

administrative data upon their return. Consequently, we are able to examine changes in various characteristics for those who return, but not for those who remain off the program. While this provides some useful descriptive evidence, we have no way of comparing the effects of any changes on reentry rates without a similar set of information for leavers.

We begin the profile of reentrants with a discussion of the assistance group's income from various sources. If an assistance group's monthly income were to fall during an off-program spell, a return to welfare would be more likely. Table 3 provides means and standard deviations for income variables at the time of the initial case closure for the entire population, for reentrants, and for leavers.

Surprisingly, the average earned income of those who eventually reenter was considerably higher than that of those who remain off the program. One possible explanation for this difference is a lack of stability in earned income for individuals who have recently departed welfare rolls. Former recipients may lack the necessary skills or job training required to

obtain a good position in the work force and may be forced to settle for a short-term position or a position with fluctuating hours. With an increased possibility of unstable earnings, recipients who receive high earned incomes are not guaranteed stable monthly incomes. Therefore, it is not as unlikely that recipients with high earned incomes would return to the program as one would think.

The mean value of unearned income was slightly higher for leavers than it was for reentrants. This may suggest that those who left the program with higher levels of unearned income were better able to remain off the program as a result of more stable or ongoing non-work support structures. The mean of the current benefit amount at closure was surprisingly higher for non-reentrants. This is somewhat unexpected since intuition might suggest that a higher benefit level would make welfare a more attractive option to potential recipients. However, this analysis is unable to project whether the recipient's benefit level would remain the same from one spell to another. It is quite possible that those who did not eventually reenter experienced growth in other income areas that limited their benefit eligibility and therefore made returning to welfare a less attractive option.

Figure 9 shows the percentage of reentrants that experienced changes in earned income, unearned income, and benefit levels between the initial closure and reentry. Virtually all of those who reentered the program during the observed time period experienced changes in each of these three financial variables. Both earned and unearned incomes increased for the majority of reentrants, which does not support the notion that individuals returned to Families First in order to replace reduced monthly income. More than 70 percent of reentrants returned to the program at a lower benefit level, presumably due to their increased incomes. Less than 30 percent returned with a higher benefit.

Figure 8: Cumulative Reentry Rates

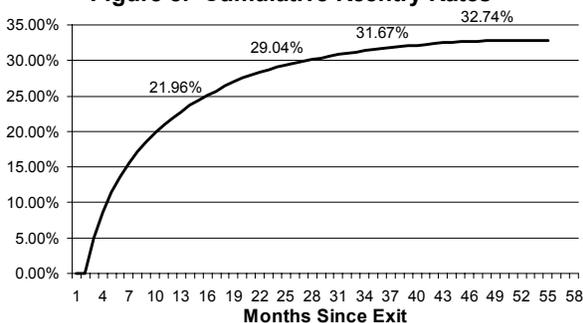


Table 3: Descriptive Statistics - Monthly Incomes at Time of Case Closure

Variable	All (N=128,775)	Reentrants (N=42,283)	Leavers (N=86,492)
Earned Income	245.38 (392.79)	298.37 (413.25)	219.47 (379.71)
Unearned Income	52.98 (189.93)	44.21 (201.23)	57.26 (184.00)
Benefit	122.62 (82.45)	114.93 (87.93)	126.38 (79.37)

Of those assistance groups who returned to the program, more than two-thirds experienced changes in the number of recipients during the off-program spell. As shown in Figure 10, 48.9 percent of the reentering assistance groups returned with fewer assistance group members, while 13.6 percent returned with more. It should be noted that the actual identity of assistance group members may have changed even if assistance group size remained constant. These numbers suggest that changes in assistant group size could be one force behind reentry, as a smaller assistance group could represent the loss of an income-producing adult. However, the number of two-parent AGs is very small to begin with so most of the reductions in AG size are likely the result of other changes. An extended analysis is necessary before any robust conclusions can be made.

About one-third of reentrants changed their county of residence during the observed off-program spell. The distribution of these moves is displayed in Figure 11. Of those who changed counties, the vast majority (nearly 62 percent) moved between rural counties. About 19 percent moved from a rural county to an urban county (again defined as either Shelby, Davidson, Hamilton, or Knox), another 17 percent moved from urban to rural, and only 2.5 percent moved from one urban county to another.

Slightly more than one-tenth of all reentrants experienced a change in their marital status between initial closure and reentry. A few of the most likely transitions—representing nearly three-fourths of all changers—are shown in Figure 12. For those who changed marital status, the most likely move was from married to separated. This transition accounted for nearly 22.8 percent of those whose marital status changed. Other frequent options were separated to divorced (18.1 percent), married to separated (9.5 percent), separated to married (9.8 percent), and single to married (9.5 percent). Slightly less than 7 percent became divorced after having been married at closure, and a similar share changed from divorced to married.

Figure 9: Changes in Income and Benefit Levels of Reentrants

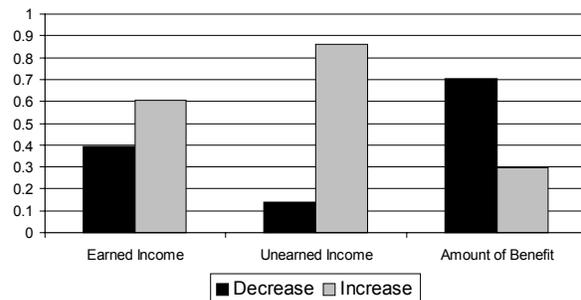


Figure 10: Change in Assistance Group Size for Reentrants

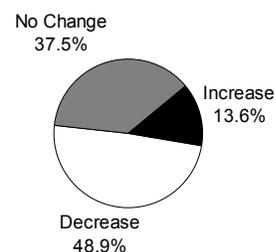


Figure 11: Direction of Move for Reentrants Who Moved Between Counties

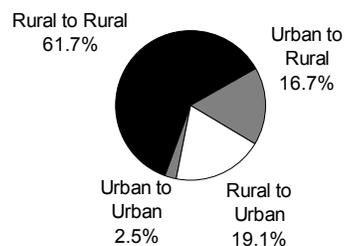
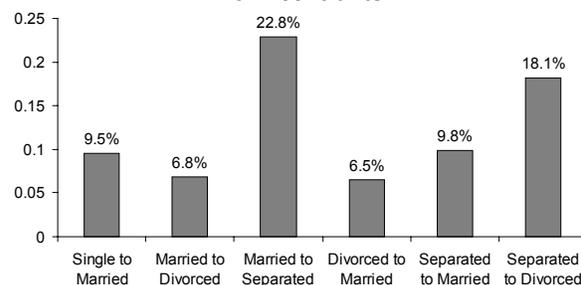


Figure 12: Key Changes in Marital Status For Reentrants



Discussion of Reentry Rates

Figures 13 through 21 show cumulative reentry rates of the population by various demographic categories. Of course, it bears mentioning that the results in this section are only meant to be illustrative. These simple calculations can help us understand the various causes of reentry, but they cannot independently identify the true effects of each characteristic on the probability of reentry holding all other factors constant. Such an analysis is possible, however, and is presented below.

As indicated by previous studies, age can have an effect on the probability of reentry. As shown in Figure 13, assistance groups whose caretaker is younger than 25 are most likely to experience a return. Younger caretakers are more likely to have younger children, a possibility that is explored below. They may also have less job experience and training that may prevent them from obtaining a job that pays sufficient earnings. Without sufficient monthly income a return to welfare becomes more likely.

The implementation of time limits makes the age of the youngest child at closure a necessary variable to include in any analysis of reentry. An assistance group is limited to sixty months of lifetime benefits and becomes ineligible once the youngest child reaches the age of 18. As a result, the age of the youngest child plays a key role in the reentry decision (for additional discussion, see Grogger and Michalopoulos, 1999, or Grogger, 2000). Assistance groups with younger youngest children may be more likely to cycle on and off Families First, given that they have longer time horizons over which benefits might be necessary. This theory would also suggest assistance groups with younger youngest children would also be expected to exit the program more frequently than other groups in order to conserve benefit eligibility.

Figure 13: Cumulative Reentry Rates by Caretaker Age Group

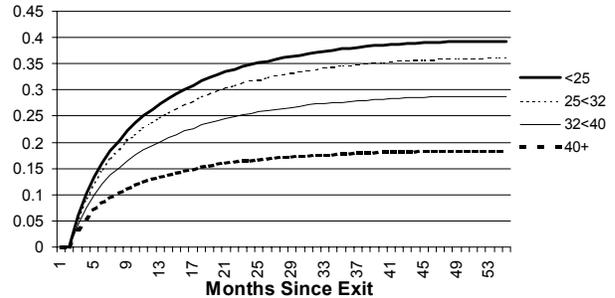
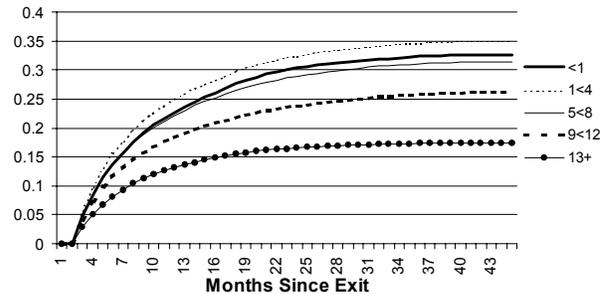


Figure 14: Cumulative Reentry Rates by Youngest Child Age Group



Similarly, assistance groups with older youngest children have a shorter time horizon over which benefits could be used, so the child's age should play less of a role in the reentry decision. Figure 14 reveals this tendency, as assistance groups whose youngest child is between the ages of one and four are most likely to return. Excluding those with youngest children under the age of one, the probability of reentry falls as the age of the youngest child increases.

Residence in an urban area might also have an impact on the probability that an assistance group will return to Families First. As shown in Figure 15, those in urban areas are more likely to reenter than are those in rural areas. Despite the perceived availability of jobs and important services such as child care in an

urban environment, urban residents are more likely to return for a variety of reasons. For example, urban residents probably live closer to a TDHS office than residents of more rural areas. Further, one can receive Families First benefits in greater anonymity in an urban setting; welfare receipt in a smaller town is potentially more difficult to conceal. Yet another explanation is that public assistance might be seen as a more acceptable alternative in an urban environment. Finally, urban residents might just have other characteristics that tend to make them more likely to return to the rolls.

Figure 16 shows that the larger the number of recipients in the assistance group, the more likely the group is to return to the rolls. Self-sufficiency for assistance groups of larger sizes is certainly more difficult to maintain than it is for smaller groups.

If cases that are closed due to time limits are the least able, ready, or willing to leave Families First on their own, then we might expect them to have higher reentry rates. Figure 17 reveals this, as time limit closures are much more likely to result in reentry than other closures. Further, most of this reentry occurs quite rapidly. Tennessee’s policy requires three months of ineligibility before a second spell may begin, so it appears that many of those who meet the 18 month time limit return very soon after being removed from the rolls. Again, we must emphasize that the sample size for time limit closures is very small—less than 3 percent of all closures analyzed herein.

Figure 18 shows that caretakers that are single as of their case closure are the most likely to return to Families First following an exit. Divorced or separated caretakers are more likely to return than married or widowed caretakers, suggesting that marriage can be a key route to self-sufficiency for former program participants. A contributing

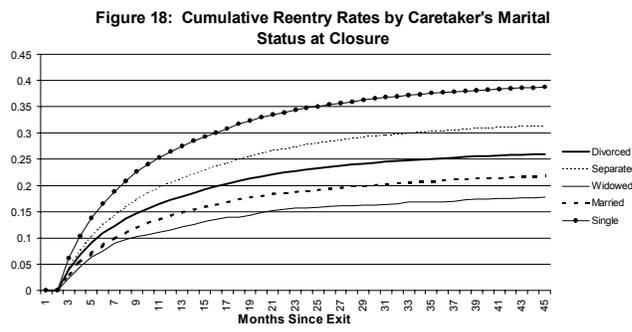
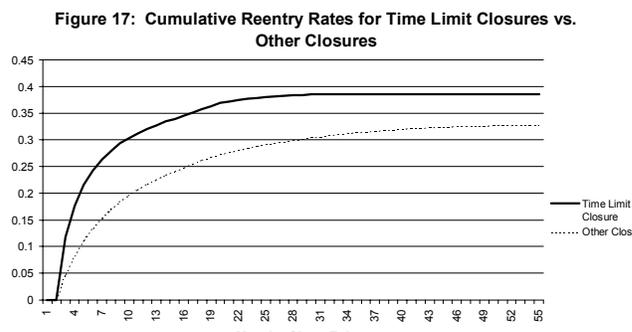
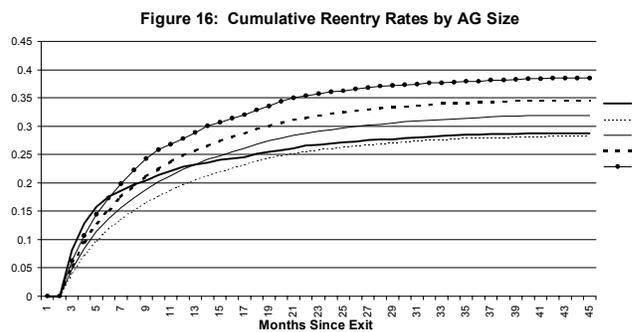
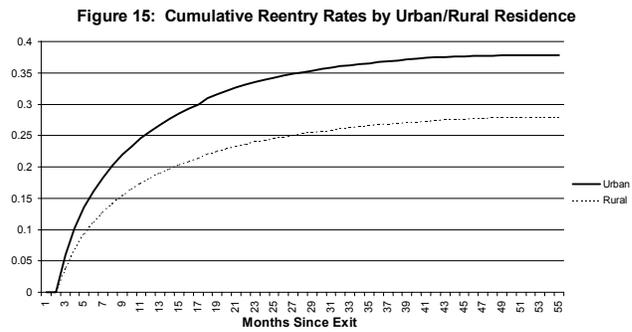


Figure 19: Cumulative Reentry Rates by Caretaker's Education at Closure

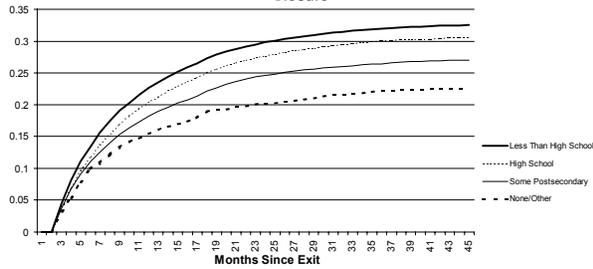


Figure 20: Cumulative Reentry Rates by Caretaker's Work Status at Closure

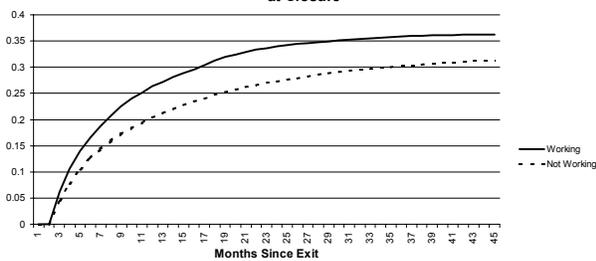
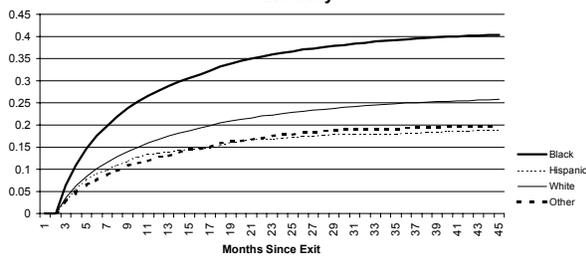


Figure 21: Cumulative Reentry Rates by Caretaker's Ethnicity



explanation is that there are more stringent eligibility rules for married AGs, making reentry a less probable outcome.

Figure 19 reveals, unsurprisingly, that caretakers with more education are less likely to reenter Families First. Those with less education are apparently less able to find permanent employment or other means of achieving financial security following a program exit.

Perhaps surprisingly, caretakers who were working at a job for pay as of their case closure are more likely to return to the program, as shown in Figure 20. This finding suggests that work is a less permanent means of achieving self-sufficiency, contributing to the results above regarding marital status. This theme has surfaced in some of the earlier research on this topic. An alternative explanation is that non-workers may be more likely to qualify for SSI or other programs, making reentry to Families First less necessary.

As a final preliminary look at the demographics of reentry, Figure 21 shows that assistance groups with black caretakers are more likely to experience a return to welfare than Whites and other ethnic groups. Other ethnic groups have the lowest reentry probabilities. Again, it is not possible in these pair-wise analyses to discern whether this is truly an ethnic effect, or whether black assistance groups tend to have other characteristics (such as urban residence or larger assistance groups) that make them more likely to reenter. With this, we turn to a more in-depth statistical analysis of the causes of reentry that allows us to assess each characteristic's independent effect on reentry rates.

Multivariate Statistical Results

A variety of methods are available for examining time-duration data. We investigate the effects of various characteristics on reentry rates using a Cox Proportional Hazards Model. In sum, this model is similar to regression analysis in that it allows us to gauge the impact of each characteristic on reentry, holding all other factors constant. It should be noted that all characteristics in this analysis are measured at the time of initial closure, because no other information is available (except for reentrants, as noted above). Additional details on the methodology implemented below are provided in the Appendix.

Cox Proportional Hazards estimates are presented in Table 4. The hazard ratios can be interpreted as the relative probability of reentry for assistance groups with various characteristics. Estimates that exceed one represent a positive impact on the probability of reentry, while estimates below one represent negative impacts. For example, the estimate for caretaker's age (0.968) tells us that the probability of reentry is lower for assistance groups with older caretakers. This mirrors our earlier finding, but represents a stronger conclusion since all of the other factors in the model are being held constant.

The other results in Table 4 largely mirror our earlier findings. Assistance groups with male caretakers are only 63.4 percent as likely to return as assistance groups with female caretakers. Blacks are 51.5 percent more likely than Whites to return (or, 151.5 percent as likely to return), all else equal. Members of other non-white groups are less likely than Whites to return. An additional child (or other assistance group member) increases the probability of reentry by 5.4 percent. Earned income, unearned income and the amount of the Families First benefit as of closure have either very small or imprecise effects.

Results for the age of youngest child categories must be interpreted as relative to the oldest category (youngest child 13 or older). Contrary to our earlier results, assistance groups with younger youngest children are always less likely to reenter relative to this comparison group. Further, the effect of the oldest included category (9 to 12 years) is not measured with statistical precision. It should be noted that the choice of reference category has no effect on the pattern of these results.

The district of residence apparently exerts an independent effect on reentry rates, with the exception of Districts 3 and 4. As with the age of the youngest child, these results must be interpreted in relation to the omitted category, which is District 8 (Shelby County). Again, the choice of the reference category is irrelevant and does not affect the relative patterns of reentry. To summarize, residents of District 2 are more likely to reenter than those in District 8, while those in all other Districts are less likely to reenter.

Divorced, separated, and single caretakers are more likely to reenter than are married caretakers. Those with less than a high school education are more likely to reenter than are those with a high school education, while having some education beyond high school reduces the probability of reentry by about 15 percent.

The final three factors in Table 4 provide some interesting detail regarding important program characteristics. First, when other factors are controlled for, those who close due to time limits are statistically no more likely to return than are those who close for other reasons. Those who have accumulated more lifetime months of benefits are more likely to enter, however. An additional month of past benefit receipt increases the probability of reentry by about 2 percent. Finally, those who were working at a job for pay as of their case closure are about 17.3 percent more likely to reenter than are those who were not.

Table 4: Cox Proportional Hazards Model Estimates

Variable	Hazard Ratio	Standard Error
Caretaker age at closure	0.968	0.001
Male	0.634	0.028
Black	1.515	0.027
Other race	0.794	0.046
Number of recipients in AG	1.054	0.007
Earned income at closure	1.000	0.000
Unearned income at closure	1.000	0.000
Amount of benefit at closure	1.000	0.000
Age of youngest child < 1	0.881	0.023
Age of youngest child = 1 to 4	0.931	0.022
Age of youngest child = 5 to 8	0.958	0.024
Age of youngest child = 9 to 12	0.970	0.027
District 1	0.956	0.023
District 2	1.203	0.033
District 3	0.989	0.030
District 4	0.958	0.026
District 5	0.875	0.020
District 6	0.882	0.018
District 7	0.895	0.020
Divorced	1.244	0.034
Separated	1.333	0.034
Widowed	1.103	0.100
Single	1.296	0.031
Less than high school education	1.153	0.015
Some postsecondary education	0.850	0.017
No/Other Education	0.951	0.062
Time limit closure	1.044	0.036
Months of accumulated benefits	1.020	0.001
Participating in work activities	1.173	0.016
Number of observations	89,677	
Number of reentrants	27,602	
Log likelihood	-300,847.45	
Chi2(23)	5,336.27	
Prob > chi2	0.000	

Note: Bold type represents statistical significance at the 10 % level.

We performed a number of robustness checks to assess the stability of the general findings in Table 4. First, our inclusion of indicators for education cost us a rather substantial decrease in sample size, so our first check involved dropping these variables and estimating the trimmed model on a larger sample. Interestingly, the results from this exercise were virtually identical to those in our baseline model. As a second check, we substituted our DHS District identifiers with indicators of the assistance group's MSA of residence (if any) and estimated the model both with and without the education indicators. Again, the general conclusions discussed above continued to hold without exception.

Conclusions, Caveats, and Areas for Future Research

The Tennessee experience with welfare reentry has been similar in many ways to earlier findings. About one-third of those who leave Families First eventually return, and most of that reentry occurs fairly quickly. Age, gender, ethnicity, and assistance-group size all exert important effects on reentry rates. Assistance groups with younger, black, or female caretakers, and those with more children are most likely to reenter. Those with married caretakers, those whose caretakers have more education, and those whose caretakers were not participating in work activities as of their initial case closure are less likely to return.

As this study provides some of the first findings that are specific to Tennessee, uses administrative data, and focuses on post-1996 data, a number of questions remain unanswered. First, as noted above, the economy has performed remarkably well during most of our period of analysis. Reentry rates have changed given the recent economic slowdown, although the direction of any change is not clear.

Second, Families First policy undergoes regular changes, and we have not been able to isolate many of the effects of various policy changes on the overall reentry picture. Future research will need to consider more policy variables, such as exemptions from time limits or sanctions due to work requirements that are not fulfilled.

Third, we have not been able to fully consider changes over time in various characteristics while former recipients are off the program. The future availability of good survey data will hopefully improve our capabilities along these lines.

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Appendix: Multivariate Statistical Methods

As noted, a number of statistical methods are available for analyzing duration data. We have selected the Cox Proportional Hazards Model for its simplicity not only in estimation, but also in interpretation of the results. This Appendix provides additional detail on this useful econometric tool.

Define each individual's off-program spell length as T , which is a random variable. It is typically assumed that T has a continuous probability distribution function, given by $f(t)$. The associated cumulative distribution function is $F(t) = \int_0^t f(s)ds = P(T \leq t)$. We are usually interested in the probability that a spell lasts at least as long as some length t , which is given by the *survival (or survivor) function*: $S(t) = 1 - F(t) = P(T \geq t)$.

One common way to analyze duration data is through this general question: given that a spell has lasted a certain length, what's the probability that it will end soon? Specifically, what's the probability that it will end within a short period of time, say Δ ? Mathematically, this probability is $P(t \leq T \leq t + \Delta \mid T \geq t)$. The limit of $[P(t \leq T \leq t + \Delta \mid T \geq t)] / \Delta$ as Δ goes to zero is known as the *hazard rate*:

$$\lambda(t) = \lim_{\Delta \rightarrow 0} \frac{P(t \leq T \leq t + \Delta \mid T \geq t)}{\Delta} = \lim_{\Delta \rightarrow 0} \frac{F(t + \Delta) - F(t)}{\Delta S(t)} = \frac{f(t)}{S(t)}$$

The hazard rate is the rate at which spells are completed immediately after t , given that they have lasted at least until t .

Proportional hazards models are perhaps the most popular multivariate way to examine duration data. They assume that the hazard function takes the following general form:

$\lambda(t \mid X) = e^{X\beta} \lambda_0(t)$, where X is a vector of characteristics, β represents the vector of coefficients (or the effects of the X variables on the hazard rate) and $\lambda_0(t)$ is referred to as the *baseline hazard*.

We use Cox's (1972) method to estimate the coefficients in β without needing to estimate the baseline hazard (which we are usually not interested in, anyway). The estimated coefficients can be transformed to represent the constant proportional effect of each X variable on the conditional probability of *completing* a spell, as demonstrated in Table 4.

Of course, other methods are available that require us to explicitly model the hazard rate (or, the hazard function), including various loglinear models that specify a particular distribution for the baseline hazard. Experimentation with these other methods yielded results similar to those in Table 4, so they are not presented here. For additional information on these and other methods, interested readers should consult Greene (2000) or Kiefer (1988).



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