Post-Reform Welfare Reentry in Tennessee: An Update

A Report to the Tennessee Department of Human Services

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Executive Summary

With the majority of available welfare research having been conducted prior to the most recent economic recession, a prominent question on the minds of policymakers is the extent to which recipient well being was impacted by less robust economic conditions. One useful indicator of well being is the extent to which those who have left the welfare rolls have reentered public assistance. In this report, we provide an update of *An Analysis of Post-Reform Welfare Reentry in Tennessee*, released by the University of Tennessee's Center for Business and Economic Research under a contract with the Tennessee Department of Human Services in November 2001.

The time since the release of that report has been characterized by economic instability. The national and state economies endured a recession during much of that time, and the question remains as to the extent to which the recession changed Families First participation decisions. This study adds 40 months of participant data to our prior analysis, fully encompassing the recession and much of its aftermath.

We examine nearly 200 thousand Families First case closures, restricting our analysis to first closures among non-child-only assistance groups (AGs) and only considering reentry that occurs in or after the third month off of the program. Just over 37 percent of those who exited the program and remained off for at least two months returned to the program at some later time. This is slightly higher than our November 2001 reentry rate of just under 33 percent, due in part to the longer period of time in the current study. Our new data support our earlier finding that most reentry occurs fairly soon after an AG leaves the program.

The remaining empirical analysis in this report follows our earlier study and consists of a statistical overview of welfare leavers in Tennessee, a similar overview of reentrants, and an exhaustive analysis of the determinants of reentry. For the most part, results mirror those in our earlier report. This is striking given the economic downturn that characterized the months of data added to this update.

Key findings which are consistent with our earlier report:

- Most reentry occurs within one year of program exit.
- Reentering AGs are more likely to have younger, black, or female caretakers.
- Married or more highly-educated caretakers are less likely to reenter.
- Caretakers who were working as of program exit are more likely to reenter.

Notable differences from our earlier report:

- Whites represent a slightly larger share of welfare leavers.
- The youngest child in leaver households is slightly younger.
- The average leaver spent more time on the program before leaving.
- Fewer leavers were working or receiving earned income as of program exit.
- Reentry rates decrease more uniformly as the age of the youngest child increases.

Introduction

The process by which welfare recipients exit and reenter welfare program rolls continues to generate interest among policymakers, program administrators, and researchers. The imposition of time limits and work requirements potentially changed individual participation patterns, but welfare reentry following an exit has only received moderate attention by researchers in the post-reform era.

Much has changed since the Center for Business and Economic Research released *An Analysis of Post-Reform Welfare Reentry in Tennessee* in November 2001. Most notably, the national and state economies experienced an economic recession followed by what has been widely called a "jobless recovery." The intent of this report is to investigate the extent to which less robust economic conditions have affected welfare reentry rates in Tennessee.

As in our 2001 report, 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 provide a large amount of administrative data containing a wealth of information on Families First recipients, allowing us to construct a monthly case history for every assistance group (AG) since the implementation of Families First in 1996. Our initial sample is the entire universe of Families First case closures from the program's inception through September 2004. This adds 40 months to the 2001 analysis, which analyzed data through April 2001.[1]

Our investigation is restricted to AGs who experienced at least one closure during the analysis period. We also limit the analysis to first spell closures and reentry into second spells since including multiple reentries would place a higher weight on AGs that have reentered multiple times. AGs who reenter prior to their third month off of the program are not considered in this analysis, in keeping with the prior literature. We also exclude child-only Families First cases, as most of them have a parent who receives SSI and is therefore ineligible for Families First benefits or involve children who are being cared for by a non-parental guardian. These cases may have characteristics that would significantly alter our analysis and would not give us an accurate picture of the characteristics associated with reentry. We therefore leave an analysis of child-only cases for future research.

[1] It is important to not that we are not able to identify any of our variables during off-program months. In addition, some variables may be unknown as of case closure.

Introduction, continued

A total of 199,204 first-spell case closures are included in the current analysis. Of these, 74,961 reentered Families First for a second spell as shown in Table 1. Of these, 74,443 were off for at least two months, yielding a 37.4 percent cumulative reentry rate. This is up slightly from the 32.8 percent rate reported in our 2001 study, due in part to the longer period of time in the current study. Although some of these AGs exit and reenter Families First numerous times during our analysis window, we focus only on each assistance group's first reentry.

The remainder of this report follows the structure of our 2001 report. Specifically, we begin by presenting a statistical overview of welfare leavers in Tennessee. We then turn to a similar treatment of reentrants, also presenting cumulative reentry rates and reentry trends for a number of sub-groups of the leaver population. We close with a multivariate analysis of the determinants of reentry following a first exit.

As a cautionary note, we remind readers that defining a group of leavers, reentrants, and non-reentrants involves tracking moving targets. Participants who have not yet left the program might do so in the future, just as leavers who have not yet reentered might choose to return at some future date. The consequence of this is that our "population" of leavers (a) is not complete if current participants eventually leave (and most of them will) and (b) is statistically more likely to be categorized as non-reentrants rather than reentrants if some non-reentrants eventually reenter (and some of them will). We suspect that these place only minimal limitations on our ability to generalize our results to the true population of eventual leavers.

Table 1: Summary of Families First Case Activity

Spell	All AGs	Ongoing AGs	Closed AGs
1	228,846	29,642	199,204
2	74,961	13,998	60,963
3	28,273	7,221	21,052
4	9,673	3,134	6,539
5	2,816	1,106	1,710
6	730	323	407
7	141	77	64
8	24	15	9
9	5	3	2
10	1	1	-

A Statistical Overview of Welfare Leavers in Tennessee

This section identifies the general characteristics of AGs who left Families First at some point since the program's inception in 1996. This does not reveal the causes of reentry but gives us an idea of the typical Families First leaver. In addition, we compare the descriptive statistics of leavers with the overall Families First population.[2]

Figure 1 presents the racial demographics of Families First leavers. Whites are the largest represented ethnic group, comprising 53.4 percent of the sample. This number has increased slightly since the 2001 report, when 50.5 percent of leavers were white. Blacks make up 44.7 percent of the leaver sample. The remainder is split between hispanics (1.2 percent) and all others (0.7 percent). The racial makeup of the leavers population is quite different from the overall Families First population. As of 1997, only 38.2 percent of Families First AGs had white caretakers. The majority of Families First AGs had black caretakers (60.7 percent). By 2003, the percentage of Families First AGs with white caretakers had increased to 39.5 percent while the percentage with black caretakers had decreased to 58.3 percent.

Figure 2 shows the age distribution of AG caretakers for Families First leavers. Assistance group caretakers are young, with 34.0 percent of caretakers under the age of 25. An additional 29.3 percent are between the ages of 25 and 32. Caretakers in our analysis are younger upon exit than those seen in the 2001 report, where only 31.9 percent of the leaver caretakers were under the age of 25. Caretakers of AGs who have left the Families First program are slightly younger than those seen in the 1997 and 2003 Case Characteristics Study.[3]

Figure 1: Ethnicity of Caretaker

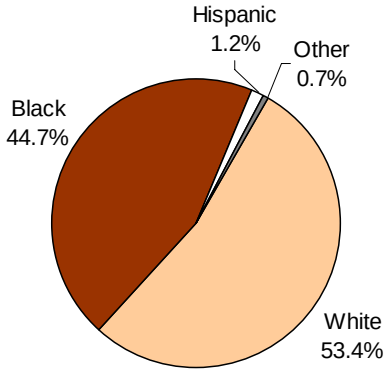
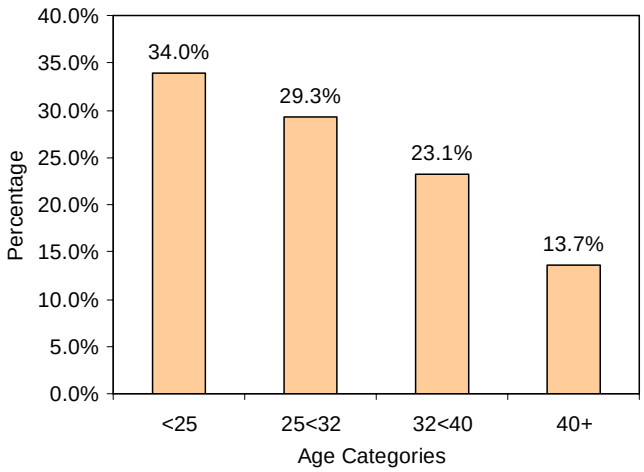


Figure 2: Caretaker's Age at Closure



[2] The comparative data are drawn from both the 1997 and the 2003 *Families First Case Characteristics Study* available at http://cber.bus.utk.edu.
[3] The Case Characteristics studies include *all* caretakers, including those in child-only AGs. Caretakers in child-only AGs tend to be older, which raises the average age seen in the Case Characteristics Study.

A Statistical Overview, continued

The breakdown of AG sizes is shown in Figure 3. A slight majority of AGs that have left the Families First program have less than three members. Roughly 48 percent of the AGs have two members. This number has increased from nearly 46 percent in the 2001 program. The sample used in this analysis has fewer single-member AGs than the overall Families First population analyzed in 1997 and 2003 because of our elimination of child-only welfare cases.

Figure 4 shows the distribution of the age of the youngest child in the AG at the time that the AG's first welfare spell closed. Not surprisingly, most AGs have young children, with the majority having a youngest child under the age of five. The percentage of leaver AGs with youngest children under age five has increased slightly since the 2001 study. This either reveals that more families with very young children are participating in the program or that AGs with younger children are exiting the program more frequently than those with older children.

Further analysis seems to show that the proportion of closed cases in which the youngest child is less than one year old has been decreasing over time. Therefore, it is more likely that AGs with younger children are exiting more frequently. As supporting evidence, the closure rate declines steadily with the age of the youngest child from a high around 81 percent for AGs with a youngest child under one year of age to around 73 percent for those whose youngest child is 14. However, closure rates begin to increase with the age of the youngest child for AGs with youngest children older than 14.

Nearly 48 percent of all Families First leavers reported living in an urban county at the time of case closure. For the purposes of this report, urban counties include Davidson, Hamilton, Knox,

Figure 3: Number of Recipients in Assistance Group

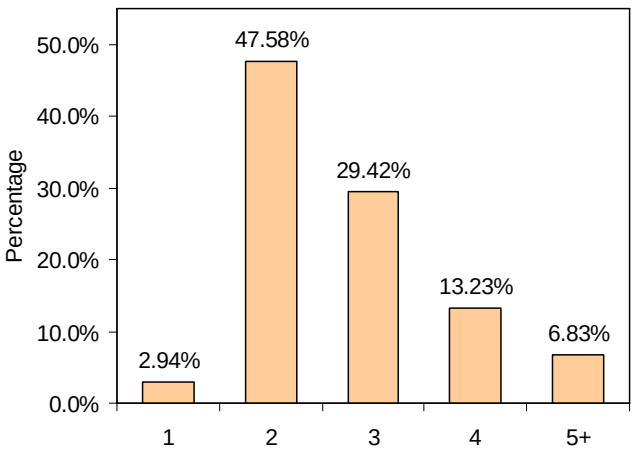
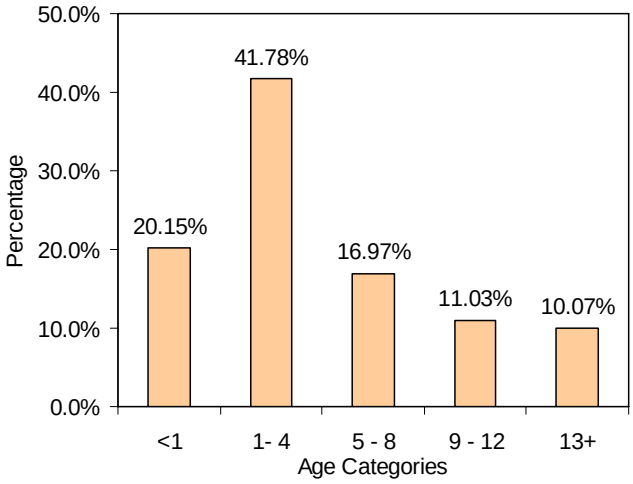


Figure 4: Age of the Youngest Child at Closure



A Statistical Overview, continued

and Shelby. The remaining 52 percent of leavers reported living in one of the other 91 counties. The 2001 study had a lower percentage of non-urban AGs (50.5 percent). Our sample is much more heavily represented by rural counties when compared to the 1997 and 2003 Case Characteristics Study. As of 1997, only 38.7 percent of all AGs reported living in rural Tennessee counties. By 2003 this number had increased slightly to 39.3 percent. Our findings suggest that rural recipients are much more likely to exit the Families First program than are urban recipients.

Figure 5 further breaks down the residence of Families First leavers. As expected, District 8 (Shelby County) has the largest percentage of Families First leavers, with 25.8 percent. This number has decreased slightly since 2001, while the percentages seen in Districts 3, 5, and 7 have slightly increased. District 4 (Hamilton County) has the lowest percentage of Families First leavers as residents. Compared with the overall caseload characteristics in 1997 and 2003, our sample is disproportionately representative of Districts 1, 2, and 7 by a small amount.

The distribution of marital status among AG caretakers at the time of case closure is shown in Figure 6. The majority of leavers have a caretaker who is single (51.2 percent). This percentage has increased slightly since the 2001 report, where 50.3 percent of leaving caretakers were single. While the percentage of single caretakers has increased, the percentage of divorced caretakers has decreased. Less than 15 percent of exiting caretakers are divorced. In the 2001 study, 15.6 percent of caretakers were divorced. This distribution is nearly equivalent to that seen in the 1997 *Families First Case Characteristics Study*. However, significant changes were seen between the 1997 and 2003 Case Characteristic Study. The 2003 *Case Characteristics Study* found that 64.5 of all Families First caretakers were single. Additionally, only 8.8 percent were married, and 10.7 percent were divorced.

Figure 5: Percentage of Recipients in Each District

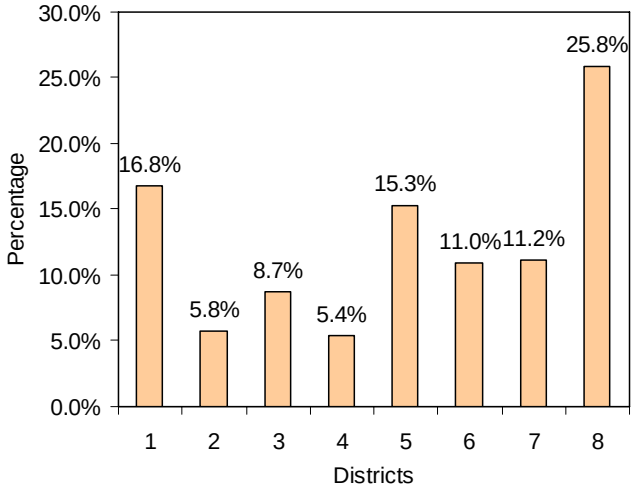
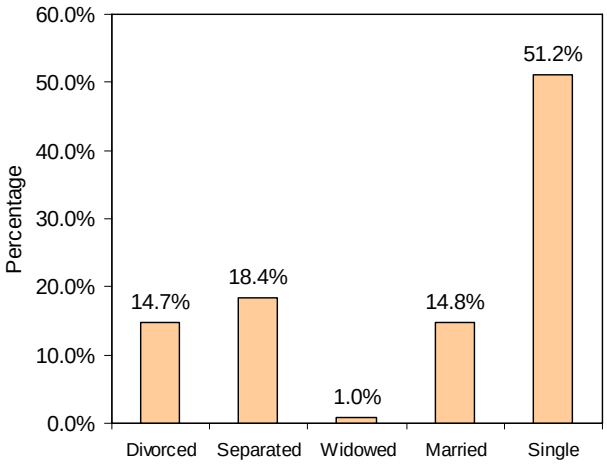


Figure 6: Marital Status of the Caretaker at Closure



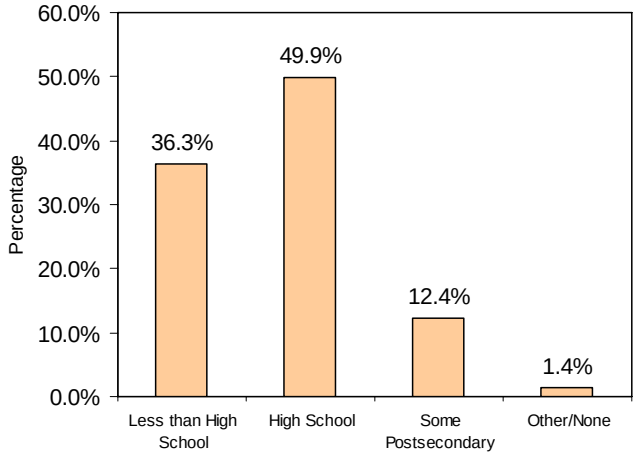
A Statistical Overview, continued

Figure 7 provides some insight into the educational attainment of Families First AG caretakers at the time of case closure. Over 36 percent of leaving caretakers had not completed high school. This number has decreased since the 2001 study. The percentage of caretakers who have a high school education has increased over the same period (from 48.3 percent in 2001 to 49.9 percent currently). However, the percentage of caretakers attending postsecondary programs has remained relatively constant at about 12.4 percent of leaving caretakers in our current analysis. This distribution is very similar to that observed among the active Families First caseload in both 1997 and 2003, which suggests that leaving the Families First program is not highly correlated with educational attainment. As we will see below, however, having more education reduces the likelihood of returning to Families First following an exit.

Time limits represent one of the most visible changes in welfare programs since the establishment of the TANF program in 1996. In our analysis only 3.1 percent of all first case closures are the result of reaching the 18-month time limit. In the 2001 study, time limit closures were only 2.5 percent of first case closures. This increase over time is not surprising since we have added an additional 40 months during which AGs can accumulate months towards reaching a time limit. We also find that leavers now have a higher level of accumulated countable lifetime months. The 2001 report found that AGs had an average of 4.8 countable months upon exit, while our updated analysis reveals an average of 5.4 accumulated countable months.

Over 23 percent of the AGs that left the Families First program had a caretaker who participated in work activity at the time of case closure. In addition, nearly 30 percent were receiving

Figure 7:
Education of the Caretaker at Closure



A Statistical Overview, continued

some sort of earned income. These numbers are down from the 2001 report, due perhaps in part to the recessionary period captured in the addition of the 40 months of data. These characteristics are explored in more detail later in this report.

The demographic characteristics previously discussed may differ between those who stay on the program, those who leave the program and do not return, and those who leave and eventually return. Table 2 below breaks down many of the demographic characteristics based on the status of the AG.[4] Among the various notable differences are the findings that reentrants are more likely to reside in a rural county, have younger youngest children, are slightly younger themselves, and are more likely to be Black and single and have less education. The extent to which these differences in characteristics truly contribute to differences in reentry probabilities is left to the multivariate analysis below.

Table 2:
Demographic Characteristics of Assistance Groups by Program Status

	Those who stay	Those who leave and don't return	Those who leave and return
Rural	60.4%	44.1%	54.5%
Urban	39.6%	55.9%	45.5%
Number of Children	1.8	1.7	1.8
Age of Youngest Child	4.2	5.1	3.7
Female Caretaker	94.8%	92.7%	97.3%
Male Caretaker	5.2%	7.3%	2.7%
Caretaker Age	28.8	30.9	27.8
White	42.5%	58.5%	43.4%
Black	55.4%	39.2%	55.3%
Hispanic	1.2%	1.5%	0.8%
Asian	0.6%	0.6%	0.3%
Other	0.2%	0.2%	0.2%
Single	66.2%	46.0%	59.7%
Divorced	9.8%	16.4%	12.0%
Separated	13.1%	18.9%	17.5%
Widowed	0.6%	1.2%	0.5%
Married	10.3%	17.5%	10.3%
Less than 10th Grade	11.3%	12.9%	12.6%
10th Grade	10.8%	10.0%	11.5%
11th Grade	15.1%	12.0%	14.6%
HS Diploma	50.1%	51.6%	50.1%
Community College	9.3%	10.4%	9.4%
No Education	1.3%	1.0%	0.7%
Associates Degree	0.5%	0.4%	0.2%
Bachelors Degree or Highe	0.6%	1.0%	0.5%
Other Education	1.0%	0.6%	0.3%

[4] AGs that are classified as those who leave and do not return include those who have recently left the program and have not yet had a chance to reenter.

Overall Reentry Rates and Characteristics of Reentrants

Of the 199,204 AGs who left the Families First program at least once between September 1996 and September 2004, 74,961 have experienced at least one return.[5] Table 3 presents the general reentry trends for the analysis period.

Table 3:
Overall Reentry Trends

Month Since Exit	Reentrants	Cumulative Reentry Rate	Month Since Exit	Reentrants	Cumulative Reentry Rate
3	9,236	4.71%	50	225	35.53%
4	6,940	8.25%	51	204	35.63%
5	5,723	11.17%	52	196	35.73%
6	4,466	13.45%	53	172	35.82%
7	3,741	15.36%	54	163	35.90%
8	3,307	17.04%	55	174	35.99%
9	3,010	18.58%	56	183	36.08%
10	2,498	19.85%	57	121	36.15%
11	2,313	21.03%	58	151	36.22%
12	2,086	22.10%	59	116	36.28%
13	1,820	23.02%	60	123	36.34%
14	1,728	23.91%	61	115	36.40%
15	1,567	24.71%	62	106	36.46%
16	1,524	25.48%	63	123	36.52%
17	1,412	26.20%	64	99	36.57%
18	1,952	27.20%	65	107	36.63%
19	1,268	27.85%	66	104	36.68%
20	1,100	28.41%	67	101	36.73%
21	1,003	28.92%	68	109	36.79%
22	896	29.38%	69	69	36.82%
23	863	29.82%	70	80	36.86%
24	785	30.22%	71	84	36.90%
25	685	30.57%	72	75	36.94%
26	684	30.91%	73	71	36.98%
27	662	31.25%	74	68	37.01%
28	631	31.57%	75	70	37.05%
29	567	31.86%	76	73	37.09%
30	537	32.14%	77	59	37.12%
31	518	32.40%	78	43	37.14%
32	474	32.64%	79	50	37.16%
33	430	32.86%	80	47	37.19%
34	438	33.09%	81	40	37.21%
35	421	33.30%	82	45	37.23%
36	366	33.49%	83	31	37.25%
37	376	33.68%	84	35	37.27%
38	333	33.85%	85	25	37.28%
39	371	34.04%	86	38	37.30%
40	321	34.20%	87	27	37.31%
41	329	34.37%	88	24	37.32%
42	281	34.51%	89	28	37.34%
43	318	34.68%	90	19	37.35%
44	255	34.81%	91	15	37.35%
45	254	34.93%	92	10	37.36%
46	273	35.07%	93	4	37.36%
47	223	35.19%	94	6	37.37%
48	204	35.29%	95	1	37.37%
49	237	35.41%	96	0	37.37%

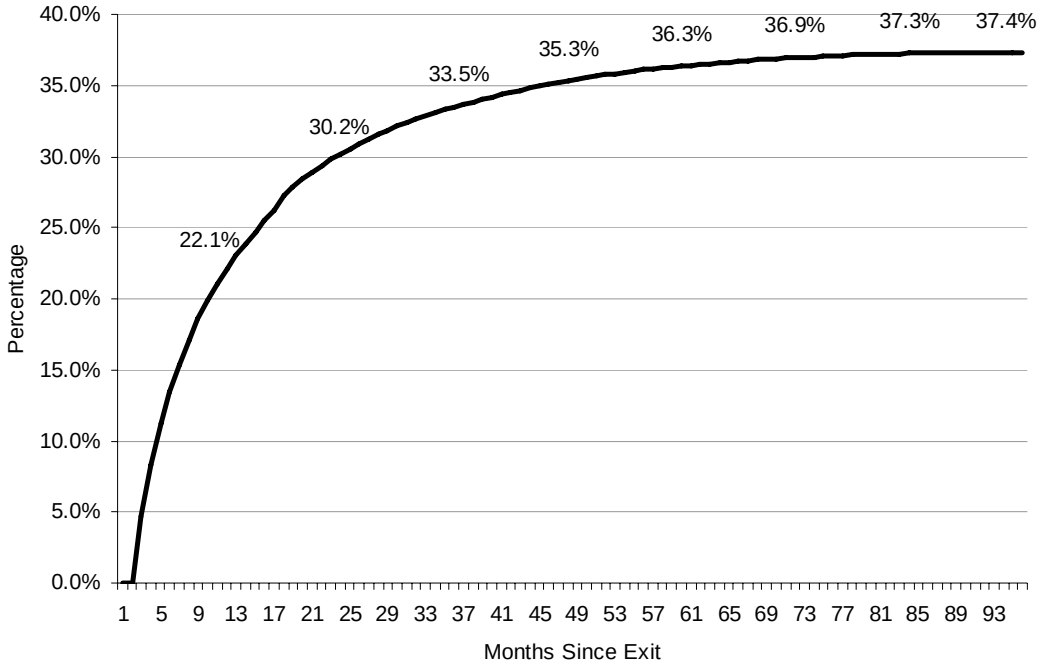
[5] Note that just over 500 AGs reentered within three months of leaving and are thus excluded from the analysis from Table 3 onward.

Overall Reentry Rates and Characteristics, continued

The eventual cumulative reentry rate over the time period examined is just over 37 percent. This is shown graphically in Figure 8. Cumulative reentry rates are shown in the figure as of each 12-month interval, from one year after exit to eight years after exit. About 13.5 percent of AGs reenter the Families First program within six months of their first exit. This increases to 22.1 percent by the one year mark. These numbers are in line with those found in the 2001 report, which is somewhat surprising given the recent recessionary period. We might have expected to see these numbers increase during difficult economic times. The one-year reentry rate suggests that the majority of reentry occurs shortly after exiting the program.

Reentry may result from changes in AG size, income, or residency. Those who reenter Families First provide the program with demographic data at the time of case closure and at the time of reentry. Therefore, we are able to analyze changes in various characteristics for those who reenter. While this provides useful descriptive evidence, we are not able to compare the effects of any changes on reentry rates without a similar set of information for leavers.

Figure 8:
Cumulative Reentry Rate



Overall Reentry Rates and Characteristics, continued

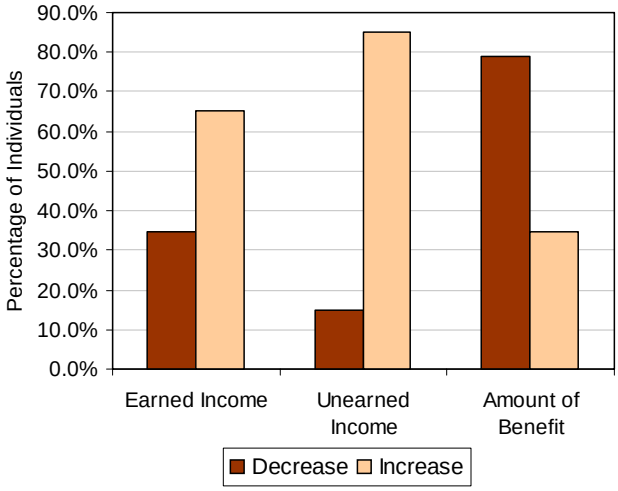
Table 4 presents average monthly income from various sources.[6] A decrease in an AG's income might indicate a more likely return to welfare. It is interesting to note that Families First reentrants had a higher level of earned income upon closure than the total population of welfare recipients and the total population of leavers. Families First reentrants have a lower average monthly benefit level at just over $128 a month; this is likely due to their higher earned income levels. Similarly, Families First reentrants have lower average monthly unearned income levels, which may be due to the fact that lower-income households can qualify more easily for other government aid programs.

Figure 9 presents the changes in income and benefit levels experienced by reentrants. It is important to note that income during off-program spells is unknown. Income levels at the time of closure may also be unknown. Based on the available income and benefit information, the majority of reentrants saw an increase in both earned and unearned income over the off-program spell. This runs counter to the belief that AGs reenter due to the need to replace decreased income. The increase in unearned income may result from an increased reliance on other assistance programs during off-program spells such as food stamps or WIC, or an increase in pass-through child support payments. Over 75 percent of reentrants returned to Families First at a lower benefit level, due mainly to the increase in income levels.

Table 4: Descriptive Statistics Monthly Incomes at Time of Case Closure

Variable	All Leavers (N= 196,049)	Reentrants (N= 73,255)	Nonreentrants (N= 122,794)
Earned Income	211.56 (367.83)	254.81 (388.52)	185.75 (352.19)
Unearned Income	54.46 (179.39)	46.03 (182.27)	59.48 (177.47)
Benefit	133.12 (77.01)	128.48 (81.21)	135.89 (74.26)

Figure 9: Changes in Income and Benefit Levels of Reentrants



[6] It is important to note that income at the time of closure may not be accurately reported as caretakers may choose not to reveal income levels that may make them ineligible for Families First benefits. Therefore, the earned income figures may be understated.

Overall Reentry Rates and Characteristics, continued

Over 62 percent of reentering AGs experienced a change in AG size during the off-program spell. The results in Figure 10, which echo similar findings in our 2001 report, reveal that the majority of AGs reentered with fewer members. This could occur due to divorce, death, or a child becoming too old for group benefits. Just over 11 percent of AGs saw an increase in size during the off-program spell. This is almost always due to the birth of an additional child. It should be noted that the actual identity of AG members may have changed even if the size remained constant. These numbers indicate that a change in AG size could be a reason for reentry as a decrease in size could represent the loss of an income-producing adult. Additionally, an increase in AG size may indicate the addition of a new child which places further financial stress on an AG. A more extended analysis is needed before more reliable conclusions can be made.

A little over 37 percent of reentering AGs changed their county of residence during the observed off-program spell. Figure 11 presents the distribution of these moves. The vast majority of those who changed their county of residence moved from one rural county to another rural county (61.3 percent). Over 17 percent moved from an urban county to a rural county, and another 19 percent moved from a rural county to an urban county.[7] The remaining AGs that moved during the off-program spell moved between two urban counties. The distribution of moves mirrors that in our 2001 report.

Figure 10:
Change in Assistant Group Size for Reentrants

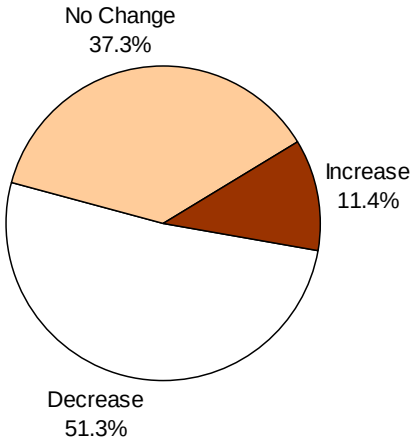
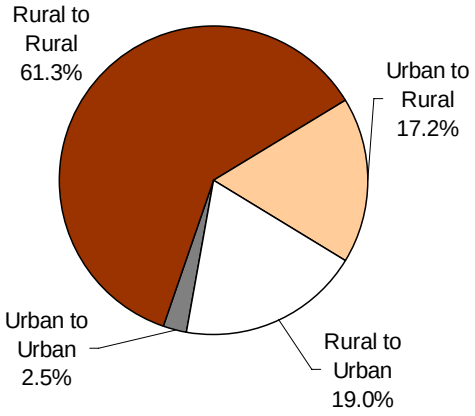


Figure 11:
Direction of Move for Reentrants Who Moved between Counties

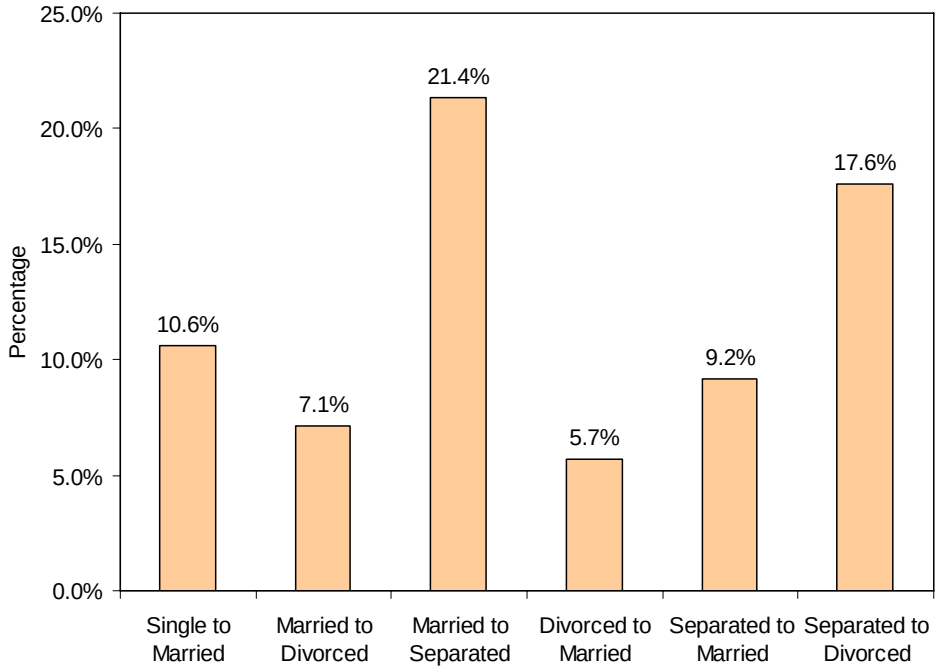


[7] Urban counties include Davidson, Hamilton, Knox, and Shelby counties.

Overall Reentry Rates and Characteristics, continued

Around 12 percent of all reentrants experienced a change in their marital status between case closure and reentry. The distribution of marital status changes is presented in Figure 12. Over 21 percent of all reentrants who experienced a marital status change moved from being married to being legally separated. This was also the most common marital status change seen in the 2001 study. Other frequent changes were separated to divorced (17.6 percent), single to married (10.6 percent), and separated to married (9.2 percent). A little over seven percent moved from being married to being divorced during the off-program spell, and 5.7 percent got married during the off-program spell after being divorced at the time of case closure.

Figure 12:
Key Changes in Marital Status for Reentrants

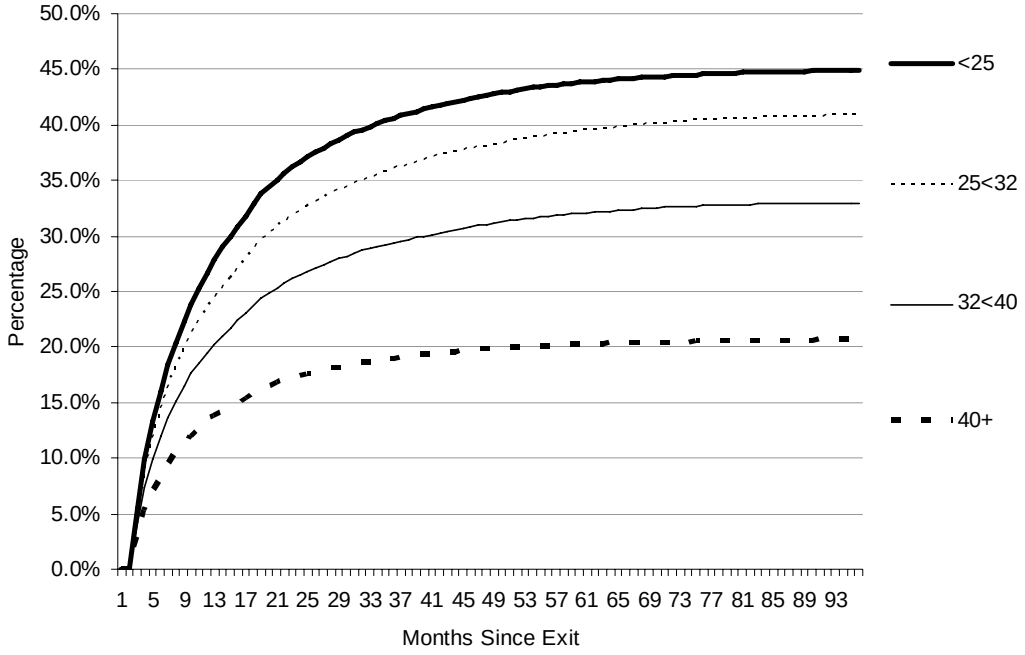


Discussion of Reentry Rates

Figures 13 through 21 illustrate cumulative reentry rates by various demographic categories. These figures can aid in our understanding of the various causes of reentry. However, the results in this section are only meant to be illustrative since they cannot independently identify the true effects of each characteristic on the probability of reentry holding all other factors constant. This can be done through multivariate analysis, which will be presented in the next section.

It has been shown in previous studies that the age of the caretaker can have a significant impact on reentry rates. Figure 13 shows that as the age of the AG caretaker increases, the probability of reentry decreases. AGs with caretakers under 25 years old have the highest reentry rates. This is the same pattern seen in the 2001 study. Younger caretakers are likely to have younger children and may have lower paying jobs due to lack of work experience.

Figure 13:
Cumulative Reentry Rates by Caretaker Age Group



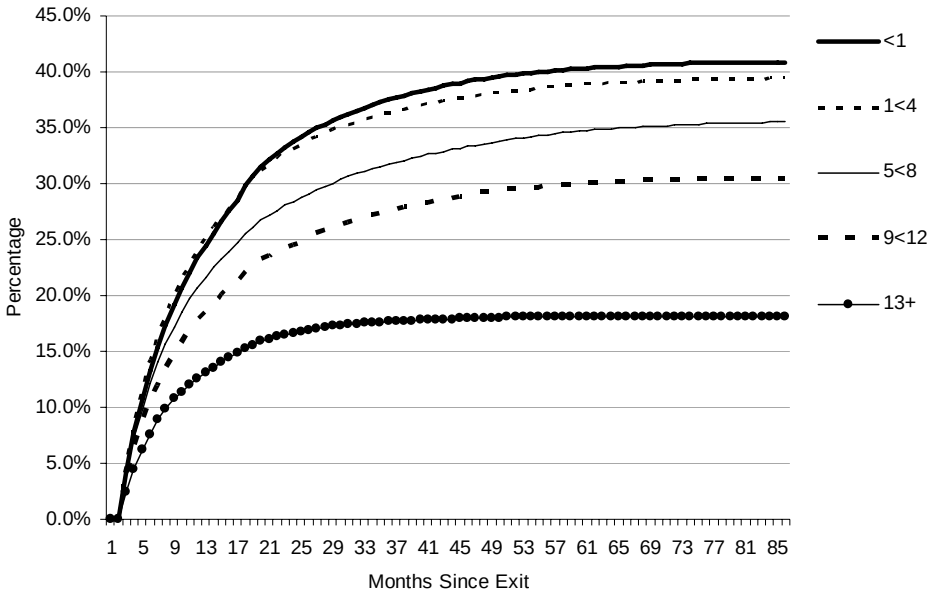
Discussion of Reentry Rates, continued

AGs become ineligible for Families First benefits when their youngest child reaches age 18. Therefore, it is important to analyze the effect of the age of the AG's youngest child on reentry rates. AGs with younger youngest children might be more likely to exit and reenter Families First multiple times rather than remain on the program for an extended period because there is a longer time horizon in which benefits may be necessary. Figure 14 shows that the younger the youngest child, the higher the probability of reentry. This trend is more uniform than in our earlier report.

Urban or rural residence may also have an impact on the probability of reentry into the Families First program. Figure 15 shows that AGs in urban counties are more likely to reenter than AGs in rural counties. This may be counterintuitive because of the increased number of jobs and child care providers in urban areas. However, several factors might impact an urban resident's probability of reentry, such as the availability of TDHS offices in urban areas, the negative stigma attached to welfare receipt in rural areas, and the difficulty of concealing Families First receipt in rural areas. The pattern shown in Figure 15 is nearly identical to that seen in the 2001 report.

Figure 16 shows cumulative reentry rates for each of the eight Tennessee districts. District 8, which represents Shelby county, has the highest reentry rates, with over 27 percent of AGs reentering within a year of case closure. District 1, representing East Tennessee (excluding Knox County) has the lowest reentry rate, with only 17 percent of AGs reentering within a year of closure. Districts 2 (Knox County), 4 (Hamilton County) and 6 (Davidson County) also have high reentry rates. This is not surprising given our discussion of urban-rural differences above and the fact that our definition of urban includes these three counties.

Figure 14:
Cumulative Reentry Rates by Age of Youngest Child



Discussion of Reentry Rates, continued

Figure 15:
Cumulative Reentry Rates by Urban / Rural Residence

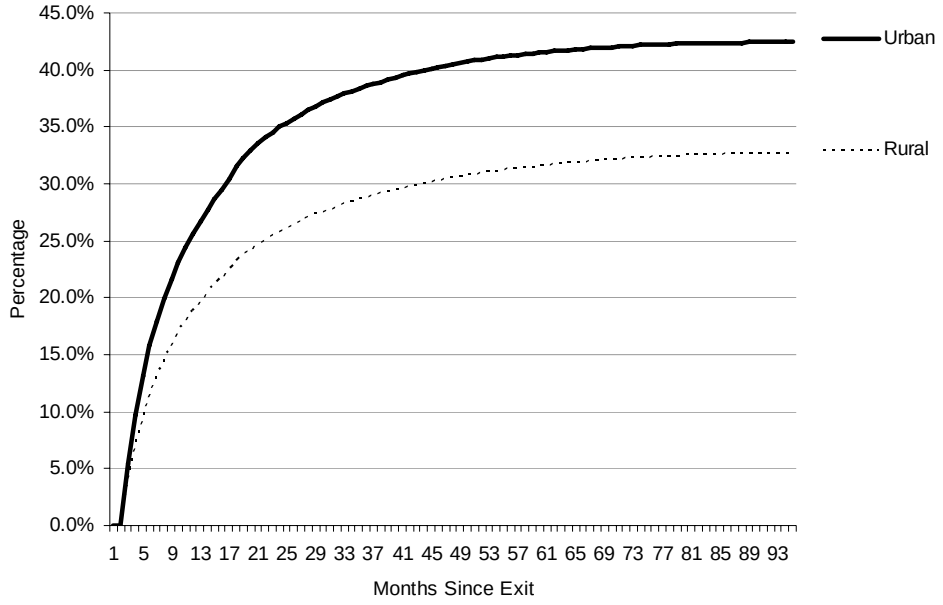
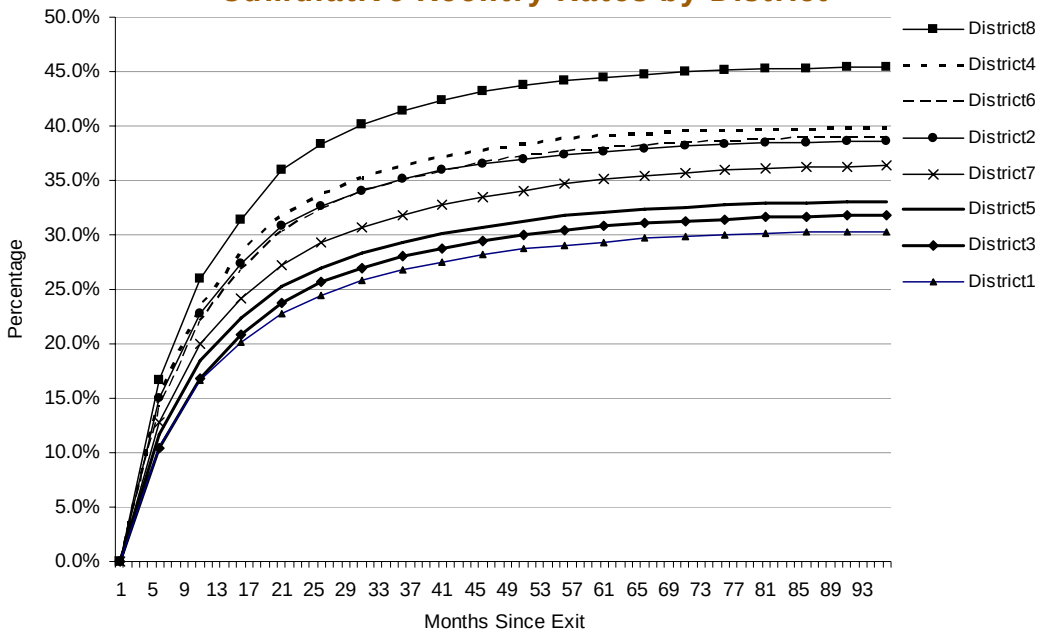


Figure 16:
Cumulative Reentry Rates by District



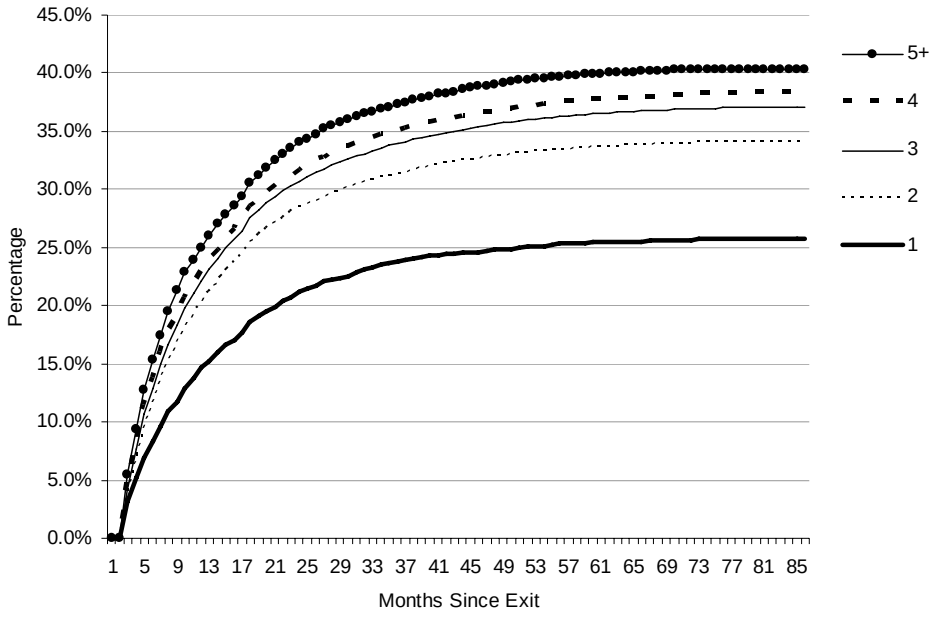
Discussion of Reentry Rates, continued

Figure 17 shows cumulative reentry rates for AGs of different sizes. As expected, larger AGs have a higher probability of reentry. The pattern here is somewhat different than that seen in 2001. The reentry rate for AGs with one member is actually lower in our current analysis than in 2001, and reentry rates are higher for all other categories.

We expect that those AGs who leave Families First as a result of reaching a time limit will have higher reentry rates. Figure 18 confirms this expectation, with those closing due to time limits having a much higher reentry rate than those AGs that leave for other reasons. We can also see that the majority of reentry for those who have reached time limits occurs very quickly, with nearly 25 percent (more than half of eventual reentrants) reentering within six months of case closure. Over 11 percent of AGs reaching a time limit reenter three months after closure (the first possible month of reentry). While this strikes us as high, it does refute the conventional wisdom that all time limit closures reenter as soon as their mandated three-month spell of ineligibility ends. Of course, only a very small percentage of cases close due to reaching a time limit (3.1 percent).

Figure 19 shows cumulative reentry rates broken down by the caretaker's marital status at the time of case closure. Single caretakers have much higher reentry rates than any of the other marital status categories. Separated and divorced caretakers are more likely to reenter than are married or widowed caretakers. This suggests that AGs with married caretakers may be better able to support themselves while off of the program. Reentry is also less probable for married caretakers since there are more stringent eligibility rules for married AGs.

Figure 17:
Cumulative Reentry Rates by AG Size



Discussion of Reentry Rates, continued

Figure 18:
Cumulative Reentry Rates for Time Limit Closures vs. Other Closures

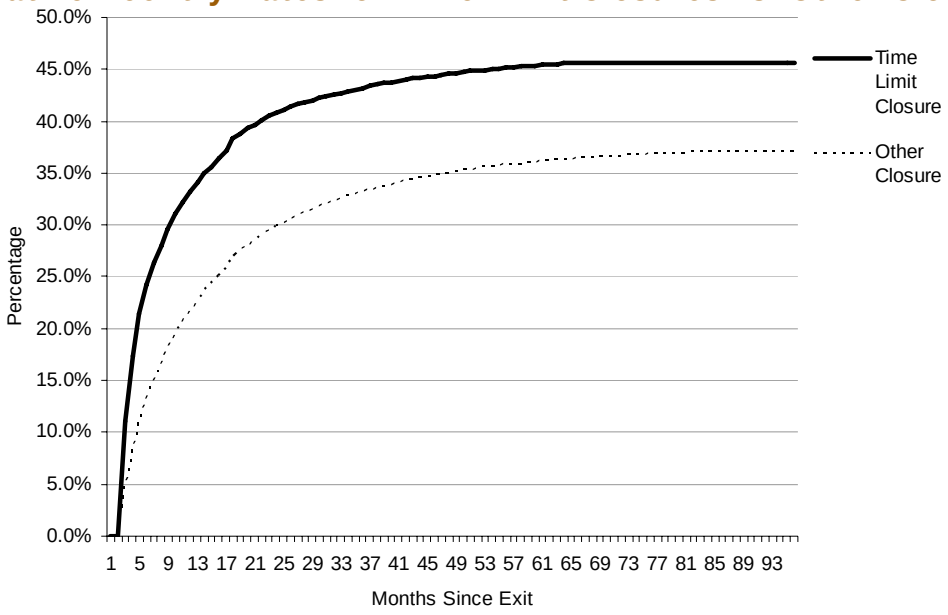
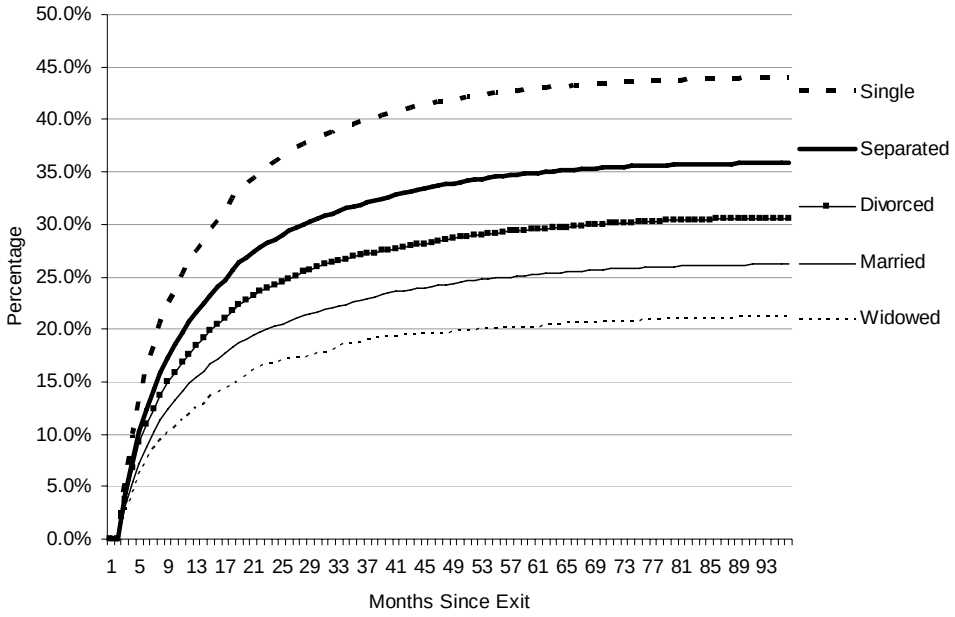


Figure 19:
Cumulative Reentry Rates by Caretaker's Marital Status at Closure



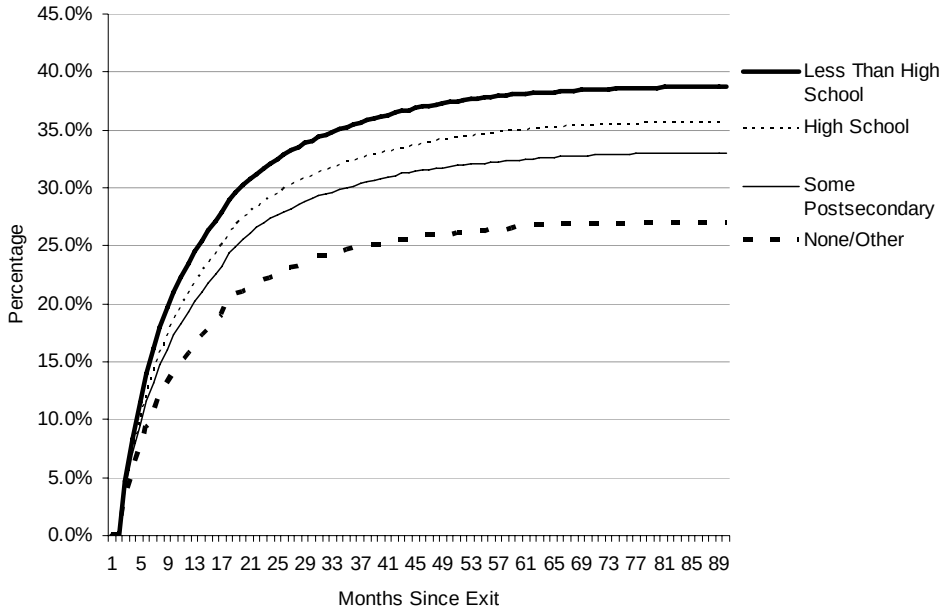
Discussion of Reentry Rates, continued

It is not surprising that greater educational attainment can affect an AG's probability of reentry. Obtaining a higher level of education leads to higher paying and more varied job opportunities. Figure 20 shows that a lower level of education leads to a higher rate of reentry into Families First. This is the same pattern found in the 2001 report.

Figure 21 presents Families First reentry rates based on the work status of the caretaker at the time of case closure. It may be surprising to see that AGs with working caretakers have higher reentry rates than those with non-working caretakers. This result was also found in the 2001 report, although the difference between the two is now more pronounced. This may be caused by difficulty in finding permanent employment if caretakers who are working at the time of case closure are working in temporary or unstable jobs. This may also be due to the fact that non-working caretakers can more easily qualify for other government assistance programs such as food stamps or SSI, and those programs might reduce the need for Families First cash assistance. Contributing to this possibility is the noticeable increase in the cumulative reentry rate among *working* leavers around the 18th month after program exit. This coincides with the ending of transitional benefits, which are typically available for no more than 18 months.

Figure 22 presents our final demographic analysis and shows that AGs with black caretakers are more likely to reenter than are AGs with white caretakers. AGs with hispanic caretakers have the lowest reentry rates, with rates very similar to those AGs with caretakers of "other" ethnic groups. Again, without further analysis, we cannot tell if this is truly a race effect, or if black AGs tend to have other characteristics (such as urban residence) that make them more likely to reenter. We analyze these effects further in the following section.

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



Discussion of Reentry Rates, continued

Figure 21:
Cumulative Reentry Rates by Caretaker's Work Status at Closure

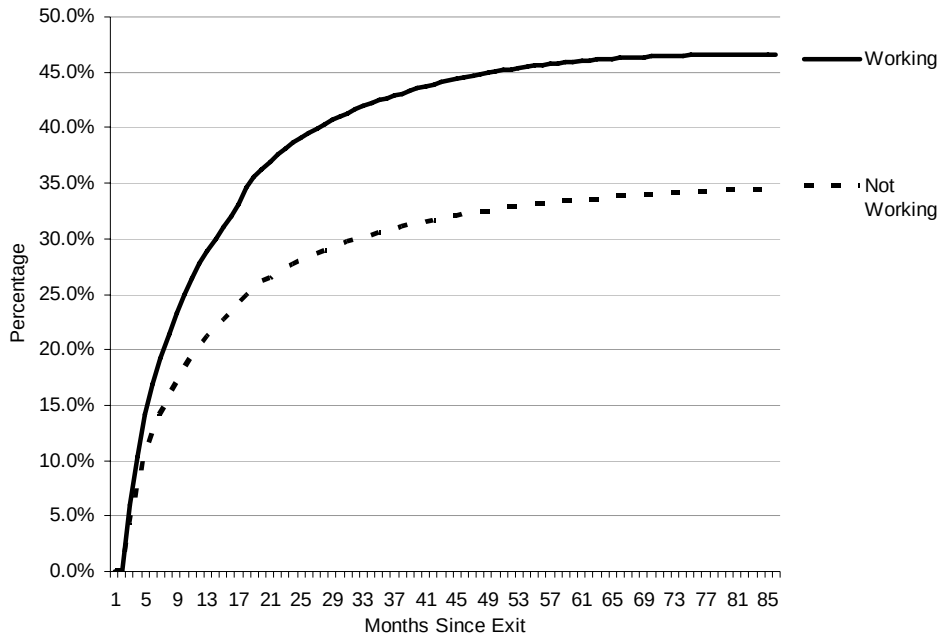
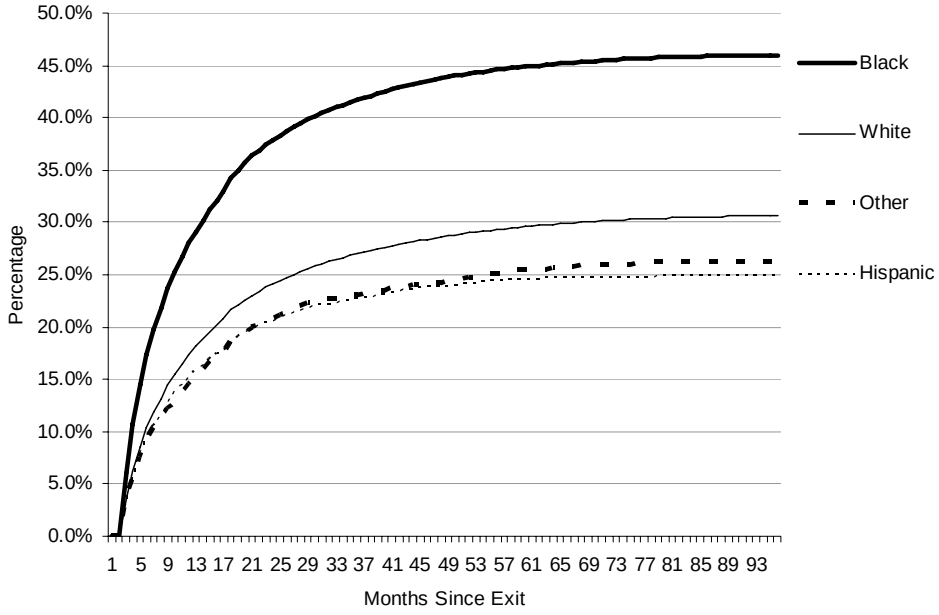


Figure 22:
Cumulative Reentry Rates by Caretaker's Ethnicity



Discussion of Reentry Rates, continued

The demographic characteristics of the Families First AGs appear to greatly influence the likelihood of reentry into Families First. Our analysis shows that the younger the AG caretaker, the higher the rate of reentry. Additionally, AGs with young children seem to be more likely to reenter. AGs whose youngest child is less than one have the highest reentry rates. Marital status also seems to have an impact, with single caretakers more likely to return than widowed or married caretakers. The educational attainment of the caretaker gives us mixed results. While completion of high school does not appear to increase the probability of leaving Families First, it does seem to reduce the likelihood of returning for those who do leave. These results cannot autonomously distinguish the effects of each demographic characteristic on the probability of reentry. We can accomplish this through the multivariate analysis presented in the following section.

For the most part, reentry patterns reflect the general trends from our 2001 study. This is likely a result of the fact that reentry rates have increased for every sub-group in our data. It is interesting to note, however, that reentry rates appear to have increased more rapidly for time-limit closures than for non-time-limit closures, and for working leavers than for non-working leavers, in the time since our earlier report. Differences in reentry by urban residence and ethnicity also exhibit interesting changes from our earlier study. Absent reliable off-program data for potential reentrants, though, a conclusive analysis of the causes of these trends is beyond the scope of this study and is therefore left for future research.

Recall that the results in this section cannot autonomously distinguish the effects of each demographic characteristic on the probability of reentry. For example, the finding that urban AGs are more likely to return to Families First following an exit might only reveal that urban AGs have other characteristics that are associated with reentry, and that urban residence does not itself affect reentry probabilities. We rely on multivariate analysis to get at more useful all-else-equal results in the following section.

Multivariate Statistical Results

A variety of models are available for analyzing time-duration data. We investigate the effects of various demographic characteristics on reentry using a Generalized Gamma Survival Model, a variant of the approach taken in our earlier report. This model is similar to a regression analysis in that it allows us to measure the impact of each characteristic on reentry, holding all other factors constant. More information on this approach is provided in the technical appendix at the end of this report.[8]

Table 5 presents results from our survival analysis with coefficients presented as time ratios. The time ratios can be interpreted very easily in the context of our analysis. They indicate the effect of a one-unit increase in each covariate on the length of the off-program spell, all else in the model held constant. If a time ratio for a particular control variable is less than one, then an increase in that variable will reduce the amount of time that an AG will remain off the program (i.e., it will increase the AG's probability of reentry). Conversely, if the time ratio is significantly greater than one, then an increase in that variable prolongs the time spent off the program (i.e., reduces the probability of reentry). Time ratios that are not statistically different from one indicate that the variable in question does not have a measurable effect on the timing of reentry.

The coefficient for caretaker's age, 1.027, reveals that as the caretaker ages, the length of the off-program spell increases and probability of reentry decreases. Specifically, the caretaker aging one year increases the time off the Families First program by 2.7 percent, all else equal. Conversely, a caretaker being black increases the probability of reentry when compared to white caretakers (the base race category). The time ratio of 0.684 tells us that black AGs' time off the program is only 68.4 percent as long as white AGs', all else constant.

Contrary to the results found in the 2001 report, we find that AGs with youngest children less than 13 years old are always more likely to reenter than AGs whose youngest child is 13 or older. The finding that the more education a caretaker has, the less likely they are to reenter is consistent with nearly all previous analyses. This result is expected since greater educational attainment is associated with higher earnings potential.

All else being equal, the more months an assistance group has accumulated as of case closure, the more likely they are to reenter. This is likely due to the fact that prior reliance on Families First is a good predictor of the need for future assistance. The time ratio for work activity participation

[8] For additional details, also see "Welfare Program Reentry among Post-Reform Leavers," by Karie Barbour, Donald Bruce, and Angela Thacker, *Southern Economic Journal* 70(4): 816-836, 2004.

Multivariate Statistical Results, continued

of 0.854 tells us that caretakers who are working at the time of case closure are more likely to reenter than those who are not participating in a work activity. This finding may be caused by caretakers who are not working at the time of case closure but who have access to other sources of "income" such as family, child support, or other government programs (e.g. food stamps or housing benefits). In addition, reentrants that were employed at the time of case closure may not be employed at the time of reentry. Therefore, this finding may be influenced by unstable employment patterns.

Table 5:
Generalized Gamma Survival-Time Model Estimates

Variable	Time Ratio	Standard Error
Caretaker age at closure	**1.027**	**0.001**
Male	**1.294**	**0.039**
Black	**0.684**	**0.013**
Other race	**1.139**	**0.052**
No. of recipients in assistance group	0.988	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	0.962	0.027
Age of youngest child = 1-4	**0.931**	**0.023**
Age of youngest child = 5-8	0.958	0.025
Age of youngest child = 9-12	**0.929**	**0.025**
District 1	0.969	0.024
District 2	**0.857**	**0.026**
District 3	**0.913**	**0.026**
District 4	0.979	0.030
District 5	0.985	0.023
District 6	1.020	0.023
District 7	0.999	0.024
Divorced	**0.802**	**0.020**
Separated	**0.788**	**0.018**
Widowed	0.988	0.073
Single	**0.776**	**0.017**
Less than high school education	**0.877**	**0.012**
Some postsecondary education	**1.080**	**0.022**
No/other education	**1.120**	**0.062**
Time limit closure	**0.771**	**0.030**
Months of accumulated benefits	**0.975**	**0.001**
Participating in work activities	**0.854**	**0.013**
Number of observations	152,478	
Number of reentrants	56,875	
Log likelihood	-174482.41	
$\chi 2$ (29)	3678.85	
Probability > $\chi 2$	0.0000	

The standard errors are those associated with the underlying coefficient estimates, which have been transformed into time ratios for this analysis.
Variables in bold type are statistically significant at the 5% level.

Conclusion

The findings in this report closely mirror those of the 2001 study. The 2001 report found that about one-third of those who left Families First returned to the program. Our study shows that this number has increased to just over 37 percent. Age, gender, ethnicity, and educational attainment all significantly influence the probability of reentry. AGs with younger, female, or black caretakers are more likely to reenter. Surprisingly, AGs with caretakers who are participating in work activities at case closure are also more likely to reenter the Families First program. Those with married and relatively higher educated caretakers are less likely to reenter.

Although reentry rates have increased slightly since the 2001 report, they have not increased by the magnitude expected given the recent recession. If less robust economic conditions have increased participants' usage of Families First benefits, the effect has largely been in terms of the length of program spells rather than a dramatic increase in reentry following an exit from the program.

Technical Appendix

Survival (or duration) analysis techniques allow us to estimate the effects of various factors on the probability that an assistance group will reenter the program at some point in time, given that they have not already reentered. Using T to denote the assistance group's off-program spell length, t as the current time, and Δ as a small increment of time, the probability of reentry is as follows:

$$P(t \le T \le t + \Delta \mid T \ge t).$$

It is typically assumed that T has a continuous probability distribution function.

In this analysis, we examine the hazard rate which is calculated as the limit of $P(t \le T \le t + \Delta \mid T \ge t) / \Delta$ as Δ goes to zero and is denoted as $h(t)$. The hazard rate can vary from zero (meaning that there is no probability of reentry) to infinity (meaning that there is a 100 percent certainty of reentry at that instant). Over time, the hazard rate can increase, decrease, or remain constant. The hazard rate, $h(t)$, is the rate at which spells are completed immediately after t, given that they have lasted at least until t.

For empirical analyses, survival analysis expresses the hazard rate as a multiplicative function of some baseline hazard, $h_0(t)$ and an exponential function of a set of covariates:

$$h_1(t) = h_0(t) \exp(X_i \beta)$$

Estimation of this model requires an assumption about the functional form of the baseline hazard.

The chosen estimation method in this paper is the accelerated failure time (AFT) metric, which is a direct extension of the proportional hazard model described above. We define τ_i as follows:

$$\tau_i = \exp(-X_i \beta) t_i$$

Through this definition, we can express the log of failure (reentry) time t as the following linear function:

$$\ln(t_i) = X_i \beta + \ln(\tau_i)$$

In this equation, $\ln(\tau_i)$ represents an error term whose distribution determines the specific parametric model to be used.[9] The choice of the parametric model depends on the shape of the distribution of the empirical hazard.

[9] A semi-parametric analysis was also conducted using the Cox proportional hazards model. This was greatly complicated by the fact that many of our covariates are categorical variables with more than two unique values, which the Cox model does not allow for. Because our analysis uses population data, we are confident in our choice of an appropriate parametric model.

Technical Appendix, continued

As the graph of the cumulative reentry rate shows (Figure 1), our data exhibit a rather smooth empirical hazard. The Families First reentry data are typified by high initial hazard rates followed by steadily declining rates. Because of this, the generalized gamma model is likely to be the most appropriate parametric specification. We did, however, test for additional distributions in order to verify its appropriateness. The table below shows Akaike Information Criteria values for each attempted distribution.

Akaike Information Criteria	
Generalized Gamma	**349,118.34**
Log-Normal	353,611.18
Log-Logistic	357,641.07
Weibull	362,116.92
Exponential	381,924.53

The AIC calculations confirm the superiority of the generalized gamma model.[10]

[10] The results from all statistical analyses are available from the authors by request. All calculations were completed using STATA 8.0.

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