

The Dynamics of Food Stamp Program Entry and Exit in Maryland

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I. Introduction

The Food Stamp Program (FSP) in Maryland, as in the rest of the Nation, experienced an unprecedented caseload decline in the second half of the 1990s. Driven by a strong economy, and perhaps by program changes implemented as part of the 1996 Federal welfare reform, the Maryland caseload fell by one quarter during the 32-month period studied in this report, from 130,000 households in August 1998 to 98,000 in March 2001. Since then, the caseload has rebounded to 105,000 in June 2002, the most recent month available.

The Food Stamp Program is a national program, with eligibility rules and a benefit structure that are determined mainly at the Federal level,ⁱ but a caseload change of this magnitude has important implications at the State level. While food stamp benefits in Maryland are Federally funded, most of the program's administrative costs are split equally between the Federal and State governments. Also, the Food Stamp Program represents a central component of hunger prevention policy in Maryland, and many of the program's beneficiaries participate in other means-tested programs administered through the State government. The caseload decline therefore represents a major development for social programs and policy at the State level.

This paper investigates how changing program entry and exit patterns contributed to the overall program changes in Maryland. As a matter of simple mathematics, any caseload change depends

ⁱ See www.fns.usda.gov/fsp for a summary of the eligibility rules and benefit structure for the U.S. Food Stamp Program.

on the difference between the number of food stamp cases who leave the program and the number of new cases who join the program each month. To interpret a change in the trajectory of caseload growth, it may help to know whether the number of new entrants has changed, or the rate at which cases exit the program has changed, or both.

Several previous studies of FSP caseload dynamics have used Federal program participation statistics to estimate models of the total caseload or the total number of participants (Wilde et al., 2000; Figlio et al., 2001). Other research has combined nationally representative data from the Current Population Survey (CPS) with Quality Control (QC) data from the Food Stamp Program to estimate similar models for particular subpopulations of participants, such as single parent households (Kornfeld, 2002). While these studies show the effect of macroeconomic conditions and program changes on the caseload, the studies do not shed light on changes in individual-level entry and exit patterns.

A recent study by Gleason et al. (1998) used longitudinal data from the Survey of Income and Program Participation (SIPP). These data do permit estimates of the Food Stamp Program's entry and exit rate. Some well recognized difficulties with longitudinal survey data include sample attrition, a "seam" problem in which respondents appear to report program transitions more frequently at the juncture between survey waves, and small samples for particular purposes such as studying the Food Stamp Program in a small State.

A study by Wilde (2001) sought to use administrative QC data to study entry and exit patterns. Because the QC data report the date when a FSP case was opened, and also the reference date for

observing the case in the QC sample, it is possible in principle to measure program participation dynamics for each cohort of program entrants. However, while the QC data offer large sample sizes, they appear to undercount the number of “new” cases in their first month of participation. This data problem may hinder this approach to studying caseload dynamics in future work.

With regard to Maryland in particular, Food Stamp Program caseload dynamics were addressed in a study of the introduction of Electronic Benefit Transfer (EBT) technology (Beecroft et al., 1994). Maryland was the first State to implement this technology statewide. The study used aggregate data on caseloads and on the number of applications and case closures in the Food Stamp Program. An econometric analysis found no effect of the introduction of EBT on applications and case closures. The analysis found a positive effect of EBT on the overall caseload, but the authors noted that it was difficult to distinguish a real EBT effect from other economic and program changes that may have taken place during the same period.

The present study uses longitudinal data from Maryland administrative files. These data show the participation history for individual food stamp cases over time. Longitudinal administrative data offer considerable opportunities for studying entry and exit caseload dynamics. Due to limitations of data availability, the study period from August 1998 to March 2001 does not include the first years of caseload decline in the middle 1990s, but it does include a period of exceptionally steep decline (from August 1998 to about January 2000) followed by a period of slower decline in the caseload (from about February 2000 until March 2001).

This study focuses on two research areas that cannot be addressed with aggregate caseload data:

1. *How did changing entry and exit patterns contribute to the food stamp caseload decline in Maryland?* The study describes how the number of new entering cases and the number of exiting cases has changed over time. For cohorts of new entrants in August 1998 and August 1999, the study displays the full profile of exits in each subsequent month.
2. *What is the persistence of program use over time, and how does this persistence vary across geographic and demographic categories of participants?* The study measures the length of participation spells, the total months of participation in multiple spells, and how these measures of program dependency vary by geographic location, female household headship, race and ethnicity, and household size.

II. Data and Methods

The data in this study are individual-level administrative data from the Maryland Department of Human Resources (DHR) computer system, known as the Client Automated Resource and Eligibility System (CARES). The raw data contain observations for all program participants in each month from August 1998 to March 2001.

The data files were linked longitudinally according to a case identifier (social security number). New cases, called “entrants,” were identified by the first month of issuance of a Food Stamp benefit. Exiting cases were identified by the last month of issuance of a Food Stamp benefit, whereby a month in which a benefit was issued was followed by at least one month in which no

benefit was issued. This definition of entrants and exits may differ from administrative counts of applications and case closures. The definition of exits used here also differs from a convention used in some other studies of similar administrative data, which have defined an exit as a month of participation followed by at least two months of nonparticipation. We chose one month of nonparticipation as the definition of an exit, because this definition allows more consistent comparisons between the administrative data used in this study and the QC data used in the approach described in Wilde (2001). These comparisons will be conducted in future work.

The methodology in this study is principally a straightforward presentation of descriptive results from the Maryland administrative data files. Because the data describe the “universe” of program participants, rather than a sample, results in this study do not require measures of sampling error.

As part of the interpretation of the descriptive results, we conduct a simple simulation of two counterfactual scenarios. In each simulation, we suppose that the number of new cases remained constant at the level observed in August 1998 (6,487 cases per month). The first simulation presents the hypothetical caseload trajectory, assuming the exit rate in each subsequent month remained constant at the level that was actually observed for the August 1998 entering cohort. The second simulation is the same, except that the exit rate in each subsequent month remained constant at the level that was actually observed for the August 1999 entering cohort. Comparing these two simulations helps us to assess whether changes in the exit profile over time are responsible for a large or small part of the overall caseload decline that was observed during the study period.

III. Food Stamp Program Entry and Exit Dynamics by Jurisdiction

The five largest urban jurisdictions in Maryland (out of 24 jurisdictions statewide) accounted for three quarters of the Food Stamp Program's caseload in August 1998, and for 83 percent of the total Statewide caseload decline over the subsequent 32 months. These jurisdictions include Baltimore City and Baltimore County, Anne Arundel County (Annapolis), and the Washington D.C. area counties of Montgomery and Prince George's (Figure 1).

The aggregate caseload decline varied widely from one jurisdiction to the next in Maryland (Table 1 and Figure 2). Baltimore City, with by far the largest number of Food Stamp clients in August 1998, experienced a 23 percent decline over 32 months. Baltimore accounted for 40 percent of the State's caseload decline in part because of the large size of its Food Stamp Program caseload.

By contrast, Prince George's County experienced a much steeper 51 percent caseload decline over 32 months. While Prince George's County represented just 11 percent of the Statewide caseload in August 1998, it accounted for fully 23 percent of the Statewide caseload decline over the next 32 months. Baltimore City and Prince George's County together accounted for 63 percent of the Statewide caseload decline, so the following discussion highlights changes in these two jurisdictions as well as the Statewide totals.

Changes in the Number of Entrants and Exiters

The overall caseload trajectory for Maryland includes a period of sharp decline followed by a period of slower decline (Figure 3a). The number of entering cases in Maryland remained fairly constant during the study period, in the neighborhood of 6,000 cases per month (Figure 4a).ⁱⁱ

The number of exiting cases declined during most of the study period. By definition, the number of exiting cases was substantially higher than the number of entering cases during the period of sharp caseload decline (from August 1998 to January 2000), while the number of exiting cases was only slightly higher than the number of entering cases during the period of slower caseload decline (from February 2000 to March 2001).

In Baltimore City, which accounted for 40 percent of Maryland's overall caseload decline, the pattern is similar. The caseload declined rapidly during the first part of the study period, and then slowly (Figure 3b). The number of entering cases remained constant in the neighborhood of 2,500 cases per month during the whole study period (Figure 4b). The number of exiting cases was much higher than the number of entering cases until about January 2000, and only slightly higher thereafter.

In Prince George's County, the caseload decline was proportionately steeper than in Baltimore City or Maryland overall (Figure 3c). The number of entering cases declined sharply from about 800 in September 1998 to about 320 in June 1999 (Figure 4c). The number of entering cases

ⁱⁱ In figure 4, the number of exiting cases for each month is compared to the number of entering cases for the following month. For example, the data points for "Aug-98" show the number of exiting cases in August 1998 and the entering cases in September 1998. By "shifting" the number of entering cases in this fashion, the figure more precisely indicates the caseload decline from one month to the next as the difference between the line graphs for exiting and entering cases.

then recovered slightly, remaining in the neighborhood of 500 per month after October 1999. The number of exiting cases remained over 900 per month until September 1999, even as the number of entering cases fell.

The period of steepest caseload decline in Prince George's County was more dramatic than anything seen in Baltimore City or the Statewide averages. Between May and June 1999, for example, 903 cases exited the program in Prince George's County, or about 8 percent of the county's total caseload. With only 319 new cases that month, the county caseload declined by 584 cases, or 5 percent in a single month.

Exit Rates by Cohort

Longitudinal data permit an analysis of exit rates for groups, or "cohorts," of program participants who all began their participation spell at the same time. This analysis is useful, because program exits are most likely in particular months, counting from the month when a participation spell begins. In Maryland, for example, there are two pronounced spikes in the rate of program exit, after the fourth month and the twelfth month of participation. Exits are most common in these months, because these are commonly the months in which households must recertify their eligibility for continued participation. This pattern has implications for understanding and predicting caseload changes. For example, if there is an unusually large group of program entrants in a particular month, one may expect an unusually large number of exiters exactly four months and twelve months later.

In order to understand and interpret a change in caseload trajectory, such as occurred in Maryland in early 2000, it may help to know whether the participation history for particular cohorts of program entrants has changed. Figure 5 and Table 3 show the cumulative exit rate for cohorts who entered in August 1998 and in August 1999, in Maryland overall, Baltimore City, and Prince George's County.

The statewide figures show, for the cohort entering in August 1998, that 45 percent of the cases had closed by six months later and 69 percent of the cases had closed by 12 months later. For the cohort entering in August 1999, the figures are slightly higher: 49 percent of the cases had exited by six months later and 71 percent had exited by 12 months later. The same calculations for Baltimore City and Prince George's County appear quite similar to the statewide totals.

To more closely investigate the exit rate in particular months for specific cohorts, Figure 6 shows the exit rate as a proportion of the caseload that remains on the program in each month. Thus, each panel of Figure 6 represents the slope of the line graph in the corresponding panel of Figure 5. In less technical terms, Figure 5 is useful for measuring what proportion of new participation spells end within the first six months, for example. Figure 6 shows the rate at which participation spells end in the sixth month itself.

The two most important features in Figure 6 are: 1) the spikes at month 4 and month 12, which show that cases most commonly end in these two months; and 2) the general trend toward declining exit rates as the spell length increases. The high exit rates in month 4 and month 12 are

not surprising, because recertification periods were often assigned to be 4-month and 12-month intervals.

In Baltimore City and in Maryland statewide, the spikes in the exit rate at month 4 and month 12 became even more pronounced in the August 1999 entering cohort, in comparison with the cohort that entered in August 1998. By contrast, in Prince George's County, the exit rate at month 4 increased between the two cohorts, while the exit rate at month 12 decreased. It would be interesting in further investigation to know whether the relative frequency of 4-month and 12-month recertification periods changed in Prince George's County during this period, causing the more frequent exits at the fourth month of program participation. Especially for the August 1999 cohort, there also appear to be somewhat smaller spikes in the exit rate in month 8 and 16, which also would be consistent with a pattern induced by 4-month recertification periodsⁱⁱⁱ.

There are two main hypotheses why the average exit rate might decline as the spell length increases. First, according to the "declining hazard rate" hypothesis, the decline in the exit rate may indicate that long program participation spells make it harder to leave the program. For example, if some program participants have been out of the labor force for a while, their work skills or employability may decline, and it may be harder to find a job that takes them off the program. Second, according to the "unobserved heterogeneity" hypothesis, the decline in the exit rate over time may indicate that those who can most easily leave the program do so first.

ⁱⁱⁱ According to Maryland's DHR, 6-month recertification periods replaced 4-month recertification periods during 2001, as a common period for households with variable income. However, the data used here predate that administrative change.

Over time, the remaining caseload contains a higher proportion of cases whose circumstances make it more difficult to leave the program, so the average exit rate declines.

Simulation Results

In a visual inspection of Figure 5, it appears that the exit rate profile did not change very much between the August 1998 and August 1999 cohorts. Even though the overall caseload experienced major changes during this period, it appears that the exit profile for each entering cohort was stable. This study conducted two simulations to confirm this visual impression (Table 4). Both simulations suppose that the number of entering cases each month remained constant at the level observed in August 1998: 6,487 cases per month (Table 2). The first simulation supposes that the exit rate profile was the profile actually observed for the August 1998 cohort. The second simulation supposes that the exit rate profile was the profile actually observed for the August 1999 cohort (both profiles are illustrated in Figure 6a).

In the first simulation, over the subsequent months, the caseload in Maryland would have declined from 130,252 cases to about 114,000 in one year. The caseload path would have continued declining at a slower rate, eventually asymptotically approaching 97,500 cases. At this level, the caseload would achieve a steady state, where the number of exiting cases equals the number of entering cases each month (6,487).^{iv} In the second simulation, using the exit rate profile for the August 1999 cohort, the caseload would have declined to 112,000 in one year and continued declining to a steady state with a caseload of 93,000 cases.

^{iv} Due either to rounding error or an insufficient number of simulated periods, the number of “steady-state” exiting cases differs slightly from the number of entering cases in Table 4.

Two observations arise from these simulations. First, the visual impression that the exit profile was comparatively stable between the two cohorts appears correct. The August 1999 cohort tended to have a slightly higher exit rate, or equivalently, tended to have shorter participation spells. However, this change between the two cohorts was not sufficient to make much difference in the overall path of caseload decline.

Second, the seeds of a substantial caseload decline were already in place at the start of the study period, in August 1998. If the entry rate and exit profile that existed in August 1998 had remained unchanged, the first simulation shows that the caseload would have declined sharply in the following year, and more slowly in the subsequent years -- a pattern somewhat similar to what actually occurred. This pattern in the simulation should not be surprising, because in August 1998 it was already the case that the exit rate was considerably higher than the rate at which new cases were entering the program.

IV. Persistence of Food Stamp Program Use Over Time

This section explores the persistence of Food Stamp Program use for the cohort who began participating in August 1998. Of the 6,847 households who began participating in Maryland that month, 45 percent had exited the program by six months later, 70 percent had exited by one year later, and 84 percent had exited by two years later (see Table 5).

Two features of this spell length pattern have been noted in previous studies of social welfare program participation: almost half of all new participants exit the program within six months of

joining, and a small number have very long participation spells (for example, see Gleason, Schochet, and Moffitt, 1998, and the sources they cite). While few program entrants embark on these long spells, those who do consume a large share of the program's benefits. If one takes a cross section of the program caseload at any point in time, a comparatively large share is composed of "long-timers." For example, in August 2000, over 40 percent of the current caseload had been on the program for more than two years. The proportion of long spell lengths appears much lower if one counts cases in a cohort of new entrants than if one counts cases in a cross-section at a particular point in time.

These data on the length of individual participation spells do not reveal the full extent of the persistence of program participation over time. Multiple spells of participation are common. For the same cohort entering in August 1998, Table 6 shows the full number of months of participation out of the 32 months in the study period. Of the 6,847 households who began participating in Maryland in August 1998, 29 percent ended up participating for six or fewer months, 52 percent participated for one year or less, and 75 percent participated for two years or less. Clearly, the proportion of the entering cohort that ends up participating for more than two years is substantially greater if one counts all spells of participation instead of just the first spell. (See Table 7 for a comparison of the length of participants' first spells with the total number of months spent in the Food Stamp Program during the 32-month period.)

These patterns in the persistence of program participation may be disaggregated by geography, female headship, race and ethnicity, and household size (Tables 5 and 6). Female headship made

the largest difference. For male-headed households^v in the August 1998 cohort, 52 percent exited within six months after entering the program, while only 43 percent of female-headed households did so. Likewise, for male-headed households, 77 percent exited within one year after entering the program, while only 66 percent of female-headed households did so. Female-headed food stamp households generally have higher rates of full-family participation in cash public assistance programs and lower rates of labor market participation, so it is not surprising that food stamp participation is more persistent over time.

With regard to other demographic variables, the persistence of food stamp participation spells for at least one year was somewhat more frequent for Baltimore City residents in comparison with other metropolitan and non-metropolitan jurisdictions; somewhat more frequent for hispanic households and black non-hispanic households than for other households; and substantially more frequent for very large households in comparison to smaller households (see Tables 5 and 6).

V. Conclusions

This paper focused on two research areas. The first research question was *how did changing entry and exit patterns contribute to the food stamp caseload decline in Maryland?* We made the following observations:

- Program exits were most likely in particular months, counting from the month when a participation spell began. In Maryland, for example, there were two pronounced spikes in

^v A female-headed household is a household with a female adult present and no male adult present. All households that were not female-headed households were denoted male-headed households for short. The more cumbersome term “households other than female-headed households” would be more precise.

the rate of program exit after the fourth month and the twelfth month of participation. Exits were most common in these months because these were commonly the months in which households must recertify their eligibility for continued participation.

- This pattern of program exits has implications for understanding and predicting caseload changes. For example, if there is an unusually large group of program entrants in a particular month, one may expect an unusually large number of exiters exactly four months and twelve months later.
- The apparent stability in exit rates for particular cohorts across jurisdictions and across time is interesting, because we noted previously that the overall rate of caseload change was considerably different in these jurisdictions, and the caseload trajectory varied over time.
- The average exit rate generally declined as the spell length increased. One hypothesis is that long program participation spells make it harder to leave the program. For example, if some program participants have been out of the labor force for a while, their work skills or employability may decline, and it may be harder to find a job that takes them off the program. Another hypothesis is that as the spell length increases, “short-timers” leave the caseload, so the caseload becomes increasingly dominated by those with a tendency toward long participation spells.
- In Prince George’s County, the exit rate at month 4 increased between the two cohorts, while the exit rate at month 12 decreased. It would be interesting in further investigation to know whether the relative frequency of 4-month and 12-month recertification periods changed in Prince George’s County during this period, causing the more frequent exits at the fourth month of program participation.

With regard to the second research area, *what is the persistence of program use over time, and how does it vary across geographic and demographic categories of participants*, we found the following:

- When patterns in the persistence of program participation are disaggregated by geography, female headship, race and ethnicity, and household size, female headship made the largest difference. Female-headed food stamp households generally have higher rates of full-family participation in cash public assistance programs, and lower rates of labor market participation, so it is not surprising that their food stamp participation is more persistent over time.

In future work, this research project will investigate whether dynamic analysis of caseload changes may be made more accessible by developing a simpler data source. One difficulty with longitudinal administrative microdata, such as this paper uses, is that special permission and procedures are required to prevent the disclosure of confidential data. However, it appears possible in principle to produce aggregate administrative data files that could answer most of the questions investigated in this paper, without presenting any confidentiality issues. We hope to address how public use data files of this type might be structured. There appears to be broad potential applicability to other research questions, time periods, and social programs.

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