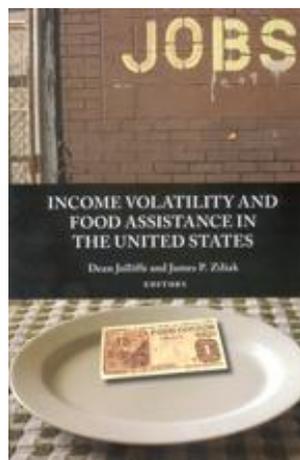

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The primary goal of the Food Stamp Program is to improve the well-being of low-income households by increasing their food purchasing power and helping them obtain more nutritious diets than they could otherwise afford. To maximize well-being, program administrators want benefits to reach as many poor households as possible. Through means testing, the program also acts to stabilize consumption and provide a degree of social insurance. Beyond these assistance objectives, the Food Stamp Program also has other goals. As a publicly financed program, it must be a good steward of taxpayer dollars and maintain program integrity by ensuring that benefits are directed toward truly needy households. More recently, the Food Stamp Program has also sought to promote economic self-sufficiency.

In some cases, these goals conflict with each other. For instance, it is well-known that the benefit formula, which reduces a household's allotment of food stamps as its income rises, creates work disincentives that undermine the self-sufficiency goal. Less understood is how administrative procedures, intended mostly to help maintain program integrity, affect household well-being and self-sufficiency.

The federal and state governments are partners in the Food Stamp Program, with the federal government setting general rules for the program and paying the entire cost of benefits and the states administering the program. In their role as administrators, states have considerable latitude in a number of areas, including establishing and running food

stamp offices, developing and reviewing initial applications, and setting recertification intervals. This latitude increased with the passage of the 2002 Farm Bill. States may also obtain waivers from the federal government to alter other features of their programs.

Researchers have only recently begun to quantify the impacts of these policies and procedures. For example, Ribar, Edelhoeh, and Liu (2006a,b) found that exits from the Food Stamp Program in South Carolina occur mainly at recertification periods and that more frequent recertifications hasten exits and decrease the caseload. Staveley, Stevens, and Wilde (2002) uncovered similar patterns in administrative data from Maryland, and Currie and Grogger (2001), Kabbani and Wilde (2003), Kornfield (2002), and Ratcliffe, McKernan, and Finegold (2007) have documented negative associations between recertification frequency and food stamp caseloads. While this research has identified general impacts associated with policies and procedures, it has not yet explained why certain effects appear. With respect to recertification frequency, shorter intervals could increase the detection of ineligible households, deter ineligible households from continuing their participation, or discourage eligible households by increasing the costs of program compliance.

In this chapter, we use administrative records from South Carolina on over 30,000 food stamp spells for cases with children that began between the second half of 1997 and the beginning of 2005. We use descriptive and multivariate event-history methods to look generally at the characteristics of households that contribute to exits from the Food Stamp Program and more specifically at the reasons why households leave the program. A focus of our investigation is on how earnings histories and especially previous earnings volatility are associated with different types of exits. The data from South Carolina are very helpful in this regard.

First, South Carolina's administrative records are extremely rich and detailed. The records not only contain the start and stop dates of Food Stamp Program participation—information needed to construct spells—but also contain demographic information about the participating households and the specific reason why each household stopped receiving benefits. The records are also linked to quarterly earnings records from the state's Unemployment Insurance (UI) system, allowing us to construct earnings histories.

Second, some of South Carolina's food stamp policies are particularly easy to measure. This paper concentrates on the state's recertification policies, which are directly relevant to the issue of earnings volatility because they expressly condition on it. The policies changed over the period that we study. Prior to October 2002, the state required most households with earnings and other fluctuating sources of income to recertify quarterly and most other households with stable unearned incomes to recertify annually. In October 2002, the state lengthened the recertification interval for households with fluctuating incomes from three to six months. Because the recertification dates are set relative to the beginning of a spell, they can be distinguished from regular calendar effects. The changes in policy over time provide an additional source of longitudinal variation, and the differences in their applicability across groups provide additional cross-sectional variation.

The centrality of the recertification process is confirmed when we analyze the reasons why participation spells end. These analyses reveal that *half* of the food stamp households in South Carolina with children that leave the program do so by letting their certification periods lapse and not filing the necessary paperwork for recertification. Households with earnings at the start of their certification periods are especially likely to leave for this reason. A further sixth of caseload exits occur because people either fail to provide sufficient information or they give information that cannot be verified. Just over a fifth of exits occur because people either report or are discovered to have incomes or resources that are too high. For white households, more variable earnings histories are negatively associated with exits for income ineligibility. For both black and white households, more variable earnings histories increase the odds of leaving voluntarily or for other reasons.

THE FOOD STAMP PROGRAM IN SOUTH CAROLINA

General description. As mentioned, the Food Stamp Program is administered by the U.S. Department of Agriculture and operated by the states to help low-income individuals and families obtain more nutritious diets. The federal government pays the cost of food stamp benefits and also pays half of the states' administrative costs. Set by the federal

government, the monthly benefit formula is the same for all states in the contiguous United States. In FY 2005, the maximum benefit for a household of three was \$399.

Benefits are provided to households, and to qualify, households have to meet income and resource tests (unless all members are receiving benefits from the Temporary Assistance for Needy Families, [TANF] or Supplemental Security Income [SSI] programs, which makes the household “categorically eligible”). The federal government sets eligibility standards at 130 percent of the poverty line based on gross monthly income, and at 100 percent of the poverty line based on net income. Most households must meet both the gross and the net income tests, but a household with an elderly or disabled person only has to meet the net income test.¹

Application procedures. In South Carolina, applicants may complete an application form for food stamps at the local Department of Social Services (DSS) office, or may download the form from the agency Web site and deliver, mail, or fax the application to the local DSS office. Applications are considered filed on the date they are received by the county offices. An interview with the applicant is required for approval, either in person or on the telephone, and information regarding identity, residency, income, and expenses must be verified.

Local DSS offices must approve applications within 27 days after receipt in the county office, and benefits must be accessible within 30 days.² Actual processing time from application to receipt of benefits averages 16 days statewide. In cases where an application is denied, the notification must reach the household by the thirtieth day after receipt.

Income reporting. Clients are required to report and verify all sources of income, including earnings, at initial certification, with pay stubs or an official employer’s statement being needed to verify earnings. For clients receiving other government benefits, the agency can verify these sources by accessing automated records on-line.

Food stamp eligibility and benefits are determined on a monthly basis; however, rules for reporting income changes depend on the clients’ circumstances. Households in which all members are elderly or disabled must report changes to the local DSS office within 10 days. All other households must report changes when the household’s gross in-

come exceeds 130 percent of poverty or when the household moves out of the state. Recipients are also allowed to report decreases in income, as these would allow them to increase their food stamp benefits.

Recertification. In addition to these reporting requirements, recipients are required to complete paperwork or interviews to recertify their eligibility on a periodic basis. Recipients on fixed incomes, such as disability income, are required to recertify less often than those recipients with variable incomes.

As we said above, prior to October 2002, South Carolina required most food stamp recipients with earnings and other fluctuating sources of income to recertify their eligibility quarterly and most recipients with fixed incomes to recertify annually. For those with fluctuating incomes, face-to-face interviews were only required once a year and mail-in recertifications were required each quarter. After October 2002, the recertification interval for recipients with fluctuating incomes increased from three to six months. In addition, a larger number of recertification interviews were conducted over the phone, and income verification procedures were relaxed.³

Case closures. Cases are certified for the intervals listed in Table 4.1. If a household fails to recertify its eligibility, its case is automatically closed at the end of the certification period. Cases may also be closed at recertification if their paperwork is incomplete, if households fail to participate in interviews, or if their incomes cannot be verified. Cases are also closed at recertification or at other times if a reported change in income or resources brings them above the applicable thresholds. Prior to March 2004, some cases could be closed for failure to participate in required employment and training activities.⁴ In addition, cases are closed if the client cannot be located or moves out of state, as well as under some other circumstances.

Once one of these issues arises, the household is sent a notice telling it that eligibility will be terminated in 10 days. Recertifications are due in the first half of the last month of certification; people who miss this deadline are sent their notices near the middle of the month and have their cases terminated at the end of the month. If a client reports an earnings change that puts her over 130 percent of the poverty line, the 10-day timely notice period begins the first day of the next month.

Table 4.1 Food Stamp Certification Intervals in South Carolina for Households with Children

Characteristics of case	Before October 2002	October 2002– February 2005
Unstable circumstances (e.g., no income), migrant worker	1–2 months	1–2 months
Fluctuating income (e.g., earnings)	3 months	6 months
Fixed income	12 months	12 months

For example, if the change occurs on June 15, the report must be received by July 10 in order for the client not to have to repay overages in benefits. If the client reports in the last 10 days of the month, her case cannot be closed until the first of the following month. So, for example, if a client reports an earnings change between September 21 and September 30 that renders her ineligible, her case cannot be closed until November 1.

Clients are required to verify wages at certification and reverify at recertification. Unless clients report increases in income during the three- or six-month certification period, ineligibles are not identified until the end of that period. If a UI wage match shows a discrepancy at either certification or recertification, clients are asked to verify wages again. However, if a wage match shows a discrepancy during the intervening period, claims workers ignore the information until recertification. If the client has collected food stamp benefits to which she was not entitled, the claims worker in the county seeks reimbursement from the client by establishing a repayment agreement. If that does not work, the case is sent to “tax intercept” and future tax refunds are garnished to repay the overage.

Caseload trends. Food stamp caseloads plummeted during the late 1990s in South Carolina and elsewhere. The state’s food stamp caseload declined from 143,000 families in 1996 to 120,000 in 2000. Since 2000, the food stamp caseload has increased dramatically, climbing to more than 226,000 families by the end of 2005.

PREVIOUS RESEARCH

Conceptual framework. The conceptual framework that we use to examine the different reasons for food stamp exits is Moffitt's (2003) model of program compliance. In Moffitt's model, households receive and value different levels of income, which vary depending on their participation in assistance programs, such as the Food Stamp Program. Households also care about other things, such as stigma (Moffitt 1983), household production, and leisure; these things all vary with program participation.

To remain on a program, households must exert effort to comply with the program's rules by completing their recertification paperwork and interviews. Higher levels of compliance increase the chances—but do not guarantee—that a household will remain in good standing with a program and continue receiving benefits. The chance element is important because even if a household complies with the rules, it may be randomly terminated—paperwork can be lost, information can be mistyped into computers, etc. Increased efforts by households to comply, of course, also raise the effective costs of program participation to those households.

Households in this model rationally choose their compliance efforts to balance the anticipated monetary and other benefits of program participation against the costs of compliance, and this choice has some straightforward implications for program behavior. On the one hand, policies (such as longer recertification intervals) that unambiguously reduce compliance costs should lead to higher levels of compliance and hence to higher levels of participation. On the other hand, larger incomes or smaller benefits, which lower the relative gains to program participation, should reduce compliance and participation.

The impacts of other changes are more difficult to predict—income volatility is a case in point. Variable incomes, especially in households with few assets and limited access to credit markets, increase the utility of food stamps and other social insurance programs (Gundersen and Ziliak 2003). At the same time, more volatile incomes increase compliance costs. In South Carolina, food stamp households with fluctuating incomes are required to recertify more frequently than other households. Even if this were not the case, income volatility would increase

the probability that a participating household would become ineligible in a given month. It would also raise documentation costs, for instance, by increasing the sources of income that would have to be reported and verified. Because volatility increases the benefits and costs of program participation and also affects eligibility itself, the net impacts are ambiguous and a matter for empirical investigation.

The foregoing discussion treats compliance as if it were a uni-dimensional concept, but of course with multiple program rules there are many possible dimensions of compliance. The discussion also overlooks the important issue of purposeful underreporting. The various rules and additional eligibility considerations give rise to the multiple reasons for program exits, which we subsequently examine.

Empirical studies. There have been numerous studies of the food stamp caseload and food stamp participation. Many of these have simply examined the incidence of food stamp participation, either by modeling the aggregate number of people or households receiving benefits (Currie and Grogger 2001; Danielson and Klerman 2006; Kabbani and Wilde 2003; Kornfeld 2002; Wallace and Blank 1999; Wilde et al. 2000; Ziliak, Gundersen, and Figlio 2003) or by modeling receipt among individual households (Currie and Grogger 2001; Farrell et al. 2003; Fraker and Moffitt 1988; Haider, Jacknowitz, and Schoeni 2003; Keane and Moffitt 1998; Ratcliffe, McKernan, and Finegold 2007). Some other studies break individual participation decisions into separate entry and exit decisions but examine these as simple bivariate outcomes (Blank and Ruggles 1996; Gleason, Schochet, and Moffitt 1998; Hofferth 2003; Mills et al. 2001; Ribar, Edelhoch, and Liu 2006a,b; Staveley, Stevens, and Wilde 2002). To our knowledge, previous food stamp studies have not modeled different types of exit outcomes.⁵

There has been less research on food stamp policies, other than benefit levels. Many studies fail to include measures of policies and procedures at all. Several other studies include broad and imprecise measures like the average recertification interval or the distribution of intervals in a state (Currie and Grogger 2001; Hofferth 2003; Kabbani and Wilde 2003; Kornfeld 2002; Ratcliffe, McKernan, and Finegold 2007); these studies have tended to generate weak and sometimes contradictory findings. Stronger results are found in a few studies that have been more careful in measuring policies and procedures. For instance,

Bartlett, Burstein, and Hamilton (2004) gather detailed information on administrative policies, such as outreach efforts and operating hours, and on administrator and staff attitudes across food stamp offices in different localities. They find that these administrative characteristics influence participation behavior. Ribar, Edelhoach, and Liu (2006a,b) use administrative data from South Carolina and look in a detailed way at the timing of exits from individual food stamp spells; they find that exits coincided with the expected timing of recertifications. In an analysis of administrative data from Maryland, Staveley, Stevens, and Wilde (2002) also find that the timing of food stamp exits was clustered at recertification dates.

The role of income volatility in food stamp participation has been largely overlooked in previous research. One exception, however, is a study by Farrell et al. (2003), which compares the income histories of food stamp participants and nonparticipants at different points in time. The authors find that participants have lower and less volatile incomes than eligible nonparticipants.

DATA

Food stamp spells. The data for the empirical analyses of food stamp exits come from electronic case management records from South Carolina covering the period from July 1997 until January 2005. The records, which are maintained by the Office of Research and Statistics (ORS) of the South Carolina State Budget and Control Board, cover the universe of households that applied to and participated in the state's Food Stamp Program over the period. The records contain a wealth of household- and client-level information, including the starting and ending dates of participation spells, demographic characteristics of households, geographic identifiers, and benefit and reported income amounts during each month of program receipt.

Because of the large number of food stamp cases in South Carolina, we reduced the analysis extract by using a 1-in-11 random sample of longitudinal cases. We then further reduced the analysis sample by only considering records associated with approved applications, records with complete information about the processes involved in continuing a spell

of program receipt, and records describing food stamp cases with adults and children present.

The units of analysis for our investigation are food stamp spells. Food stamp spells can begin anytime during a month. However, once a spell begins, benefits are only paid once a month. Also, when a case is terminated, the official closing date almost always occurs at the end of the month. Because of the timing of payments and case closings, we treat the spell data as a series of discrete, monthly observations, with the initial and terminal observations for each spell corresponding to the first and last months of benefit receipt. We only consider spells that began during our observation window and accordingly drop ongoing, or left-censored, spells. Also, we ignore short breaks in spells (breaks that last one month or less) and instead treat the two adjoining spells as a single spell of participation.⁶

For each month that a case continues, the records indicate the benefits that the household received as well as all of the economic information that enters into the benefit calculation, including gross reported earned and unearned income amounts, deductions and exemptions, and net incomes. We use several of these income and expense variables in our descriptive and multivariate analyses, adjusting all dollar amounts to 2005 levels using the Consumer Price Index for All Urban Consumers (CPI-U).

From the information on demographic characteristics, we construct measures of the number and age composition of the case members. We also construct indicators for the age, sex, race, educational attainment, and marital status of the household member heading the case.

The records indicate the county of residence for the household, which allows us to link the administrative data to measures of the county unemployment rate to control for local economic conditions. It also allows us to link the data to measures of the population density to control for the level of urbanization. We further include controls for whether the county is on the state border.

Once the programmatic, demographic, and geographic information is processed, we make one final set of exclusions to the data. First, we limit the analysis to households in which the adult in charge was between the ages of 18 and 59 and no other adults were over the age of 59. Second, we restrict the analysis to households in which the head of the case was white or black. Only 5 percent of cases were identified

as being of another race or ethnicity, leaving us with too few cases to examine these groups. Third, we drop a small number of observations with missing or incomplete information. Our final analysis data set contains 398,586 monthly observations from 30,569 spells of food stamp receipt.

Reasons for exit. For every case that is closed, the administrative records give a reason for closure. There are 33 detailed codes that are used at least once in our records. We grouped the codes into five broad categories: cases that ended because the household

- 1) missed its recertification,
- 2) lost eligibility because its income or assets were too high,
- 3) lost eligibility because it failed to provide information or provide reliable information,
- 4) lost eligibility because of some other reason, or
- 5) voluntarily quit.

The detailed codes, our categorizations, and the relevant frequencies are reported in Table 4.2.

The tabulations of the reasons for exit reveal that 50 percent of cases headed by blacks and 51 percent of cases headed by whites ended because the clients let their certification periods lapse without submitting any paperwork for a new certification. This confirms the findings from earlier studies by Ribar, Edelhoch, and Liu (2006a,b) that recertification is an important element in food stamp exits. The tabulations also indicate that just over one-fifth of the exits—23 percent among cases headed by blacks and 17 percent among cases headed by whites—occurred because the households either reported or were found to have a change in income or resources that made them ineligible. Approximately one-sixth of cases ended because the households failed to provide sufficient or reliable information. Nine percent of cases lost their eligibility for some other reason, most typically because the households moved or could not be located, and 3 to 4 percent withdrew voluntarily.

UI earnings data. For each client in the food stamp case management records, the ORS has obtained quarterly earnings records, if any exist, from the state's UI system. The UI database contains earnings

Table 4.2 Detailed Reasons for Food Stamp Exits by Race of Case Head

Reason for exit	Black		White	
	Number	Percent	Number	Percent
Missed recertification	6,458	50.36	5,049	50.88
MR: Failed to file mandatory recertification	4,316	33.66	3,398	34.24
CE: Closed—certification ended (S-Gen) ^a	2,142	16.70	1,651	16.64
Income or assets too high	2,906	22.66	1,699	17.12
IN: Income (net) meets/exceeds req.	2,119	16.52	1,252	12.62
IE: Increase—earned income	602	4.69	321	3.23
IU: Unearned income exceeds limits	111	0.87	70	0.71
RE: Resources	72	0.56	56	0.56
LS: Lump sum ineligibility	2	0.02	0	0.00
Failed to provide reliable information	2,075	16.18	1,796	18.10
FI: Failed to furnish information	1,398	10.90	1,272	12.82
FP: Failed to provide info. (S-Gen)	438	3.42	274	2.76
VR: Verification—failed to provide	153	1.19	198	2.00
FC: Failed to complete interview (S-Gen)	52	0.41	30	0.30
IM: Incompletely verified MR	34	0.27	22	0.22
Other loss of eligibility	990	7.72	972	9.80
NR: Nonresident	483	3.77	516	5.20
CL: Cannot locate	231	1.80	297	2.99
HH: No eligible household members	102	0.80	69	0.70
AE: Application opened in error	32	0.25	24	0.24
ET: Failure to comply with E&T req.	28	0.22	15	0.15
DE: Death	24	0.19	13	0.13
SH: Not separate FS household	24	0.19	11	0.11
WR: Work req.—refused/failed to comply	24	0.19	3	0.03
CC: Opened/closed case with claim	15	0.12	9	0.09
AB: ABAWD time limit expired ^b	12	0.09	4	0.04
QC: Refused to cooperate with QC ^c	7	0.05	2	0.02
CH: Change in law/policy	4	0.03	0	0.00
FE: Fail to accept reim. comp.—FS E&T	1	0.01	4	0.04
CD: Drug conviction	0	0.00	2	0.02
DR: Disqualified—misrep. residency/ID	0	0.00	2	0.02
DF: HH disqualified for fraud	1	0.01	0	0.00
FF: Fleeing felon—probation parole ^d	1	0.01	0	0.00
RJ: Refused to accept a job	0	0.00	1	0.01
SS: SSN—refused/failed to furnish or apply	1	0.01	0	0.00
Voluntary exit	394	3.07	407	4.10
VW: Voluntary withdrawal	362	2.82	390	3.93
VQ: Voluntary quit	32	0.25	17	0.17

Table 4.2 (continued)

^a“S-Gen” stands for “system-generated,” as opposed to being entered by a caseworker.

^b“ABAWD” stands for “able-bodied adults without dependents.”

^c“QC” stands for “quality control audit.”

^d“Fleeing felon—probation parole” means that the person was declared ineligible because he or she either has a felony arrest warrant or is in violation of probation or parole restrictions.

SOURCE: Authors’ calculations from South Carolina food stamp administrative records.

information for most private, nonagricultural employers. However, it overlooks government employment and some types of private-sector jobs, such as agricultural and domestic work. It also misses employment by people who commute out of the state to work.

We construct measures of the total amount of earnings for all clients in the food stamp household for the current quarter of a given spell observation, for the previous quarter, and for the previous year. We adjust these amounts using the CPI-U and express them as monthly equivalents to make them comparable to the reported earnings and income figures. To measure earnings volatility, we calculate the coefficient of variation for the household’s covered earnings for the previous year. We also create an indicator for the maximum quarterly earnings during the previous year and an indicator for having no reported earnings during that period.

DESCRIPTIVE ANALYSIS

Tables 4.3 and 4.4 list statistics describing the characteristics of food stamp cases from South Carolina in the months in which the cases closed. The characteristics were measured as of the start of the month, and the cases generally closed at the end of the month, so the characteristics reflect conditions immediately preceding the closures. Table 4.3 lists statistics for cases in households headed by blacks, while Table 4.4 lists statistics for whites. In each table, averages of the characteristics are calculated according to one of five conditions, depending on the reason why the cases closed.

The rows at the top of each table describe economic conditions of the cases, including the level of food stamp benefits, reported levels

Table 4.3 Characteristics at Spell Exits by Reason of Exit: Cases Headed by Blacks

	Missed recertification	Income/assets too high	Failed to provide information	Other loss of eligibility	Voluntary exit
Case income and benefits ^a					
Benefits	224.3	200.1	272.3	293.0	238.8
Reported earned income	646.4	731.8	332.3	249.0	424.6
Reported unearned income	275.1	358.9	288.2	285.2	363.5
Countable income	568.8	683.8	375.7	298.1	496.2
Any earnings start of spell (%)	57.1	60.0	39.3	28.0	43.4
No income start of spell (%)	13.7	9.9	26.5	30.7	17.5
UI earnings current quarter	912.2	1,235.3	776.1	261.7	839.7
UI earnings last quarter	781.9	1,104.8	625.4	305.8	742.6
Average UI earnings last year	752.4	1,150.4	631.4	336.4	720.2
C.V. UI earnings last year	0.579	0.497	0.662	0.650	0.595
Maximum UI earnings last year	1,121.7	1,608.6	1,004.9	594.3	1,110.4
No UI earnings last year (%)	18.9	14.1	23.6	41.8	25.9
Spell length (months)	11.5	10.4	11.9	11.8	11.6
PI characteristics ^b					
Female (%)	95.8	94.0	93.9	95.7	93.9
Age	31.6	34.5	30.7	30.5	34.4
Education ^c	11.8	11.9	11.7	11.5	11.8
Currently married (%)	12.3	21.6	11.2	8.2	17.3
Formerly married (%)	26.8	28.5	25.4	29.3	34.0

Case composition					
Number in case	3.1	3.3	3.1	3.0	3.0
Number of children 0–2	0.4	0.3	0.4	0.5	0.4
Number of children 3–5	0.4	0.3	0.4	0.4	0.3
Number of children 6–11	0.7	0.6	0.6	0.6	0.6
Number of children 12–14	0.3	0.3	0.2	0.2	0.3
Number of children 15–17	0.2	0.3	0.2	0.2	0.2
Number of adults	1.2	1.4	1.2	1.2	1.3
Geographic characteristics					
County unemployment rate	5.6	6.1	5.9	6.0	6.4
County population density ^d	202.2	186.7	211.4	190.9	180.5
Border county (%) ^e	36.3	34.2	39.2	38.2	37.8
Number of exits	6,458	2,906	2,075	990	394

NOTE: Dollar amounts are expressed in 2005 dollars; UI earnings amounts are expressed in monthly equivalents.

^aAll categories of “Case income and benefits” are in \$ unless otherwise specified, except for “C.V. UI earnings last year,” which gives the coefficient of variation for unemployment insurance earnings.

^b“PI” stands for “primary informant,” the head of the case.

^cValues for “Education” measure average years in school.

^dMeasured as people per square mile in county.

^e“Border county” is a 0/1 indicator for whether a person lives in a county that borders on another state; the statistic reflects the percentage of people living in such counties.

SOURCE: Authors’ calculations from South Carolina food stamp administrative records.

Table 4.4 Characteristics at Spell Exits by Reason of Exit: Cases Headed by Whites

	Missed recertification	Income/assets too high	Failed to provide info.	Other loss of eligibility	Voluntary exit
Case income and benefits ^a					
Benefits	254.9	233.3	302.5	303.3	288.3
Reported earned income	645.4	721.1	301.2	280.0	336.7
Reported unearned income	250.3	320.9	256.4	236.2	354.4
Countable income	523.0	623.5	308.0	281.6	396.7
Any earnings start of spell (%)	56.0	57.6	35.6	30.3	39.8
No income start of spell (%)	17.7	14.2	32.9	35.2	23.3
UI earnings current quarter	812.3	1,207.2	719.9	300.9	741.8
UI earnings last quarter	700.4	1,051.1	584.9	361.3	615.7
Average UI earnings last year	698.7	1,097.0	602.6	377.5	684.6
C.V. UI earnings last year	0.670	0.548	0.741	0.666	0.584
Maximum UI earnings last year	1,097.2	1,605.2	1,031.0	664.1	1,087.3
No UI earnings last year (%)	23.1	19.1	26.6	42.4	36.1
Spell length (months)	9.8	8.6	8.9	9.0	8.7
PI characteristics ^b					
Female (%)	89.1	87.6	89.4	92.4	88.2
Age	31.5	33.2	30.8	30.2	33.2
Education ^c	11.2	11.5	11.2	11.1	11.4
Currently married (%)	35.5	46.1	29.3	25.0	36.9
Formerly married (%)	41.7	34.4	44.6	42.0	46.4

Case composition					
Number in case	3.3	3.4	3.2	3.1	3.3
Number of children 0–2	0.4	0.4	0.4	0.5	0.4
Number of children 3–5	0.4	0.3	0.4	0.4	0.3
Number of children 6–11	0.6	0.6	0.6	0.6	0.7
Number of children 12–14	0.3	0.3	0.2	0.2	0.3
Number of children 15–17	0.2	0.2	0.2	0.1	0.2
Number of adults	1.4	1.6	1.4	1.3	1.4
Geographic characteristics					
County unemployment rate	5.3	5.7	5.6	5.6	5.8
County population density ^d	205.2	200.4	210.2	202.4	203.8
Border county (%) ^e	57.1	59.2	60.9	61.3	58.0
Number of exits	5,049	1,699	1,796	972	407

NOTE: Dollar amounts are expressed in 2005 dollars; UI earnings amounts are expressed in monthly equivalents.

^aAll categories of “Case income and benefits” are in \$ unless otherwise specified.

^b“PI” stands for “primary informant,” the head of the case.

^cValues for “Education” measure average years in school.

^dMeasured as people per square mile in county.

^e“Border county” is a 0/1 indicator for whether a person lives in a county that borders on another state; the statistic reflects the percentage of people living in such counties.

SOURCE: Authors’ calculations from South Carolina food stamp administrative records.

of income, and the earnings history reported into the state UI system. It is immediately evident that the economic conditions of cases differ substantially depending on clients' reasons for exit. Cases in which the recipients lost their eligibility for reasons of income or resources tend to have the lowest level of benefits. Cases whose recipients failed to recertify also have relatively low benefits, which is consistent with such recipients having reduced incentives for complying with program rules. Cases that ended because the recipients failed to provide necessary or reliable information and cases where the recipients lost eligibility for other reasons had the highest benefits on average, while cases that ended voluntarily fell in between these extremes. These associations apply to both black- and white-headed households.

While the average monthly benefits for households that missed their recertifications were low in a relative sense, they were still substantial—\$224 for blacks and \$255 for whites—on an absolute basis. To the extent that clients remained eligible, their willingness to give up such large sums when letting their certifications lapse suggests that the effective costs of program compliance are high.

The differences among cases whose clients had different reasons for exit were even more pronounced when it came to incomes and earnings. As might be expected, households that lost eligibility for income and resource reasons tended to be the most economically advantaged, with the highest reported earnings and countable incomes and the strongest and least volatile histories of UI-covered earnings. At the other end of the spectrum were households in our residual category, whose clients lost their eligibility for reasons other than high incomes, missed recertifications, or failures to provide information.

Relative to cases that ended for income reasons, the cases in the residual category were roughly three times as likely to have begun their food stamp participation spells with no reported income whatsoever. On average, the residual case clients had countable incomes that were less than half the size of cases that ended for income reasons and covered earnings that were less than a third the size of this group. The differences in covered earnings were starkest in the quarters in which the cases actually ended, indicating possible continuing disadvantage after the clients left the Food Stamp Program.⁷ Cases that failed to get recertified had economic resources that were below those of income-ineligibles but above those of the other groups. Cases that ended voluntarily

came next, followed by cases that ended because of clients' failure to provide information. Cases that ended for information reasons had the highest levels of covered-earnings volatility.

Cases that lost eligibility for income reasons also tended to have the shortest durations, while cases that missed their recertifications tended to last more than a month longer. Among blacks, cases that ended for information reasons, other reasons, and voluntarily were slightly longer on average than cases that ended because of missed recertifications. Among whites, the opposite was true.

The demographic patterns are generally consistent with the income and earnings patterns: cases that lost eligibility for income and resource reasons had higher average levels of education and marriage and fewer children than other cases. Cases in our residual category had the lowest rates of marriage, lowest levels of education, and the most young children.

Although many of the patterns of food stamp use among households headed by blacks and whites are similar, there are some differences worth noting. Average spell lengths are two to three months longer for blacks than for whites, even though average benefits are slightly lower for blacks than for whites. The longer spells for blacks are consistent with national data from Wolkwitz (2007) that indicate higher rates of participation for blacks conditional on their eligibility. Black food stamp households are less likely to be headed by men than white households. Also, substantially fewer black household heads are currently or were formerly married compared to white household heads.

MULTIVARIATE ANALYSIS

For our multivariate analyses we estimate discrete-time competing-risk hazard models of different types of food stamp exits (see Allison 1982 for a thorough discussion of discrete-time models). The hazard rate, which refers to the probability that a spell of remaining in one situation ends at a given point in time, conditional on the spell having lasted up to that time, is a standard tool for analyzing program behavior. Hazard models are especially useful in this regard because they account for the fact that some spells of program participation are not observed to

their ends: they either continue past the analyst's observation window (in this case past January 2005) or are missing information at some point during their duration. The competing-risk framework further accounts for the fact that there are several reasons why a spell might end but that only one of those reasons is actually observed. For example, a spell that ended because of a missed recertification might have soon ended anyway for eligibility reasons.

The discrete-time version of the competing-risk model is easy to apply. Estimation can be carried out with a multinomial logit model in which the different reasons for exit in any month are the outcomes. We model exits for four reasons: 1) missed recertifications, 2) losses of eligibility for income or resource reasons, 3) failures to provide information, and 4) all other reasons. The last category combines voluntary exits and other eligibility losses from our descriptive analyses. This collapsing was necessary because of the relatively small number of exits in each category; however, it may make the results for the combined category hard to interpret.

Another advantage of the discrete-time model is that it is a straightforward way to incorporate controls for duration dependence in spells. Our models include 36 monthly dummy variables that cover the first three years of a spell duration and four semiannual dummy variables that cover the next two years; thus, we essentially adopt a semiparametric specification for the spell duration, which is akin to a Cox proportional hazard model. The models also include quarterly, semiannual, and annual duration indicators corresponding to the likely ends of certification periods.

Besides the duration controls, all of our models also include controls for the fiscal year of the observation to account for unmeasured statewide changes in policies, program formulas, economic conditions, and attitudes. For brevity's sake, we do not report the estimation results for the duration or time-series controls, though the complete results are available upon request. The models were estimated separately for households headed by blacks and whites.

Analyses of all exits. We first report marginal effects and standard errors of the hazard of making any type of food stamp exit. These effects were calculated from the competing-risk model and represent the sum of the marginal effects for each of the four specific types of exit.

The results, which are reported separately for black- and white-headed cases, are listed in Table 4.5. Because they describe exits generally, the marginal effects in Table 4.5 are broadly comparable to results previously reported by Ribar, Edelhoch, and Liu (2006a) and by other researchers. However, unlike most previous specifications, the models include detailed controls for earnings histories.

At the top of the table are marginal effects for benefits, reported earned incomes, and reported unearned incomes. For blacks and whites the marginal effects have the anticipated signs: higher benefits reduce the probability of leaving the Food Stamp Program, and higher incomes increase the probability. For blacks, all three effects are statistically significant, though not especially large. A \$100 increase in monthly benefits is estimated to lower the probability of exit, which is about 5 percent on average, by 0.19 percent. A \$100 increase in earnings raises the probability of exit by 0.05 percent, while a \$100 increase in unearned income raises the probability of exit by 0.09 percent. For whites, the estimated marginal effects are smaller, and only the estimated effect for unearned income is significant.

More surprising are the next two sets of results, which indicate that households that start their food stamp spells without any income have higher exit rates than other households, while households that start either their spells or their subsequent certification periods with some positive earnings have substantially lower exit rates than other households. Though the results seem counterintuitive when viewed from the perspective of household resources, there is a policy basis for the findings. South Carolina instructs its caseworkers to grant short certification periods to transient households and households without any stable means of support. South Carolina also requires nonworking households to report changes in their employment within 10 days, whereas working households only need to make immediate reports if their income changes bring them above the gross income threshold. In addition to these explanations, households with children but without earnings, and especially those without income, are likely to be unstable.

As expected, higher levels of UI-covered earnings in the preceding quarter are associated with faster exits from the Food Stamp Program. Given that the models already control for current earned income, the estimates for previous quarter's UI earnings most likely reflect a recent history of job-holding and attachment to the labor force. Black house-

Table 4.5 Estimated Marginal Effects for the Probability of Exiting the Food Stamp Program for Any Reason, Reported Separately by the Race of the Case Head

	Black		White	
	Coefficient	(Std. error)	Coefficient	(Std. error)
Benefits (/100) ^a	-0.188***	(0.047)	-0.101	(0.070)
Reported earned income (/100)	0.047***	(0.011)	0.030	(0.017)
Reported unearned income (/100)	0.091***	(0.014)	0.066***	(0.021)
No income at start of spell	0.467***	(0.081)	0.852***	(0.130)
Any earnings start of cert. period	-0.690***	(0.082)	-1.072***	(0.137)
UI earnings last quarter (/300)	0.052***	(0.005)	0.063***	(0.008)
Avg. UI earnings last year (/300)	-0.015	(0.013)	-0.081***	(0.017)
C.V. UI earnings last year	0.289***	(0.070)	0.109	(0.100)
Max. UI earnings last year (/300)	0.030***	(0.007)	0.056***	(0.010)
No UI earnings last year	0.227	(0.122)	0.166	(0.167)
Female	-0.900***	(0.152)	-0.317**	(0.144)
Age spline, 18–21 years	0.090	(0.068)	-0.247**	(0.102)
Age spline, 22–40 years	-0.018***	(0.006)	-0.044***	(0.010)
Age spline, 41+ years	-0.047***	(0.009)	-0.089***	(0.018)
Education spline, 0–12 years	-0.044	(0.030)	-0.035	(0.040)
Education spline, 12+ years	0.204***	(0.045)	0.217**	(0.088)
Completed high school or GED	0.317***	(0.080)	0.376***	(0.126)
Completed college	-0.357	(0.247)	-0.548	(0.471)
Currently married	0.411***	(0.099)	0.442***	(0.131)
Formerly married	0.339***	(0.068)	0.549***	(0.116)

Number of children 0–2	−0.473***	(0.067)	−0.602***	(0.107)
Number of children 3–5	−0.512***	(0.067)	−0.657***	(0.105)
Number of children 6–11	−0.475***	(0.056)	−0.481***	(0.089)
Number of children 12–14	−0.446***	(0.067)	−0.524***	(0.110)
Number of children 15–17	−0.531***	(0.072)	−0.367***	(0.122)
Number of adults	0.106	(0.071)	0.169	(0.111)
County unemployment rate	−0.030**	(0.013)	−0.037	(0.026)
County population density	−0.015	(0.021)	−0.002	(0.037)
Border county	0.177***	(0.050)	0.197**	(0.080)
Spell quarter (before 10/02)	2.973***	(0.370)	5.300***	(0.763)
Spell 6 months (after 10/02)	1.432***	(0.324)	1.647***	(0.504)
Spell year (before 10/02)	0.437	(0.573)	1.312	(2.220)
Spell year (after 10/02)	2.190***	(0.758)	3.955	(2.137)
AE x spell quarter (bef. 10/02) ^b	1.357***	(0.186)	2.433***	(0.344)
AE x spell 6 mo. (after 10/02)	5.270***	(0.675)	9.945***	(1.373)
AE x spell year (before 10/02)	0.011	(0.288)	−0.752	(0.528)
AE x spell year (after 10/02)	−0.640**	(0.326)	−0.348	(0.681)
Log likelihood		−56,171.88		−40,012.18
Monthly observations / spells		256,406 / 17,686		142,180 / 12,883

NOTE: The columns report estimated marginal effects (in percentage terms) of the probability of exiting the Food Stamp Program for any reason. The estimates are derived from multinomial logit competing-risk models of food stamp exits for four different reasons. In addition to the listed controls, the model includes controls for fiscal year and spell duration. Estimated standard errors appear in parentheses. ** significant at the 0.05 level (two-tailed test); *** significant at the 0.01 level (two-tailed test).

^aThe designation “/100” means that the number has been divided by 100 to help make the coefficients roughly comparable. Similarly, “/300” means divided by 300. This is done because the figures come from quarterly rather than monthly data. Dividing by 300 makes the quarterly figures comparable to the monthly amounts.

^bAE stands for “any earnings at the start of the certification period.”

SOURCE: Authors’ calculations.

holds with more variable UI earnings also have higher probabilities of exit. As later results for specific reasons of exit will reveal, variable earnings appear to be more indicative of unstable household circumstances generally than of extra compliance costs or frequent income eligibility changes. The maximum level of UI earnings in the previous year is also positively associated with exits, which seems consistent with maximum earnings acting as a proxy for earnings capacity.

The results for the demographic variables fit with findings from previous studies. Being female, being older, having more children, and living in a high unemployment area are all negatively associated with food stamp exits. Completing high school or a GED, completing more postsecondary schooling, and being currently or formerly married are positively associated with exits.

The last eight rows of estimates in the table are from dummy variable controls for likely recertification months and for interactions of those dummy variables with the household's earnings status at the beginning of its certification period. As with Ribar, Edelhoeh, and Liu (2006a), the estimates in the last eight rows indicate that households were substantially more likely to leave the Food Stamp Program in recertification months than in other months, with households that reported incomes being even more likely to leave at the quarterly or semiannual dates than other households.

Analyses of exits for specific reasons. Estimated marginal effects from the same competing-risk models, but this time calculated separately for each of the specific reasons of exit, are reported in Tables 4.6 and 4.7. The estimates in the tables indicate that higher levels of food stamp benefits are associated with a lower probability of missing recertifications. For black-headed households, higher benefits are also significantly negatively associated with failing to provide information; for white-headed households, the association is negative but insignificant. Each of these results is consistent with higher benefits incentivizing efforts to stay on the program. Higher benefits are positively associated with exits for income ineligibility, though neither of the estimates is statistically significant. Higher benefits are also positively associated with other losses in eligibility and voluntary withdrawals among black-headed households.

Higher reported incomes are positively associated with exits for missed recertifications and income ineligibility but negatively associated with exits for information reasons. The first two results are expected, while the results for income ineligibility may reflect difficulties in obtaining documentation for low-paying jobs or reflect misreported earnings amounts being detected. As with the results for earned incomes, reported unearned incomes are positively associated with exits for income ineligibility and negatively associated with exits for information reasons.

Households that report no income at the start of their food stamp spells are at substantially higher risk of losing eligibility for information reasons or exiting through the residual category. The first result is consistent with misreporting, while the second result is consistent with no-income households having unsustainable living circumstances that make it hard for them to remain intact, independent, or living in the same place. For white-headed households, starting a spell without any income is also positively associated with missed recertifications. Results for the any-earnings indicator are even stronger. Black- and white-headed households that begin a spell or certification interval without any earnings are at substantially increased risk of exiting the Food Stamp Program for all four reasons.

The amount of covered earnings in the previous quarter is significantly positively associated with exits for all four reasons. These results are consistent with expectations. Higher maximum-covered earnings in the previous year are also significantly positively associated with missed recertifications and information problems for black-headed households and with missed recertifications, income ineligibility, and information problems for white-headed households. The absence of any covered earnings in the previous year is associated with substantially more exits for voluntary reasons and other types of ineligibility.

The positive association between covered-earnings volatility and food stamp exits appears to be limited to the residual category. Again, this would be consistent with other evidence that households in this group have highly unstable circumstances. Covered-earnings volatility is significantly negatively associated with exits for income ineligibility among white-headed households but essentially uncorrelated with these types of exits for black-headed households.

Table 4.6 Results from Discrete-Time Competing-Risk Hazard Models of Food Stamp Exits for Specific Reasons: Cases Headed by Blacks

	Missed recertification	Income/assets too high	Failed to provide information	Other ineligible/ voluntary exit
Benefits	-0.155***	0.021	-0.129***	0.075***
Reported earned income	0.013***	0.066***	-0.044***	0.012**
Reported unearned income	0.006	0.085***	-0.023***	0.023***
No income at start of spell	0.007	-0.014	0.268***	0.205***
Any earnings, start of cert. period	-0.116***	-0.249***	-0.193***	-0.132***
UI earnings last quarter	0.019***	0.009***	0.017***	0.007**
Avg. UI earnings last year	-0.025***	0.018***	-0.008	0.0005
C.V. UI earnings last year	0.007	0.036	0.042	0.203***
Max. UI earnings last year	0.015***	0.004	0.009**	0.002
No UI earnings last year	-0.078**	-0.067	-0.087	0.458***
Female	-0.244***	-0.120	-0.487***	-0.050
Age spline, 18–21 years	-0.014	0.180***	-0.020	-0.057**
Age spline, 22–40 years	-0.009***	0.006**	-0.016***	0.001
Age spline, 41+ years	-0.016***	-0.003	-0.018***	-0.009**
Education spline, 0–12 years	-0.007	-0.034**	-0.001	-0.003
Education spline, 12+ years	0.066***	0.088***	0.021	0.029
Completed high school or GED	0.071**	0.203***	0.062	-0.020
Completed college	-0.049	-0.133	-0.224	0.048
Currently married	0.039	0.173***	0.073	0.125**
Formerly married	0.057**	0.022	0.104***	0.156***

Number of children 0–2	−0.073***	−0.314***	0.047	−0.134***
Number of children 3–5	−0.057**	−0.337***	0.026	−0.144***
Number of children 6–11	−0.042**	−0.354***	0.042	−0.122***
Number of children 12–14	−0.060**	−0.270***	0.042	−0.159***
Number of children 15–17	−0.027	−0.347***	0.035	−0.192***
Number of adults	0.040	−0.069**	0.211***	−0.076**
County unemployment rate	−0.015***	−0.001	−0.009	−0.005
County population density	0.012	−0.024***	0.025**	−0.027***
Border county	0.043**	0.007	0.088***	0.039
Spell quarter (before 10/02)	2.650***	0.249***	−0.066	0.140
Spell 6 months (after 10/02)	1.053***	0.184	0.033	0.162
Spell year (before 10/02)	−0.042	−0.196	0.627	0.049
Spell year (after 10/02)	1.502***	0.360	0.351	−0.022
AE x spell quarter (bef. 10/02) ^a	0.411***	0.695***	0.187	0.064
AE x spell 6 mo. (after 10/02)	3.206***	1.629***	0.370	0.066
AE x spell year (before 10/02)	−0.317***	−0.156	0.422**	0.061
AE x spell year (after 10/02)	−0.534***	−0.391***	0.275	0.010

NOTE: The columns report estimated marginal effects (in percentage terms) from a multinomial logit competing-risk hazard specification of the probability of the listed type of food stamp exit. In addition to the listed controls, the model includes controls for fiscal year and spell duration. It was estimated with 256,406 monthly observations and had a log likelihood of −56,171.88. ** significant at the 0.05 level (two-tailed test); *** significant at the 0.01 level (two-tailed test).

^a“AE” stands for “any earnings at the start of the certification period.”

SOURCE: Authors’ calculations.

Table 4.7 Results from Discrete-Time Competing-Risk Hazard Models of Food Stamp Exits for Specific Reasons: Cases Headed by Whites

	Missed recertification	Income/assets too high	Failed to provide information	Other ineligible/ voluntary exit
Benefits	-0.123***	0.047	-0.034	0.009
Reported earned income	0.019***	0.071***	-0.047***	-0.013
Reported unearned income	0.003	0.087***	-0.019	-0.005
No income at start of spell	0.078**	0.067	0.438***	0.270***
Any earnings start of cert. period	-0.295***	-0.283***	-0.295***	-0.199***
UI earnings last quarter	0.016***	0.013***	0.022***	0.012***
Avg. UI earnings last year	-0.020***	-0.020***	-0.043***	0.001
C.V. UI earnings last year	0.060	-0.226***	0.013	0.262***
Max. UI earnings last year	0.009***	0.020***	0.027***	0.001
No UI earnings last year	-0.052	-0.310***	-0.168	0.695***
Female	-0.163***	0.031	-0.231**	0.045
Age spline, 18–21 years	-0.084***	-0.014	-0.127**	-0.021
Age spline, 22–40 years	-0.018***	0.008	-0.022***	-0.012**
Age spline, 41+ years	-0.022***	-0.006	-0.043***	-0.018
Education spline, 0–12 years	0.007	-0.031	0.014	-0.025
Education spline, 12+ years	0.041	0.123***	-0.008	0.060
Completed high school or GED	-0.009	0.278***	-0.006	0.113
Completed college	0.090	0.036	-0.609***	-0.065
Currently married	0.159***	0.197***	0.055	0.031
Formerly married	0.175***	-0.001	0.303***	0.073

Number of children 0–2	−0.199***	−0.315***	−0.017	−0.072
Number of children 3–5	−0.073**	−0.395***	−0.052	−0.137**
Number of children 6–11	−0.070**	−0.313***	−0.027	−0.071
Number of children 12–14	−0.010	−0.343***	−0.079	−0.091
Number of children 15–17	0.050	−0.373***	0.040	−0.084
Number of adults	0.034	−0.043	0.156**	0.022
County unemployment rate	−0.025***	0.007	−0.017	−0.002
County population density	0.008	−0.018	0.014	−0.006
Border county	−0.033	0.048	0.109**	0.074
Spell quarter (before 10/02)	4.845***	0.373**	−0.059	0.142
Spell 6 months (after 10/02)	1.422***	−0.113	0.056	0.281
Spell year (before 10/02)	−0.191	−0.358	2.527	−0.665***
Spell year (after 10/02)	2.291**	0.353	1.897	−0.586**
AE x spell quarter (bef. 10/02) ^a	0.817***	0.808***	0.621***	0.187
AE x spell 6 mo. (after 10/02)	6.769***	2.725***	0.258	0.194
AE x spell year (before 10/02)	−0.329***	−0.280	0.003	−0.146
AE x spell year (after 10/02)	−0.687***	−0.424***	0.544	0.220

NOTE: The columns report estimated marginal effects (in percentage terms) from a multinomial logit competing-risk hazard specification of the probability of the listed type of food stamp exit. In addition to the listed controls, the model includes controls for fiscal year and spell duration. It was estimated with 142,180 monthly observations and had a log likelihood of −40,012.18. ** significant at the 0.05 level (two-tailed test); *** significant at the 0.01 level (two-tailed test).

^a“AE” stands for “any earnings at the start of the certification period.”

SOURCE: Authors’ calculations.

Among the demographic results, households headed by females are less likely than households headed by males to exit food stamps for missed recertifications and information problems. Being older is also negatively associated with exits for missed recertifications and information problems. Being currently or formerly married is generally positively associated with different types of exits. The number of children is most strongly associated with exits for income ineligibility and is hardly associated at all with exits for information problems. At the same time, the number of adults in the household is significantly positively associated with exits for information problems, possibly reflecting problems documenting sources of income for multiple adults.

Not surprisingly, the indicators for recertification intervals have their strongest association with exits for missed recertifications. The indicators are also significantly associated with exits for income ineligibility, which is consistent with some high incomes being detected during the recertification process. Fewer large or significant coefficients for the recertification indicators exist for the information and residual exit categories.

Analyses without controls for benefits and reported incomes.

There are three analytical concerns with including month-by-month measures of benefits and reported incomes in the event-history models. The first is that these amounts may be endogenous, even though they are measured roughly one month *prior* to the continuation or exit outcome that we observe. A second, related concern for the two income variables is that they may be systematically and strategically misreported, especially in the middle of certification periods. A third concern is that the benefit and reported income variables may be overcontrolling for economic circumstances and not allowing us to see the gross impact of the earnings history variables. To address these concerns we reestimated all of the event history models, dropping the controls for benefits and reported earned and unearned incomes. The results for the covered-earnings history (including the volatility measure), demographic, and recertification interval variables were not substantially changed by this respecification.

Competing-risk counterfactuals. One especially useful feature of the competing-risks framework is that it can be used to conduct a

counterfactual analysis of what else might have happened to a food stamp household if it had not terminated its participation for the stated reason. In particular, we can apply the estimated coefficients from the model to the observed characteristics of the cases and predict the probabilities of each of the alternative reasons for exit. For example, we can examine cases of households that terminated for lapsed certifications and estimate the probabilities that the clients would have been found to be financially ineligible, would have failed to furnish appropriate information, or would have stopped receiving food stamps for some other reason. Similarly, we can examine the probabilities of different types of exits conditional on other circumstances. Tables 4.8 and 4.9 report distributions of conditional predicted probabilities along these lines.

The first five rows of each table report conditional predicted probabilities of households letting their certifications lapse separately for actual households that either continued their spells, let their certifications lapse, were found to be financially ineligible, failed to provide appropriate information, or left for some other reason. The second five rows report similar conditional predicted probabilities of exiting for financial eligibility reasons, the third five rows report conditional probabilities of failing to provide appropriate information, and the last five rows report conditional probabilities of leaving for other reasons.

On average, households that left the Food Stamp Program for one reason were at increased risk of leaving for *each* of the other reasons. For example, households that let their certifications lapse faced a risk of being found to be ineligible that was nearly as high as the risk for the households that were actually found to be ineligible. Households that let their certifications lapse also faced a hazard of failing to provide appropriate information that was nearly as high as that for households that actually left for this reason.

Similarly, households that exited for financial eligibility reasons simultaneously faced substantially elevated risks of missing their recertifications and slightly elevated risks of failing to provide appropriate information or leaving for other reasons.

While the risks of all types of exits were relatively higher in the months that the households actually exited, the models predict that there also are still large probabilities of remaining in the program. For instance, among black households that let their certifications lapse, the average predicted hazard of leaving for recertification reasons is only

Table 4.8 Predicted Hazard Probabilities of Specific FS Exits Conditioned on Observed Spell Transitions for Cases Headed by Blacks (%)

	Mean	Percentile				
		10th	25th	50th	75th	90th
Prob(miss recertification)						
Continued spell	2.20	0.11	0.25	0.54	1.42	7.27
Missed recertification	11.72	1.06	4.98	10.79	17.26	23.41
Income/assets too high	6.87	0.21	0.57	1.71	12.14	20.29
Failed to provide info.	4.65	0.18	0.38	0.96	6.63	15.14
Other inelig./vol. exit	3.14	0.17	0.34	0.76	2.83	10.37
Prob(income/assets too high)						
Continued spell	1.05	0.15	0.28	0.57	1.20	2.37
Missed recertification	3.04	0.45	0.91	1.99	3.94	6.66
Income/assets too high	3.66	0.52	1.00	2.18	4.70	8.45
Failed to provide info.	1.49	0.20	0.36	0.76	1.69	3.42
Other inelig./vol. exit	1.29	0.18	0.32	0.64	1.37	2.95
Prob(fail to provide info.)						
Continued spell	0.78	0.23	0.36	0.60	0.95	1.47
Missed recertification	1.45	0.44	0.62	0.91	1.58	3.45
Income/assets too high	1.03	0.33	0.51	0.79	1.16	1.93
Failed to provide info.	1.47	0.43	0.67	1.06	1.72	3.12
Other inelig./vol. exit	1.04	0.32	0.52	0.82	1.27	1.91
Prob(other/voluntary exit)						
Continued spell	0.53	0.16	0.26	0.43	0.70	1.05
Missed recertification	0.63	0.25	0.37	0.53	0.79	1.12
Income/assets too high	0.57	0.20	0.32	0.48	0.72	1.02
Failed to provide info.	0.67	0.24	0.37	0.57	0.86	1.22
Other inelig./vol. exit	0.84	0.28	0.44	0.70	1.09	1.58

NOTE: The table reports means and percentile values of predicted probabilities that are computed using estimated coefficients from the discrete-time competing-risk models presented in Table 4.5, applied to observed characteristics from the study's sample of South Carolina food stamp administrative records. The probabilities are computed conditional on the observed type of transition: either a continuation of a spell or an exit for the listed reason.

SOURCE: Authors' calculations.

Table 4.9 Predicted Hazard Probabilities of Specific FS Exits Conditioned on Observed Spell Transitions for Cases Headed by Whites (%)

	Mean	Percentile				
		10th	25th	50th	75th	90th
Prob(miss recertification)						
Continued spell	2.92	0.10	0.33	0.62	1.32	10.62
Missed recertification	17.47	1.26	9.44	17.06	25.32	32.20
Income/assets too high	8.69	0.21	0.52	1.23	16.85	26.99
Failed to provide info.	5.64	0.19	0.43	0.88	8.30	20.18
Other inelig./vol. exit	3.87	0.25	0.43	0.78	2.28	14.56
Prob(income/assets too high)						
Continued spell	1.11	0.21	0.38	0.70	1.33	2.40
Missed recertification	2.87	0.57	1.04	2.06	3.83	6.34
Income/assets too high	2.95	0.58	0.98	1.89	3.94	6.91
Failed to provide info.	1.34	0.29	0.46	0.83	1.53	2.91
Other inelig./vol. exit	1.23	0.27	0.45	0.77	1.34	2.43
Prob(fail to provide info.)						
Continued spell	1.22	0.33	0.58	0.98	1.56	2.36
Missed recertification	1.94	0.60	0.90	1.41	2.38	4.09
Income/assets too high	1.40	0.45	0.70	1.09	1.69	2.63
Failed to provide info.	2.07	0.70	1.09	1.69	2.58	3.79
Other inelig./vol. exit	1.58	0.56	0.89	1.35	1.98	2.77
Prob(other/voluntary exit)						
Continued spell	0.96	0.23	0.44	0.81	1.32	1.90
Missed recertification	1.03	0.31	0.56	0.88	1.34	1.92
Income/assets too high	0.97	0.28	0.51	0.84	1.28	1.79
Failed to provide info.	1.22	0.34	0.63	1.05	1.65	2.34
Other inelig./vol. exit	1.45	0.52	0.86	1.33	1.90	2.59

NOTE: The table reports means and percentile values of predicted probabilities that are computed using estimated coefficients from the discrete-time competing-risk models presented in Table 4.6, applied to observed characteristics from the study's sample of South Carolina food stamp administrative records. The probabilities are computed conditional on the observed type of transition: either a continuation of a spell or an exit for the listed reason.

SOURCE: Authors' calculations.

11.7 percent, the average predicted hazard of leaving for any other reason is 5.1 percent, and the average predicted probability of continuing is 83.2 percent. Among white households that let their certifications lapse, the corresponding estimates are 17.5, 5.8, and 76.3 percent.

CONCLUSION

In this chapter, we have used electronic case records from South Carolina and event-history methods to examine the characteristics of households with children that are associated with faster exits from the Food Stamp Program. Our investigation is distinctive because it not only examines general exit behavior but also measures and analyzes specific programmatic reasons for exit, including exits for missed recertifications, income ineligibility, failure to provide sufficient or reliable information, other types of ineligibility, and voluntary reasons. As such, the chapter adds to a growing body of research that carefully considers the impact of administrative features of assistance programs. Our analysis also includes controls for earnings histories, allowing us to examine how earnings volatility interacts with these administrative features.

A principal finding from the chapter is that households with children in South Carolina are far more likely to leave the Food Stamp Program for administrative reasons of failing to submit their recertification paperwork and failing to provide sufficient or reliable information than for other eligibility reasons, including income eligibility. Half of the food stamp case terminations that we examined, involving nearly identical percentages for blacks and whites, occurred because households had let their certification periods lapse. A further one-sixth of terminations, again with nearly identical percentages for blacks and whites, occurred when the households failed to provide information, failed to attend required interviews, or could not document their economic circumstances.

In contrast to the two-thirds of the exits that occurred for these paperwork reasons, only about one-fifth of exits occurred because households were formally determined to be ineligible on the basis of income or resources. A further 9 percent of exits occurred through some other

loss of eligibility, usually related to the household moving or the client being a nonresident, and about 3 percent of exits occurred voluntarily.

There are several potential explanations for why food stamp recipients might let their eligibilities lapse or run into paperwork problems, each with different implications for the well-being of exiting households. On the one hand, households with increases in income or resources may realize that they are soon likely to be found ineligible and may therefore lose the incentive to complete paperwork. On the other hand, the documentation requirements for continued participation may be unduly burdensome in some circumstances, leading to a number of otherwise eligible households being dropped from the program. The documentation may be especially hard to provide when there is low-wage employment, when there are many members of the household or changes in household composition, or when the members frequently change jobs.

We find evidence for both types of explanations. In the descriptive analyses, the households that fail to recertify have better economic circumstances on average—higher and more stable incomes—than households that voluntarily withdraw or lose their eligibility for nonfinancial reasons, and they have only slightly worse economic circumstances than households that are determined to be financially ineligible. Results from the multivariate analysis further indicate that households that let their certifications lapse were facing relatively higher risks of leaving for financial eligibility and other reasons. At the same time, the descriptive analyses indicated that substantial proportions of the households that missed their recertifications were lacking financial resources just before they exited. Also, households that failed to recertify were receiving an average of \$224 to \$255 in monthly benefits at the time of their exits, and predictions from the multivariate models revealed that there were high probabilities that they might have continued to receive benefits.

Compared with households that miss their recertifications or lose eligibility for financial reasons, the households that run into information and documentation problems appear to be especially disadvantaged, suggesting that their unstable circumstances may be interfering with their ability to get needed assistance.

There is evidence that households respond to the incentives associated with higher food stamp benefits. Households with higher benefits

are significantly less likely than other households to let their certifications lapse. Among black-headed households, higher benefits are also significantly negatively associated with information failures.

One feature of South Carolina's food stamp policy is that it requires households with earnings to recertify their eligibility more frequently than households with fixed incomes. As one would expect, the length of the certification period is strongly associated with food stamp exits. Besides the purely mechanical issue of whether there is a recertification to miss, our multivariate analyses also indicate that recertifications lead to determinations of income ineligibility. The multivariate analyses confirm that households with earnings are more likely to leave for missed recertifications and for income ineligibility at shorter intervals than other households.

More variable earnings histories are also associated with food stamp exits, but in different ways for different types of exits. Among white-headed households, more variable earnings are significantly negatively related to exits for income ineligibility but positively related to exits in our "other" category. Among black-headed households, more volatile earnings are also significantly positively related to exits in our residual category.

State policymakers face an unenviable (and as our research has shown consequential) trade-off in setting their food stamp recertification policies. Shorter intervals improve program integrity; however, they also raise compliance costs and reduce participation among at least some otherwise eligible households. Simpler recertification forms that only request information about changes in relevant circumstances might help to reduce the paperwork burden for families. State policymakers might also consider better coordination across public assistance programs and possibly even with the state tax departments.

Notes

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1. In terms of federally defined resource limits, households may have \$2,000 in countable resources, such as a bank account, and may have \$3,000 if at least one person is aged 60 or older, or is disabled. Certain resources are not counted, such as a home and in some cases a vehicle. However, in April 2001, South Carolina opted to expand "categorical eligibility" under federal regulatory authority, which allows states to exclude consideration of assets if income is at or below 180 percent of federal poverty guidelines and the household is receiving services from the state's TANF program.
2. If the application is expedited for an emergency situation, the application must be dated within four days and benefits must be accessible by the seventh day.
3. Procedures for households consisting entirely of elderly or disabled clients living on fixed incomes are different. These households are certified for two years but receive an interim contact annually.
4. In 1985, legislation was passed establishing the Food Stamp Employment and Training (E&T) program, designed to assist able-bodied recipients in gaining employment skills. Only about 10 percent of food stamp recipients were subject to these requirements. South Carolina obtained a statewide waiver to exempt able bodied adults without dependents from time limit provisions in March 2004. This made voluntary participation in the E&T program practical for food stamp recipients. Although the program is no longer mandatory, more than 3,000 clients in South Carolina elected to participate in E&T activities in 2005.
5. Some studies of welfare participation (e.g., Harris 1993) have distinguished among losses of eligibility for different reasons, and Moffitt (2003) has recently examined nonfinancial reasons for welfare exits.
6. Food stamp households in South Carolina that miss their recertifications and have their cases closed have one month to submit their paperwork and have it treated as a recertification. After a month, any paperwork is treated as a new application.
7. Some of the differences in covered earnings at the time of exit are undoubtedly the result of clients in the residual cases moving out of state and in a few cases dying. However, evidence of disadvantage precedes the exits and is seen in other indicators such as low levels of education and marriage.

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